

Wungong

Whispers



Volume 10 – June 2010

PROJECT MILESTONE

The Board of the Water Corporation reviewed the progress of the Wungong Catchment Trial in April 2010 and endorsed the continuation of the Trial for a further four years.

The Trial began in response to the Western Australian Government's 2003 paper *A State Water Strategy*.

With endorsement from the Board and the Environmental Protection Authority (EPA) the twelve-year, \$20 million Wungong Catchment Trial was initiated in 2005. The Board required the Trial to be reviewed four yearly and last April was the first review.

The Trial is part of a portfolio of options in the Corporation's *Water Forever* strategy to secure

water supply for the future. Its objective is to determine the ability to increase the quantity of water available for public water supply through alternative forest management practices while maintaining the sustainability of the catchment.

What next?

The knowledge gained in the past four years means that part of the original proposal will be modified to make it effective. The project team will be working with the DEC to obtain the necessary approval from the Conservation Commission for an adaptive management trial.

We have been busy

Since the September 2009 Wungong Whispers issue the project team has been really busy with assembling appropriate information



regarding the performance of the Trial in anticipation of presenting the results to the Corporation's Board. This formed the basis for the Trial's first scheduled 4 yearly review. In addition to this, planning of the next stages of the project is now underway.

Some high level delegations, namely representatives from the Board's of the EPA and Conservation Commission, have visited the Trial sites recently. These visits have assisted the visitors with their understanding of the Trial and enabled the Corporation to outline results to date and to paint a picture of the anticipated future works.

In addition, the Research Forum was held at the end of last year and was attended by a large number of stakeholders interested in the Trial's findings. All the presentations and summaries are available on the project's website.

The next 4 year phase of the Trial is crucial as this will be more focused on forestry work. We look forward to sharing our learnings with you.

*Chris Botica
Project Director*



Cobiac (Winter 2009.)

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First thinning of Exotic Species

Because of concerns related to “jarrah dieback disease”, bauxite pits in the Wungong catchment were initially rehabilitated with exotic tree species, mostly eucalypts from the Eastern states. 1,640 hectares were planted to exotics between 1969 and 1987.

Three species (red mahogany, yellow stringybark and spotted gum) dominate and were planted over 60 percent of the area. On 605 hectares, local species such as jarrah, marri, bullich and blackbutt were included as a smaller component of the species mix. The dense regrowth stands are now ready for thinning, to reduce water use and to provide a commercial product.

Three trials are being conducted by the Water Corporation, in conjunction with Department of Environment and Conservation (DEC) and the Forest Products Commission (FPC), in accordance with DEC’s SFM Interim Silvicultural Guideline No 3, 2007.

The trials will monitor the feasibility of the thinning and burning



prescriptions, the success rate, the costs, the value of products produced and the likely increases in water yield, primarily through the use of bores to monitor the water-table recharge.



These trials involve:

- Clear-felling of some areas as a first stage in the process of rehabilitating the area with native species.
- Commercial thinning of other areas as a first stage in the process of rehabilitating the area with native species, either by seeding or under planting or both. Where present, native species are preferentially retained.
- Non-commercial thinning by notching of other areas as a first stage in the process of rehabilitating the area with native species, by seeding or under planting. Where present, native species are preferentially retained.

In each case, the longer term objective is to eventually replace these exotics with native species that are more appropriate to this climate and ecosystem. In the first case this objective may be achieved within 10 years, whereas in the latter it could take longer (possibly 20-30 years).

Appropriate monitoring of damage to soil, to retained overstorey, understorey responses, coppice control, rehabilitation techniques and water table recharge will be undertaken on certain sites.

The Impact of Forest thinning on Perceptions of Recreational Value and Forest Health

Murdoch University and Beckwith Environmental Planning conducted a research project to examine the effect of various forest thinning treatments on people’s perceptions of outdoor recreation value and forest health.

In the south-west, forested drinking water source catchments are popular public venues for nature-based recreational activities such as bushwalking, off-road cycling, picnicking, camping and sightseeing. A possible outcome of the Wungong Catchment trial is that similar catchment management practices may be used in other drinking water catchments with compatible characteristics. What impact might this have on recreational users of these catchments?

An online questionnaire was used to gather data from three target populations: professional forest or water resource managers, bushwalkers and off-road cyclists. As shown in Table 1, 203 individuals participated in the online survey.

In the online survey, study participants were asked to rate the acceptability of the five forest thinning options shown in Table 2.

Group	Frequency	Percent
Forest or water managers	103	50.7
Bushwalkers	61	30.0
Off-Road cyclists	39	19.2
Total	203	100.0

Table 1 Survey respondents by group

They were also asked about their beliefs about forest management, their environmental values and demographic characteristics. Photo simulations were developed for each of the five thinning options using 3D modeling. A large vegetation library was created of

Option	Basal Area	Thinning Method	Regrowth
A.	35-40 m ² /ha	None (control)	None (control)
B.	15 m ² /ha	Cut Stump	Controlled
C.	15 m ² /ha	Notching	Controlled
D.	8 m ² /ha	Cut Stump	Uncontrolled
E.	8 m ² /ha	Cut Stump	Controlled

Table 2 Forest thinning options

images representing simulated depictions of vegetation at various stages of growth and management (Figure 1). The depictions were based on vegetation types found in the Wungong demonstration plots. [Article continues next page](#) ▶



Figure 1: Simulated aging of a tree species

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The Impact of Forest thinning on Perceptions of Recreational Value and Forest Health



Thinning Option B in Year 1 post-treatment

Thinning Option B in Year 70 post-treatment

Each thinning option consisted of five computer generated images representing the years 1, 5, 25, 50 and 70 post-thinning. This allowed participants to visualise how the forest would change over time for each option. For illustrative purposes, the photo simulations (above) display Option B in Year 1 and Year 70.

Thinning Option Preferences

Participants were asked to rate each thinning option in terms of forest health using a 7-point scale ranging from 1 (very unacceptable) to 7 (very acceptable). All groups favoured Option A (the no treatment option) as the most acceptable in terms of forest health (Table 3). They also rated option C (notching) as the least acceptable from a forest health perspective.

Option	Walkers mean	Cyclists mean	Managers mean
A	5.51	5.33	5.43
B	4.59	4.67	5.27
C	3.31	3.64	3.72
D	4.20	4.54	4.68
E	4.15	4.71	4.99

Table 3 Mean group forest health ratings of thinning options

In making their forest health judgements, participants focused on whether the forest appeared to be thriving (e.g. understory regrowth, development of a middle storey), vegetation colour (i.e. green was healthy while brown signalled a problem), and the presence of signs of disease (e.g. crown health, condition of indicator species such as banksia).

Option	Walkers mean	Cyclists mean	Managers mean
A	5.31	4.85	4.95
B	4.56	4.79	5.04
C	3.61	3.77	3.83
D	4.26	4.74	4.61
E	4.38	4.74	4.73

Table 4 Mean group outdoor recreation ratings of thinning options

Using the same 7-point scale, participants were also asked to rate each thinning option with respect to outdoor recreation. Accessibility for recreational activities was the most important factor used to judge the acceptability of the options as settings for outdoor recreation. Bushwalkers and cyclists gave the highest rating to the control condition (i.e. Option A). This reflects a preference for 'natural' forest settings with no or few signs of human intervention. Forest and water managers favoured Option B which has a lower tree density (Table 4). Again, Option C (notching) was rated as the least acceptable option by all three groups survey.

Thinning and Public Water Supply

Participants were asked if it is sometimes necessary to thin a forest to improve forest health. A large majority of the managers agreed with the statement, with almost half strongly agreeing.

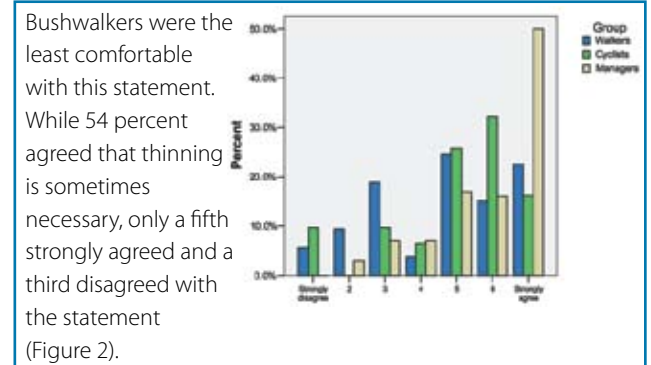


Figure 2: It is sometimes necessary to thin a forest to improve its health

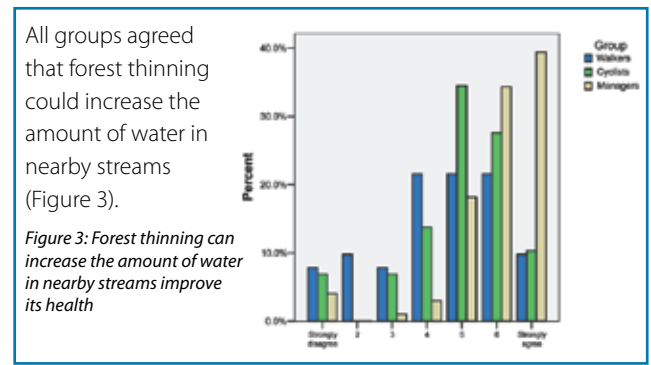


Figure 3: Forest thinning can increase the amount of water in nearby streams improve its health

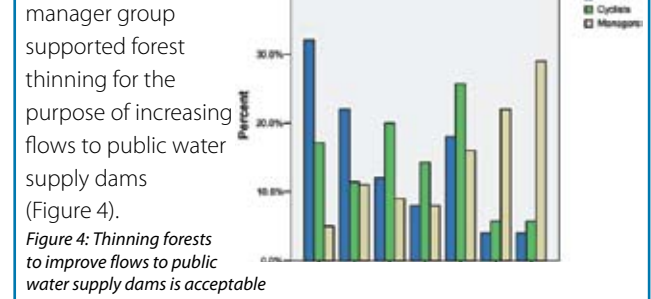


Figure 4: Thinning forests to improve flows to public water supply dams is acceptable

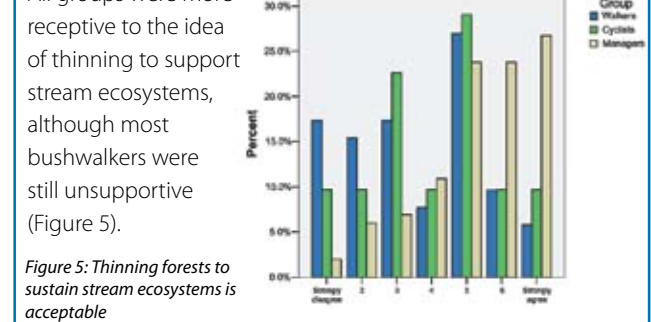


Figure 5: Thinning forests to sustain stream ecosystems is acceptable

The technical report for this research project is expected to be available on the Wungong site by the start of June.

The researchers would like to thank the Bibbulmun Track Foundation, Munda Biddi Trail Foundation, the Department of Environment and Conservation, Forest Products Commission, the Association of Professional Foresters WA and the Water Corporation for the participation of their members in the online survey.



Water Corporation staff working in the Wungong Catchment

Project Activity Update:

Land and Water Workshop

On 4th November 2009, the Land and Water groups met to discuss the recommendations of the CSIRO review of the project. The discussions focused on the way forward and the key performance indicators. The participants belonged to organisations such as Murdoch University, CSIRO, DEC, DOW and Alcoa.

Technical Reference Group (TRG) Meeting

At the session on 20th October 2009, the TRG received a presentation on the current status of the project's field operations, research and communications components. Presentations included the latest hydrological monitoring results, WEC modelling results, silvicultural treatment, perceptions of recreational values and ecosystem health survey initial results, and updated key performance indicators review from the biodiversity group session. The next meeting will be held in June 2010.

Research Forum

On 16th November 2009, a great number of stakeholders and interested public attended the Research Forum where the researchers presented the results of their findings. To register your interest in attending future Forums please register through the projects website or send an email to Wungong@watercorporation.com.au
A two page summary and presentations at the Forum can be downloaded on the project's website.

Thanks to Richard Boykett and welcome back Ian Freeman



Ian Freeman on holiday in Bali

Richard worked as a valuable members of the project team since March 2007. He is now working with DEC in the north of Western Australia. We wish Richard the best in his new role. Ian Freeman has taken over Richard's role. He has worked with the project team right at the start of the project.

Welcome Back Ian!

Calendar update

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| December 2009 | Board of EPA visits project site |
| March 2010 | Murdoch University Tour
Notre Dame University Tour |
| April 2010 | Curtin University Tour
Water Corporation Board Report |
| May 2010 | Presentation City of Armadale
Bushcare Community Darling Range Community Advisory Committee |
| May 2010 | Presentation City of Armadale
Bushcare Community Darling Range Community Advisory Committee Tour
Conservation Commission Board |
| June 2010 | Technical Reference Group Meeting
Project Planning Day |

Contact details

This newsletter is produced by the Water Corporation and is also available electronically at www.watercorporation.com.au/wungong. To subscribe or unsubscribe to this newsletter, please contact Paola Diaz, Community Engagement Officer on **9420 2950** or email Paola.Diaz@watercorporation.com.au
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