



PINKERTON LANDCARE and ENVIRONMENT GROUP Inc

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Community Volunteer Action Grant 2015 Application 2015CVA00046 Project Report

**Pinkerton Link: A corridor connecting two remnant Grey Box Woodlands
Victorian Government Threatened Species Grant to protect Diamond Firetails**



Diamond Firetails (photo by Chris Lunardi)

KABV City Pride Award 2003 Winner: City Pride: *Landcare Group*

KABV Sustainability Cities Finalist 2005 Protection of the Environment Award: *Protection of Pinkerton Forest*

KABV / Sustainable Cities Award 2010 Winner *Protection of the Environment: The Sea-eagle has Landed*

KABV / Sustainable Cities Award 2014 Winner *Protection of the Environment: Outdoor classroom on the Werribee River*



Pinkerton Link and Diamond Firetails

Pinkerton Landcare and Environment Group (PLEG) regard the Diamond Firetail as a *'flagship species'* for the Pinkerton Forest precinct.

A local government official recently said (in reference to the endangered Plains Wanderer):
'It's a pity that these birds are so drab'.

The Diamond Firetail is an endangered local species that is totally dependent upon native woodlands for survival. It is classified in one publication under the heading of 'Australian Grass-Finch', the restoration and creation of grassy –woodlands will benefit all finches which depend on grass seeds.

It is also a spectacularly beautiful bird that should attract the attention of people who have not much interest in native wildlife

Actions to protect the habitat of Diamond Firetails will also create habitat for other local vulnerable woodland species such as Brown Treecreeper, Jacky Winter, Tree Martins and Southern Whiteface.

It will be just as beneficial to the numerous other more common species found in the Forest that are fortunately not so endangered.

Indeed, one historical source cites an Aboriginal legend of the Diamond Firetail as nothing less than the creator of the Sun!

'Pupperimbal the Diamond Firetail, made the sun, which brought light and warmth.'

'Diamond Firetails must never be killed, otherwise another torrent of rain may fall from the sky.'

Aboriginal Myths, Legends & Fables: A.W REED

1. Background

In the beginning: there was the Sludge Paddock!

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 the recycled water for irrigation. 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 Sludge Paddock (now Pinkerton Link)



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

Importance of the 'Sludge Paddock' as a link between Bushs Paddock and Pinkerton Forest

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

We also hope that the privately owned paddock to the east (right) of the Sludge Paddock (now Pinkerton Link) may be purchased by City of Melton one day to further link the two woodland remnants and further increase woodland habitat.

Pinkerton Link: creating a wildlife corridor connecting two remnant Grey Box Woodlands
Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Western Water, in association with Pinkerton Landcare and Environment Group (PLEG), has been undertaking biodiversity enhancement works in Pinkerton Forest for twenty years and along the Werribee River valley for the last twelve years. Pinkerton Forest 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 areas of medium quality remnant native vegetation. Western Water has to date been undertaking restoration works along approximately 3km of Werribee River frontage in partnership with Melbourne Water and PLEG.

Bordering Surbiton Park is the City of Melton owned remnant native grassland known as Mulla Mulla Grassland (MMG, previously named Bush's Paddock) which lies approximately 370 metres north of Pinkerton Forest. Pinkerton Forest and Mulla Mulla Grassland are separated by a 12ha 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.

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 MMG 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 previously 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 rabbit proofed and has since been managed to improve the biodiversity of the forest.

Grey Box (*E.microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia are classified as Endangered under the *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999*.

Mulla Mulla Grassland

Mulla Mulla Grassland is a City of Melton owned property located on the north east boundary of Pinkerton Link. It has had a long history of ownership in the one family, with light grazing which has saved its natural values. However with a WWF grant in 1999 to PLEG and careful management of the native grassland and woodland, weeds and pest animals the site's natural values have been enhanced.

The vegetation is remnant Plains Woodland and also contains large areas of native grassland. Natural Temperate Grasslands of the Victorian Volcanic Plains are also listed as threatened under the *EPBC Act 1999*.

Project Strategy

Pinkerton Forest and Mulla Mulla Grassland are vegetation relics of pre-European settlement and provide many habitat opportunities for ingenious fauna species. Within a five kilometre radius of Melton, 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 of Pinkerton Link will provide native fauna with a larger habitat area, increased available food supply and promote healthier and larger populations. The link will also create a greater likelihood of sustaining populations which undergo any fluctuations or catastrophes.

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

Pinkerton Link

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 MMG. This will create a much more environmentally viable Grey Box Woodland.

Creating the forest begins: August 2011

On Saturday 13th August 2011 Western Water & Pinkerton Landcare & 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!

Close to 30 people turned up and we planted almost 1,000 grasses, herbs and trees. Participants were from groups as varied as Melton Bushwalkers, Girl Guides and Scouts, as well as other interested members of the community. We also distributed Speargrass (*Austrostipa scabra*) and Wallaby Grass (*Austrodanthonia*) seed in half of the scraped area in the centre of the paddock.

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Before: Sludge Paddock prior to Pinkerton Link Restoration Project



Sludge Paddock March 2009 (prior to revegetation project)
Choked with weeds & Galenia

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2. Community Volunteer Action Grant 2015 Application 2015CVA00046

Media Release

7 December 2015

Grant to help threatened species in Pinkerton

A partnership between the Pinkerton Landcare and Environment Group (PLEG) and Western Water to protect vulnerable species in Melton has been boosted by a \$12,000 State Government grant.

The Threatened Species Protection Initiative grant, from the Department of Land, Water, Environment and Planning, is for protection of the Diamond Firetail.

PLEG and Western Water joined forces in 2011 to create a habitat corridor between Pinkerton Forest and Melton City Council-owned land at Bush's Paddock, known as the Pinkerton Link.

The Diamond Firetail, a finch identifiable by its bright red bill and black wings with white spots, is one of several vulnerable species found in the area.

"We have been working with PLEG for many years now on improving habitat on Western Water land at Pinkerton Forest, and now the Pinkerton Link," Western Water's General Manager, Customer and Community Relations, Graham Holt, says.

"This area is critical for the protection of local flora and fauna species facing loss of habitat and other threats."

PLEG's Daryl Akers says the Pinkerton link is helping solve the problem of habitat fragmentation for species such as the Diamond Firetail.

"This grant will help us to control weeds and pest species, and work on revegetation to provide habitat for this beautiful little bird," Mr Akers says.

"This work will also benefit other species in the area, such as the Brown Treecreeper, Jacky Winter and Southern Whiteface."

ends

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The grant was acknowledged in articles in two local newspapers.



Melton Leader Tuesday 19th January 2016



Star Weekly 12th January 2016

<http://www.starweekly.com.au/news/vulnerable-species-in-melton-to-be-protected/>;

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Threatened Species Grant: Pinkerton Link: 2016

Planting Wattles at Pinkerton Link Easter Saturday 26th March 2016

On Easter Saturday, Saturday 26th March, five people began planting in Pinkerton Link for 2016. Irene, Frances and Daryl of PLEG were accompanied by Werribee residents Muriel and her daughter Elke. Although the weather is still very dry we had a number of Gold-dust Wattles fully ready for planting so we decided to begin planting for our Threatened Species Grant project early. Taking advantage of the still warm earth we planted 120 Gold-dust Wattles, hopefully giving these plants a head start; undeterred by the misty rain. We planted on four large mounds of earth, formed when 30 cm of topsoil from what was the old Sludge Paddock (now Pinkerton Link) was scraped away to remove soil over-rich in nutrients.

Seeds from these Gold-dust Wattles should provide food for finches and other seed-eating birds in years to come. Common Bronzewing are present in Pinkerton as visitors only, no doubt flying in from nearby Eynesbury Forest. Provision of wattle seeds in the newly planted Pinkerton Link may induce them to become permanent resident here as the newly planted Greybox Woodland takes shape. The soil on the mounds was soft, making planting easier and hopefully allowing for the roots of the plants to grow quickly and deeply.

Muriel and her daughter Elke collected the yellow and red seeds of Ruby Saltbush growing in the adjacent Pinkerton Forest. These were scattered over those sites in Pinkerton Link already planted to create ground cover, where when grown, they will keep the weeds at bay and provide food for birds, insects and other small wildlife.

Birdlife was scarce with the dull cloudy conditions but we were rewarded by the sight of two Pelicans as they circled around us before landing in the adjacent treatment lagoon.



Planning the day's operations

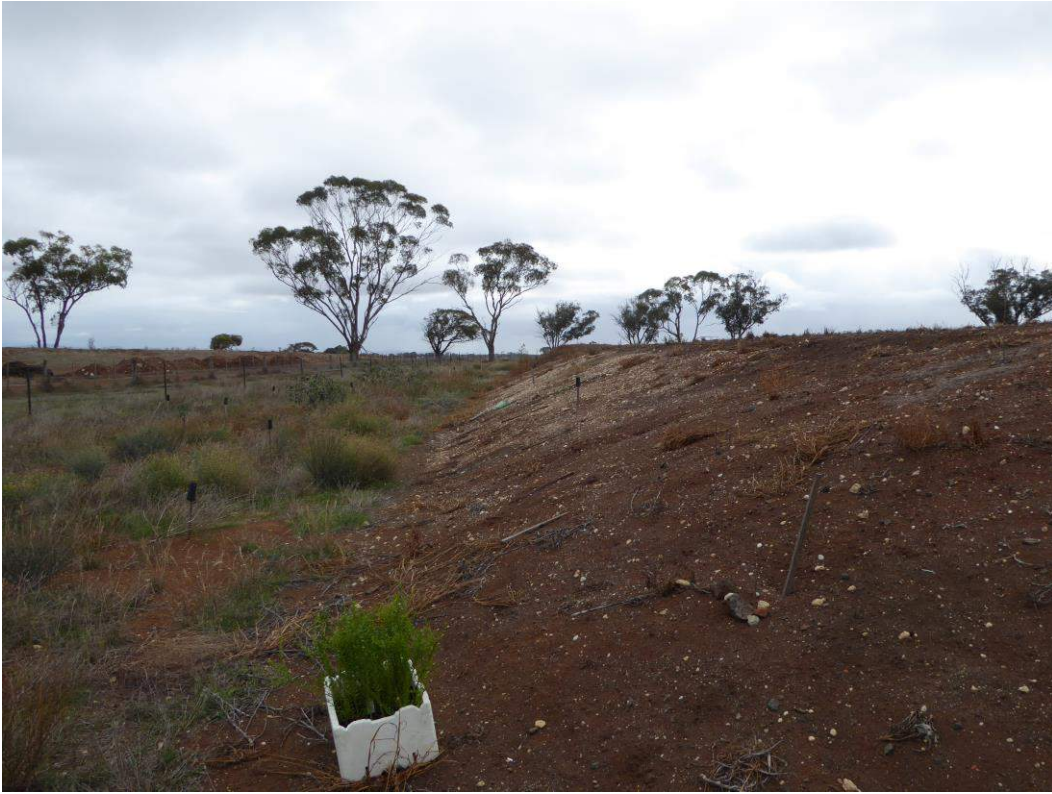
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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*



Recycling tubes from last year's planting



Irene planting Gold-dust Wattles



Before planting



After planting

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 Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Photopoint: 27 April 2016 before



Before: 27th April: looking north



Before: 27th April: looking south

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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Media Release

Planting at Pinkerton Link 17th & 19th June

Creating a Grey Box Grassy Woodland at Pinkerton Link

On Friday 17th and Sunday 19th June Pinkerton Landcare and Environment Group invite members of the public to join them in creating a Grey Box Grassy Woodland at Pinkerton Link!

To continue with the restoration of Pinkerton Link, we are planning to plant on Friday 17th and Sunday 19th June in the morning from 9-12 noon.

Pinkerton Landcare and Environment Group and Western Water joined forces in 2011 to create a habitat corridor between Pinkerton Forest and Melton City Council-owned land at Bush's Paddock, known as the Pinkerton Link.

This partnership between Pinkerton Landcare and Environment Group and Western Water to protect vulnerable species in Melton, in particular the beautiful Diamond Firetail. This work will also benefit other vulnerable species in the area, such as the Brown Treecreeper, Jacky Winter and Southern Whiteface. This project will also benefit other native birdlife that is fortunate not to be so endangered.

This project is funded with the support of the Victorian Government.

The local Grey Box trees will be planted in ideal conditions, into the directly seeded native grass understory created by Greening Australia over the past few years. The small birds will not only be able to land on the future trees, they will also have access to their food, the native grass seeds.

This planting will further the aims of this ambitious project of restoring the grassy woodland link between the mature woodlands at either end of the paddock, Pinkerton Forest and it's extension, the woodland in Mulla Mulla Grassland.

Morning tea is provided.

We will meet at 9am at the gate with the green Land for Wildlife sign attached, on Mt. Cottrell Road, Melway map 221 H7.

If arriving later in the morning please shut the gate behind you, when driving down the track for 300m you will see the open area of Pinkerton Link directly north of Pinkerton Forest.

Everyone is most welcome to join us on this ambitious project,

Planting at Pinkerton Link Sunday 19th June 2016

The planned planting event for Friday 17th June was cancelled due to recent spraying of the Link paddock. The planting event for this site was postponed for two weeks.

On Sunday 19th June six people attended a planting event at Pinkerton Link. We planted well away from the sprayed area.

Some people came from the eastern suburbs to plant, including several bird watchers who regularly participate in quarterly Bird Surveys by Birdlife Australia. Experienced bird watchers are well aware of the need to both protect and expand the habitat of endangered birds.

Planted Sheokes (*Allocasuarina stricta*) and Clematis (*Clematis microphylla*)

Weed Control at Pinkerton Link

We employed Indig-we-do to spray the Couch Grass infestation on the site upon which we intended to plant and direct seed native grasses.

Within about a week the sprayed area was quite visible as the Couch Grass was plainly dead. We intend to cover this site with mulch to make sure that the Couch does not re-appear.

Weed control at Pinkerton Link (Couch Grass infestation sprayed)



Photopoint looking north 28th June 2016



Photopoint looking south 28th June 2016

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Mulch for Pinkerton Link

On Thursday 30th June a B-Double truck arrived full of mulch for the site, all the way from Morwell! Frances and Daryl were present to direct placement of the mulch. The precision with which the driver back the truck with two trailers attached, between the planted trees, was amazing to watch. The initial load was dumped from the rear larger trailer at the northern end of the site. This rear trailer was then detached so that the smaller front trailer was backed onto the southern end of the site and its load again dumped onto the planting site. The driver then reversed the front trailer directly onto the linkage connected to the rear trailer, with just the one attempt! Very spectacular driving.



Dumping rear load



Dumping front load



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Placing mulch at Pinkerton Link 30th June



Photopoint looking south 30th June 2016



Photopoint looking north 30th June 2016

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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Planting at Pinkerton Link Friday 1st July

On Friday 1st July Pinkerton Landcare and Environment Group invited members of the public to join them in creating a Grey Box Grassy woodland, continuing with the restoration of Pinkerton Link. The Pinkerton Link project began in 2011 and aims to create a Grey Box woodland on this twelve hectare site; creating a wildlife corridor between two existing areas of remnant bushland.

Seven people participated, coming from as far afield as Bacchus Marsh, Maribyrnong and Box Hill! The couple from Box Hill were bird watchers who regularly participate in quarterly bird surveys at Pinkerton Forest, conducted by Birdlife Australia and Pinkerton Landcare and Environment Group. The sharp eyes of the birdwatchers quickly observed a flock of seventeen Zebra Finches feeding in the grass and roosting in the recently planted trees (already three metres tall). Other birds seen overhead on the morning were Wedge-tailed Eagles, Whistling Kites, Brown Falcon, Flame Robins and Yellow-rumped Thornbills.

Despite the cold grey morning we planted a total of 170 Grey Box trees.

After having received about 40mm rain during June the soil in the paddock was damp and soft, making planting easy. Last year the soil was hard and dry due to drought, and we lost many plants. We hope this year will be wetter enabling more of our plants to survive.

This is a long term project as it will take about seventy years or more for these trees to reach maturity. Those of us who planted today will probably not see these trees reach maturity. However the forest that will grow here will probably be enjoyed by our grandchildren!



Volunteers Frances & Sue with Western Water management staff
Andy Bridson (Manager Surbiton Park) & William Rajendram (Environmental Manager)

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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*



Frances & Sue planting at Pinkerton Link Friday 1st July 2016



Brian planting at Pinkerton Link Friday 1st July 2016

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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*



Morning tea at Pinkerton Link Tuesday 1st July 2016

Pinkerton Link: creating a wildlife corridor connecting two remnant Grey Box Woodlands
Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*



Treeguards marking 100 newly planted Grey Box trees in Pinkerton Link

Free mulch for Pinkerton Link

On the 18th & 19th July two more loads of mulch arrived at Pinkerton Link. One was supplied free of charge from Powercor on 18th July & one more from Pinegro (19th July) funded by Western Water.

Leafy mulch from Powercor 18th July

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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Grassy weeds spot sprayed



Broadleaf & grassy weeds close cropped by Western Water



Grassy weeds spot sprayed by environmental contractor Western Land Services

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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Arrival of weed mats at Pinkerton Link



Arrival of weed mats at Pinkerton Link

Conservation Volunteers Australia working bee at Pinkerton Link Thursday 21st July 2016

On Thursday 21st July 2016 ten volunteers from Conservation Volunteers Australia (CVA), led by David, spent a day working in Pinkerton Link, funded by Victorian Government Threatened Species Grant.

The morning was spent weeding broadleaf weeds (chiefly Sand Rocket) from the 'islands' planted since 2012.

The afternoon was spent rolling out the weed mats and securing them to the ground by a combination of metal pegs and rocks.

This weed mat will be planted with plant species specific to Greybox Grassy Woodland during a subsequent working bee.

Many thanks to the enthusiastic team of volunteers who successfully cleared the 'islands' of broadleaf weeds.

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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*



CVA volunteers removing broadleaf weeds from planted 'islands'

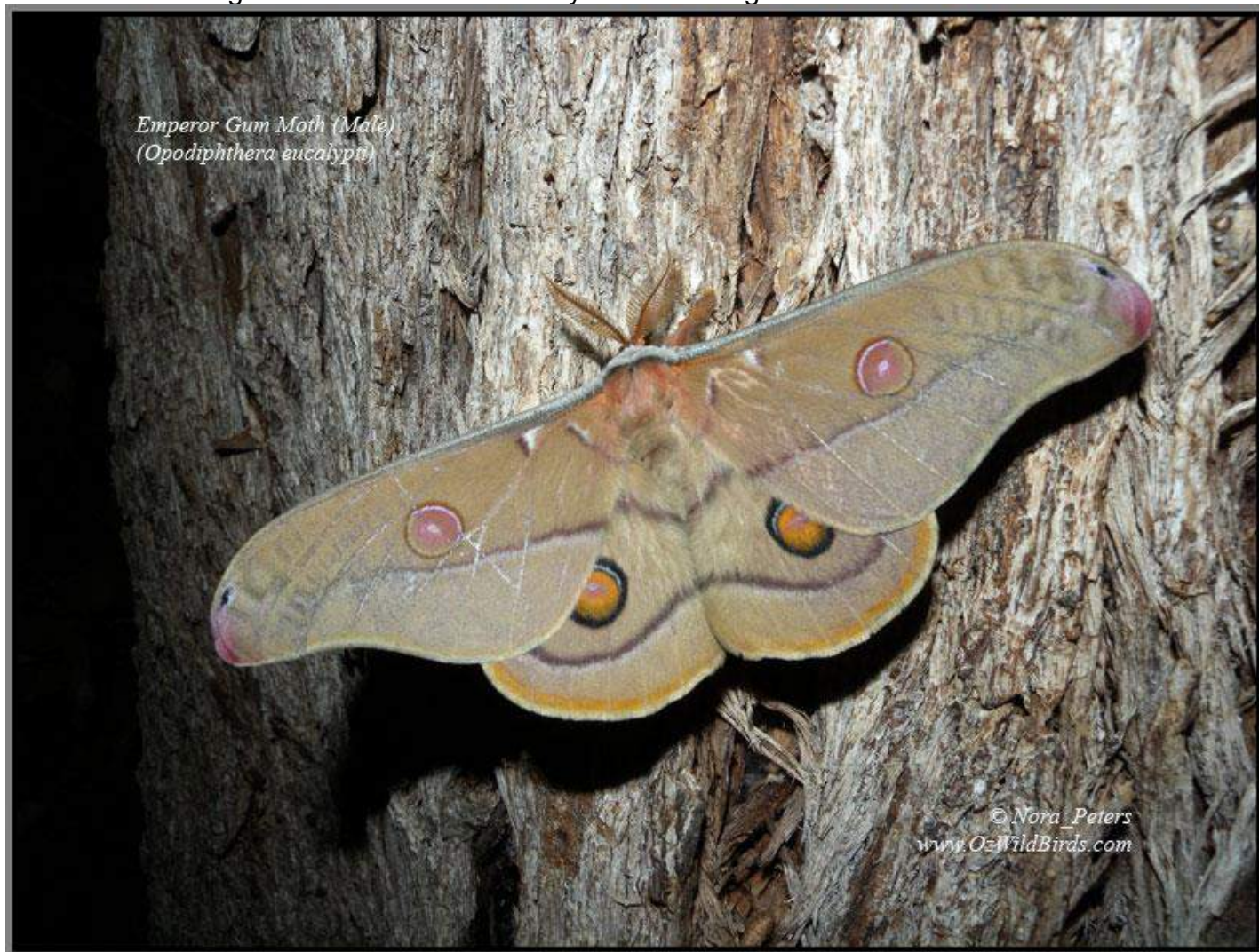
CVA volunteers laying and securing weed mats at Pinkerton Link



Pinkerton Link: creating a wildlife corridor connecting two remnant Grey Box Woodlands
Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Emperor Gum Moths in Pinkerton Link

As the CVA volunteers were weeding among the young eucalypt saplings planted over the last four years we found several egg-sized cocoons of the large, spectacular Emperor Gum Moth. The presence of these cocoons is evidence that native wildlife is already colonising Pinkerton Link. These moths and their large green caterpillars are not only beautiful in their own right but they will also be valuable links in a growing food chain in this newly created woodland. The caterpillars are eaten by insect-eating birds while the large moths would be eaten by owls and frogmouths.





Hedgehog Logistics Solutions: partnership with PLEG at Pinkerton Link

In 2016 Pinkerton Landcare & Environment Group began a partnership with Hedgehog Logistics Solutions.

Hedgehog Group is a Laverton North locally based business who expressed an interest in volunteer environmental work and ensuring the environment is managed sustainably.

This involves company personnel being actively involved in environmental activities in Pinkerton Link in such activities as planting, weeding watering etc.

Hedgehog Logistics Solutions planting at Pink Link Tuesday 2nd August 2016

On Tuesday 2nd three representatives of Hedgehog Logistics joined Frances and Daryl of PLEG to plant grasses in Pinkerton Link.

We planted 100 native wallaby and spear grasses beside the Greybox saplings along the eastern fence line.

After lunch we had a short walk in Pinkerton Forest where we were lucky to see a Flame Robin.



Flame Robin in Pinkerton Forest



Pinkerton Link: creating a wildlife corridor connecting two remnant Grey Box Woodlands
Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

October rains: a mixed blessing!

During winter we were treated to the mixed blessing of over 186 mm of rain! As well as giving our new plants a growing boost the rain also promoted massive growth of weeds! The combination of extended rainy weather combined with high winds conspired to make access roads too muddy for access by non 4WD vehicles, prevented access to many sites; thereby preventing weed control. This combination of wet weather combined with high winds also prevented spraying of herbicide (not to mention bringing major electrical blackouts caused by damage to power lines).

Weeding in Pinkerton Link 16th November 2016

After 221mm rain over four months excessive weed growth was rampant in Pinkerton Link (as well as almost everywhere else)! This was exacerbated by the access lane being impassable for a couple of months due to the rain. The combination of prolonged wet weather and a paddock upon which bio solids had been dumped for over twenty years resulted in a massive growth of Mallow that was chest high!

As the oldest of the trees planted were only five years old it was not possible to place sheep in the paddock to eat the lush weeds. Those trees that were only a year or two were less than a metre in height and the sheep would have eaten these as well as the weeds. Slashing on an agricultural scale was the only viable solution. However, before the slasher could be turned loose in the paddock the trees planted by volunteers last year had to be protected. It was essential that the Mallows be slashed in a timely manner so that they could not set seed.

On Sunday 9th November Frances, Irene, Joan, Daniel & Daryl tackled the massive weed infestation in Pinkerton Link.

Massive weed control on an agricultural scale was necessary but it was also necessary to protect the young trees planted here over the past year or so from mowing, as the tree seedlings were hidden by the weeds. The team needed to clear around the vulnerable young trees, by removing a circle of weeds around the seedlings, making them visible so that the contractors could avoid slashing them.

The team attacked the paddock of mallows with long handled secateurs, machete & lawn mower. The weeding team almost disappeared into the virtual jungle of mallow in the manner of tropical explorers as they hacked, cut and mowed through the massive weed thicket.

As the Grey Box trees mature they will eventually crowd out weeds such as these but in the meantime they will need our assistance by controlling competing weeds.

Some days later the Mallows were slashed by Western Water, leaving the small trees intact and stands of native Spear grass were also left to drop seed into the paddock.



Frances, Joan and Irene clearing circles around tree saplings

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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Weeds slashed around trees in Pinkerton Link by Western Water



Mallows slashed, leaving pantod trees and selected stands of spear grass intact
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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Sacred Kingfisher in Pinkerton Link

This Sacred Kingfisher was recently photographed in Pinkerton Link, in October. This was the second kingfisher this week in Melton. A few days previously a Sacred Kingfisher landed on a low branch in a Melton South garden. It was gone, just as quickly, in a minute. A kingfisher has perched on this branch, over a few years, at this time of the year. Not every year. They are occasionally seen along Arnolds Creek and at Brookfield in Melton. A pair used to be seen beside a lagoon in Melton Botanic Garden. It often appears in Brookfield several times, over a few days, before moving on. They seem to be regular visitors to Melton gardens in the warmer months, probably using local creeks and rivers as migration corridors.

They are often recorded in adjacent Pinkerton Forest and Mulla Mulla Grassland. This is the first one to be seen in Pinkerton Link, indicating that kingfishers see the Link as suitable habitat. As Pinkerton Link gradually grows into a Greybox Woodland it will act as a corridor between Pinkerton Forest and Mulla Mulla Grassland, as well as creating an expanded woodland habitat.



Hedgehog Logistics weeding in Pinkerton Link 18th November 2016

On 13th November Jaime, Jasper and Hueng of Hedgehog Logistics joined Frances and Daryl for a morning's weeding in Pinkerton Link.

Hedgehog Logistics have recently joined with PLEG in a corporate partnership whereby the company makes staff available for environmental work in Pinkerton at various intervals. This is proving invaluable as it gives PLEG much needed manpower for the sometimes daunting task of managing planting & weeding in Pinkerton Link.

Broad scale weeding can be tackled by various means such as slashing and broad spraying. But tasks such as spot weeding around our plantings cannot be done delicately enough by such mechanised means. Delicate weeding around plants needs a human touch, in which the efforts by the Hedgehog Logistics staff is better suited.

Afterward, while having lunch in nearby Pinkerton Forest we were treated to the sight of the resident pair of Wedge-tailed Eagles a hundred or so metres away. The Forest is surrounded by a working farm and they are used to PLEG working here, so they took little notice of us. One swooped to the ground then took off again with a heavy laboured flight, with something in its talons. It's not often we see an eagle taking its prey so close to us!



Lunch in Pinkerton Forest



Jaime, Jasper, Huen & Frances weeding in Pinkerton Link

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Weeding at Pinkerton Link 21st November

Frances and Daryl returned to Pinkerton Link on 21st November to continue hand weeding in the 'island', following up the work done by Hedgehog Logistics volunteers a day or so ago.

We concentrated on Mallow and weed grasses such as Ryegrass, Wild Oats & Barley Grass. Native grasses such as Wallaby Grass and Spear grass were found self-seeding among the weeds. We also cleared weeds from plastic covers where plants had been planted this year.



Frances hand weeding among Stipa & Danthonia



Frances weeding Sheoaks (*Allocasuarina verticillata*) planted this year

'Islands' cleared of weeds

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Sowing native grass seeds between northern 'islands'

The area between the two 'northern islands' will be hand seeded with indigenous grass seed. Western Water funded scarifying and spraying of the site and native grass seeds were supplied by a contractor (Greybox and Grassland Indigenous Nursery) who harvested the seed from Mt Cottrell.

Native grass seeds were harvested from a local property in the Mt.Cottrell region, by Greybox and Grassland Nursery (GAGIN) with a native grass seed harvester. Two bales were collected, containing Wallaby Grass and Spear grass seeds. Many properties have large tracts of remnant native grassland, only a few kilometres from Pinkerton Link. Unfortunately these properties are destined to be developed in the next few years so this can be seen as a rescue operation to preserve local genetic grassland stock.



Site between 'islands' scarified, to be sprayed then seeded with grass seeds

Seed collecting at Mt Cottrell property



Native grass seed harvester



Bags of harvested Themeda & Danthonia seed

Sowing native grass seeds Sunday

On 18th December 2016 locally indigenous grass seeds, collected locally, were scattered over the twice sprayed and scarified site between the three northern high biodiversity islands to help restore native grassland to Pinkerton Link. Spear and Wallaby grass seeds were broadcast over the site. This will involve broadcasting the seed by hand, onto land that has been scarified and sprayed. Western Water scarified the land between the three northern 'islands'. The site was then sprayed by environmental contractor Western Land Services to kill emerging weeds, to reduce competition for germinating native grasses. The weeds among which we scattered the seeds were already yellowing from the recent spraying and will shortly die, preventing their competing with the native grasses when they germinate. In the meantime the dead weeds should protect the seeds from being blown away. Dead brushwood was also scattered to further protect the seeds from prevailing northerly winds and to provide a microclimate for germination.

All crops were once sown in this manner, prior to the very recent development of agricultural machinery, over the last hundred or so years. We will be sowing seeds as our forefathers did for millennia, as it were.



Frances broadcasting native seed in Pinkerton Link



Laying brushwood to protect seeds



Broadcast site after weeds have died

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Drooping Sheoaks (*Casuarina verticillata*) have been planted beside these islands in 2016 as part of this year's project.

The trees on these northern islands, at the northern boundary of the property should act as windbreaks against the prevailing north winds, thereby offering some protection against hot summer winds. The seeds from the previous and new high biodiversity plantings on the 'islands' will be blown southwards, ensuring that they remain within the boundaries of Pinkerton Link.

This should ensure that a healthy understory of native grass species will grow among the trees (mainly Grey Box and a Blue Box and some Lightwood) as they mature over coming years.

A large expanse of Spear grass/Wallaby grass mix has already been sown by Greening Australia. This should eventually create Grassy Greybox Woodland as suitable habitat for endangered Diamond Firetails (as well as a host of other woodland dependent wildlife).

Hundreds of trees and shrubs and have been planted in Pinkerton Link since 2011, as well as native grasses and herbs.

Appendix 1 Species planted

List of indigenous plants planted and to be planted in Pinkerton Link 2016 – 2017

Provenance

Pinkerton Forest
 Mulla Mulla Grassland (Bush's Paddock)
 Eynesbury Forest
 Ferris Road = North-West rail Reserve
 Mt Cottrell

List

Pinkerton Forest		Small – leaved Clematis <i>Clematis microphylla</i>	50
Pinkerton Forest		Mixed Wallaby & Spear grasses	300
Pinkerton Forest		Grey Box (100 - 2017)	200
Pinkerton Forest	2017	Heath Spear Grass <i>Austrostipa exilis</i>	200
Mulla Mulla Grassland (Bush's Paddock)		Sheoak <i>Allocasuarina verticillata</i>	50
Mulla Mulla Grassland (Bush's Paddock)	2017	Tangled Shrub-violet <i>Melicytus sp.aff. dentatus</i> (<i>Volcanic Plain Variant</i>)	50
Mulla Mulla Grassland (Bush's Paddock)	2017	Tree Violet <i>Melicytus dentatus</i>	100
Mulla Mulla Grassland (Bush's Paddock) + Ferris Rd.		<i>Dianella longifolia</i> a few	
Eynesbury Forest		Gold Dust Wattle <i>Acacia aninacea</i>	200
Mulla Mulla Grassland (Bush's Paddock)		Pussy tails <i>Ptilotus spathulatus</i> a few	
Mt. Cottrell	2 wool bales of mixed Wallaby/Spear grass seed harvested from private property direct seeded		
Pinkerton Forest		Nodding saltbush <i>Einadia nutans</i> direct seeded	
Pinkerton Forest		Ruby saltbush <i>Enchylaena tomentosa</i> direct seeded	

Appendix 2 Bird Species

List of bird species in Pinkerton Forest , Mulla Mulla Grassland & Pinkerton Link

Pinkerton Forest (124 species)

Australian Wood Duck	Flame Robin	White-necked Heron
Grey Teal	European Goldfinch	White-winged Triller
Chestnut Teal	Zebra Finch	Great Crested Grebe
Straw-necked Ibis	Australian Shelduck	Great Cormorant
Wedge-tailed Eagle	Eurasian Skylark	Fan-tailed Cuckoo
Masked Lapwing	Little Eagle	Cattle Egret
Black-fronted Dotterel	Spotted Dove	Brown Quail
Crested Pigeon	Black Falcon	Sacred Kingfisher
Horsfield's Bronze-Cuckoo	Dusky Woodswallow	Striated Thornbill
Nankeen Kestrel	Diamond Firetail	Collared Sparrowhawk
Australian Hobby	Little Pied Cormorant	White-bellied Sea-Eagle
Brown Falcon	White-faced Heron	Southern Boobook
Peregrine Falcon	Red-kneed Dotterel	Yellow-billed Spoonbill
Galah	Crimson Rosella	White-fronted Chat
Long-billed Corella	Hardhead	Pied Cormorant
Sulphur-crested Cockatoo	Common Bronzewing	Weebill
Eastern Rosella	Brown Thornbill	Yellow Thornbill
Red-rumped Parrot	Common Blackbird	Scarlet Robin
Rainbow Lorikeet	Australasian Shoveler	Fairy Martin
Brown Treecreeper	Pallid Cuckoo	Southern Whiteface
Superb Fairywren	Little Lorikeet	Barn Owl
Noisy Miner	Golden Whistler	White-throated Treecreeper
White-plumed Honeyeater	Grey Fantail	Grey Goshawk
Striated Pardalote	Black Swan	Grey Shrikethrush
Yellow-rumped Thornbill	Pink Robin	Restless Flycatcher
Australian Magpie	Australasian Darter	Shining Bronze-Cuckoo
Black-faced Cuckooshrike	Brown-headed Honeyeater	Budgerigar
Crested Shrike-tit	Varied Sittella	
Willie Wagtail	Red-browed Finch	
Magpie-lark	Silver Gull	

Pinkerton Link: creating a wildlife corridor connecting two remnant Grey Box Woodlands
Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Jacky Winter	Rock Dove
Welcome Swallow	Little Corella
Tree Martin	Australasian Pipit
Common Starling	Black-shouldered Kite
Common Myna	Laughing Kookaburra
European Greenfinch	Silvereye
House Sparrow	Australasian Grebe
Pacific Black Duck	Swamp Harrier
Pink-eared Duck	Musk Lorikeet
Hoary-headed Grebe	White-browed Woodswallow
Brown Goshawk	Rufous Whistler
Whistling Kite	Leaden Flycatcher
Eurasian Coot	Rufous Songlark
Purple-crowned Lorikeet	Musk Duck
Spiny-cheeked Honeyeater	Australian Pelican
Red Wattlebird	Golden-headed Cisticola
New Holland Honeyeater	Little Black Cormorant
White-naped Honeyeater	Stubble Quail
Spotted Pardalote	Australian White Ibis
Little Raven	Black Kite

Mulla Mulla Grassland (Bush's paddock) (113 species)

Straw-necked Ibis	Golden Whistler	New Holland Honeyeater
Brown Falcon	Common Blackbird	Striated Thornbill
Galah	Weebill	Great Cormorant
Long-billed Corella	Whistling Kite	Black-fronted Dotterel
Eastern Rosella	Brown Treecreeper	Red-browed Finch
Red-rumped Parrot	Black-shouldered Kite	Common Bronzewing
Superb Fairywren	Wedge-tailed Eagle	White-fronted Chat
White-plumed Honeyeater	Freckled Duck	Australian White Ibis
Spotted Pardalote	Black Swan	Varied Sittella
Yellow-rumped Thornbill	Australian Shelduck	Brown Songlark
Dusky Woodswallow	Australian Wood Duck	Peregrine Falcon
Australian Magpie	Pacific Black Duck	Brown Goshawk
Black-faced Cuckooshrike	Australasian Shoveler	Masked Woodswallow
Crested Shrike-tit	Hoary-headed Grebe	White-naped Honeyeater

Pinkerton Link: creating a wildlife corridor connecting two remnant Grey Box Woodlands
 Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Rufous Whistler	Great Crested Grebe	Laughing Kookaburra
Willie Wagtail	Little Pied Cormorant	Sacred Kingfisher
Grey Fantail	Little Black Cormorant	Crimson Rosella
Magpie-lark	Australian Pelican	Australasian Bushlark
Jacky Winter	White-faced Heron	Fan-tailed Cuckoo
Tree Martin	Eurasian Coot	Grey Teal
Common Starling	Red-necked Avocet	Musk Duck
Common Myna	Sharp-tailed Sandpiper	Spotted Dove
House Sparrow	Yellow Thornbill	Hardhead
Zebra Finch	Eurasian Skylark	Silver Gull
Masked Lapwing	Cattle Egret	Chestnut Teal
Horsfield's Bronze-Cuckoo	Little Eagle	Blue-billed Duck
Brown-headed Honeyeater	Rock Dove	Budgerigar
Flame Robin	Australian Hobby	White-throated Treecreeper
Welcome Swallow	Grey Shrikethrush	White-throated Needletail
Diamond Firetail	Eastern Yellow Robin	Stubble Quail
Red Wattlebird	Spotted Harrier	Shining Bronze-Cuckoo
Little Raven	White-bellied Sea-Eagle	Pallid Cuckoo
Australasian Pipit	Australian Reed-Warbler	Blue-winged Parrot
Crested Pigeon	Brown Thornbill	
Nankeen Kestrel	Silvereye	
Striated Pardalote	Rufous Songlark	
White-winged Triller	Scarlet Robin	
European Goldfinch	Swamp Harrier	
Sulphur-crested Cockatoo	Little Corella	
White-browed Woodswallow	Spiny-cheeked Honeyeater	

<http://ebird.org/ebird/australia/hotspots#;>

Birds of Pinkerton Link (45 species)

Australian Pelican	Red-browed Firetail
Straw-necked Ibis	Zebra Finch
Black-shouldered Kite	Diamond Firetail
Whistling Kite	Goldfinch
White-bellied Sea-Eagle	House Sparrow
Brown Goshawk	Welcome Swallow
Wedge-tailed Eagle	Tree Martin
Australian Kestrel	
Australian Hobby	
Brown Falcon	
Masked Lapwing	
Stubble Quail	
Brown Quail	
Crested Pigeon	
Galah	
Long-billed Corella	
Sulphur-crested Cockatoo	
Eastern Rosella	
Red-rumped Parrot	
Eurasian Skylark	
Australasian Pipit	
Golden-headed Cisticola	
Little Grassbird	
Black-faced Cuckoo-shrike	
Willie-wagtail	
Gray Fantail	
Restless Flycatcher	
Jacky Winter	
Scarlet Robin	
White-faced Chat	
Superb Fairywren	
Yellow-rumped Thornbill	
White-plumed Honeyeater	
Red Wattlebird	
Magpie Lark	
Australasian Magpie	
Little Raven	
European Starling	

Appendix 3 Planting Native Grasses

The Wallaby Grasses are planted singly in the jute matting slits, in the photos below, as well as Clematis in the matting. The Wallaby grasses are planted in clusters of 5 or 6 in the mulch to increase likelihood of seed spread should some of the plants die



Pinkerton Link: creating a wildlife corridor connecting two remnant Grey Box Woodlands
Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Appendix 4 Photopoint

Before: 27th April: looking north



Before: 27th April: looking north



After: 6th January looking south

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Community Volunteer Action Grant 2015: *Threatened Species Grant to protect Diamond Firetails*

Before: 27th April: looking south



After: 6th January looking south

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