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CONTENTS

IMPORTANT INFORMATION :	2
WELCOME FROM THE PROJECT LEADER	3
INTRODUCING A NEW LEADER	4
UNVEILING VICTORIA'S NATURAL ASSETS	4
GREENING AUSTRALIA AND ECOSYSTEM SERVICES PROJECT STRENGTHEN TIES	5
MARKETS FOR ECOSYSTEM SERVICES GETS UNDERWAY	6
DIRT, DOLLARS AND DECLINE FOCUS OF GESP	6
RAINFOREST INSECTS - FRIENDS OR FOE?	7
PEOPLE PROFILE	8
ECOSYSTEM EXCERPTS	8

IMPORTANT INFORMATION :

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WELCOME FROM THE PROJECT LEADER



New developments

At long last, we now have two more means to both give and receive information from our stakeholders and interested parties - the updated website and this electronic newsletter.

Like an ecosystem, our website is a series of dynamic processes. It will be updated with information about the project as it unfolds. In order to keep on top of these processes, we encourage you to supply us with interesting links, other projects and any relevant information. You can do this via our feedback page <http://www.ecosystemsproject.org/html/feedback.html>. We hope you find the new web site useful, user friendly and interesting and we encourage you to keep coming back for more.

Similarly, this newsletter, which will be sent out electronically quarterly, provides a quick snapshot of the latest information about ecosystem services across Australia. We also encourage you to provide us with any information that you may have about interesting people, places or events.

The Ecosystem Services Project is steadily building a series of publications and information (all of which can be accessed and downloaded via the publication section of the web site). The latest compendium of information about ecosystem services in Australia and around the world is found in Land and Water Australia's newsletter *RipRap*. The latest edition is focussed entirely on ecosystem services and can be ordered or downloaded by browsing to <http://www.rivers.gov.au/riprap/riprap21.htm>.

On April 26-28, scientists from around Australia and New Zealand, all working on different aspects of ecosystem service work, gathered to share methodologies, findings and future research directions at Bunyah Mountains in Queensland. There was a lot of excitement about how the concept of ecosystem services is helping scientists engage in meaningful partnerships and dialogue with members of diverse communities. Details of many of these projects can be found in the Rip Rap volume. There was particular interest in getting the rules (institutions) by which society deals with ecosystem services right, and especially how we might develop market based mechanisms to help maintain these services. Dave Shelton reported on International Developments after returning from a meeting in London. A more detailed synopsis of the workshop will be posted on the web in the upcoming weeks.

Some goodbyes

It is with a great deal of sadness that I report that Rachel Parry, our intrepid Communication Manager for the past year, has left us to return to her native Canada. Never one to turn down a challenge, Rachel decided to have a second baby, move house and move country all in one month. Rachel left reluctantly as, like all of us, she had become devoted to the project and what she could see it achieving. But a job offer for her husband Geoff and the chance to live in the same city as her parents was too much to turn down. We owe much of the exposure of the project in the media, the look and feel (design) of our products and presentations, the new web site and this newsletter to Rachel. She also contributed immensely to the good will and enthusiasm both within the project team and with our stakeholders and clients. Rachel is hoping to maintain some links with the Project and to write pieces for us from time to time. We will miss you Rachel.

Finally, after two and a half years I am standing down as leader of the Ecosystem Services Project. It has been a privilege to lead the talented group of people who are the project team and to interact with all of you wonderful stakeholders and friends. I leave very reluctantly to take up some other duties. Nick Abel, who has a background in economics, ecology and rural development planning is taking the lead. Nick has been with

the project from the start in spirit and for around a year in body. Like me, he is dedicated to delivering useful outcomes to communities and will take the project onwards and upwards. I want to thank you all for your support of me and the project and for the many friendships we have enjoyed. I will remain involved in Ecosystem Services, developing ideas and research on ecosystem services and talking about them publicly.

Cheers,
Steve Cork

INTRODUCING A NEW LEADER

I first learned about ecosystem services by working with African farming communities. Their lives are part of the ecosystem they live in. It supplies them with firewood, fibre, building materials, fodder, bush-food, medicines, art materials and nutrients for their crops. Australians have lessened their dependence on some of these services by using industrial inputs, but ultimately we depend on our ecosystems too. Australians face many of the same dilemmas as African farmers, about using fertilisers and herbicides that pollute streams, for example, or clearing native vegetation to grow the crops that families need, but losing important services by so doing. Choices can be stark for Australian communities too, and the most important lessons I learned from my African experiences are to understand the reasons why people in any country farm as they do, to respect their deep knowledge, and combine it with my science.



I have been in Australia twelve years now, the last seven with CSIRO. I have inherited from Steve Cork a project that has the backing of its stakeholders, good processes for interacting with them, and an excellent communication program. The project and its stakeholders have mapped out a research program and begun it. I will build on what Steve, the project team and our stakeholders have started, and we will complete this phase of the project by the end of the year. I have also inherited a large network of Australian and international ecosystem services researchers. I look forward to the research we will do and discuss together.

My thanks to Steve for all that he has done in putting this innovative project together. I look forward to working with Steve, for although he has other duties he has agreed to continue to work in association with the project developing the approach, publishing and communicating to policy makers and the public.

Nick Abel
Incoming Project Leader

UNVEILING VICTORIA'S NATURAL ASSETS

Goulburn Broken Catchment's natural assets and the services provided by its ecosystems are in decline and threaten the region's buoyant economy, according to Natural Assets: An Inventory of Ecosystem Goods and Services in the Goulburn Broken Catchment which was launched by Victoria's Governor, John Landy AC, MBE in Shepparton, Victoria.

The report highlights threats to the Catchment's key economic drivers - agriculture, horticulture and tourism. It also identifies important ecosystem services – nature's free services like pollination, water filtration and nutrient recycling – and the opportunities to sustain these natural benefits.



Governor Landy

The report is the foundation for continuing work in the region, particularly in the areas of biophysical modelling and future scenarios work. The ecosystem services framework is the first step in an analysis of ecosystem services and is essential for identifying and prioritising the relative importance of the services and goods produced by ecosystems. The next step in the process uses a scenario approach to look at the highly ranked issues and services in more detail. Under future scenarios, the changes in delivery of the "highly ranked" ecosystem services are assessed using both economic and other indicators of value.

This then makes it very clear what scientific analysis is needed and makes the job of modelling easier and more achievable. We can use models to explore what might happen, and to identify where critical knowledge gaps exist and where investment in research would likely pay off. It is important that the scientific analyses are done with consideration of the economic and social systems that the ecosystems interact with.

The Natural Assets report is available in PDF from the Publications section of the website at <http://www.ecosystemsproject.org/html/publications/docs/nair/homepage.pdf>

View the media release at <http://www.csiro.au/index.asp?type=mediaRelease&id=Precoss>

GREENING AUSTRALIA AND ECOSYSTEM SERVICES PROJECT STRENGTHEN TIES

The new head of Greening Australia, Carl Binning, will bring a unique blend of environmental management, economics and farming experience to the organisation – and an intimate understanding of ecosystem services.

Carl was Principal Research Economist with CSIRO Sustainable Ecosystems and was a key figure within the Ecosystem Services Project. Since joining CSIRO Sustainable Ecosystems in 1996, he has been a leader in the development of natural resource and vegetation management solutions at national, state, regional and local scales. He was instrumental in achieving tax concessions for the conservation of native vegetation on private land, and in the development of markets for ecosystem services provided by trees.

Mr Binning said he was attracted to join Greening Australia because it is focused on getting the job done by being an active and dynamic 'partnership builder'. "Greening Australia will enable me to continue the work that I was doing at CSIRO" Mr. Binning stated. "Developing markets for ecosystem services, and particularly the services provided by trees, will connect urban and rural populations and deliver on the ground solutions to environmental degradation issues" he added.

Mr Binning emphasised that the environment needs consistent and sustained effort from all sectors - community, industry, business, government and research organisations. "Only by working together we can move protection of the environment from rhetoric to a practical reality and ensure that we achieve a healthy, diverse and productive Australian landscape"

Find out more about Greening Australia at <http://www.greeningaustralia.org.au/>

MARKETS FOR ECOSYSTEM SERVICES GETS UNDERWAY

Markets for Ecosystem Services is a major research area within the overall project. This portion of the project will build the capacity of regional communities in Australia to set up markets for ecosystem services, including biodiversity, carbon, salinity control and water quality. Markets for Ecosystem Services is supported by the Rural Industries Research and Development Organisation, Land and Water Australia, The Goulburn Broken Catchment Management Authority, the NSW Department of Land and Water Conservation, The Blackwood Basin Group and the Western Australian Consortium.

While initially led by Carl Binning (see previous article), the markets work will now be led by Stuart Whitten. Stuart has been estimating the private and social values of wetlands as a basis for better conservation. He has also reviewed lessons from US and UK incentives and institutions for nature conservation on private land, and analysed the economics of urban water. Stuart combines excellence in economics with experience in working with stakeholders, and we look forward some exciting research that leads to better care of our natural assets.

The Markets project is featured at <http://www.ecosystemservicesproject.org/html/markets/index.htm>

DIRT, DOLLARS AND DECLINE FOCUS OF GESP

The maintenance of soil health, the decline of ecosystem services and where to spend taxpayer dollars on research were key outcomes of the Gwydir Ecosystem Services Project community workshop. A range of representatives from the Gwydir catchment community participated in the workshop which marked the beginning of the Gwydir Ecosystem Services Project (GESP) and provided important information for its future direction.

The forum was used to introduce the concept of ecosystem services and engage stakeholders and community members in the research project. Key points of understanding emerged from the workshop one of which was that ecosystem services can be found operating everywhere – from parks to pastures to paddocks.

Almost 50 participants went through a process of ranking ecosystem services in relation to its importance in sustaining a land use. Maintenance of soil health was consistently ranked the highest with maintenance and regeneration of habitat, maintenance of healthy waterways, life fulfillment and maintenance of river flows and groundwater levels following.

Participants were then asked about the vulnerability of the highly ranked ecosystem services. The array of threats combined with the technological and economic feasibility of managing these threats led to the conclusion that most important ecosystem services in the Gwydir catchment were considered to be highly vulnerable.

The workshop attendees also highlighted the social barriers to managing threats to ecosystem services including lack of awareness, willingness, motivation and incentives for resource users to change their management practices.

When asked to spend a \$100 of taxpayer money to investigate ecosystem services, soil health and habitat attracted the most funding. However, not just "science" attracted the dollars. Social research on ways to mitigate declining quality life in rural areas was a magnet for money as well.



One of the beneficial insects commonly known as the "red and blue beetle" or "football beetle". It is a predator of insect pests to cotton.

Photo by David Britton.

The Gwydir Region, which is the focus of the GESP, is in Northern NSW and is located west of the Great Dividing Range. The 26,550km catchment is nested within the Murry Darling Basin with a total population of 80,000. Three distinct biological and economic zones comprise the catchment - tablelands, slopes and plains.

The GESP is a collaborative effort between the University of New England, The Centre for Agricultural and Regional Economics, DLWC's center for Natural Resources, the Cotton Cooperative Research Centre and CSIRO's Sustainable Ecosystems.

View the full media release at <http://cotton.pi.csiro.au/Publicat/Articles/MR010305.htm>

Information and contacts: http://www.ecosystemsproject.org/html/case_studies/gwydir.html

RAINFOREST INSECTS - FRIENDS OR FOE?

The aesthetic appeal and resulting tourism benefits are some very obvious advantages of the rainforests of Far North Queensland. Rainforests deliver many other services to humans such as regulating water flow, storing carbon, supplying new pharmaceutical chemicals, housing insects which contribute to pollination, and acting as refuges for fauna. Alternatively, forests can also have negative impacts, or deliver "dis-services" to humans. One such example is insect pests. Some insect species that originate in the Australian rainforest, or use the rainforest for a part of their life cycle, cause economically important damage to nearby crops.



Sigastus showing marks on a macadamia nut

CSIRO Entomology is undertaking a study to examine the role of insects – both in terms of the advantages and disadvantages they provide to north Queensland crops. The economic significance of the services and dis-services provided to agriculture by rainforest insects will be examined by looking at pollination, herbivory and biological control of pest arthropods by insects in production systems adjacent to the rainforest. Specifically the project aims to:

- Predict the proportion of pollination in a range of agricultural systems that is provided by insects reliant on rainforest.
- Quantify the level of herbivory and subsequent production losses caused by various rainforest insects in a number of important agricultural crops adjacent to rainforest.
- Determine the source and abundance of potential natural enemies (parasitic and predatory insects) of major pest arthropods of a number of important agricultural crops.
- Estimate the economic value of pollination, crop damage by pests and biological control of pests as services/dis-services provided by rainforest insects so that these relationships and values can be incorporated into economic models.

This assessment will incorporate published information, consultation with other researchers and growers, and field surveys of pollinators, pests and control insects in a wide range of crops

The research in this area will allow the contributions of rainforest insects to be better incorporated into decision-making on natural resource use. CSIRO is working with land managers that receive faunal services from rainforest e.g. growers and grower organisations, Department of Primary Industry and landcare groups, along with land managers that provide faunal services from rainforest eg. The Wet Tropics Management Authority, Department of Environment and Heritage etc.

Information and contacts: http://www.ecosystemsproject.org/html/case_studies/Atherton4.html

PEOPLE PROFILE

Name: Ros Blanche

Position: Post-doc fellow with CSIRO Entomology - funded by Myer Foundation Ecosystem Services and CRC for Tropical Rainforests (<http://www.rainforest-crc.jcu.edu.au/>)

Background: I first obtained a BSc from the University of Sydney, and worked as a hospital microbiologist/chemist. I then went on to raise three children and completed a second degree (BA Hons) from the University of New England undertaking a thesis on seaweed flies. I completed my PhD at the University of Macquarie on gall-forming insects, and have since worked on impacts of fire/grazing/rainfall gradients on beetles and grasshoppers and on leafhopper vectors of phytoplasma diseases in grasses including sugarcane.



Current research activities: Researching services and dis-services of rainforest insects to crops of the Atherton Tablelands, Qld and nearby coastal areas. Assessing negative impacts of pest species that damage crop fruits, foliage or flowers but are reliant on rainforest for at least part of their life cycle and positive impacts of rainforest insects that prey on pests or pollinate flowers. Some of the crops to be included in the field studies will be macadamia, avocado, citrus, lychee, longan, papaya, banana, tea, coffee, custard apple, papaya, peanut and rare fruits (like durian and rambutan).

What is your favourite insect?: Too many neat insects! Some I like are: parasitoid wasps - an amazing variety of shape, colour and detail in usually tiny animals; weevils - the 'clowns' of the insect world - many 'play dead' when touched; jewel beetles - have beautiful vibrant colours that really DO compare with jewels.

What do you like best about your job/work?: Continually being surprised by the diversity of living things and the variety of strategies they use to 'make a living'.

ECOSYSTEM EXCERPTS

- Over 100,000 different animal species including bats, birds, bees, flies, moths, beetles and butterflies provide free pollination services.
- 1/3 of all human food comes from plants pollinated by wild pollinators
- Wetlands can remove 20-60% of heavy metals in water, trap 80-90% of sediment from runoff and eliminate 70-90% of entering nitrogen. *(Source: ESA America)*

Ecosystem Services Project featured in RipRap <http://www.rivers.gov.au/riprap/riprap21.htm>

Ecosystem Services symposium at Ecology 2002 <http://www.tesag.jcu.edu.au/ecology2002/details.html#17>

The report on "Sustaining our natural systems and biodiversity" to Prime Minister's Science, Engineering and Innovation Council is now available at: <http://www.dest.gov.au/science/pmseic/meetings/8thmeeting.htm>

Ecosystem Services Project hosted two intern students from AGRO Montpellier ENSA (Ecole Nationale Supérieure Agronomique) France <http://www.agro-montpellier.fr/>. Their objective was to look at links between the maintenance of soil health and prevention of erosion and the biophysical processes underpinning them by applying Landscape Function Analysis (LFA), along with an analysis of the biota on a range of land-uses characterised by different levels of condition (quality).

- More on LFA at http://www.cse.csiro.au/research/Program2/LEP_EFA.htm