

Upper Hunter

RIVER REHABILITATION INITIATIVE

UHRRI Update

No. 1, February 2005

From the Project Manager

Welcome to the first issue of *UHRRI Update*. A consistent message I have received from the community is that people want to know more about the Upper Hunter River Rehabilitation Initiative (UHRRI). This newsletter is one of several ways in which I aim to keep the community up to date about the project. In this issue I provide a brief outline of UHRRI, and the related ARC-Linkage research program, introduce some of the people involved with UHRRI, and summarise recent activities in and along the river.

Mark Sanders

Project Manager, Upper Hunter River Rehabilitation Initiative

What is UHRRI?

UHRRI is Australia's largest integrated river rehabilitation and research program, and operates along a 10 km reach of the Hunter River between Muswellbrook and Denman. Its core field activities are revegetation of river margins, experimental reintroduction of timber into the river, and research. UHRRI also aims to raise awareness of river management issues, and provide opportunities for its sponsors and partner organisations.



Longstem tubestock ready for planting.

The Hunter River has been severely degraded by almost 200 years of dramatic changes in land use, and various attempts to manage the river. UHRRI, working on only a 10 km study reach, cannot hope to 'fix' the river. But we do aim to test and develop methods of rehabilitation that, if successful, will be able to be applied at larger scales in the Hunter and similar rivers. Essentially, UHRRI is a large-scale field experiment, drawing on the scientific disciplines

of geomorphology and ecology. UHRRI has strong links with local industry and the community.

The project is a partnership between Macquarie University, the Hunter Central Rivers Catchment Management Authority (HCRCMA), and the Department of Infrastructure, Planning and Natural Resources (DIPNR). Within UHRRI, various other partnerships have been formed. In particular, the current research component of UHRRI is funded by a 5-year Australian Research Council & Industry Linkage (ARC-Linkage) grant, with financial and in-kind support from Bengalla Mining Company, Mt Arthur Coal, and Macquarie Generation. The ARC-Linkage research is undertaken by Macquarie University, the University of New England, Griffith University and NSW Fisheries. The Australian Museum is also working along the UHRRI study reach, developing a community-based terrestrial invertebrate monitoring system called 'Bugwise'.

In addition to these partnerships, we also work or liaise with Muswellbrook Shire Council, Wanarua Land Council, local Landcare groups, the Department of Lands, Newcastle Ports Corporation, Upper Hunter Community Services and Greening Australia's Green Corps, the Natural Heritage Trust, and local schools.

For more information on UHRRI, please visit our website: www.hcr.cma.nsw.gov.au/uhrri.

Project Staff

Macquarie University employs two full time staff to run UHRRI: Dr Mark Sanders (Project Manager) and Dan Keating (Research Officer), who are based in Muswellbrook. Mark has a background in conservation management. Before taking up the position as manager of UHRRI in August last year, he worked for eight years on a large-scale river and wetland conservation program for the New Zealand Department of Conservation. Mark replaces Dr Craig Miller, who managed the UHRRI project through its initial stages in 2002 – 2004. Dan comes from an earth & environmental science background, previously working as a Scientific Officer at Macquarie University. Five PhD students also spend a considerable amount of time working on the river.

Large Woody Debris

Prior to widespread clearance of trees along the margins of the Hunter, trees that fell into the river performed various ecological functions, including providing diverse habitats for native animals, and trapping sediment. To test whether

these ecological functions can be restored, UHRRI is experimentally re-introducing timber to the river.

In late 2004, nine engineered log jams, two channel-spanning log steps, and 19 experimental fish habitat structures were installed in the study reach by the Department of Lands River Crew. The effects of these structures on fish, sediments, and nutrient and carbon cycling will be closely monitored by students from Macquarie University, University of New England, and Griffith Universities over the next two years.



Electrofishing to determine which species of fish are using recently-constructed log jams as habitat. Photo: Tim Howell.

Soil Services Crew

The Department of Lands River Crew, based in Scone, has had a key role in implementing UHRRI's rehabilitation works since the project's inception in 2003. In December, with assistance from the Green Corps, the crew removed willow regrowth from the Launch Site at Keys Bridge, to reduce competition for native trees. These trees have reached 4 – 6 metres in height since being planted in November 2002. The crew also planted longstems on disturbed ground at each site where wood structures had been installed, and, making the most of the recent rain, they completed a week's worth of planting at White's Creek in early February.

Green Corps

The third Green Corps team associated with the UHRRI graduated on the 22nd October 2004 after working for six months on the project. The team planted and maintained around 1500 longstem tubestock at a site near Edinglassie. To date this site has been very successful, partly because of careful site selection and a program of routine maintenance. The Corps also conducted a survey of key riparian weeds in the catchment above Muswellbrook and produced a multimedia presentation about the 1955 flood. A big thanks to the team and team leader Francis Ellis for their efforts. The extra time spent assisting the ARC-Linkage researchers with their projects was greatly appreciated. The team members graduated with a Certificate II in Conservation and Land Management.

In mid November, a fourth Green Corps team began their project with two days of planting on the Bengalla side of Key's Bridge. This team has been involved in 6 weeks of planting, monitoring and maintenance along the UHRRI study reach. For the remainder of their project they will be working closely with staff from the Australian Museum, trialing the Bugwise monitoring program, participating in planting and track construction with Merriwa Landcare, and assisting the Muscle Creek Landcare group.

Topographic Survey

A major undertaking throughout 2003 and 2004 was the extensive surveying of the UHRRI study reach. In mid 2003, an aerial laser altimetry survey captured over 6 million survey points. This dataset has been complimented by a number of high-resolution topographic, instream habitat, and transect surveys. The number of datapoints collected by this method has exceeded 10000. These surveys provide an important baseline dataset for the PhD research.

Stage Recorders

Seven instream stage recorders have recently been installed along the UHRRI reach. These record flow stage (water level) at half hourly intervals with a high degree of accuracy, and will provide valuable detailed baseline data for researchers working on the river.

Catchment Crawl

The UHRRI site was included in an environmental monitoring day in the Hunter catchment on December 17th 2004. Fifty-four students from Muswellbrook High School participated in the 'Catchment Crawl', an event organised by the HCRCA. The students collected a number of water quality samples, assessed habitat values and interviewed project staff.



Secondary school students measuring water quality during the December 2004 Catchment Crawl.

Recent Awards

UHRRI project received a special commendation at the Macquarie University Innovation Awards in December 2004. In a joint entry with Muswellbrook Shire Council, UHRRI won the waterways section of the NSW Tidy Towns Awards in October 2004.

4ASM Conference

The UHRRI attracted strong interest at the 4th Australian Stream Management Conference in Launceston in October last year. It was standing room only at a special UHRRI session, at which student and university scientists presented preliminary findings to an international audience of

scientists and stream management professionals.

Coming Up

UHRRI will feature at this year's Upper Hunter Expo, 11-12 March, and will also be holding two workshops for senior secondary student at the 2005 Upper Hunter Enviro Youth Forum in April. UHRRI will be the topic of a special session at an International Geographical Union workshop on Integrative River Science, to be held in Muswellbrook in March.



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