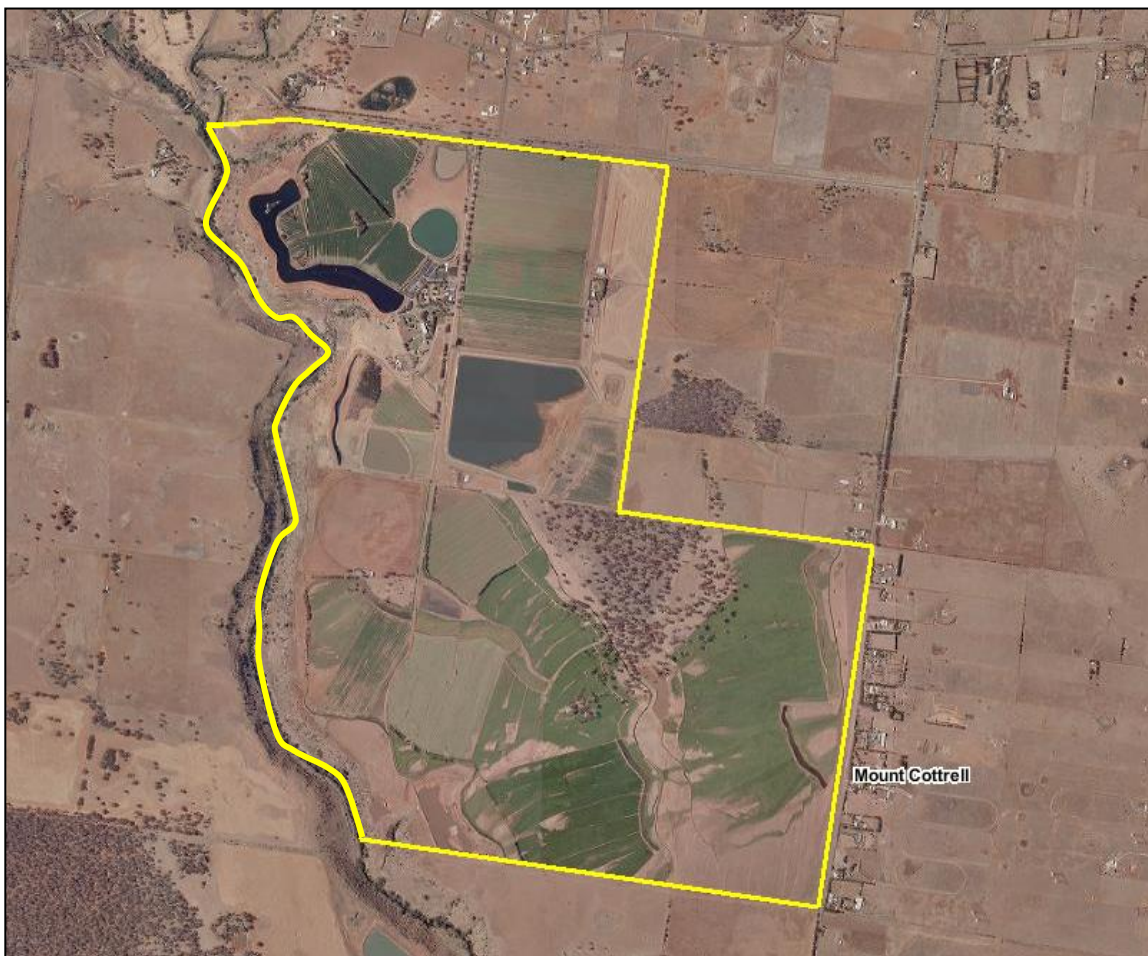


The Pinkerton Link Story: *creating a forest out of nothing!*

In the beginning: there was the Sludge Paddock!

1. Background 2010

Western Water owns a 692 hectare property at Butlers Rd, Mt. Cottrell where it operates the Melton Recycled Water Plant (RWP). A large part of the property is currently leased for farming activity using recycled water from the Melton RWP. The majority of the property consists of agricultural pasture but also incorporates wastewater lagoons and infrastructure, agricultural structures and areas of native vegetation such as Pinkerton Forest and the Werribee River. Melton RWP is within the Victorian Volcanic Plains (VVP) bio-region and is found 1 kilometre west of Mt Cottrell.



Aerial photo of Western Water property at Surbiton Park

The Pinkerton Link Story: *creating a forest out of nothing!*

Western Water, in association with Pinkerton Landcare and Environment Group (PLEG), has been undertaking biodiversity enhancement works in Pinkerton Forest for 20 years and along the Werribee River valley for the last ten years. Pinkerton Forest can be found in the centre of the Melton RWP and consists of approximately 35 ha of remnant plains grassy woodland. Approximately 3.8km of river frontage exists where the Werribee River borders the western boundary of Surbiton Park and cuts a deep volcanic gorge in the landscape. The Werribee River valley contains patches of poor-medium quality remnant native vegetation. Western Water has to date been undertaking revegetation works along approximately 2km of Werribee River frontage in partnership with Melbourne Water and PLEG.

Bordering Surbiton Park is a Melton Shire Council owned remnant native vegetation patch known as Bush's Paddock which lies approximately 370 metres north of Pinkerton Forest. Pinkerton Forest and Bush's Paddock are separated by an area of land on Melton RWP which has previously been used for the controlled disposal of sludge from the waste water treatment process. This area, once known as the 'sludge paddock', is no longer used for disposal of sludge. Deposition of high nutrient wastes by Western Water ceased in 2007.

Western Water has recognised that management input is required to ensure the long-term persistence and enhancement of biodiversity values of Melton RWP due to a general awareness of best practice environmental management, planning and compliance with statutory obligations.

The old-Sludge Paddock Pinkerton Link (now known as Pinkerton Link) is 12ha in size and contains eight mature grey box trees.

2000 - 2010

Several small plantings were undertaken by PLEG on the narrow strip on the eastern side of the access track, this was in a nutrient free area, a few Sweet Bursarias and a Drooping Sheoke have survived. The casuarina was grown from local seed by Irene Cook PLEG member.

The Pinkerton Link Story: *creating a forest out of nothing!*

2. Project Description

In recognising the biodiversity values of the property, Western Water would like to further enhance the biodiversity attributes of Melton RWP by creating a habitat corridor between Pinkerton Forest and Bush's Paddock by revegetation of the sludge paddock with indigenous flora species. The habitat corridor will link the two fragmented remnant vegetation patches and allow native fauna to traverse between the two areas, enhancing the significance and importance of the two sites. Western Water has received joint funding for the project through the Vision for Werribee Plains (V4WP) grants program run by the Department of Sustainability and Environment.

Pinkerton Forest

Pinkerton Forest is a remnant Plains Woodland approximately 35 hectares in size. The vegetation is mostly comprised of mature Grey Box (*Eucalyptus microcarpa*) with a moderate quality understory due to a history of cattle and sheep grazing. In 1992 Pinkerton Forest was fenced and rabbit proofed and has since been managed to improve the biodiversity of the forest. Grassy Eucalypt Woodlands of the Victorian Volcanic Plains have recently been listed as critically endangered under the *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999*.

Bush's Paddock

Bush's Paddock is a Melton Shire Council owned reserve located on the north east boundary of the 'sludge paddock' and has had a long history of stock grazing however recent plantings, weed and pest animal control is beginning to restore the site. The vegetation is remnant Plains Woodland but also contains large areas of native grassland. Natural Temperate Grasslands of the Victorian Volcanic Plains are also listed as critically endangered under the *EPBC Act 1999*.

Pinkerton Forest and Bush's Paddock are vegetation relics of pre-European settlement and provide many habitat opportunities for ingenious fauna species. Within a five kilometre radius of the Melton RWP, a total of 380 hectares of grassy eucalypt woodlands exist in four fragmented patches and is a hotspot for this type of vegetation community.

Pinkerton Forest and Bush's Paddock are examples of fragmented vegetation or habitat islands. Animals in an 'island' situation are vulnerable to catastrophes such as disease, bushfire and gradual changes like inbreeding and variations in climate. Significant fauna species have been recorded in these vegetation communities.

The habitat corridor will provide native fauna with a larger habitat area, increased available food supply and promote healthier and larger populations. The link will also

The Pinkerton Link Story: *creating a forest out of nothing!*

create a greater likelihood of sustaining populations which undergo any fluctuations or catastrophes.

Scraping of the southern area would begin at the end of Year 1. Seed collection for direct seeding of scraped area would also occur in Year 1 during spring or when appropriate.

A corridor along the area east of the north-south access track will be constructed in Year 1. This would involve multiple herbicide applications followed by tube stock plantings of tree and shrubs species. Work on a corridor would begin ASAP, last planting could be undertaken as late as September. Northern area following cropping would be subject to multiple herbicide applications followed by plantings at end of Year 2/Year 3. Rates and species selection would be as per provided by Greening Australia. Seed collected during Year 1 and two would be used to germinate stock. Direct seeding of native grass species could introduced to this northern area in Year 3. Direct seeding could be hand broadcast or GA direct seeder.

3. Status of Sludge Paddock 2010

The sludge paddock has been used for controlled disposal of liquid sludge from waste water treatment process for 20 years. The disposal of sewage sludge over many years has altered the profile of the soil surface in comparison to the surrounding land. The disposal of this material may have also increased the nutrient loading in the soil. However the disposal sludge has ceased more than two years ago and it is expected the nutrient concentration would have reduced. Soil analysis may be required to determine any constraints to the revegetation process. The consultant is not expected to conduct the soil testing, however, should advise Western Water on types of analyses and the extent of soil testing required. The consultant is expected to interpret the data to determine the possible impact on vegetation and recommend any alteration to the site to minimise adverse impact on vegetation.

The Pinkerton Link Story: *creating a forest out of nothing!*

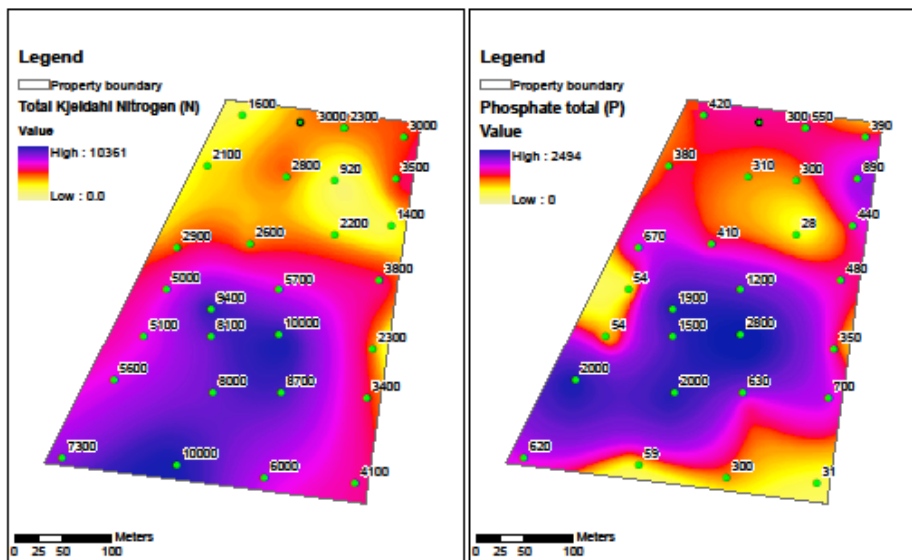


Figure 2 Nitrogen and Phosphorus concentration across the sludge paddock.

Soil analysis of Nitrogen and Phosphorous in the soil determined that the sludge in the southern half of the paddock needed to be scraped the depths were 10 - 20cm as mentioned in the text. This has been completed which is an achievement.

Eight mature remnant Grey Box trees exist scattered throughout the paddock. There is also a mixture of indigenous shrub species along the eastern and northern fence lines comprising Tree Violet (*Melicytus dentatus*) and Golden Wattle (*Acacia pycnantha*).

The understory across the majority of the paddock is a mixture of introduced annual grasses, herbs and prostrate shrubs. High priority species for control may include but not limited to Galenia (*Galenia pubescens*), African Boxthorn (*Lycium ferocissimum*), and Serrated Tussock (*Nassella trichotoma*). Lower priority species are present onsite including Toowoomba Canary Grass (*Phalaris aquatica*), Kikuyu (*Pennisetum clandestinum*) and Wild Turnip (*Brassica sp.*).

The long term objective of Western Water is to transform the 'sludge paddock' consistent with the existing woodland habitat that exists to the north and south. In order to meet this long term objective, Western Water wishes to develop a detailed Revegetation Management Plan for the sludge paddock.

The group agreed on protection of the remnant Grey Box trees in sludge paddock as a priority.

The Pinkerton Link Story: *creating a forest out of nothing!*

Pinkerton Link



Map 2. Aerial photograph of the 'sludge paddock' demonstrating the proximity to Pinkerton Forest and Bush's Paddock.

This photo illustrates the importance of the 'Sludge Paddock' as a link between Bush's Paddock and Pinkerton Forest. Hence its new name of 'Pinkerton Link.'

Also, the name 'Pinkerton Link' is much more environmentally appropriate than 'Sludge Paddock'!

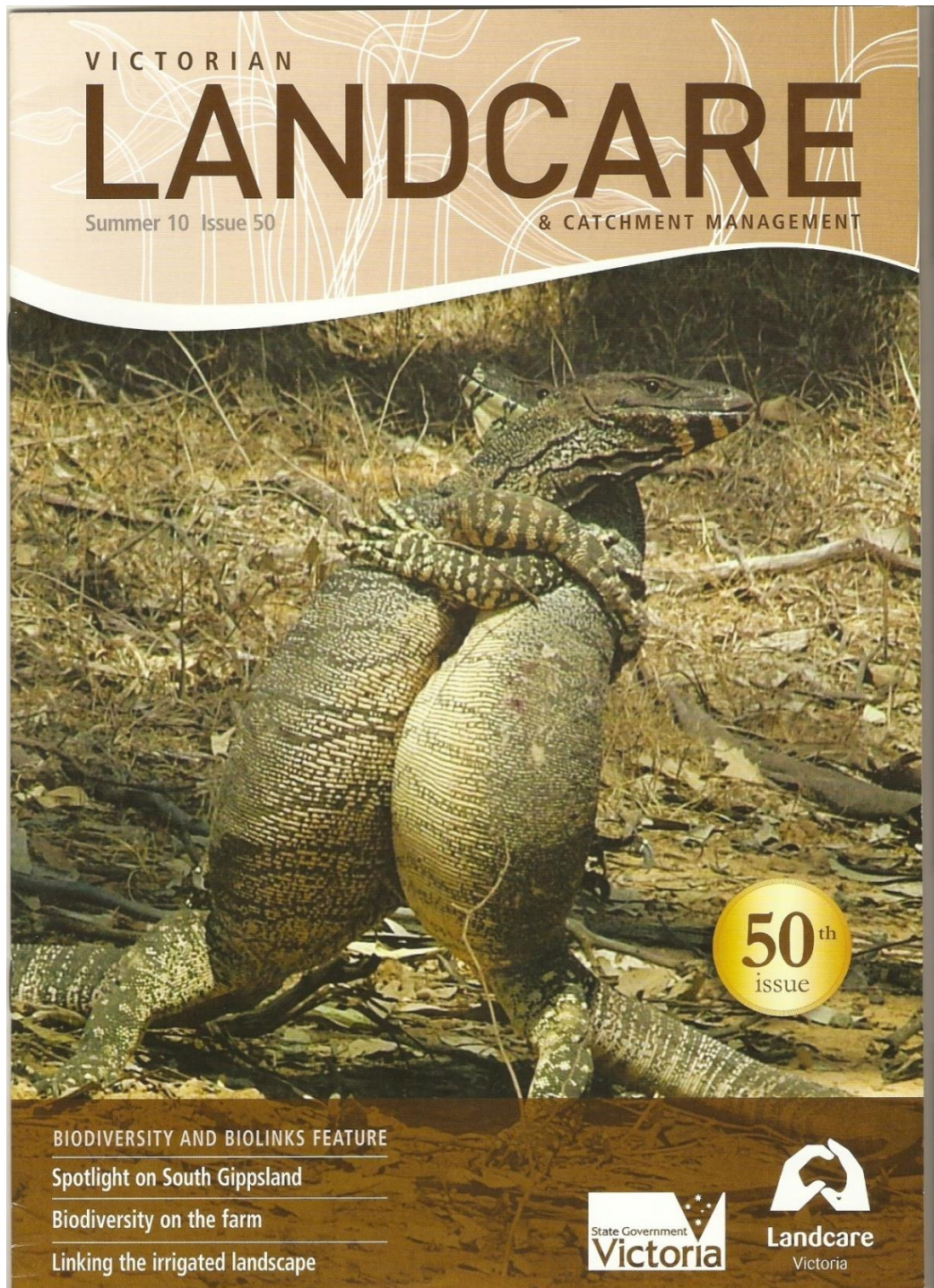
The Pinkerton Link, will eventually be part of a contiguous Grey Box Woodland.

Long term strategic planning for Grey Box Woodland precinct

Long term strategic planning for PLEG is to seek funding to acquire part or all of the privately owned property between Pinkerton Forest and Bush's Paddock. This will create a much more environmentally viable Grey Box Woodland.

The Pinkerton Link Story: *creating a forest out of nothing!*

The creation of the Pinkerton Link Project was celebrated in Victorian Landcare magazine in 2010.



Pinkerton link – creating a forest from nothing

By Kylie Smith



A sludge paddock used to dispose of the solid by-product of sewage treatment may not sound like the most promising place for a wildlife corridor. Yet the former sludge paddock at Western Water's Melton Recycled Water Plant is on the way to becoming a showcase for the linking of habitats to help protect endangered native species.

The paddock stretches between two islands of bushland: Pinkerton Forest and Bush's Paddock, in an area that skirts the Werribee River, west of Melbourne. The link is part of a long-term vision to connect these sites to the Werribee River corridor.

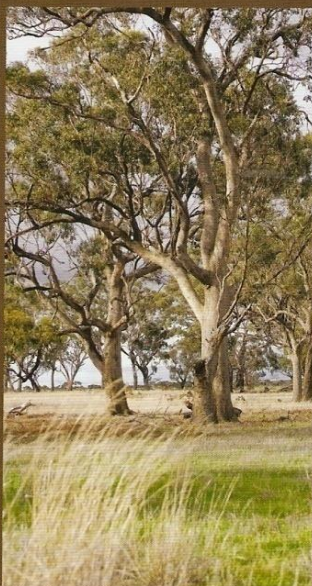
Pinkerton Forest, owned by Western Water, is endangered remnant Greybox Grassy Woodland, and home to a pair of endangered White-bellied Sea Eagles. Bush's Paddock, owned by Melton Shire Council, is Basalt Plains Grassland, a vegetation class listed as critically endangered.

Daryl Akers, of Pinkerton Landcare and Environment Group (PLEG), says it is vitally important to create links between such habitat islands.

"These small woodlands are important on their own, but they are more significant when joined together. Linking them enables wildlife to move between areas and recolonise and makes them less vulnerable to natural disasters."

Western Water stopped depositing biosolids in the paddock in 2008 due to concerns about possible contamination. That left the disused paddock as an obvious place to create a link between Pinkerton Forest and Bush's Paddock.

In 2007 Western Water signed a Memorandum of Understanding with PLEG, including a commitment to rehabilitate the area. A 2009 grant from DSE Vision for Werribee Plains got the project off the ground and a management plan in place.



The endangered remnant Greybox Grassy Woodlands in Pinkerton Forest will have a positive future due to a partnership between Western Water and the Pinkerton Landcare and Environment Group.

Different revegetation techniques are now being trialled at the site – these include weed control and planting native tube stock to scraping off a layer of the high-nutrient contaminated soil and direct seeding.

The Landcare group has been involved with planning the works and have collected a large amount of seed. Daryl Akers says there are now about 150 species of birds in Pinkerton Forest, and the list is growing.

"Over the years it has been transformed – it has been a real success story. The White-bellied Sea Eagles raised two chicks in the forest last year, and have returned this year to nest again.

"That's a validation of all our efforts."

**For further information contact
Tim Hatt, Western Water's
Environmental Officer, on 9218 5502.**

Landcare

Readers are invited to
enter our 2011 Landcare
Photography Competition.

Entries are invited in three categories: sustainability, water and 'what Landcare means to me'. There is a general prize in each category and prizes for primary and secondary students.

Each prize winner will receive \$150 for their school, Landcare group, or charity. The winning entries will be published in the magazine. To enter, send a low resolution jpg (under 200KB) to landcare.magazine@dse.vic.gov.au with your name, contact details and a caption. Prints and CDs will also be accepted and should be posted to: Project Officer, Victorian Landcare & Catchment Management Magazine, DSE, PO Box 500, East Melbourne 8002.

You will need to gain the permission of anyone who is recognisable in your photographs. A high resolution file (over 1MB) will be required if your photograph is to be published. The competition closes on 10 June, 2011.

Photographs from the Biodiversity of the Riverina exhibition:



"About 130 million years ago much of Australia was submerged under a shallow sea. As the sea retreated, it left behind sediments and enormous quantities of salt in what is now the Murray Basin. These salts accumulated in shallow evaporation basins (lakes) in the western part of the basin. The colour of these lakes can be startling: ranging from dusky mauve to bubblegum pink. The lake hues are caused by algae that inhabit the waters."
David Taylor.

Media Release



July 29 2011

From nothing a forest will grow

When most people look over the land at Western Water's Melton Recycled Water Plant they see a bare paddock.

But the water authority's staff and local environmentalists have a different vision – they see a forest.

Western Water and Pinkerton Landcare and Environment Group (PLEG) are working together to transform an area of the treatment plant into a wildlife habitat corridor of grassy woodland.

"We identified this area as a critical link between isolated areas of bushland back in 2007, when we signed an agreement with PLEG to rehabilitate the area," Western Water's Managing Director, John Wilkinson, says.

The area sits between Pinkerton Forest, an endangered remnant Greybox Grassy Woodland on Western Water land, and Bush's Paddock, made up of critically endangered Basalt Plains Grassland, owned by Melton Shire Council.

"Our aim is to join up these 'islands' of bush to allow endangered species to move between different areas," Mr Wilkinson says.

"With the help of a grant from the Department of Sustainability and Environment's Vision for Werribee Plains, we have been clearing the land of weeds and trialling different techniques for revegetation."

This weekend the dream of creating a forest from bare ground will take off, with a planting day to be held at the site.

PLEG spokesman Daryl Akers describes the project as "pioneering".

"To be creating a forest from nothing is really an extraordinary challenge, and will take decades," he says.

"By restoring the habitat in this area we can help endangered wildlife to recolonise, and make species less vulnerable to natural disasters such as bushfire."

The site presented particular challenges for revegetation after being used for many years to dispose of biosolids, the byproduct of the water recycling process.

Western Water staff and PLEG members have spent many months trialling soil rehabilitation and revegetation techniques to cope with the high nutrient levels in the soil.

Members of the public are encouraged to attend the planting day this Saturday (August 13). For details phone Daryl Akers on 0438 277 252 or go to www.pinkertonforest.com.

About Western Water

Western Water is one of Victoria's 13 regional urban water corporations. We provide water, recycled water and sewerage services to over 53,000 properties and 134,810 people in an area of 3,000 square kilometres. Our region extends from Lancefield in the north to Melton and Rockbank in the south and from Myrmiong in the west to Bull in the east. We incorporate parts of Hume City Council and Melton, Moorabool and Macedon Ranges Shire Councils.

Media contacts

Kylie Smith | Media Advisor | 03 9218 5527 | 0488 22 66 81 | kylie.smith@westernwater.com.au

The Pinkerton Link Story: *creating a forest out of nothing!*



The Sludge Paddock in 2009 prior to environmental restoration works



Peter Gibbons, Frances Overmars (PLEG) and Alan Benson
(Friends of Melton Botanic Gardens) at the Sludge Paddock in 2009,
prior to environmental restoration works

The Pinkerton Link Story: *creating a forest out of nothing!*

In 2009 Western Water applied for a grant for 'Pinkerton Forest and Bushes Paddock Biodiversity Corridor' from Vision for Werribee Plains, DSE. This was successful and a Project Control Group was formed, these members were from DSE, WW and PLEG. The project began with an intensive weed control programme.

Barley cropping and sheep grazing contributed to removal of nitrogen from the soil.

The seed for the revegetation has been sourced from either Pinkerton Forest, or its extension within Bushes Paddock.

NEWS

Melton Leader 9th August 2011



Daryl Akers of PLEG and Western Water's Tim Hatt are transforming an area of the treatment plant into a wildlife habitat corridor. Picture: KRIS REICHL N06MT206

If you plant it, they will come

Environment | Liam McAleer

THE next time you see this bare paddock, it could be a forest. That's the vision of water authorities and local environmentalists. Western Water and Pinkerton Landcare and Environment Group are working side-by-side to transform an area at the Melton

Recycled Water Plant into a wildlife habitat corridor of grassy woodland. The area sits between Pinkerton Forest, an endangered remnant greybox grassy woodland on Western Water land and Bush's Paddock, made up of critically endangered plains grassland, owned by Melton Council. Western Water managing direc

tor John Wilkinson said the aim was to join up the "islands" of bush to allow endangered species to move between different areas. This Saturday (August 13) the dream of creating the forest will take off, with a public planting day. PLEG spokesman Daryl Akers said the project was "pioneering". "To be creating a forest from

nothing is really an extraordinary challenge, and will take decades," he said. "By restoring the habitat in this area we can help endangered wildlife to recolonise, and make species less vulnerable to natural disasters such as bushfire." Details: 0438 277 252 or visit pinkertonforest.com.

The Pinkerton Link Story: *creating a forest out of nothing!*

Creating the forest begins: August 2011

On Saturday 13th August 2011 Western Water and Pinkerton Landcare and Environment Group (PLEG) invited the community to join them planting between Pinkerton Forest & Bush's Paddock, near Mount Cottrell. This was in fact an invitation to participate in the beginning of an innovative project to grow a Grassy Woodland from scratch!

Entry to the site was made through Western Water's treatment plant at Surbiton Park via Butlers Road at Strathtulloh, to avoid disturbing a nesting pair of endangered Sea-Eagles.

On the Friday prior to the community planting day, holes were drilled by contractors and the eucalyptus mulch was spread around the remnant Grey Box trees.

25 people planted 1000 woodland plants. Participants were from groups as varied as Melton Bushwalkers, Girl Guides and Scouts, as well as other interested members of the community. A variety of plants were planted.

Close to 30 people turned up and we planted almost 1,000 grasses, herbs and trees. We also distributed the cleaned *Austrostipa scabra* (Speargrass) and *Austrodanthonia* (Wallaby Grass) seed in half of the scraped area in the centre of the paddock. And we are thrilled it has rained which will help to settle the plants in.

This ambitious and innovative project by Western Water aims to achieve nothing less than to replant a forest on a paddock that is at present virtually devoid of native vegetation!

Many of the plants for the Sludge Paddock Restoration Project were grown under the supervision of Judy Allen indigenous plant expert at the Dame Phyllis Frost Centre. Earlier this year PLEG and MEG supplied the centre with local indigenous seeds to grow wildflowers for sites in Melton and at Pinkerton Forest. Judy is a TAFE teacher at the Dame Phyllis Frost Centre teaching a course in Horticulture. Judy spoke to local environmental groups in May at Melton Shire Council. The Centre has grown a number of plants for local revegetation, which are now ready for planting. Judy attended the planting day to report back on where their seedlings were planted.

Many thanks to Judy Allen and the women at the Dame Phyllis Frost Centre for helping us create a forest on this empty paddock. Many thanks to everyone who turned up on this historical occasion to begin the long process of planting a forest here.

The Pinkerton Link Story: *creating a forest out of nothing!*



Spreading eucalyptus mulch around remnant Grey Box tree prior to planting

The Pinkerton Link Story: *creating a forest out of nothing!*



William Rajendram (WW Snr.Environmental Engineer) planting at Pinkerton Link



Tim Hatt, Rod Curtis (Surbiton Park Treatment Plant Manager) and son

The Pinkerton Link Story: *creating a forest out of nothing!*



William, Judy Allen, Tim



Tim Hatt and Rod Curtis (WW)

The Pinkerton Link Story: *creating a forest out of nothing!*



William Rajendram of Western Water planting with volunteers



Morning tea break Pinkerton Link

The Pinkerton Link Story: *creating a forest out of nothing!*

Pinkerton Link: the work continues 2012



Loading Themeda hay



Spreading native Themeda and Danthonia hay at Pinkerton Link creating 'islands'

The Pinkerton Link Story: *creating a forest out of nothing!*



Removing sludge April 2012



Discussing grass mowing at Pinkerton Link February 2012

The Pinkerton Link Story: *creating a forest out of nothing!*



Strategic planning at Pinkerton Link February 2012

The Pinkerton Link Story: *creating a forest out of nothing!*

Pinkerton Link: 2013



Austrostipa scabra (Speargrass) flourishing at Pinkerton Link February 2013



William showing DSE personnel Pinkerton Link March 2013

The Pinkerton Link Story: *creating a forest out of nothing!*

On Saturday 11th May 2013 ten people, including members of Melton Bushwalkers, joined PLEG at Pinkerton Forest to continue the ambitious project to create a forest.



Melton Bushwalkers and other volunteers planting at Pinkerton Link May 2013

The Pinkerton Link Story: *creating a forest out of nothing!*

Pinkerton Link: 2014

On Sunday 6th April 2014 Pinkerton Landcare and Environment Group returned to Pinkerton Forest to plant in Pinkerton Link. Eight people planted a variety of native grasses and Pale Flax lilies. These plants will form part of the understory of the forest that was begun in 2011. In August 2011 Pinkerton Landcare and Environment Group (PLEG) began planting on the bare paddock between Pinkerton Forest and Bush's Paddock, near Mount Cottrell. Pinkerton Forest and Bush's Paddock are separated by an area of land on Melton Recycling Water Plant. The Pinkerton Link project will connect these two woodland remnants

Many of the Grey Box trees are already over a metre tall and a direct seeded stand of native grass is also over 1.5 metres in height. Although we were kept busy planting, we still observed a total of 11 species of bird. These were Black Kite, Australian Magpie, Brown Thornbill, Yellow-rumped Thornbill, Golden-headed Cisticola, Jacky Winter, Little Raven, White-plumed Honeyeater, Willy Wagtail and Zebra Finch. It is an encouraging sign to see so many birds in what was only a short time ago a bare paddock.



Tom and volunteers planting in Pinkerton Link April 2014

The Pinkerton Link Story: *creating a forest out of nothing!*

Pinkerton Link: 2014

In September Irene and Daryl weeded the plants previously planted there in April. We noticed that the Kangaroo Grass (*Themeda*) tussocks were all growing well and even had tall flowering stalks. We also noticed that the Kangaroo Grass was been trimmed by kangaroos. However the grazing had been limited to the new leaves, leaving the tall flowering stalks untouched. These are no doubt the seven Grey Kangaroos resident in nearby Bush's Paddock, illustrating that Pinkerton Link is already providing a wildlife link.

In August Frances and Daryl of PLEG and William of Western Water returned to again at Pinkerton Link. We planted a number of Grey Box in the plot covered in rice hull mulch. We found the soil beneath the rice hulls to be soft and moist, proving excellent planting conditions.



William and Frances planting Grey Box trees at Pinkerton Link

The Pinkerton Link Story: *creating a forest out of nothing!*

Planting at Pinkerton Link with students from Westbourne Grammar School, Western Water, Western Land Services and volunteers, on 28th August 2014

On Wednesday 28th August there was a massive planting event at Pinkerton Link by students from Westbourne Grammar School, staff from Western Water and Western Land Services, members of PLEG, as well as several volunteers. A recently retired teacher from Westbourne even turned up, to the surprise of Westbourne staff and students, giving all a chance to reminisce.

We planted as grand total of 1,084 plants. This may well be a record for this site.



Staff and students of Westbourne Grammar School

The Pinkerton Link Story: *creating a forest out of nothing!*



Students and volunteers planting at Pinkerton Link on mulch' islands' (above two photos) and one of the large jute mat 'islands' (lower photo)

The Pinkerton Link Story: *creating a forest out of nothing!*



William Rajendram, Kevin Maddigan and retired Westbourne teacher, Chris Binney

The Pinkerton Link Story: *creating a forest out of nothing!*



Western Land Services and Western Water volunteers at Pinkerton Link

Bacchus Marsh Girl Guides at Pinkerton Link Sunday 31st August 2014

On Sunday 31st August a group of Girl Guides from Bacchus Marsh, accompanied by their Leaders and parents participated in the Pinkerton Link Project, helping us 'grow a forest from nothing! They planted about 100 plants, including Wallaby Grass, Spear grass and four Grey Box trees. Hopefully they may return one day, some years into the future and find a Grey Box Woodland here with native grasses and understory; and reflect on their part in its creation. Again we enjoyed a magnificent sunny morning, with a warm breeze. A fitting end of winter.

We planted in three plots situated at the northern end of the paddock. As these trees grow to maturity we expect them to provide a windbreak against the hoy northerlies that blow across here in summer. This should shelter the plants downwind, protecting them from the frying influence of these winds. Also, as these plants mature and set seed, their seeds will be blown downwind into the paddock, causing natural regeneration of native plants.

The Girl Guides would like to return and plant next year, to once more participate in planting a forest. Planting a forest from nothing is a once in a lifetime opportunity.

The Pinkerton Link Story: *creating a forest out of nothing!*



Bacchus Marsh Girl Guides, Leaders and parents planting in Pinkerton Link

The list of groups who have participated in this project is constantly expanding!

Planting innovations at Pinkerton Link

An innovation was the use of several jute mats to combat competition from weeds that grow rampantly in the highly fertile soil.

Another innovation is the creation of a series of 'islands of excellence'. Instead of trying to completely restore the entire 12 hectare paddock, we are concentrating on planting within discrete 'islands' and building up the native biodiversity content, and maintaining these intensively. As these islands are restored the intention is to link them up.

Daryl Akers, October 2014