



GILLAMII CENTRE

Sustainable Agriculture in Practice

RESTORING GONDWANA

BFRG1095-02

Kent - Frankland



FINAL REPORT
Prepared by Gillamii Centre Inc.
October 2016

Restoring Gondwana

Improving landscape scale conservation by protecting and improving the condition of remnant vegetation in the Forest to Stirling macro corridor



Acknowledgments

Gillamii Centre Inc acknowledges the following organisations and individuals for their considerable contribution in the delivery of this project.

This project was supported by South Coast Natural Resource Management via funding from the Australian Government

Gillamii Centre would also like to thank the Shire of Cranbrook for their ongoing support and Wendy Bradshaw for her quality input in the revegetation program.

The Gillamii would also like acknowledge and congratulate all landholders who participated in the project, undertaking on-ground works on their properties.



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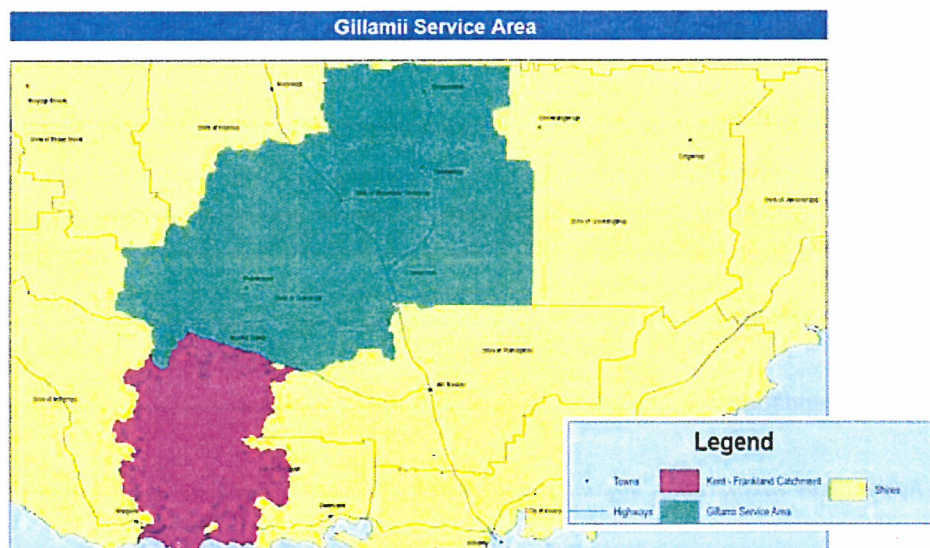
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1. Introduction

The Gillamii Centre Inc. (further referred to as The Gillamii), located in Cranbrook, offers a range of services to a wide geographical area. This area is on the northern edge of the Stirling Ranges and broadly and historically encompassed the shires of Cranbrook and Tambellup/Broomehill. In recent times, the Gillamii services area has expanded to now include parts of the Kojonup and Plantagenet Shires.



The Gillamii service area has a varied rainfall ranging from 350mm through to 600mm in the west of the area. This combined with suitable soils and landscapes has led to a broad range of agricultural land uses including Broad-acre cropping; Mixed livestock and cropping; Viticulture; Perennial horticulture; and Farm forestry.

The Gillamii Centre aims to lead and inspire our agricultural community and the community at large to be involved with sustainable land use through training, education and knowledge. There are a number of land degradation issues prevalent throughout the area in addition and loss of biodiversity is also an issue and is a focus for The Gillamii Centre.

The Gillamii Centre has been successful in delivering a wide range of projects and is committed to being a community based organisation that represents a wide range of landcare and agricultural views. The most recent project implemented by the Gillamii Centre, referred to as BFRG1095-02 Restoring Gondwana formed part of a region wide plan to reduce fragmentation between core ecosystems by restoring/protecting biodiverse corridors on, and adjacent to, cleared agricultural land.

The aim of this report is to outline and evaluate the effectiveness of this project and provide future recommendations based on the project learnings.

2. Project Objectives

The Restoring Gondwana project implemented by the Gillamii Centre, referred to as BFRG1095-02 was developed to increase connectivity in the Forest to Stirling macro Corridor by Implementing actions identified in the local [Forest to Stirling] Conservation Action Plan (Figure 2.1) to protect key threatened fauna and flora of the Forest to Fitzgerald macro corridor.

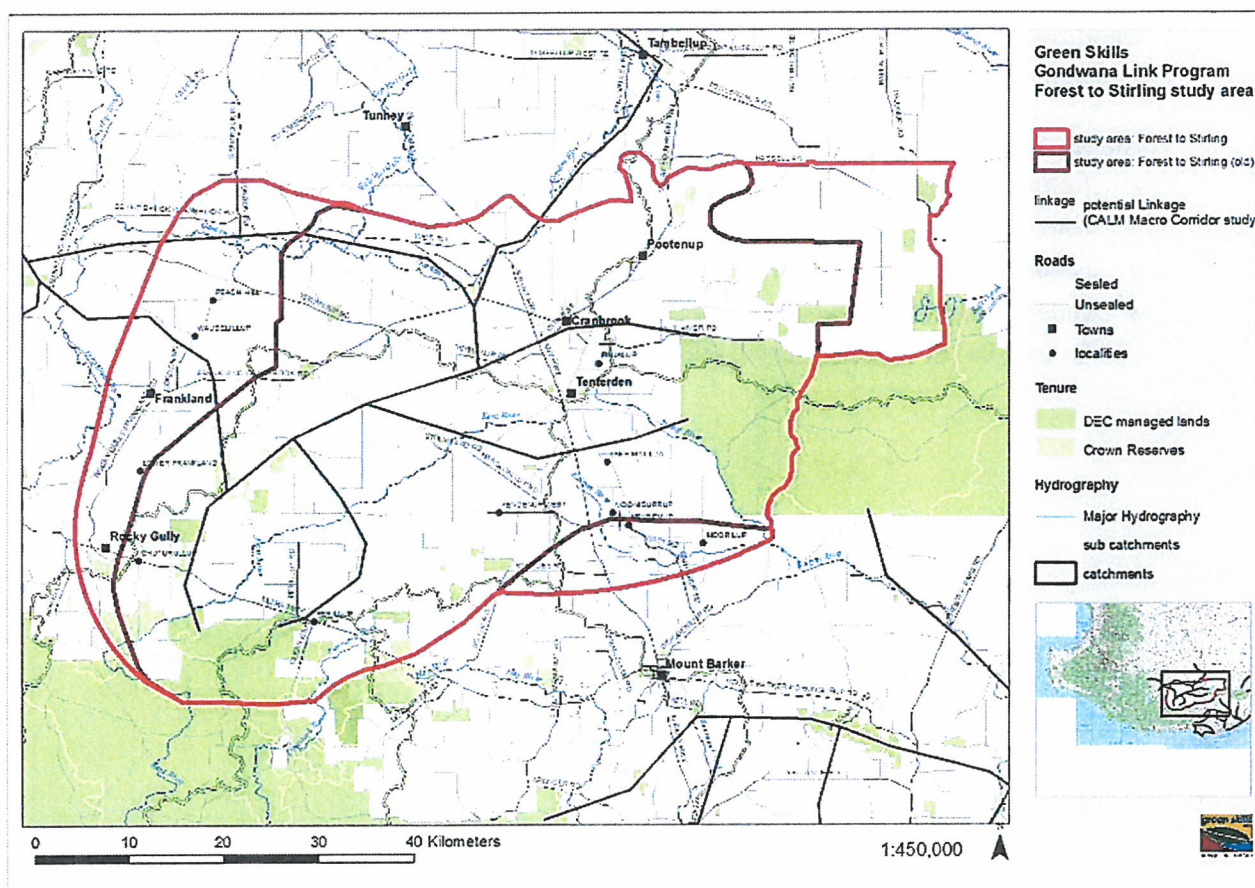


Figure 2.1: Gondwana Link Forest to Stirling study area (Credit: Green Skills)

Improving landscape connectivity, maximising population viability and reducing threatening processes were key project outcomes of the project, in order to build the resilience of threatened species and assist with reducing the impact of climate change. This project formed part of a region wide plan to reduce fragmentation between core ecosystems by restoring/protecting biodiverse corridors on, and adjacent to, cleared agricultural land. This project supported these actions by providing funding in three key areas:

Theme 1: Restore ecosystems to assist the movement of plants and animals through disturbed landscapes. This will increase the resilience of species susceptible to increased temperatures and a drier

climate. This will have demonstrable benefits in increasing the distribution of native species and preserving genetic diversity.

Theme 2: Protect remnant vegetation, with a priority on ecosystems with sufficient resilience to 'bounce back' after protection leading to enhanced connectivity. Implement Phytophthora dieback mitigation strategies to maintain native habitat, in particular Environment Protection Biodiversity Conservation of Act of 1999 (EPBC) flora.

Theme 3: Protect fauna through integrated feral pest control. A focus on controlling fox and cat predation will protect EPBC listed vulnerable and endangered species including Red-tailed Phascogale, Southern Brown Bandicoot, Malleefowl, and Carnabys cockatoo.

The key deliverables of the Restoring Gondwana project included:

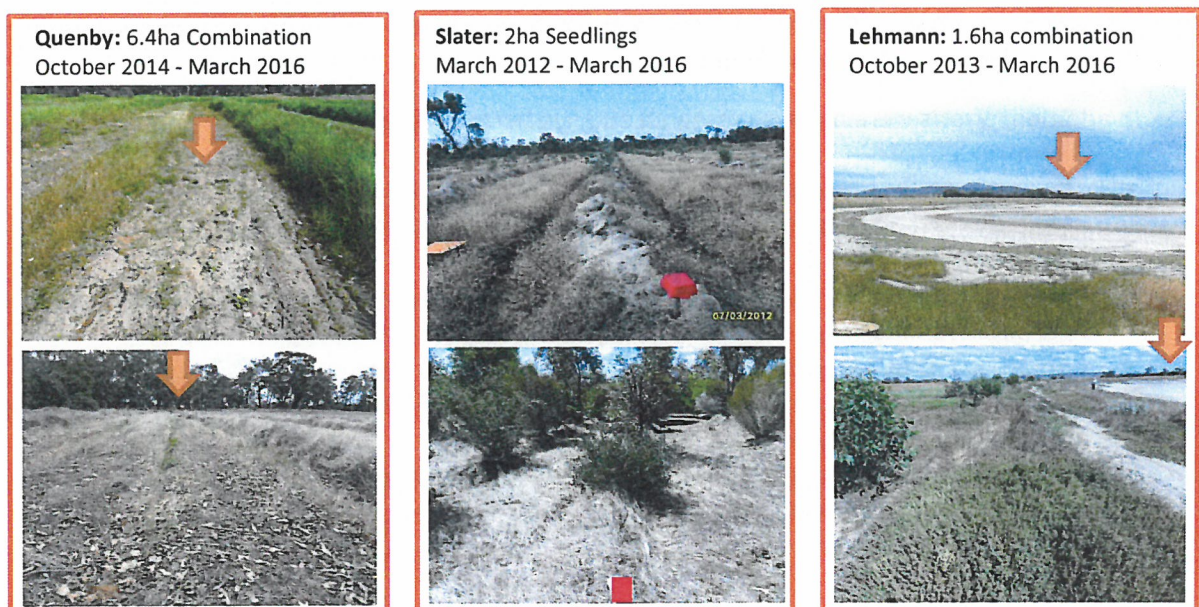
- Protecting remnant vegetation within the corridor by erecting 46km of fencing to exclude stock from vegetation on private property
- Establishing 10ha of biodiverse plantings to improve degraded remnant vegetation
- Undertaking 120ha of environmental weed control including Sydney golden wattle
- Running 2x fox bounties during the life of the project

3. Project Outcomes

Improving landscape connectivity, maximising population viability and reducing threatening processes were key project outcomes that will build the resilience of threatened species and assist with reducing the impact of climate change. This project formed part of a region wide plan to reduce fragmentation between core ecosystems by restoring/protecting biodiverse corridors on, and adjacent to, cleared agricultural land.

The planned activities and agreed target outcomes were delivered early in the project and under budget. Early identification of a likely underspend in funding meant that a variation could be negotiated enabling additional successes in the final year of the project. Overall, the project improved landscape scale conservation by protecting and improving the condition of remnant vegetation in the Forest to Stirling macro corridor by:

- Protecting remnant vegetation within the corridor by erecting 51.27km of fencing on eight properties to exclude stock from vegetation on private property;
- More than 1816ha of remnant vegetation with high conservation and connectivity value
- Establishing 21.5ha of biodiverse plantings to improve degraded remnant vegetation, increasing future habitat and foraging for wildlife (see monitoring photos of some of the sites below)
- Undertaking 411ha of environmental weed control including Sydney golden wattle and
- Running a continuous fox bounty (13,000ha) during the life of the project, culling 57 cats and 800 foxes (858 individuals) to reduce competition and threats to native flora and fauna
- Delivering a community Fox Control Forum [educational event], attracting an attendance of 22
- Undertaking revegetation monitoring at six sites to help improve future revegetation
- Five cocka-tubes to provide immediate habitat for EPBC listed Carnaby's Black Cockatoos.



4. Project Evaluation

Project success was measured based demonstrated achievement of project objectives and the appropriateness, efficiency of the delivery, as well as the effectiveness and impact/legacy of the project.

The planned activities and agreed target outcomes were delivered early in the project and under budget. The most significant saving was achieved by direct seeding the revegetation sites which reduced the cost per hectare in reaching the preliminary targets.

The budget balance, subject to a variation early 2016, allowed for additional outcomes including:

- Revegetation Survey Monitoring and reporting
- 4ha of in-fill revegetation (seedlings) into poorly established revegetation sites accordingly
- 7ha biodiverse revegetation within the WICC service area
- Additional 4.27km of protective fencing
- A 'Fox Control Forum', an educational workshop on feral animal control
- Purchasing of five cocka-tubes, artificial habitat for endangered black cockatoos
- Follow-up treatments of Eastern States Wattle species

Essentially this means that all project outcomes were over delivered. As well, the project has had a positive impact which will continue on beyond the project.

4.1 Appropriateness

The methodology used to achieve the agreed targets is considered appropriate. Guidelines provided by SCNRM - such as fencing specification – were adhered to and the Gillamii Centre was in regular liaison with SCNRM regarding the progress and appropriateness of the on-ground works. Professional services were engaged for pest plant and weed control; and overseeing the revegetation component to ensure the best possible outcomes.

In addition, efforts were made to research and use best practice such as:

- The approach to revegetation was tailored to individual sites – for e.g. mounding for salt affected areas; plant species based on existing vegetation complexes and current soil condition.
- Revegetation included a combination of planting seedlings and direct seeding with the aim to maximise the biodiversity outcomes and potential success (establishment) rate*
- Cockatubes, EPBC listed Black Cockatoo artificial habitat, were purchased to provide five artificial hollows to continue to support populations in the area while remnant and revegetated areas continue to mature/ establish.
- A combination of approaches to on-grounds works was undertaken to help ensure success, accommodating for a wider range of factors – for e.g. reveg was a mix of direct seeding and seedling; and weed control was a mix of manual removal and poison.

- Follow-up weed treatments were undertaken at five sites where there has been the most regeneration, to help ensure treatment success.
- Dieback contamination risk was accounted for via management plans established early in the project, informing on-ground works.

However,

- Focusing on a particular type of weed species and one/two type/s of pest animals allowed for a more targeted approach; however there are other pest weeds and plants impacting the same areas that weren't controlled through the project.
- Weed control was undertaken in public areas and reserves only, with a few nearby residences harboring the same weeds.
- The Fox/Cat Bounty is driven by an honesty system, engaging reputable contractors and is otherwise difficult to monitor or ground-truth.

Excerpt the report 'Restoring Gondwana Revegetation Monitoring: Forest to Stirlings', by Wendy Bradshaw (May 2016):

"The proportion of species established and survival rates compared to the number of species planted/seeded ranged from 33% to 85% across all sites monitored in 2016. The highest proportional establishment rate was... 93%."

Some of the factors identified include:

- Soil type changes with a small areas means it was not practical to change seed mixes accordingly
- Bare salt scald at one site (stem density at this site was comparatively low)
- Monitored sites were planted in different years, with different weather patterns and soil moisture at planting
- Weed competition - Rye grass has had a particularly severe impact at one site
- Non-wetting deep sands had a poor direct seeding germination and low survival rate of seedlings
- Evidence of grazing by kangaroos on germinates/seedlings was particularly severe at one site

4.2 Efficiency

The planned activities and agreed target outcomes were delivered early in the project and under budget. Early identification of a likely underspend in funding meant that a variation could be negotiated enabling additional successes in the final year of the project. All of which was undertaken on a low labour/wages budget allocation.

The project included a substantial amount of fencing which is an efficient way of protecting remnant areas and encouraging natural succession through minimal disturbance and an easy outcome in which to engage landholders.

In addition to the total 51.7km reported, The Gillamii Centre delivered 5km of fencing across three sites (1.7km, 0.3km and 3km respectively), funded by the Wilson Inlet Catchment Group.

Similarly, more than the required amount of revegetation was undertaken; including funding 7.5ha revegetation in the WICC service area and follow up revegetation in poorly established sites. This is because direct seeding revegetation sites [earlier in the project] reduced the cost of initial targets.

Having an experienced Gillamii Committee member, an ecologist, actively on board as a consultant, ensured ultimate value for money was achieved and that correct species were sown/planted in appropriate conditions.

A Green Army team was engaged to plant seedlings in the follow-up sites (which otherwise contributed to the efficiency of the project) who were unable to undertake the planting until later than originally planned, due to changes within the logistical requirements of the program. This meant the seedlings were planted quite late in the season may not benefit from as much rainfall during establishment. However, overall, the assistance of the Green Army contributed to the efficiency and success of the project and engaging them again in the future is highly recommended

Virtually all of the on-grounds works were undertaken on properties from which landholders had expressed interest to the Gillamii Centre in NRM works. This avoids barriers that may otherwise be experienced: by working with interested and willing landholders makes for a more efficient project

Year round fox bounty (rather than two separate bounty programs) was a better use of money, as seasonal fluctuations and population variation between years could be accounted for; and overall a far greater number of foxes and cats were culled.

Lastly, the same key speaker for the Fox Control Forum was also engaged to facilitate another event [for a separate project] the following night to reduce costs to both projects.

4.3 Legacy

The impact of the project is improvement to landscape scale conservation in the Kent-Frankland section of the Forest to Stirling corridor by protecting and improving the condition of remnant vegetation in the Forest to Stirling macro corridor.

Some 1800ha of remnant vegetation with high conservation value and connectivity (Palette 4.3.1) is now fenced off and protected from stock and other access for a minimum of 20 years as per the funding contract.

Similarly, 21.5ha of revegetation has increased future habitat and foraging for wildlife, much of which begin providing the most significant eco services for another 15 or more years.

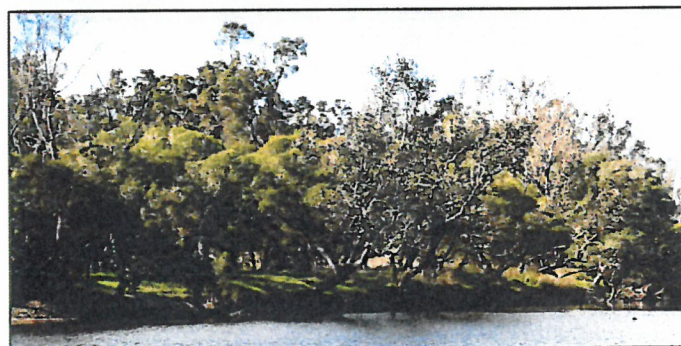
Undertaking revegetation monitoring will help inform future revegetation efforts; and provide a comparative basis for any future monitoring opportunities to continue to improve ecological knowledge.

The five Cockatubes purchased will provide [immediate] habitat for EPBC listed Carnaby's Black Cockatoos, particularly while protected remnant trees and revegetated areas establish and mature.

A fox control forum provided education and resources to a wider audience in the region [than the bounty contractors] on effective and appropriate fox (and cat) control. Event partner, Graham

Lawrence (FOXBUSTERS) has since gone on to host similar events in other areas and build a network of enthusiastic 'hunters'.

Revegetation, protective fencing, pest plant and animal control and other natural resource management works will continue to be undertaken in the area by the Gillamii Centre as much as possible subject to funding.



Palette 4.3.1: Examples of the quality of remnant sites protected by fencing funded through this project; clockwise from the top right, the sites include Bentley, Collins, Beasley and Cunningham.

5. Project Learnings

The key technical learnings from this project that may be of interest to stakeholders include:

- Wattle species have shown surprisingly low competition. A fire in one of the larger treatment sites in Tenterden several years ago was beneficial to native species which are established more thickly reducing available space and thereby stabilising Wattle spread compared to other [degraded] sites.
- Salt tolerant ground cover species, such as *Atriplex semibaccata*, *Disphyma crassifolium*, *Enchylaena tomentosa* are easy to establish by direct seeding (a cost effective approach to revegetation) and smother weeds!
- Autopsies/ stomach contents monitoring have shown that foxes in the area are carrying Tape Worm which is easily transferred to stock and domestic animals; and interestingly, that they eat Deadly Nightshade berries.
- Fox caller (and other technology) has effective implications for control effectiveness, particularly in spring.

6. Recommendations

Engaging an experienced consultant to assist with the revegetation program worked well and helps ensure appropriate and effective revegetation as much as possible. As well, revegetation should be undertaken earlier in the project where possible to enable a brief monitoring period prior to reporting and to accommodate any unforeseen delays.

Revegetation-site monitoring allows for infill planting as required, which helps ensure the site is rehabilitated as best as possible and to help reduce bare patches that are otherwise favorable to invasive weeds. A mix of direct seeding and seedlings (depending on the site) was recommended and allows larger areas to be revegetated at an economic rate. Engaging the Green Army for on ground works such as revegetation, where possible, helps remove barrier with landholders

Dieback is suspected at one of the monitored/survey sites along the Frankland-Gordon river and it is recommended that testing be undertaken. It is also recommended that both weed and pest animal control continues as soon as possible, as funding allows.



7. Appendices

7.1 Workshop flyer: Flyer/advert used to promote the Fox Control Forum organised by the Gillamii Centre

FOX CONTROL FORUM

Friday 8 April
6:00pm – 8:30pm

Gillamii Centre (TBC)
140 Great Southern Hwy
Cranbrook

Local statistics and information
Different spotlight/shooting techniques
Tools and technology (gadgets) demonstration



Photo credit: DPIW Tasmania

Please wear enclosed shoes

RSVPS ESSENTIAL (for both events)
Contact The Gillamii Centre on 9826 1234
or email admin@gillamii.org.au

WILDLIFE NIGHT STALK

Saturday 9 April
5:20pm – 7:30pm

Balijup Wildlife Sanctuary
Tenterden

Parking instructions and program
provided with registration.

Professionally-guided night stalk
Great for all ages (~7 up)
Observe nocturnal native fauna
Hear about conservation efforts in the area



Photo credit: Perth Zoo

Long-sleeved clothing and enclosed shoes are a must and don't forget a powerful torch!


Natsync Environmental   Green Skills Inc  SOUTHCOAST  National Landcare  

This project is supported by South Coast NRM, through funding from the Australian Government.

7.2 Other media promotions: Media and Communications Snippets

Gillamii Centre Inc. Sustainable Agriculture in Practice
 Published by Rebecca Cassells on February 20, 2015 at 9:59am · Perth · 17

A great spread about local Graham Lawrence (FOXBUSTERS) in the Sporting Shooters Association of Australia magazine, 'Australian Shooter' February edition, ahead of the fox shoot Friday (4 March). Graham says that since the article was printed, he's received some 200 extra requests for the 'beetle' weapon mp3 clip that helps attract foxes (using spotlight calls) which he provides free. You can read the article online via this link: <http://saa.org.au/.../foxbusters-foxes-and-nor-wa-foxes>



Foxbusters declared war on WA foxes | Sporting Shooters' Association of Australia (SSAA)

Foxbusters declared war on foxes | Sporting Shooters' Association of Australia (SSAA)

37 people reached

Like Comment Share

Jenny Staley and 2 others

Write a comment

Gillamii Centre Inc. Sustainable Agriculture in Practice
 Published by Rebecca Cassells on February 20, 2015 at 9:59am · Perth · 17

FeralCatScan is a new project by the Invasive Animals CRC and Australian Government Department of the Environment, supported by communities Australia-wide to improve knowledge about feral cats. This website (and App - available for Android and Apple iOS) can be used by landholders to record sightings and impacts caused by feral cats in your local area. Information you record will help to identify practical and humane solutions to managing feral cats to reduce their impact. ... See More



START MAPPING HERE

ENTER HERE

Open

FeralCatScan > Home

FeralCatScan > Home

18 people reached

Like Comment Share

Boost Post

Gillamii Centre Inc. Sustainable Agriculture in Practice
 Published by Rebecca Cassells on January 3, 2015 at 11:00am · Perth · 17

There seems to be a lot of foxes about and after chatting to Graham Lawrence (Foxbusters) this afternoon, we learnt that numbers have indeed doubled since last year (according to Foxbuster's population measurements). In addition, recent autopsies [to record data such as stomach contents] have also shown a number of foxes carrying Tape Worm!

For more information about Foxbusters and data results, go to www.foxbusters.com.au

About Foxbusters
 Foxbusters are addressing the Australian Red Fox (*Vulpes vulpes*) problem. Aiming to curb the increasing numbers by better understanding fox behavior, damage to habitat, den sites where pairing dogs ...

FOXBUSTERS.COM.AU

154 people reached

Like Comment Share

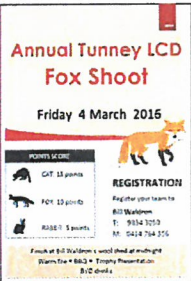
Melissa Armstrong and 2 others

Write a comment

Boost Post

Gillamii Centre Inc. Sustainable Agriculture in Practice
 Published by Rebecca Cassells on February 17, 2015 at 4:03pm · Perth · 17

To register your team for the 2016 Annual Tunney LCD Fox Shoot (Friday 4 March) contact Bill Waldron - see flyer for details. As always, the night will conclude with a BBQ and trophy presentation by a fire (BYO drinks).



Annual Tunney LCD Fox Shoot

Friday 4 March 2015

POINTS SCORE

GET 13 points
ADY 13 points
ROSET 5 points

REGISTRATION

Register your team to Bill Waldron
 T: 9834 3013
 M: 0418 794 355

Final at 8:00pm. Food and drinks provided. Please take a Trophy Presentation BYO drinks.

120 people reached

Like Comment Share

Jenny Staley and Smal Business Centre Great Southern

Chronological

Carolyn Lindberg Tracy Sandlance
 Like Reply Message February 18 at 8:42am

Carolyn Lindberg Chars Marsden
 Like Reply Message February 18 at 9:40am

Write a comment

Like Comment Share

Boost Post

Gillamii Centre Inc. Sustainable Agriculture in Practice
 Published by Rebecca Cassells on June 8, 2015 at 4:03pm · Perth · 17

Have you seen these weeds on or near your property? There is an alarming amount of Bridle Creeper around - particularly in Tenterden - and quite a few Eastern States' Wattles, including on private properties. These are some of the species that will be prioritised for control in reserves and roadsides over next few months, by contractors funded by The Gillamii Centre through various grants. To be successful, we need your help.

Please check any bush and creek-line areas on your place and get rid of any you find! For information regarding control measures, check out the links below or contact The Gillamii on 9826 1234: <https://www.environment.gov.au/.../w.../pubs/a-aps/ragoies.pdf> http://www.herbguide.com.au/Descriptions/fo_Golden_Wattle.htm



18 people reached

Like Comment Share

Melinda Walsh and Jenny Staley

Write a comment

Boost Post

Gillamii Centre Inc. Sustainable Agriculture in Practice
 Published by Rebecca Cassells on April 11, 2015 at 10:00am · Perth · 17

Tune into ABC Country Hour today from 12.30 to 1:00pm to hear an interview with Foxbusters' Graham Lawrence from the Fox Control Forum hosted by the Gillamii Centre on Friday night (8 April).

18 people reached


Like Comment Share

Melinda Walsh and Jenny Staley

Write a comment

Gillamii Centre Inc. Sustainable Agriculture in Practice
 Published by AgThea Strong on February 27, 2015 at 11:00am · Perth · 17

A South Australian ecologist, Dr John Read, has developed a trap that shoots poisonous gel onto feral cats which when licked as grooming will kill them humanely.



Feral cat trap trials working well to save threatened species @ABC Rural

A trap targeting feral cats by getting them to groom themselves is making progress in WA

ABC RURAL

GILLAMII CENTRE
 Sustainable Agriculture in Practice

SOUTHCOAST
 Australian Government

clean energy future

DON'T LET YOUR PROPERTY END UP LIKE THIS!

Golden Wattle is highly invasive but can be removed very quickly, cheaply and easily if dealt with before reaching this state.

We at Gillamii would like to help you!

We have a control program for those in the Shires of northern Plantagenet, Cranbrook, southern Kojonup and Broomehill-Tambellup.

Please contact us if you have any Golden Wattle present on your property as we would like to remove it for you.

If you fall outside of this zone, please contact us for a fact sheet on how to treat your Golden Wattle.

Phone: 9826 1234 Mobile: 0427 261 234 Email: gonovlova.harvey@gagric.wa.gov.au

The marketing, distribution, transportation and protection of the Pilgrimage occurs entirely in supported through funding from the Australian Government's Clean Energy Future Roadshow Project.

9826 1234

Golden Wattle (Acacia pycnantha)

Gillamii is working on an extensive Golden Wattle control program

The township of Tenterden has a prolific amount of this highly invasive weed.

We would like to remove it for you!

If left alone, this plant has the capacity to out compete our native bush, and overtake your gardens and paddocks.

Gillamii will be employing contractors to conduct removal works in autumn and spring over the next few years and it is vital to remove as much as possible so would appreciate your co-operation in allowing contractors to access the weeds on your properties

We would appreciate contact from you to indicate if you would allow a contractor to access your property to remove the weed with no cost to yourself

We will be touching base with residents soon to discuss works taking place

Contact Project Officer Gen Harvey – 0427 261 234 – genevieve.harvey@agric.wa.gov.au for details



'The Restoring Gardens - Gillamii Project, Kent Frankland is supported through funding from the Australian Government's Clean Energy Future Biodiversity Fund'



GEN'S NEWS



Wattle works around town

You may have seen the Fulchers contractor operators around town undertaking weed control in the area. Frankland has a significant amount of invasive weed species present in peoples front and back yards.

I would like to highlight the importance of removing these eastern states wattles from your yards to prevent the bush from becoming further infested. The management of these species can take 10 years to eradicate due to the seed persisting for that long in the soil and our funding grants are not set up to manage long term weed management such as this, so we are relying on YOU to do your part.

All the wattle trees you see flowering yellow at this time of year are eastern states varieties and are highly invasive. All can be treated in the same way to remove. There are several options to remove these species. Physically cut down the tree/shrub and treat the stump with roundup at 100% ensuring that the whole exposed trunk is covered or it WILL reshoot. (Care should be taken to do any manual removal before the seeds appear on the trees or seeds will still drop where ever the cut material is deposited – seeds generally appear after flowering so treating at this time of year is fine) Alternatively you can paint a section of the trunk using a mixture of diesel and the chemical Access (available at most farm supplies stores) at a rate of 60 diesel: 1 Access. (e.g. 60L diesel : 1L Access or 20L diesel : 350ml Access). This can be done with a paintbrush, the minimum width of ring should be about 5cm, taking care to ensure that the whole trunk is encircled, as any gap will allow nutrients to still flow up the tree and it will not die. Redye is a product available that you mix with chemical to provide a visual red stain on treated areas to allow you to see where you have applied chemical.

Identify your wattle weeds:
Flinders Range Wattle (*Acacia iteaphylla*)



This species hailing from South Australia grows to be a large shrub up to several meters high. Large numbers

of these have been eradicated on verges on the western side of town, but many remain in private yards.



Sydney Golden Wattle (*Acacia longifolia*)



This NSW species grows to be a messy tree, can vary from a shrub like metre or two to several metres high. This is the species that has over run Albany to the point that it is considered impossible to eradicate. Liking the higher rainfall zones, this is not as invasive in

Cranbrook, but in Frankland has capacity to completely overtake native bush.



H. Parsons
HELEN PARSONS
EXECUTIVE OFFICER