

Upper Hunter

RIVER REHABILITATION INITIATIVE

UHRRI Update

No. 2, May 2005

From the Project Manager

Since the last update in February, plenty has been happening with the UHRRI project. Dan and I have been doing something of a balancing act: On the one hand we've been working to meet current field and reporting commitments; at the same time we've been working to secure resources for future operations and research on the UHRRI study reach. Revegetation-related activities have received considerable attention over the past few months, with the establishment of Garreth Kyle's revegetation experiment, monitoring of recent plantings, and applications for funding for future plantings and revegetation research. More about these activities below. We've been pleased to observe good numbers of our trees quietly coming away along the river; many of these are starting to overtop the 'weeds' and should become increasingly visible over the next couple of seasons. Now that these trees are established, we think their chances of survival are good – it's now mainly a matter of patience ...

Mark Sanders

Project Manager, Upper Hunter River Rehabilitation Initiative

Revegetation research

In mid-May 2005, as part of an experiment being undertaken by PhD student, Garreth Kyle, 720 *Eucalyptus camaldulensis* (river red-gum) were planted at four sites on the UHRRI reach.



Research Officer, Dan Keating planting river red gums in an experimental plot at 'White's Creek'.

Exotic plants form the dominant vegetative cover along the river. Garreth's research aims to investigate the effects of some of the more common exotics on the survival and growth rates of native tubestock. Three plots, each containing 12 tubestock were planted within each of fennel, Johnson grass, couch, willows and slashed Johnson grass, at

four sites, making a total of 60 plots or 720 plants. A number of attributes such as height, number of leaves, and photosynthetic capacity were measured for each tree prior to planting, whilst environmental variables including temperature, soil moisture, humidity, sub-canopy light infiltration and wind-speed were recorded at each plot. Plant growth and survival, and environmental conditions within the plots, will be closely monitored over the next year.

Revegetation monitoring

Survival, growth rate, and amount of hare browse has been monitored for a sample of the plantings undertaken by UHRRI since August 2004. A representative sample of plants at each site has been tagged and their location recorded with a hand-held GPS. This allows us to revisit individual plants and begin to build a picture of what



Monitoring survival and growth of recent plantings.

influences planting success. Initial results from this work, plus field observations, led us to develop the hypotheses that Garreth is investigating in more detail. Although it is early days yet, preliminary results indicate that type of weed cover, browsing by hares, and drought interact to strongly influence plant survival and growth rates.

ARC-Linkage Research

The four other Ph.D. students working on the UHRRI study reach are now well into the data collection phase of their work. Sarah Mika has been sampling wells to investigate

surface-ground water interactions around experimental wood structures in her study sites. Jo Hoyle has been analysing and writing up modelling work on how different flood levels influence potential sediment transport in the study reach. Tim Howell has been monitoring numbers of various fish species around experimental wood structures on the study reach and other study sites. Ben Wolfenden has been continuing to measure activity of biofilm on river substrates and analyse his results. He is about to embark on field experiments to investigate leaf breakdown – one of the key processes in aquatic ecosystems.

Upper Hunter fish swim marathon

Since late 2004, Tim Howell has tagged and released over 660 fish caught along the UHRRI reach. Three of Tim's sea mullet have been caught at various locations on the NSW North Coast. One made it as far as Ballina, having swum at least 700 kilometres to get there!



Sea Mullet.

Funding applications - revegetation

We have recently submitted two Expressions of Interest for funding related to revegetation: one to the Hunter-Central Rivers CMA for funding to undertake further revegetation along the UHRRI study reach, and one to the Environmental Trust to undertake research to test and develop more cost-effective revegetation techniques. Together, these would allow us to move ahead with revegetation over the next several years. Large numbers of projects compete for these fairly small funding pools. However, we think UHRRI's combined research and rehabilitation approach is a good one, and gives us as good a chance as any of making it through the first selection round, and being asked to submit detailed project proposals.

School visits

In May, 50 Year-10 students from St Josephs College, Aberdeen visited the UHRRI site at Key's Bridge as part of an excursion coordinated by Bengalla Mining Company. The group participated in a discussion centred on historical environmental changes to the Hunter River and were introduced to some of the methods of rehabilitation that are being undertaken by the UHRRI.

As part of the *Upper Hunter Enviro Youth Forum* in April, hosted by Muswellbrook Shire council, Mark Sanders and Jo Hoyle ran two workshops for Year 7–9 students on aerial photographic interpretation and mapping. The students seemed most impressed by looking through a stereoscope and seeing pairs of aerial photos jump into 3-D relief!

Upper Hunter Expo.

The annual Upper Hunter Expo was held at the Muswellbrook showgrounds in March. Once again, UHRRI presented a display. Given the amount of activity on the UHRRI over the past year, we decided it was timely to update our display, and present recent images of research and rehabilitation activities along the river.

Green Corps

Green Corps IV graduated at Bowman Park, Muswellbrook on Friday 6th May. The Hon. Senator Sandy Macdonald presented each of the team members with a certificate II in Conservation and Land Management. During spring and summer of 2004/2005, the Green Corps team prepared, planted and maintained several hundred longstem tubestock at a site near Key's Bridge. The challenges of planting through these warmer months were addressed by planting in sheltered areas as far as possible, and by ongoing watering.

Green Corps is a federally funded youth initiative coordinated by Greening Australia and Job Futures whereby small groups of 17-20 year-olds gain employment and accredited training from working on environmental projects for a six month period. The time spent working on the UHRRI project was only one of a variety of tasks that the Green Corps participated in during their 6 month traineeship. The team also trialed an invertebrate monitoring program developed by the Australian Museum, contributed to a range of Landcare projects in the Upper Hunter and completed an environmentally-themed mural at Bowman Park.

Integrative River Science Workshop

In March, scientists converged on Muswellbrook from across Australia and around the world for an International Geographical Union 4-day workshop on Integrative River Science. UHRRI was the topic of a special session of the workshop, and delegates visited the UHRRI field site, as well as various sites in the Hunter River catchment.



IGU delegates discuss the UHRRI project at Keys Bridge.

Banksia Awards

Each year, the Banksia Foundation recognises outstanding and innovative environmental initiatives in Australia with its prestigious Environmental Awards. This year UHRRI, in collaboration with Bengalla Mining Co., Mt Arthur Coal, and Macquarie Generation, entered the *Prime Ministers Award* and the *Environmental Leadership in Protecting Bush, Land & Waterways* category. Whilst we did not win, we did make the short-list of seven finalists in the latter category. Congratulations and thanks to the people who contributed to the UHRRI entry, and of course to the UHRRI project as a whole. For more information on the Banksia Awards, visit www.banksiafdn.com.

Media Coverage

UHRRI continues to attract good media coverage; the Integrative River Workshop was covered by the Muswellbrook Chronicle, and four ABC radio interviews. Recent newspaper stories have covered the Green Corps graduation, UHRRI contribution to the recent 'Catchment Crawl' hosted by the CMA, and the Banksia Award entry. We are about to achieve high profile coverage on ABC National; In May, science broadcaster, Robyn Williams, interviewed Mark Sanders and Andrew Boulton (University of New England) for ABC National's *Science Show*. The interview goes to air on Saturday 11 June 12:10, and Monday 13th, 7:10pm.



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