

# Upper Hunter

## RIVER REHABILITATION INITIATIVE

### UHRRI Update

No. 5, June 2006

#### ***From the Project Manager***

The past few months has seen real progress in our revegetation efforts, with the completion of two small, but significant planting projects. However, planting the trees is the easy part – getting them to survive and grow remains the real challenge in the dry conditions of Upper Hunter. Our recent plantings have been undertaken on sites where the landholders are committed to do follow up watering, subject, of course, to water availability. As well as the revegetation, the science component of UHRRI progresses well, with most of the ARC-Linkage research entering its final stages now - this is seeing some intense data analysis and writing up by postgraduate students.

Mark Sanders

*Project Manager, Upper Hunter River Rehabilitation Initiative*

#### ***Schools help with Yellow Box rehabilitation***

In the last newsletter, we reported that we hoped to protect a remnant stand of Yellow Box on the floodplain near the Hunter River. We're pleased to report the site was secured and prepared for revegetation, and has now been planted out. In May, JV Agriculture repaired fences and moved a water trough, to exclude stock from this site, and Bengalla Mine controlled noxious weeds at the site.

On 8 June, UHRRI and Bengalla Mine staff joined forces with 55 students from Muswellbrook Public School to plant and water 1200 trees at the site. Bengalla is also working to



**Blake Brands and Matt Mckay of Muswellbrook Public School planting trees near the Hunter River.**

plant a further 300 trees and install tree guards, and is committed to ongoing watering of the new trees. This project was also supported by the Hunter-Central Rivers

Catchment Management Authority, who provided half of the trees and guards. With ongoing care, the new trees have an excellent chance of surviving to form new floodplain forest, and the existing large Yellow Box have a better chance of recovering and surviving.

#### ***CMA Small Project Grant plantings***

May saw the completion of a revegetation project on Michael and Lynette Chudyk's property, on two 2-ha sites next to the downstream part of the UHRRI project site. The project was a partnership between UHRRI, the landholders, and was supported by the Hunter-Central Rivers Catchment Management Authority's small project grant scheme. UHRRI initiated and supervised the project; Michael Chudyk prepared the site, and the CMA provided a planting crew, trees and materials. The plantings site is designed to allow Michael to irrigate the trees – water allocations permitting – as part of his normal farming operation. A very welcome 16 mm rain fell on site the weekend after planting was completed, and plants seem to be doing well in the cooler, moist conditions. A total of 3223 plants, of 18 species, were planted. These have been mapped, and will be monitored to evaluate survival and growth.



**Air photos showing the location of plantings on Chudyk's property.**

#### ***ARC-Linkage Research***

Dr Kirstie Fryirs and colleagues are continuing their work on the (dis)connectivity of sediment flux, and obtaining OSL dating samples from floodplain deposits to reconstruct

the evolution of floodplains. This work has concentrated along Dart Brook. An International Fellow, Dr Navin Juyal from the Physical Research Laboratory in India who works on Optically Stimulated Luminescence (OSL) dating assisted with the collection of dates. Navin will be processing these samples in the lab over the coming months.

Garreth Kyle has completed all field and laboratory work and is currently in the writing up phase of his thesis. Presently he is juggling three papers, at various stages of completion, concerning: (1) plant functional traits in relation to geomorphology, (2) plant functional traits in relation to riparian disturbance, and (3) plant functional traits in relation to native and exotic riparian species. Garreth is also preparing a presentation, based on the latter of these papers, for the New Zealand and Australian Ecological Society Conference in Wellington in August this year.

Ben Wolfenden has completed his primary experiment investigating breakdown rates of different leaf litter species. Data processing is currently under way and preliminary findings show that there are important differences in breakdown rates when comparing between litter types, habitat types, and with rates found in scientific literature. Ben is currently carrying out chemical analyses from this experiment to determine the biological response to changes in leaf chemistry while writing his thesis.

Sarah Mika is in the midst of her experiment testing the use of log-steps to enhance hyporheic processes. She has been sampling nutrient concentrations in surface water and hyporheic water to quantify how the hyporheic zone contributes to surface productivity. The experiment will finish in June and Sarah dreams about having a holiday which doesn't involve repetitive activities before immersing herself in data analysis and thesis writing!

Tim Howell has recently completed a series of innovative experiments with a new digital sonar camera (DIDSON) tracking to movements and behaviour of fish around the introduced wood structures in the pools. The DIDSON provides a near video quality image of fish and underwater structures in murky water. This new technology had to be flown in from Singapore, but is likely to be heavily used in

a range of applications for fish research in the near future.

To study the sedimentology of the study reach, Jo Hoyle has been using Ground Penetrating Radar. This technique is non-invasive and allows us to see beneath the surface of the bars and floodplain. This may help us to understand how erosional and depositional processes have changed historically within the reach. Jo also continues to work on a paper describing changes in the geomorphology of the Hunter River, with a particular focus on post-European changes.

### **Media coverage, presentations**

In addition to the school planting described above, UHRRI staff have been active over the past few months with a variety of community projects. In March, UHRRI staff spent two days at the Upper Hunter Show, where they presented a display on the project, and fielded numerous and wide-ranging questions about the river. Dan Keating and Mark Sanders also ran two workshops for Year 7–9 students at the Enviro Youth Forum, hosted by Muswellbrook and Singleton Shire Councils. Mark Sanders participated in a workshop on demonstrations reaches, hosted in Canberra by the Murray-Darling Basin Commission. He also delivered a lecture to 3rd year Biodiversity and Conservation students at Macquarie University.

Recent media coverage has included a local newspaper article on the school planting day, which has also been reported in newsletters of ARC-Linkage Industry partners. Aberdeen school students also wrote an article on the UHRRI project for the Newcastle Herald.

### **Coming Up**

The ARC-Linkage Research team and UHRRI Scientific committee meet on Wednesday June 21<sup>st</sup>, followed on the 22<sup>nd</sup> by the ARC-Linkage Industry Partner's meeting and the UHRRI Executive meeting. In July, UHRRI will be hosting a field trip by senior students from the University of New England, who will be investigating aspects of UHRRI's revegetation.

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