



FITZGERALD
BIOSPHERE
GROUP

2014 - 2019 Achievement Report

Thank you to all of our project partners and supporters



Fitzgerald Biosphere Group

8-10 Tobruk Road
Jerramungup WA 6337
or
Po Box 49
Jerramungup WA 6337

Ph: (08) 9835 1127
General Enquiries: admin@fbg.org.au



Table of Contents

Page	
5	Foreward– FBG Chairman, Damon Parker
6	Execitive Officer’s Report– Leonie McMahon
7-8	About the FBG (Board, Advisory Committee & Staff)
9-10	The Fitzgerald Biosphere, the FBG and the FBCC
11-15	FBG Annual Events 2014-2019
12	Spring Field Day
13	Farmer Updates
14	Fitzy Fox Shoot
15	Cat Sterilisation Clinic
16-24	FBG Significant Events 2014-2019
16	Dancing in the Dirt
17	Climate Change Workshop
17	Managing soil health in dry seasonal conditions
18	Dry Season Workshop
19	Low Stress Stock Handling
20	Air Seeder Comparison Trial
20	Pasture to Pocket
21	SEPWA DIY Precision Ag
22	Ladies Day 2015
23	FBG Meat, Malt and Marketing Tour
24	Project Dieback trip to West Mount Barren
24	Community Conservation Bremer Bay Primary School
25-26	FBG Project Summary
27-28	Current Projects
29-41	Sustainable Agriculture—Projects
29-31	One Paddock Challenge
32	Feasibility Study on branding of grass fed red meat for export market recognition
33	Trialing dryland natural rubber production in the WA Wheatbelt
34	Frost management options to increase wheat grain quality & yield
35-36	Sub Soil Constraints
37-38	Improving feed value of perennial grasses
39-40	Managing soil carbon and nitrogen in kikuyu pastures
41	Trialing nutrient systems in the Western Fitzgerald Biosphere
42-49	Natural Resource Management—Projects
42	Regional Land Partnerships (Phase 2 National Landcare Program)
43-44	National Landcare Program 2015-2018
45-46	National Landcare Program 2013-2015
47-48	Action and Opportunities for Protecting Biodiversity Assesst
49	Protecting and resoring native vegetation (Bremer River Catchment area)
50-55	Natural Resource Management (Coast care) Bremer Bay—Projects
50-52	Overview of activities
53	Weed Action Plan for Bremer Bay
54	Bremer Bay Community Foreshore and Estuary Protection Program
55	Linking Bremer Bay to Point Henry Trail



Damon Parker

FBG Chair Person

As the newest chair of the FBG I am fortunate to have the opportunity to carry forward the legacy of our vibrant organisation from the past 36 years. Being the combination of three organisations at one time, FBG is now a strong organisation serving our local community and strengthening our built and natural environments. As always FBG is committed to employing locally, with a team in the office that makes the chair's position a very pleasurable role.

The FBG is a unique organisation, focusing on all aspects of our community; a holistic approach, with projects covering threatened ecological communities, biodiversity conservation, post farm gate markets, soil health and salinity, agricultural production and adaption to increasing climate variability. As an organisation and a community, we can't have strong businesses, populations and recreation with a declining natural environment. With organisations like the FBG working to protect and improve our natural assets, we will thrive in an ever-changing world.

Between 2014 and 2019 we delivered projects valued at almost \$2.5 million. We are currently delivering projects to the value of \$721,000. These projects are funded through various funding programs and government agencies, with our first ever project, One Paddock Challenge 2020, being funded through a collaboration with private industry and the support of Lawson Grains and Viridis Ag. We also continue to work with government agencies and other groups as their project partners.

Our current projects include activities to protect federally listed EPBC (Environment Protection and Biodiversity Conservation) species; chuditch and Malleefowl, and a threatened ecological community Kwanghan heath (banksia woodland). Strategic control of weeds in Bremer Bay is the focus of two other small projects. Revegetation on farmland using productive perennials to build resilience to climate change is covered in another project. We are continuing to help farmers carry out their own paddock scale production trials through the One Paddock Challenge 2020. This mix of projects continues the strong legacy of the group, carrying it forward in an ever-changing future.

With the area currently in a drought and water deficiency declarations now in place in the northern and eastern parts of the Shire, it becomes very clear why our organisation is so relevant to the community, both in the past and even more critically, going forward in the future with a changing climate.

I thank the members of the FBG, the local community we represent and our staff for the opportunity to carry our group forward into prosperous times by protecting and improving our natural resource capital.

Damon Parker

EXECUTIVE OFFICER OVERVIEW

Leonie McMahon

Executive Officer

The Fitzgerald Biosphere Group (FBG) is a community-based not-for-profit organisation that works with the local farming community and a core of volunteers to support sustainable agriculture, healthy ecosystems and vibrant enterprises.

We operate in the Shire of Jerramungup on the South Coast of Western Australia, where the mainstay of the economy is broadacre agriculture. The shire covers 6,507 square kilometres (slightly larger than the area covered by Greater Perth, 440 km to its north west) and has a permanent population of about 1,100 people.

We're a small community far from any major centres but we are proud to live in the western part of one of the world's richest botanical hotspots: the Fitzgerald Biosphere, with the Fitzgerald River National Park at its core. One of the world's most mesmerising marine wildlife spectacles takes place annually off Bremer Bay, when large numbers of orcas congregate to feed in the Bremer Canyons.

Throughout this report you will note the broad range of projects, events and services we deliver in our endeavours to farm sustainably in the Fitzgerald Biosphere whilst both showcasing and protecting its natural assets.

The FBG's great fortune is the number of committed and skilled people it attracts to its staff, committees and sub-groups. The dedication of our current Staff, Board and Advisory Committee members (see pages 7-8) ensures our organisation runs smoothly, and is adapting to the challenges that lie ahead. A core of volunteers in Bremer Bay contribute much knowledge and time to our conservation efforts there.

Many of the earlier projects in this report were developed, funded and run through the efforts of then Chief Executive Officer Anne Sparrow and project officers; Karryn Duncan (nee Dorrell), Sally Carpenter (nee Major), Georgina Griffiths and Jalissa Small. Overseeing the organisation at Board level during various periods between 2013 and 2019 were Nathan Brown, Jolene Daniel, Stu Bee and Johanna Tomlinson. Rex Parsons has been the Shire of Jerramungup's representative throughout. To all of these people we owe many thanks for their support and commitment.

In this, its 37th year of operation, the FBG continues to work with a range of government agencies and funding organisations to deliver services that support our farming community and our environment. Our projects contribute to local, regional, state and national agricultural and environmental targets. Over the six-year timespan of this report a large number of farmers and community members were involved in the group's activities: reflective of the importance we have always placed, and will continue to place, on maintaining our grass-roots base.



A handwritten signature in black ink that reads 'Leonie McMahon'.

Leonie McMahon

ABOUT THE FBG

The Fitzgerald Biosphere Group and the groups that preceded it have been involved in Landcare, natural resource management and agricultural research and development in the Shire of Jerramungup since 1983. In 2002, three groups: Jerramungup Landcare Services, the Jerramungup Land Conservation District Committee (JLCDC) and the Jerramungup Research and Advisory Committee (JERAC) were amalgamated to form the FBG as it is now known.

The FBG's vision is to be a well-resourced, motivated and successful member-driven group that develops, demonstrates, promotes and supports sustainable agriculture, healthy ecosystems and vibrant enterprises.

The group has approximately 70 members, primarily farming businesses, and a core of volunteers based in Bremer Bay. It has an active subgroup, the Bremer Bay Regional Trails Committee and another subgroup that is currently in recess pending funds to reinvigorate it;

Friends of Wellstead Estuary +. The group's offices are located in Jerramungup.

The FBG's operating structure consists of a Board, an Advisory Committee, an Executive Officer and support and project staff.

The Board is responsible for the group's overall governance. It can be made up of five to six members, one of whom is an appointed representative of the Shire of Jerramungup. As at October 2019, the FBG Board consists of Damon Parker, Mick Lester, David Turner, Kyran Brooks and Rex Parsons as the Shire of Jerramungup Representative.

The FBG Board is guided by its Advisory Committee, made up of farmers, community members, stakeholders and sponsors. The Advisory Committee meets three to four times a year to discuss issues, plan events and provide recommendations to the Board.

FBG BOARD & ADVISORY COMMITTEE

BOARD



Damon Parker
Chairperson



Kyran Brooks
Vice Chairperson



Michael Lester
Secretary



David Turner
Treasurer



Rex Parsons
Shire of Jerramungup
Representative

Advisory Committee

Alex Jones
Brad Armstrong
Brett Dal Posso (SC NRM)
Craig Hall
Hannah Iffla
Jolene Daniel

Laura Wishart
Michael Swarbrick
Mitchell Bell
Nathan Brown
Nathan McQuoid
Rachel Bibby

Ron Masters (DPRID)
Rick Carpenter
Sabine Lawrence (Rabobank)
Stuart Bee
Tina Parsons

FBG STAFF

Maddy Wylie:
Soil Projects Officer since
September 2016
Email:
soilprojects@fbg.org.au

Natasha Brown:
Finance Manager since
July 2011.
(making her the longest serving
FBG staff member)
Email:
natasha@fbg.org.au

Leonie McMahon:
Executive Officer since
March 2016.
Email:
eo@fbg.org.au

Jessica Bailey:
Administration Officer since
July 2017
Email:
admin@fbg.org.au



Therese Bell:
Bremer Bay Projects
Officer since
February 2017
Email:
bremerprojects@fbg.org.a

Jessica Brown:
Communications Officer since
June 2012
Email:
communications@fbg.org.au

Reaghan Shalders:
NRM Projects Officer since
January 2017.
Email:
nrmprojects@fbg.org.au

The Fitzgerald Biosphere, the FBG and the FBCC

Fitzgerald Biosphere

Fitzgerald Biosphere is known around the world for the sheer number of unique and unusual plant species, plant communities and ecosystems that live here. Intriguingly, those same poor, infertile soils that make farming such a challenge in the region somehow manage to support a larger range of native plant species than almost any other place on the planet.

'The Fitz' was gazetted as a national park in 1973 in recognition of this fact. The area was then nominated as a biosphere reserve under UNESCO's international Man and Biosphere Programme in 1978 for the same reason. Although being a biosphere reserve doesn't confer any additional regulation or legislation, the designation does create an opportunity for the communities that live around the park to demonstrate how sustainable development and nature can successfully co-exist. Fitzgerald River National Park is at the core of our biosphere. It is surrounded by a Buffer Zone, beyond which is the Transition Zone; the area in a biosphere where people live and operate their businesses. It is the Transition Zone that distinguishes a biosphere reserve from other places of wilderness value because the aspiration for the activities happening in that zone is that they occur in harmony with nature.

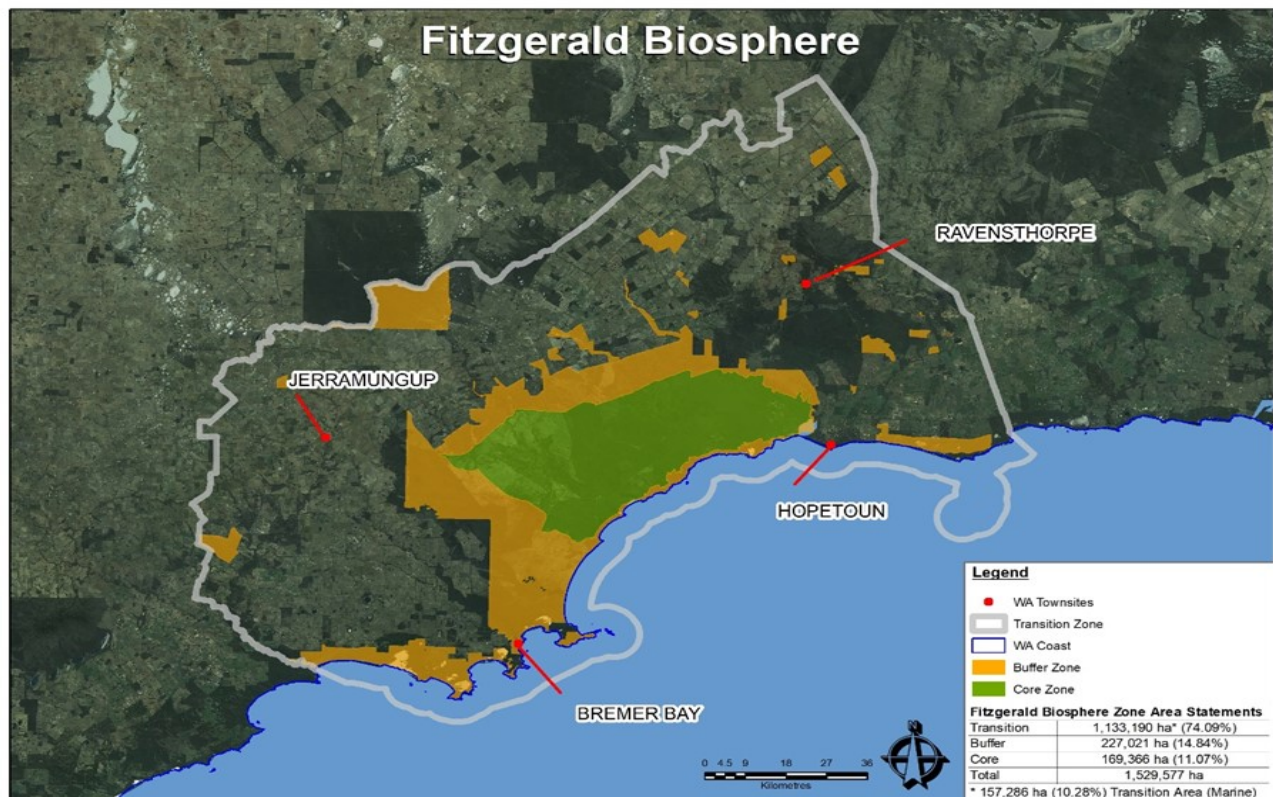
There are 701 Biosphere Reserves in 124 countries around the world, with nine in Australia. Four of the nine are active due to the work of their communities, these being: Fitzgerald Biosphere; the only one in Western Australia and the oldest in the country; two in south-eastern Queensland (Great Sandy and Noosa) and one in Victoria (Mornington Peninsula and Western Port).

The Fitzgerald Biosphere Group (FBG) area of operation

The total area covered by the Fitzgerald Biosphere is 1.53 million hectares. It encompasses the entire Shire of Jerramungup and most of the Shire of Ravensthorpe. The FBG operates in the Shire of Jerramungup on the western side of the Fitzgerald Biosphere Reserve. Our sister group, Ravensthorpe Agricultural Initiative Network (RAIN) operates in the Ravensthorpe Shire on the eastern side of the biosphere.

Fitzgerald Biosphere Community Collective (FBCC)

The FBCC is made up of organisations and individuals that either manage land within the Fitzgerald Biosphere or support those who do.



These organisations are:

- FBG
- RAIN
- Shire of Jerramungup
- Shire of Ravensthorpe
- Friends of Fitzgerald River National Park
- Department of Biodiversity Conservation and Attractions
- Community members
- Noongar representatives
- Department of Primary Industries and Regional Development
- Great Southern Development Commission
- Regional Development Australia Great Southern

The BIG and renomination

The criteria for biospheres to exist under the Man and Biosphere Programme changed in 1996, and an adverse review of Fitzgerald River National Park Biosphere Reserve by UNESCO in 2009, necessitated a review of its status. As part of the process of response by the local community the biosphere boundaries had to be redrawn to include buffer and transition zones, and a series of other consultations carried out. The Biosphere implementation Group (BIG) was formed in 2010 to do



this. After many years of consultations, the bid to renominate Fitzgerald Biosphere was successful in June 2017. The relaunch and the 40th anniversary of Fitzgerald Biosphere were celebrated together in March 2018 in Hopetoun.

Shift from BIG to FBCC

After the successful renomination, the BIG went through a strategic planning period throughout late 2017 and 2018. As a result of this process, the group restructured and renamed itself the Fitzgerald Biosphere Community Collective (FBCC). The Executive Committee consists of Nathan McQuoid [Chair], Ross Williams ex Gairdner farmer, and Graham Richardson from the Shire of Ravensthorpe, with the other position, vacated due to the incumbent leaving the district, in the process of being filled.

FBCC activities

Throughout 2018 and 2019 the FBCC developed guiding documents including strategic plans and MOUs between members. Management organisation, Clear South, was appointed to provide support to the collective and the FBG was appointed to act as bookkeeper and auspicing body for funding.

The FBCC is currently carrying out two projects that are funded through the Building Better Regions program:

Mapping the gaps, planning for growth

This project will deliver a sustainability survey across the region to gather such information as available skills and training, issues, community understanding of biosphere reserves.

Growing the Fitzgerald Biosphere; regional capacity and capability

This project will deliver a professional development program and funding diversification workshop to help the FBCC build support, network and ensure financial sustainability of the group in the region.

Australian Biospheres Conference

In March 2019, three representatives from the FBCC, Leonie McMahon (FBG), Deon Utber (DPaW) and Justin Bellanger (SC NRM) attended the inaugural Australian Biospheres Conference in Maryborough, Queensland, and spoke on behalf of the FBCC.

One of the most significant things to come out of the post-conference meeting attended by representatives from all four biospheres was a desire to work together to lift the profile of biospheres within government, particularly with the view to improving resourcing. To this end, the Australian Biosphere Alliance was formed.

FBG events

The types of events the FBG holds every year reflect the wide span of projects and activities we are involved in. They range from our annual Spring Field Days held in different parts of the shire each year, to pop-up paddock walks, 1080 baiting accreditation courses, revegetation field walks, weed identification workshops, low stress stock handling courses, precision agriculture and trial design workshops, dry season events, fox shoots, cat sterilisation clinics, school field trips and presentations, succession planning sessions, market day stalls and weeding busy bees in Bremer Bay.

Back in 2015 a Ladies Day in Boxwood Hill drew more than 100 women to celebrate women in farming communities. In 2019 our inaugural *Dancing in the Dirt* Pre-harvest Ball was likewise a fantastic celebration of farming in our unique part of the world.

We'd like to thank our members who generously provide their shearing sheds as venues, offer up their trial sites for inspection, and, relatively frequently, dig soil pits in their paddocks so we can go that bit deeper.

The following pages provide details of some of the many events we've run over the last six years, starting with our annual events and following with a selection of one or two key additional events we've held each year.



Annual Events

Spring Field Day

Date: Held in September every year.

Location: Each year the location shifts between Needilup, Jerramungup, Gairdner and Jacup.

Participants: We have a wide range of people attend, usually depending on location.

Funding: Various

Overview: This day is an opportunity for farmers to visit NVT, demonstration and other trial sites in the district and to hear from a diverse range of speakers, including other farmers. The focus of the presentations and information sessions varies depending on the projects we have running, the type of seasonal conditions we are experiencing and issues and subjects that are topical at the time. Our sponsor, Rabobank, also presents on a relevant subject.



Annual Events

Farmer Updates

Date: Held in March

Location: Jerramungup

Participants: Local Farmers and industry representatives

Overview: For several years the FBG held Farmer Updates each March to provide information relevant to cropping prior to the break of season. Topics included assessment of results from the previous year's NVTs, agronomic recommendations for the upcoming season, overviews of FBG projects, and presentations from various speakers on subjects of interest to local farmers. Our sponsor, Rabobank, would also present on a relevant subject.



Annual Events

Fitzy Fox Shoot

Date: Held between March and April each year.

Location: Jerramungup and Bremer Bay

Participants: We have a wide range of people attend our fox shoots each year.

Overview: Every year FBG holds the Fitzy Fox Shoot in both Bremer Bay and Jerramungup. Teams venture out for a night of feral animal control and gather back together the next morning for the tally count and breakfast. Three species: foxes, feral cats and rabbits are targeted for the environmental damage they cause and for the impact foxes have on lambs. Year after year this event proves to be very popular amongst people in our community and many outside.



Annual Events

Cat Sterilisation Clinic

Date: Mid Year
Location: Jerramungup
Participants: Open to all community members
Partners: Dr Cathy Wishart
Funding: Various including NLP
Overview: The massive impact that feral cats have on native fauna is well documented. One of the strategies we have adopted to contribute to the reduction in the feral cat population is to hold subsidised annual cat sterilisation clinics. People are encouraged to sterilise their cats, particularly shed cats, to reduce the number of unplanned domestic cat litters being born and joining the feral cat population.



Significant Events

Dancing in the Dirt Pre-harvest Ball

Date: October 2019

Location: Needilup Oval

Participants: 196

Funding: Southern Ports, Shire of Jerramungup, CBH Grass Roots Fund, Rabobank, Kokoda Op Shop, IGA Community Chest. Additional support from Campbell Transport, Jerramungup CRC, FBG, Beach House by Bayside and many individuals who donated produce, time, decorating materials (including augers!) and effort.

Organising Committee (from FBG Advisory Committee): Jessica Bailey, Tina Parsons, Rachel Bibby, Kyran and Katie Brooks, Laura Wishart, Hanna Iffla and Jolene Daniel.

Overview: The inaugural Dancing in the Dirt Pre-harvest Gala Ball was born out of the desire to support the community through what has been a difficult 18 months. Dry seasonal conditions and severe wind events in 2018, followed by the dry start to 2019 gave rise to the idea of bringing the community together in trying times to celebrate agriculture, local produce and farming in a beautiful part of the world. A magically fitted out venue, comedian Peter Rowsthorn, Perth band Big Horn Trio, catering by the Wellstead Cafe and specialty beer *Biosphere Brew* all added to the tremendous atmosphere.



Significant Events

Climate Change Workshop

Date: June 2019

Location: Jerramungup

Funding: RLP (South Coast NRM)

Participants: 20

Overview: Dr Ian Foster, senior researcher with the Department of Primary Industries and Regional Development, visited the FBG to talk about how climate change will affect farming in the future on the South Coast. Dr Foster discussed the distinction between seasonal weather variability and long-term climate change, and the processes that are driving the warming climate. Information was given on ways and means for land holders to look into seasonal predictions for climate and weather so more informed decisions can be made on the timing of farm practices and future plans for climate mitigation. The presentation ended with a 2019 seasonal outlook and many questions from the participants.



Managing soil health and animal nutrition in dry seasonal conditions

Date: March 2019

Location: Bremer Bay and South Jerramungup

Presenters: Mark Emonson (TPC Agriculture) and Col Bowey (CB Farming Systems)

Funding: State NRM through the One Paddock Challenge

Participants: 40

Overview: The premise of this workshop was to investigate ways of managing livestock systems differently, particularly on the back of the poor season experienced in 2018. It was run over two days: the first day at Craig and Nat Davis's near Bremer Bay, focused on cattle operations. The second day, at Paul and Melissa Barrett's south of Jerramungup, focused on sheep management. Mark and Col discussed ways of maximising fodder production through understanding pasture growth curves, maximising the benefits of ground cover, timing when and for how long stock have access to fodder, diversifying pasture types and maximising use of growing season rainfall to grow pasture.



Significant Events

Dry Season Workshop

Date: August 2018

Location: Gairdner – Keding family shearing shed.

Presenters: Jenna Trevenon (nee Lester), Rural Manager for Rabobank, Mae Connelly, Farmanco, Graham Laslett of Combined Agronomic Service.

Participants: 60

Funding: FBG, CBH (Sundowner sponsorship)

Overview: This event was prompted by the dry seasonal conditions and severe wind events that were experienced in 2018. In addition to providing some technical information from experts in their respective fields, the day was an opportunity to trade experiences about the season, particularly strategies that people are finding successful in helping them to manage the difficult circumstances. A trip out to three different paddocks sparked discussion, particularly around how to level paddocks affected by severe wind erosion.



Significant Events

Low Stress Stock Handling

Date: March 2018

Location: Needilup - Pete and Jolene Daniel (sheep work) and James and Sandra Lyall (cattle work).

Presenter: Grahame Rees, Low Stress Stock handling

Participants: 27

Funding: FBG administration

Overview: The low stress stock handling course offered a different take on working with stock by using the natural herd instincts of the animals. The techniques learned work equally well with sheep, cattle or any herd animal and the benefits include calm, easy to manage animals that handle well. The course ran over two days and included a lot of opportunity to practise with both sheep and cattle.



Significant Events

Air Seeder Comparison Demo

Date: June 2017

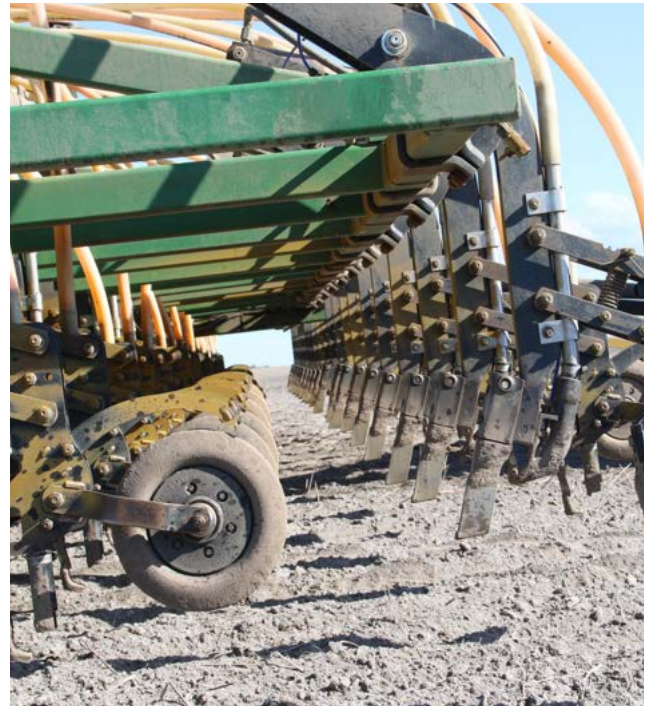
Location: Jacup

Participants: 25

Funding: State NRM (One Paddock Challenge)

Overview: Four different airseeders were part of the community-based airseeder demonstration. Brad Baileys Flexicoil bar was used, as well as the McKinlay family's Bourgault 8910 Culti Drill, Michael and Mark Lester's Ausplow DBS D300-44, and Tim Bock's Chamberlain 275 unit. In 2018, the Chamberlain machine was replaced by Mal Smith's Vaderstadt Seed Hawk SH1220.

Outcome: Along with other grower-led seeder demonstrations, the results of the trial undertaken did not directly influence the purchase decision. However, the gathering of farmers for the event, as well as subsequent field walks encouraged engagement in the peer-to-peer learning experience allowing growers to gather, discuss and learn from one another in an informal environment.



Significant Events

Pasture to Pocket

Date: June 2017

Location: Jerramungup/ Needilup

Presenter: Terry McCosker

Participants: Farming Community

Overview: The two-and-a-half-day Pasture to Pocket Workshop provided an introduction to regenerative grazing land management. Its purpose was to give producers the knowledge and tools to improve the productivity of grazing country and livestock in an ecologically sound and financially viable manner. The final day involved in-field training with a field walk on the property of Needilup farmers, Jolene and Pete Daniel. Attendees came from as far as Perth, Northam and Esperance as well as our local landowners. All walked away with very valuable tools and information.



SEPWA DIY Precision Ag

Date: June 2016

Location: Jerramungup

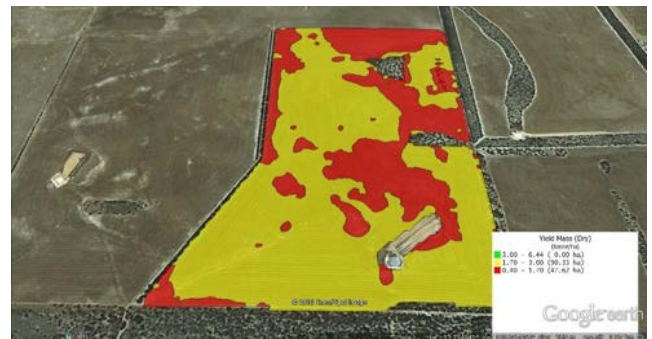
Presenter: Nigel Metz

Participants: 12

Overview: The course was designed to help people get more out of the data collected from header computers. Participants learned how to download their header data using Google Earth and SMS software applications to create maps.

They learned how to:

- turn yield data into a quick reference map
- colour code your farm into yield performance areas,
- transfer maps onto your iPad,
- make prescription and mud maps,
- record soil sample sites, and
- measure fence line distances with iPhone or iPad.



Significant Events

Ladies Day 2015

Date: April 2015

Location: Boxwood Hill Sports Club

Participants: 100+

Partners: The Fitzgerald Biosphere Group partnered with the Wellstead, Ongerup, Jerramungup and Bremer Bay Community Resource Centres

Funding: Cooperative Bulk Handling (CBH), South Coast NRM Inc, Shire of Jerramungup and the Bremer Bay Pelican Op Shop.

Overview: More than 100 ladies from as far as Esperance and Albany gathered together to help celebrate women and culture in our community. Esperance Bush Poet Victoria Brown took everyone on a journey of misdemeanours experienced while living on the land. Lynette Gittos from WIFE (Women in Farming Enterprises) spoke on how the organisation helps women share knowledge and skills to manage their businesses, motherhood and homes. Local caterers supplied amazing food and wine and local businesses were invited to showcase and sell their wares. Depeche Mode Clothing from Albany put on a wonderful fashion show. A book was also produced outlining the diversity and life stories of 22 women from across the region.



Significant Events

FBG Meat, Malt and Marketing Tour 2015

Date: July 2015

Location: Perth

Participants: 8

Overview: Eight local farmers participated in this Meat, Malt and Marketing tour to Perth. First stop was a saltland revegetation site at Graydon Wilcox's in Woodanilling. At the WA State Agricultural Biotechnology Centre at Murdoch University they looked at technology that isolates the genetic profile of grain varieties. At the Metro Grains Centre they had a tour through CHB's operations. At Barrett Burston Malsters they walked through the seven day malting process then finished the tour at Little Creatures Brewery in Fremantle.



Significant Events

Project Dieback trip to West Mt Barren

Date: October 2014

Location: West Mount Barren in the Fitzgerald River National Park.

Participants: 15 Jerramungup District High School Students

Overview: Dieback is one of the most significant threats to the plant communities in the Fitzgerald Biosphere.

Many members of the Proteacea plant family – including iconic species like the Royal Hakea – are particularly vulnerable to Dieback. The FBG has run numerous Dieback information sessions including this one, where students from Jerramungup District High School learned how Dieback affects our landscapes. Where better to learn about it than at the top of West Mount Barren, in the Fitzgerald River National Park.



Community Conservation Bremer Bay Primary School

Date: 2014

Location: Bremer Bay

Participants: Bremer Bay Primary School Students

Overview: A series of environmental awareness sessions were run at the Bremer Bay Primary school over a six week period for years 4 to 7. Topics covered included rubbish and recycling; weeds, feral animals and their impact on the environment; Dieback and its impact on our natural environment; geology of the Fitzgerald Biosphere, the endangered Carnaby's Black Cockatoo; observation of native flora and fauna along the Wellstead Estuary walk trail; and NAIDOC week activities including tree planting and the creation of a bush food garden.



Project Summary

The projects carried out by the FBG in the past six years are described in the following pages. They are divided into three categories: Sustainable Agriculture, Natural Resource Management (Landcare) and Natural Resource Management (Coastcare). Our current projects are described first. The 21 projects listed below are funded by thirteen different funding programs and reflect the wide variety of activities the FBG has covered over the years.

Current Projects

Date from	Date to	Project name	Funding Source	Amount
Nov 2019	Dec 2020	Weed action group - Bremer Bay	Communities Environment Program—O'Connor	\$ 19,924
Jan 2020	Jan 2021	Strategic control of priority environmental weeds in Bremer Bay	State NRM	\$ 34,824
June 2019	June 2021	Building Resilience in the face of Increasing Climate Variability.	Smart Farms Small Grants	\$ 43,656
Oct 2019	Dec 2020	One Paddock Challenge 2020	Lawson Grains/Viridis Ag	\$ 53,000
July 2019	June 2023	Regional Land Partnerships Years 2-5 Climate Change, EPBC, TEC	South Coast NRM (NLP)	\$ 570,050
			TOTAL	\$ 721,454

Projects completed between 2014 and 2019

Sustainable Agriculture Projects

Date from	Date to	Project name	Funding Source	Amount
Sep 2016	Dec 2018	One Paddock Challenge	State NRM	\$ 210,000
June 2016	April 2018	Grass Fed Lamb Feasibility Study	Ag. Sciences R&D Fund (DPIRD) and RDA	\$ 105,000
April 2016	Aug 2017	Trialling dryland natural rubber production in the WA Wheatbelt	Ag. Sciences R&D Fund	\$ 200,000
2015	2016	Frost management options to increase wheat grain quality and yield	COGGO	\$ 41,400
July 2014	Sep 2019	Subsoil Constraints	DAFWA through GRDC	\$ 100,000
Jan 2014	Dec 2016	Improving feed value of perennial grasses	MLA	\$ 69,300
2012	2017	Trialling nutrient systems in the Western Fitzgerald Biosphere	FBG, GRDC, SC NRM	\$ 99,941
June 2012	Sep 2015	Managing soil carbon and nitrogen in kikuyu pastures in the Fitzgerald Biosphere.	Action on the Ground	\$ 420,908
			TOTAL	\$ 1,246,549

Natural Resource Management (Landcare) Projects

Date from	Date to	Project name	Funding Source	Amount
June 2018	July 2019	Regional Land Partnerships Year 1 Climate Change, EPBC, TEC	South Coast NRM (NLP)	\$ 125,630
Dec 2015	Dec 2017	Protecting and restoring native vegetation in the Bremer River catchment and surrounds	State NRM	\$ 52,400
July 2015	June 2018	Implementing recovery actions for EPBC species, protecting and restoring coastal environments and improving soil health	South Coast NRM (NLP)	\$ 374,564
July 2013	June 2015	Dieback Action and opportunities for protecting biodiversity assets	South Coast NRM	\$ 130,291
July 2013	June 2015	Protecting EPBC species, coastal environments and improving soil health	South Coast NRM (NLP)	\$ 314,175
			TOTAL	\$ 997,060

Summary Natural Resource Management (Coastcare) Projects—Bremer Bay

Date from	Date to	Project name	Funding Source	Amount
Oct 2018	Oct 2019	Bremer Bay Community Foreshore + Estuary Protection Project	Coastwest	\$ 46,920
Mar 2018	Mar 2019	Weed Action Plan for Bremer Bay	State NRM	\$ 40,000
Sep 2016	Dec 2018	Connecting Point Henry to Bremer Bay (Native Snail Trail)	GSDC/Lotterywest through Jerramungup Shire / Green-skills	\$ 143,000
			TOTAL	\$ 229,920



Current Projects

Regional Land Partnerships (RLP2)

Funding source: National Landcare Program through South Coast NRM

Project Coordinators: Reaghan Shalders and Therese Bell

Timeframe: July 2019 – June 2023

Summary

In June 2019 the FBG signed the contract for years two to five of the second stage of the Regional Land Partnerships program (RLP2), with work on all projects starting in July. The projects that fall under this program are as follows:

Sub-project 1: Climate and Markets: supporting the region to adapt, innovate and address market demands for sustainable food production.

The on-ground work carried out in this project is shire-wide and includes fencing, revegetation, and annual community events.

Project Coordinator: Reaghan Shalders

Sub-project 2: Environmental Protection and Biodiversity Conservation (EPBC) - Exploring new opportunities for improving the status of 20/20 priority listed threatened species in the South Coast Region Management Unit - bringing scientists, Indigenous people and NRM community together to protect threatened species.

The species in the FBG's area of operation that meet the federal government's criteria for this work are chuditch and Malleefowl. The corridor between the Fitzgerald River National Park and the Magenta Nature Reserve is the key area we are working in. Activities that need to be completed as part of this project over the following four years include controlling pest animals, fencing, revegetation, weed management and community engagement events.

Project Coordinator: Reaghan Shalders

Sub-project 3: Coastal Threatened Ecological Communities (TEC) - Protecting coastal corridors and improving the condition of Proteaceous dominated Kwongkan Shrubland and Temperate Coastal Saltmarsh. The TEC that is the focus of this project is Kwongkan Heath (Banksia woodland) in the Bremer Bay region. Two key activities are strategic

management of Victorian tea tree and revegetation using Kwongkan species. In the first year, 12 ha of Victorian tea tree will be targeted for control. Revegetation will occur on John Street and the Meechi Road works site. Brush Mulching will be used to allow for opportunistic germination with agreeable weather events.

Project Coordinator: Therese Bell

Strategic control of priority environmental weeds in Bremer Bay

Funding Source: State NRM

Project Coordinator: Therese Bell

Timeframe: January 2020 to January 2021

Summary

This project will focus on control of a number of environmental weeds in Bremer Bay, including two weeds of national significance: boxthorn and bridal creeper. Weeding bees will focus on high priority areas and target species identified as being of greatest concern by local residents, including (but not limited to) African Lovegrass and Polygala, in addition to the weeds of national significance. Victorian tea tree control will be carried out in another associated project.

Activities will include:

- Removal of several significant infestations of boxthorn from strategic (high priority) bush remnants.
- Training workshop to upskill more local volunteers to distribute bridal creeper rust and conduct long-term monitoring.
- Busy bees to distribute bridal creeper rust.
- Regular busy bees in high priority native bush to remove other weeds of highest concern using volunteers from different sectors of the community including FBG subgroups, local residents, schools, tourists.
- Establishment of a demonstration site in a high visibility area to promote awareness of weed issue, encourage community ownership and engagement and monitor change.
- Community awareness program targeting local residents, businesses, schools, tourists
- Ongoing liaison between stakeholders.



Weed action group in Bremer Bay

Funding Source: Communities Environment Program

Project Coordinator: Therese Bell

Timeframe: November 2019 to December 2020

Summary

This project will complement the State NRM funded project: Strategic Weed Control in Bremer Bay and the Regional Land Partnership work on Victorian tea tree. It will allow for more weeding busy bees over a larger area, providing the opportunity to make a more substantial impact on weed control in priority areas.



Australian Government
**Department of Industry, Science,
Energy and Resources**

Building Resilience in the face of Increasing Climate Variability.

Funding Source: Smart Farms Small Grants (Federal Government funding administered jointly by Departments of Environment and Energy and Agriculture and Water Resources)

Project Coordinators: Various

Timeframe: June 2019 – June 2021

Summary

This project provides opportunities to explore ways of increasing the resilience of our farming systems.

Activities include:

- A workshop series that helps farmers build regenerative practises into their farming systems.
 - * One series per year for two years.
- Investigative visits to farms, organisations or conferences demonstrating greatest resilience to climate variability.
 - * One annual interstate trip for two FBG representatives
 - * Two annual intrastate trips for four FBG representatives.

Another key objective is to collate current research on climate change that is relevant to our area and have this interpreted for local use.

One Paddock Challenge 2020

Funding source: Lawson Grains and Viridis Ag

Project Coordinator: Maddy Wylie

Timeframe: October 2019 – December 2020

Summary

This project is a continuation of the One Paddock Challenge funded by State NRM. The objective of the 2020 program will be to work with up to eight farmers in the Jerramungup Shire to conduct on-farm, paddock-scale trials that have the potential to improve productivity in the region.

The project will:

- provide trial design, monitoring and liaison support, with a view to ensuring that the trials undertaken produce accurate, reliable and actionable data
- support farmers to accurately measure and collect data and interpret results
- work with farmers to collate and document trial outcomes in a manner that enables collaboration between farmers and sharing with the local farming community.
- link farmers and researchers
- seek information about existing trials on other farms that are of particular value to the wider community, and support receptive farmers to gather more data.

Trials will focus on increasing resilience in farming systems in the face of increasing climate variability by:

- trialling and introducing new agronomy practices and to the region
- improving on existing practices
- demonstrating proven research in a local context.



**LAWSON
GRAINS**



Sustainable Agriculture

One Paddock Challenge

Timeframe: September 2016 to March 2019

Funding source: State Natural Resource Management Program

Project Coordinator: Madeleine Wylie

Summary

FBG's One Paddock Challenge set out to equip farmers with the skills to conduct their own paddock-scale on-farm trials. It also aimed to increase the capacity for peer-to-peer learning.

It was found that farmers had a keen interest in trialling their approaches on a whole paddock scale. This seemed more meaningful than a plot-sized trial as lessons learned could be applied more easily to a farming system than what was perceived as being a more controlled environment. Trials which allowed for discussion and participation from peers, or where something different to the norm was trialled, were those that invoked the most discussion.

A trial management workshop, run by Nigel Metz, was run early in the project to give farmers the framework to formalise their existing on-farm trial endeavours.

Key learnings from the project included highlighting the important of good planning and trial set up as in almost all activities undertaken there were factors which led it to vary from its original plan. While this may not necessarily be an issue, it can take away from the trial's validity. The growth in importance of social media and the ease with which farmers can communicate through these channels, particularly through avenues such as Twitter, also open up greater opportunities for the dissemination of ideas, information and the establishment of virtual communities.

Other aspects of the project, such as a website upgrade and investigations into alternate sources of funding play into this social media and communication role, as the requirement to be active and relevant in the agricultural research, development and extension space is a vital role for FBG as a grower group promoting and supporting member interests.

There are a number of avenues that could be explored further following the conclusion of this project, although the enthusiasm of our farmers and their continual drive to learn and improve their all aspects of their farming businesses is ultimately what will drive further grassroots research in the FBG membership area.

Project details and outcomes

Noel Keding – Deep Ripping and Liming

Concept: To trial deep ripping in some mildly non-wetting soils, as well as to look at different liming options; Lancelin lime and Hi-Cal lime.

Findings: There was negligible difference between ripped and non-ripped plots, and slower plant establishment on areas that had been deep ripped (some clodding apparent).

Noel thought that he would look at trialling deep ripping again in the future, but would be more selective in site selection, particular given the expense involved in the process, in terms of time and labour. HiCal lime plots performed better overall than those limed with Lancelin lime.

Outcome: Noel has been using liquid fertilisers, Calsap and HiCal, for some years as part of his farming system. He believes this is helping to improve soil health and plant root depth. The lack of difference between root depth in the ripped and non-ripped plots served as validation for some of his farming decisions.

Damon Parker – liquid carbon farming systems

Concept: In 2012, the requirement to outlay money on new fertiliser infrastructure at an outlying block was the catalyst, along with a dissatisfaction with the performance of the status quo, for Damon to consider his fertiliser options. Damon was interested in enhancing the soil system by adding carbon and other stimulants to the subsoil. Additionally, the enhancement of carbon in building soil capacity cannot be underestimated in



increasing both food production, but also in ameliorating the effects of climate change.

Findings: In 2012, Damon converted his farm to a whole systems liquid carbon approach. He received widespread recognition in his agronomy support network in 2015 and 2017 for the marked increases in his wheat, canola and lupin yields.

Outcome: As Damon had been operating for several years in this manner across his whole farm, the paddock chosen for the One Paddock Challenge did not have a strict control strip. In order to have some comparison, a compromise was made whereby fertiliser was not applied to a two-hectare strip in 2017 and comparing against the area next to it. As it turned out, 2017 proved to be a good farming year for the Parker family and there was not a marked difference between the two sites.

Andrew Wylie – Lawson Grains, Jerry South – Lentils

Concept: Andrew was looking to trial an alternate and profitable break crop to canola in a 100 per cent cropping model operated by Lawson Grains. The most profitable and reliable rotation has historically been wheat, barley and canola. However, there are many benefits to running a more diverse cropping program, and 100 hectares of PBA Hurricane lentils were put into the program in 2017.

Findings:

- Lentils did not nodulate well
- Early vigour was not strong
- Plants did not perform well on some soil types across the paddock
- Good fungal control and little in the way of disease or insect attack
- The crop was harvested using a rigid front (rather than flex) which resulted in significant amounts of grain being left on the ground
- Inability to offload product in WA

Outcome: crop performed reasonably, yielding one tonne per hectare. It warranted further trialling, although using a different variety (PBA Bolt).

Brad Bailey – Airseeder Demonstration

Concept: Brad had been considering changing over his existing Flexicoil ST830 airseeder bar due to increasing requirements for repairs and maintenance, both in terms of money and time spent repairing it. He was also looking to increase accuracy of seed placement and ensure good germination.

Given the large outlay required in the investment, Brad

was keen to compare some different options on his own farm, working in with some neighbours. This was a demonstration of different owner-operator seeding set-ups. It encouraged discussion and participation.

Findings: In June 2017, four different airseeders were part of the community-based airseeder demonstration. Brad's Flexicoil bar was used, as well as the McKinlay family's Bourgault 8910 Culti Drill, Mick and Mark Lester's Ausplow DBS D300-44, and Tim Bock's Chamberlain 275 unit. In 2018, the Chamberlain machine was replaced by Mal Smith's Vaderstadt Seed Hawk SH1220.

Outcome: Along with other grower-led seeder demonstrations, the results of the trial undertaken did not directly influence the purchase decision. However, the gathering of farmers for the event, as well as subsequent field walks encouraged engagement in the peer-to-peer learning experience allowing growers to gather, discuss and learn from one another in an informal environment.

Mark and Michael Lester – Lucerne

Concept: Lucerne is widely regarded as being a good fit for many mixed farming operations. It is a tough perennial pasture, with the ability to produce large amounts of high quality feed as well as building nitrogen within the soil for future use by cash crops. It can help in running down weed seed banks and its deep root system can penetrate hostile subsoils opening up.

Findings: The Lesters used seed they had on hand that they had harvested three years previously. This resulted in patchy germination. The crop was seeded in 2015.

Outcome: The Lucerne stand persisted through the establishment period despite some patchy germination and has been used strategically for the Lester's grazing operation, as well as being effective in alleviating salinity issues in that area.



Sustainable Agriculture One Paddock Challenge (Continued)

Wade Brown – vetch pastures

Concept: For his One Paddock Challenge, Wade was looking to grow vetch under-sown with canola. The paddock chosen had some issues with grass weeds, and he wanted to add some natural nitrogen back into the cropping system, as well as filling the spring feed gap.

Findings: The trial paddock was sown to vetch under-sown with canola to alleviate some subsoil compaction as well as providing some bulk to the pasture base. However, the implications of its inclusion were not measured as part of this activity.

The plant stand established well in 2017 and in September was grazed with 1200 ewes and lambs before being sprayed out.

In 2018, the subsequent wheat crop yielded 0.8t/ha more than the average of other wheat crops on the Brown's farm, with good protein and a grade of H2 on average. The wheat crop was not top dressed.

Outcome: For the Brown family, this system works very well in their predominantly sheep focussed enterprise. It provides a break in their cropping system for weed and disease management, although they do forgo cash income for this phase as they use the vetch as a pasture to wean lambs onto.

Pete and Jolene Daniel – Long Season Canola

Concept: Pete and Jolene Daniel were interested in trialling long season canola due to its extensive root system and ability to access nutrition. Ultimately, the aim was to increase soil carbon levels, and thereby improve water and nutrient-holding capacity.

Findings: The trial paddock was seeded in October 2016 into what was believed to be a good soil moisture profile given rainfall received in that year. However, rainfall did decline from August onwards in that year. Seeding also

resulted in clods being brought to the surface and poor seed-soil contact.

Outcome: The paddock was ultimately grazed in February 2016 and not taken through to harvest.

Stu and Leanne Bee – Vetch

Concept: The Bees were looking for more robust legume-based options to reintroduce nitrogen into their soils without the expense of having to plant and establish Lucerne. The appeal was to look at an annual legume where the seed source is cheaper or could be grown on-farm or regenerated after three or four seasons. Woolly pod vetch best fit the brief. In addition, research by DPIRD scientist, Dr Angelo Loi has demonstrated that it can provide enough nitrogen for up to three subsequent seasons.

Findings: A dry start to the growing period meant that establishment was slow. Additionally, the paddock was grazed in June 2017, impacting on early season biomass. It didn't really recover. While the paddock used for the trial had some set-backs, it was not representative of how vetch has performed on the Bee's farm as a rule. They use it as a weed management tool. It enables grasses to be sprayed out in the paddock, while sheep continue grazing.

Outcome: Stu and Leanne continue to use woolly pod vetch (such as Capello or RM4) as part of their rotation because it is a versatile, high production, low input crop, it is more tolerant of acidic soils than most grain legumes, because of its Nitrogen fixing benefits and as a weed control option.



natural resource
management program



Timeframe: June 2016 to February 2018

Funding sources: Core project funding: Agricultural Sciences Research and Development Fund, administered by the Department of Primary Industries and Regional Development and supported by Royalties for Regions investment.

Support funding (for consumer surveys in China): Regional Development Australia Great Southern WA

Staff: Dr John Gountas, PhD, Associate Professor in Marketing from the School of Business and Governance at Murdoch University, for survey and market analysis. Paul Sanford, Senior Researcher, Department of Primary Industries and Regional Development, Albany, for research and technical support. FBG support: Leonie McMahon

Summary

The intention behind this project was to investigate 'Paddock to Plate' opportunities for our meat sheep producers in domestic and export markets, primarily Perth and China. To make an informed decision, producers needed to know if there was a market demand for grass fed lamb, consumer preferences, ways of negotiating the supply chain (producers, distributors, retailers and consumers) and strategies for entering into the market. Throughout the project consumers in Western Australia, Australia and two Chinese cities were surveyed and their responses analysed. Producers met several times with marketing expert, Dr John Gountas, to discuss the data and formulate opinions as to whether or not the Paddock to Plate concept was feasible for their businesses. At the conclusion of the feasibility study, the group decided not to pursue the Grass Fed Lamb concept. Two of the main recommendations to come out of the study: that a small group of key FBG producers invest significant funds up-front to purchase a mobile abattoir, and to develop and finance an annual marketing campaign, were significant factors in this decision.

Project details and outcomes

The feasibility study was successfully completed in February 2018 with all project objectives being achieved. The key findings from the analysis were:

There is a growing market sector of consumers who value the perceived superior quality of grass-fed meat, the superior taste, quality of texture, trust and security of meat safety, superior nutritional value, and environmentally sustainable animal raising conditions. There is premium value associated with telling the story behind the product, and in marketing and selling directly to the consumer, both locally and in South East Asia

where demand for Australian sheep meat is increasing. However, it was strongly recommended that a strong domestic brand and an effective processing and distribution system in WA be developed before entering Asian markets. The Chinese market is considered particularly risky because it is fragmented and difficult to penetrate. Major obstacles would need to be overcome and investment costs are high.

Processing is the key challenge for regional producers with product availability and value chain infrastructure likely to pose serious problems. The current oligopoly of meat processors does not provide enough flexibility to kill, butcher, process and distribute for small farmers in the Great Southern. Large distances between farms and processing plants result in higher distribution costs and stress to animals and farmers.

Promotion of grass-fed meat products in WA and Australia is currently almost non-existent. Promotional campaigns should focus on core attributes of healthy and safe meat product with superior taste. The emphasis and focus need to differ for Australian and Chinese consumers.

The most popular branding options identified in the surveys were: "Totally Natural 100% Grass fed Lamb"; and "Grass fed Australian Lamb".

Branded meat products generate better financial, environmental and social returns and are more sustainable in the long term against economic and trading upheavals. The future of WA meat producers and distributors would be more secure if they developed branded sheep meat products and built strong national and global brands with strong vertical alliances and networks to connect efficiently with the customers. FBG farmers would need to work closely together to achieve this.

Throughout the project FBG producers met three times, initially to discuss feasibility parameters with the marketing expert, later to learn about interim results and thirdly to further discuss the future of the project. These meetings, one of which was attended by Chinese exporters, provided opportunity for FBG producers to expand their understanding of consumer sentiments, market development and niche opportunities and the supply chain, and to identify issues and solutions.



Department of Agriculture and Food



Regional
Development
Australia



ROYALTIES
FOR REGIONS

Timeframe: May 2016 to July 2017

Funding sources: Agricultural Sciences Research and Development Fund, administered by the Department of Primary Industries and Regional Development

Staff: FBG Support: Leonie McMahon

Project Coordinator: Dr Henry Brockman, Department of Primary Industries and Regional Development, Albany.

Overview

The main objectives of this project were to demonstrate whether or not Guayule rubber *Parthenium argentatum* could be produced in a dryland system in the WA Wheatbelt; and to raise awareness of its potential as an alternative, sustainable cash crop for farmers in the region. A three-hectare trial site was established in Gairdner on sandy-loam soils. A second site at Many Peaks was established and used as a nursery as well as a trial site. Combinations of direct seeding and seedling transplant were carried out during three separate seeding windows (May 2016, August to October 2016 and April to May 2017).

In each seeding window issues were experienced with low seed germination and establishment rates, and with high weed and insect burdens. The problems with seed viability and vigour were investigated in greenhouse trials, as was optimal soil temperature for germination. Drip irrigation was installed to assist with establishment at both trial sites. The issues could not be overcome in the available project timeframe and the decision was made in June 2017 to end the trial early.

Key points

The main trial site located at Gairdner had three components: direct seeding, seedling transplant and control (irrigation). The second nursery site at Manypeaks was a sandy pasture paddock. Both sites were sprayed out several times to reduce the weed burden. Drip irrigation was established and about 500 greenhouse grown seedlings transplanted to the Many Peaks site. The first direct seeding attempt occurred at the Gairdner site, later than ideal, in May 2016, when the soil temperature was between 10-12 degrees Celcius. No germination was observed. Subsequent experimentation with germination temperatures indicated that soil temperatures should be above 17 °C for seed germination. Three seeding attempts were carried out in August, September and October 2016 at the Many Peaks site. No germination was observed on the first two occasions and low germination occurred on the third. The final direct seeding attempt occurred in April to May 2017 at Gairdner. During the same period greenhouse germinated plants were transplanted to both sites, under irrigation.

Germination and establishment were deemed too low to continue the trial.

The key issues experienced throughout the trial were:

- An exceptionally extended wet and cold autumn, winter and early spring for the first season (2016).
- Weed burden and insect attack (including wingless grasshoppers, weevils, snails) in spite of several regular herbicide and fungicide applications.
- Low seed viability and vigour:
- A fox chewing through driplines.

The following recommendations were made for future reference:

1. **Trial management.** The project manager should be in close proximity to the trial site to oversee and react quickly to emerging issues (such as those experienced with insect pests and weeds). The project manager needed dedicated assistance. Receipt of funding should occur well prior to optimal seeding times.
2. **Site selection.** Site selection is crucial – trial sites should to be part of a regular cropping rotation to prevent weed seed build up.
3. **Irrigation.** Supplementary irrigation for the first six weeks from seeding is most likely needed to enable successful germination and establishment (seeding end Feb/first week in March). The alternative is establishment through transplants.
4. **Seed viability.** In 2016, greenhouse germination rates showed only 30% of the seed was viable and that vigour of germinating seedlings was poor. Higher germination rates (> 60%) and adequate seed quantities are required for successful dryland establishment. Producing locally adapted seed is of the utmost importance. Successful establishment of plants under irrigation at Manypeaks will enable the production of seed for future trial work.
5. **Agronomy.** More work needs to be done on the overall agronomy of Guayule before further investigations into dryland production. For example, test results carried out during the trial indicated that soil temperatures should be above 17 °C for seed germination.
6. **Coated seed.** The seed used for sowing in the trial was coated before import to Australia. Coated seed showed lower germination rates than when the coat was dissolved.



Department of Agriculture and Food



ROYALTIES FOR REGIONS

Timeframe: 2015

Funding sources: GRDC, COGGO, DPIRD

Project Coordinator: Sally Carpenter

Summary

The objective of this project was to assess the suitability of stubble management options for minimising frost damage in cereal crops in a medium production environment, with consideration of secondary effects such as soil erosion.

Stubble management options included retained stubble, reduced stubble and removed stubble. The impact of each treatment was measured extensively to identify any benefits of stubble management to frost mitigation.

The trial was held in Needilup at Stu and Leanne Bee's property. The site experienced 20 frost events at canopy level (temperature dropped below 0°C) between August and November. The severest event reached -3.5°C in a retained stubble during September.

Of the 20 recorded frost events, there was no event that showed significant differences between the three stubble treatments for either severity or duration. Consequently, the results did not conclusively support the use of stubble management as an effective frost management tool in medium production environments.

Project details and outcomes

Photo monitoring showed no negative impact of stubble removal on soil erosion. This was likely caused by the mild climate experienced in the early stages of crop development. Additionally, stubble removal was held off until immediately prior to seeding to minimise wind erosion.

Frost induced sterility/FIS (frost damage) varied from 5% to 14% across the site and no significant difference was found between stubble treatments. Previous studies suggest that the lack of significant variation could be due to the small difference in stubble loads and a difference may be observed in high production environments where stubble loads are greater.

All stubble treatments exhibited similar harvest index components, suggesting minimal difference in frost damage which corresponds with the other data collected. Yields were low across the site and statistical analysis of the yield map data showed no differences between stubble treatments. This is expected as there were no temperature, FIS or harvest index differences between the treatments.

The results of the trial were inconclusive in supporting the use of stubble management as an effective frost management tool in medium production environments.

Stubble management is a well-known practice, which has been increasing in recent years, particularly along the south coast of Western Australia. Results from this trial may result in a decline in unnecessary stubble management in these regions.



Department of
Primary Industries and
Regional Development



Sustainable Agriculture

Sub Soil Constraints

Timeframe: September 2014 to September 2019

Funding source: Grains Research & Development Corporation, administered through Department of Primary Industries and Regional Development

Project Coordinator: Maddy Wylie. DPIRD staff: Jeremy Lemon, Glenn McDonald, David Hall

Summary

In the Subsoil Constraints project, FBG worked closely with DPIRD and other groups in the Albany Port Zone to deliver media, coordinate extension activities and provide landowner trial sites and grower feedback to seek better ways of identifying and managing constraints through amelioration and mitigation.

Project overview and outcomes

Subsoil constraints were identified as a major concern for many grower groups of the South Coast and Southern Wheat belt region of WA. They inhibit root development and function and in doing so limit crop growth and production through restricted access to water and nutrients.

As a consequence of these natural and induced conditions, subsoils in WA are inherently prone to acidity, nutrient disorders, low water retention, compaction and alkalinity/boron/salinity alone and in combination. The cost in lost production associated with these subsoil constraints is estimated to exceed \$600 million per year.

The activities carried out during the five years of this project were as follows:

2015

Field Investigations. The FBG coordinated four site visits to local farms by DPIRD staff to assess their suitability for sodicity trials. None were selected.

Workshops and site visits

How's Your Roots Going? Field walk attended by over 50 people at the Harding family farm at Corackerup. Joint event with North Stirlings Pallinup, with another field walk held at Broomehill. Participants looked at a Controlled Traffic Farming (CTF) system put in place by the Hardings, as well as a deep ripping trial and some other proof of concept trials being run by DPIRD.

2016

Field Investigations – sites visited by DPIRD

Stu and Leanne Bee, Jacup

Site was used to investigate single rate gypsum, with ripping to 400mm using inclusion plates. This was a small plot trial.

Season was very wet and trafficability was an issue.

Lawson Grains – Gunnadoo, Jacup

Site investigation was delayed by wet weather. By the time conditions were dry enough, tractors were being used for seeding and not available for DPIRD usage.

Ripping strips closer to Jerramungup were to be monitored, but this option proved not to be viable due to weather in that year. Management change also saw shift in focus.

Workshops and site visits

FBG Spring Field Day: A soil pit was dug at the site of FBG's Nutrition Trial at Trent and Tina Parson's farm, 5km south of Jerramungup. Jeremy Lemon spoke about soil health issues, and it was a good opportunity for growers to discuss subsoil constraint issues directly with him

2017

Field Investigations – three sites were suggested to DPIRD for further investigation

Workshops and site visits

Proposed pop-up soil health site visit – did not proceed
Australian Controlled Traffic Farming Association Tour
As part of the southern tour taking place as part of the ACTFA Conference, a site visit was arranged to the Harding DPIRD trial.

Members were able to attend this part of the tour which was attended by an additional 10 farmers from the area.
Spring Field Day

Two soil pits were dug – one at Lawson Grains, Jerry South, and the other at the Keding family farm
Jeremy Lemon gave an insight into the soil issues faced at each site.

DPIRD Trial Site at Corackerup

2018

Farmer Investigations

A growing interest in deep ripping and looking for local results and solutions led to an increasing number of farmers conducting their own on-farm trials, for deep ripping and other strategic tillage options. A couple of these sites were visited as part of the FBG's Spring Field Day.

Workshops and site visits

1. Elders Wilchem Field Day, Jacup
 - a. Soil pit dug at site deep ripping by DPIRD in 2016.
2. WANTFA/DPIRD/ACTFA CTF Workshop, Scaddan
 - a. Attended by Project Officer – looked at renovated tramlines in CTF systems.
3. GRDC RCSN Open Forum, Jerramungup
 - a. Subsoil priorities were:
 - i. Non wetting soils

- ii. Identifying which soil amelioration technique will return best value for money
- iii. Liming
- iv. Farming systems to combat erosion
- 4. Spring Field Day, Jacup
 - a. two soil pits dug at Stu Bee's (same location as for Elders field walk), as well as at Mick and Mark Lester's where they had used a DBS deep ripper earlier in the year.
 - b. Subsoil constraint discussion led by Glenn McDonald.

2019

Farmer Investigations Multiple on-farm trials for deep ripping, delving, spading, etc. were carried out by farmers in the district, including the ones mentioned above and others.



Workshops and site visits

1. GIWA Difficult Soils Forum, Jacup
 - a. Coordinated by GIWA, this workshop came about due to the RCSN priorities raised by growers attending their feedback sessions.
 - b. It has been generally agreed that soils on the South Coast are very challenging and where there are multiple constraints, the well-researched prescriptions can be hard to apply.
 - c. Well attended day, with more than 40 farmers and industry in attendance. Soil pits dug at Mick & Mark Lester's, as well as Lawson Grains, Gunnadoo.
2. Landmark Subsoil Constraints field visit, Jerramungup
 - a. Coordinated by Advisory (now Board) Member, Kyran Brooks, this well-supported day brought together DPIRD researchers from the South Coast, as well as Northern researchers, such as Wayne Parker and Bindi Isbister, to discuss the multiple constraints and difficulties faced by farmers in the area.



Department of
Primary Industries and
Regional Development



Timeframe: January 2014 to December 2016

Funding source: Meat and Livestock Australia

Project Coordinator: Karryn Dorrell

Summary

The overall objective of this project was to investigate different ways of improving feed value of perennial grasses in two different rainfall zones and at three different sites within the Jerramungup Shire. At Site 1 in the mid to low rainfall zone (450 – 350 mm) the aim was to trial a non-traditional perennial sub-tropical grass species (gatton panic). At Site 2 in the high rainfall zone (600-450 mm) the aim was to investigate methods of establishing annual pasture species into long-term kikuyu stands to increase the amount of winter feed generated. The aim at Site 3 (also in the high rainfall zone) was to investigate persistence, pasture yield and pasture quality by establishing legumes into a long-term kikuyu stand. Overall, the trials highlighted that a combination of species selection, establishment methods and seasonal conditions determined success. Variability between soil types and rainfall zones necessitates locally-base trials.

Project details and outcomes

At the design stage of this project it was decided that no specialty machinery would be used so as to encourage other farmers to try establishing pasture on a paddock scale with existing equipment. Farmers in the trial were willing to make modifications to existing machinery where necessary.

SITE 1: trialling a non-traditional perennial sub-tropical grass species

Location: Brian and Janet Penna

Objectives;

1. To determine if seeding with a winter cover grass helps to establish Gatton Panic.
2. To determine if seeding with a soil wetter helps establish Gatton Panic better.

To determine if Gatton Panic could effectively extend the feed period and value of a pasture paddock over a three-year period in either quantity or quality.

Soil type: sand over gravel, consistent across the paddock and extremely prone to water repellence and wind erosion.

Seasonal conditions during establishment (2014): excellent.

Results

- A winter cover grass (barley) did help to establish Gatton Panic. The Panic grew at the base of each barley plant after it hayed off; the barley plant appearing to provide root and moisture channels.
- A soil wetter did not have a significant impact on plant establishment however, the summer of the establishment year was a wet one and different results may occur in drier conditions. In the second year of the trial, the wetter-applied site had higher pasture production yields.
- Gatton Panic raised both the quality and quantity of pasture production. It improved digestibility and energy marginally but the biggest gain was in the increased overall bulk yield compared with the annual pasture. It effectively extended the feed period and feed value of the pasture paddock throughout the trial.

SITE 2: investigating methods of establishing annual pasture species into long term kikuyu stands to increase the amount of winter feed generated.

Location: Ross and Rhonda Williams

Objectives:

1. To determine what seeding method provides the best establishment of alternative pastures into an eight-year-old Kikuyu stand.
2. To determine which pasture would establish better into kikuyu: oats or serradella.
3. To determine if a knockdown on the kikuyu followed by soil disturbance would create an environment that entices pre-existing clover in the seed bank to germinate.

Soil type: duplex sandy gravel

Seasonal conditions during establishment (2014): The year was characterised by a late break and a very dry summer.

Results

- In both oat and Serradella sown pastures, knife points with double disk openers and press wheels provided the best seedling establishment by far. The wing points seemed to dry the soil out more and although they created an environment with less weed competition there was visibly less moisture in the soil.
- Serradella pasture established a better stand than oats.
- Soil disturbance did instigate growth of clover seed in the seed bank. The higher the tillage option the more the soil dried out, causing lower germination rates.

SITE 3: investigating persistence, pasture yield and pasture quality by establishing legumes into a long-term kikuyu stand.

Location: Ken and Jan, Paul and Alice Reddington

Objectives:

1. To determine which pasture species (bladder clover or serradella) is the most persistent species when sown into kikuyu.
2. To determine which pasture composition would give the highest feed quantity over the life of the trial.
3. To determine which pasture composition would give the highest feed value.

Soil type: duplex sandy gravel soil, chosen for its ten-year-old stand of kikuyu.



Results:

- The most persistent pasture legume species sown into the kikuyu was bladder clover. It was slightly more persistent throughout the year whereas the serradella was predominant during winter months but less so during summer. Both legume species continued to emerge at very good rates in season two (2016) indicating the persistence was relatively good in both species, even though kikuyu was not suppressed in the second year.
- The highest feed quantity over the life of the trial was the kikuyu pasture with no companion species. It produced between 1500kg-2000kg/ha higher yield during the summer months than the composite pastures and only 500kg/ha less, in one circumstance, than the composite pastures during winter.
- Kikuyu pasture contained the highest quality of feed however, it was only marginally higher in digestible fibre, with little other feed value differences between compositions.



Timeframe: June 2012 to September 2015

Funding source: Action on the Ground: Australian Government Department of Agriculture

Project Coordinator: Karryn Dorrell. Partners (providing technical support): Department of Agriculture and Food WA, University of Western Australia Centre for Excellence in Natural Resource Management, University of Queensland. Additional support: South Coast NRM

Summary

The objective of this four-part project was to investigate ways of reducing nitrous oxide emissions whilst increasing soil carbon stores in South Coast farming systems.

The aim of the first sub-project was to compare nitrous oxide emissions from different companion legumes grown into established kikuyu pasture to identify the best options for reducing reliance on nitrogen-based fertilisers. This sub-project ended early when poor seasonal conditions resulted in insufficient establishment of the legume varieties that were to be compared.

The aim of the second sub-project was to monitor nitrous oxide emissions when synthetic nitrogen was applied to clover and kikuyu pastures. Results were variable due to a number of constraints, but showed an increase in soil carbon in the sites that were fertilised with synthetic nitrogen.

The aim of Sub-project three was to compare carbon sequestration capabilities of soils under three different growing regimes: established perennial pastures, annual pasture and cropping. Results showed there was little difference in carbon fixation between them.

The objective of the final sub-project was to establish eight baseline carbon sequestration sites on newly sown perennial pastures. More than 700 ha of perennials were sown on eight properties across the region. Baseline soil carbon measurements were taken, with the long-term view of using the data in future carbon monitoring projects.

The short (17 month) experiment timeframe was one of the main limitations of the project.

Project details and outcomes

Sub-project 1 Establishment of a large-scale key demonstration site that would trial a broad range of legume options and identify the better performing legumes in kikuyu-based pastures.

Trial location: Gairdner, WA (65 km from Jerramungup)
It was intended that once established, the persistence and productivity of the different legume varieties would

be compared, and the impact the presence of legumes had on sward production in the kikuyu would be measured. The legumes sown, as both pod and seed, and at varying densities, were: Avilla, Bladder Clover, Margarita and Charano.

The decision was made to end this trial early when the legumes failed to establish in the first half of 2014 due to insufficient rain.

Sub-project 2: Monitoring of nitrous oxide emissions when synthetic nitrogen is applied to clover and kikuyu pastures.

Trial location: Gairdner, WA (approximately 50 km from Jerramungup)

The objective of this sub-project was to set up small trial plots in existing clover and kikuyu pastures and compare pasture productivity and nitrous oxide-nitrogen gas flux emissions after different synthetic nitrogen treatments were applied. The nitrous emission monitoring started in August 2013 and was conducted seven times, coinciding with rainfall events of above 10 mm.

Biomass estimates were highly variable and there were no significant differences across the treatments.

Nevertheless, trends in mean data suggested clover was more productive than kikuyu and the nitrogen treatments were more productive than the controls.

There was high variability in the results, attributable to several factors, the most important being small field plot size, the strong non-wetting nature of the soil type, the sporadic nature of the denitrification process and the inherently high spatial variability of soil processes in undisturbed pasture soils.

The greatest constraint was the short duration (17 months) of the pasture treatments. Unfortunately, this short time period meant no contingency options for analysis delays and other unforeseen issues that were encountered.

Sub-project 3: Determination of carbon sequestration capabilities of soils with established perennial pastures (compared with annual pasture and cropped soils).

Four farming families, whose properties represent different rainfall zones, geographical locations and soil types, participated in this trial. Carbon levels in the soil and pasture growth were measured and compared with adjacent paddocks that had annual pasture or were being cropped.

Total organic carbon content in the soils tested were at moderate to good levels. Of note, none of the participants strained their perennial systems or over grazed their annual pastures, particularly during the summer months when all soil types in the southern region of Western Australia are susceptible to topsoil loss

through wind erosion.

The comparison study was the most interesting component of this investigation, with the two cropping versus perennial rotations returning the closest difference in carbon sequestration data to the perennial pasture within the top ten centimetres. Carbon content from deeper within the soil (0-30cm) consistently showed that it was slightly better from both perennial pasture sites.

This was attributed to the practice of retaining crop stubble and maintaining sufficient ground surface cover, together with improved stocking and grazing management strategies over the summer period to prevent over grazing and wind erosion, and the use of minimum tillage to retain soil moisture and maintain soil structure.

The most unexpected result came from the comparison between the perennial pasture system and the permanent annual pasture system. Although the carbon content results show an unexpected high content value of total organic carbon, it is important to note that the permanent annual pasture system was more susceptible to breakdown.

The farmers involved commented that the perennial system, particularly the kikuyu, had visibly healthier soil than the other pasture systems on their farms. However, the data did not find a strong correlation between perennial farming systems having an advantage over

annual farming systems – this likely because of the short duration of the project.

Sub-project 4: Establishment of eight satellite baseline carbon sequestration sites on newly sown perennial pastures.

Baseline soil carbon data was obtained from paddocks that were newly sown to perennial pasture, with the long-term view of using the data in future carbon monitoring projects. More than 700 ha of perennials, predominantly Lucerne, gatton panic, saltbush and kikuyu, were sown in eight properties across the region. The sites were selected so that they were evenly dispersed across rainfall and soil types within the shire. This sub-project served to increase awareness of the benefits of perennial pastures.



Australian Government
Department of Agriculture

Timeframe: 2012 to 2017

Funding source: Grains Research Development Commission (2012), South Coast NRM (2013, 2016), FBG (2013, 2015)

Project Coordinator: Karryn Dorrell.
Technical support: DAFWA

Summary

The FBG nutrition trial started as a lime application trial in 2012. Such was the interest in it that the decision was made to continue it for another four years and to compare four different commercial nutrition treatments to determine if any of them could achieve similar results in the absence of lime.

Consistently over the five years of the trial, the limed (farmer treatment) plots continued to perform well and grossed the highest combined income of all of the treatments. The trial reinforced the long-term benefit of applying lime as a part of the farm fertiliser program. This project was the first long-term trial of its kind carried out by the FBG and a lot was learned from the process. The trial was initially designed to run for one year. When the decision was made to continue it for four more and to change the scope, the overall project design, the budget and the trial layout, all ideally should have been reassessed. Limitations to both budget and design impacted on the project's success and the robustness of the results.

Project details and outcomes

The site of this trial was located 10 km east of Jerramungup, at Trent and Tina Parsons. It is primarily sandy gravel and loamy sand at 15 cm plus. There were four fertiliser strategies compared in this trial: the farmer's own practice and three commercial treatments. The farmer practice plots were the only ones to receive a 2t lime application, which occurred in the first year (2012).

The trial layout consisted of four plots set out in a randomised pattern and replicated three times, for a total of 12. Each plot was seeded at the same time, with the same machinery, at the same rate, with the same chemicals and with the same variety to make the differences in plot treatments comparable. The rotation was wheat, barley, peas, canola, wheat.

Measures carried out throughout the trial included: soil pH tests, germination counts, tissue tests and root to shoot weights and ratios. Harvest yields were recorded on a per plot basis rather than aggregating the results from plots with the same treatments. This served to

highlight variability between plots. Statistical analysis of the yields was carried out by DPIRD staff. An economic review was also carried out to determine gross margins per treatment type.

The trial limitations (discussed below) may have affected the results. The most conclusive result was that the limed fertiliser plot (farmer practise) consistently performed well and grossed the highest combined income of all of the treatments across the five years.

This trial was one of the first in Western Australia to compare as many different fertiliser strategies and philosophies. It highlighted that success can be achieved by several different methods, depending on each farmers' production and soil health goals.

In hindsight, there are several things that could have been done better. When the decision was made to continue the trial after the first year, the trial design should ideally have been re-assessed. Considerations include: adding at least one more replication and including several controls within each replication. Inconsistent funding streams, including two years without an external funding source, meant the project was not properly resourced. This affected most aspects of the project, including coordination, timing and communications.

Over the five-year lifespan of the trial it was visited by more than 200 individuals, with many visiting annually to gain further insights. Most farmers said they wanted long term trials to continue as they can more accurately measure the effects they themselves are seeing within their own businesses and in their own soils. The biggest limitation to this is securing long term funding.

The FBG fertiliser trial started as a lime application trial and ultimately finished as one. In 2012 the aim was to determine if any fertiliser treatment sans lime could help achieve the same or similar results to those achieved with liming. As the trial progressed the long-term benefits of applying lime became more evident.



Timeframe: July 2018 – June 2019

Funding source: National Landcare Program through South Coast NRM

Project Coordinator: Reaghan Shalders

Summary

The first year of the Regional Land Partnerships program (RLP) was successfully completed in seven months, the hold up being due to contracting delays with an entirely new program. Despite this, all deliverables for the three sub-projects involved were able to be accomplished. The three sub-projects are:

Sub-project 1: Climate and Markets: supporting the region to adapt, innovate and address market demands for sustainable food production. The on-ground work carried out in this project is shire-wide and includes fencing, revegetation, and annual community events.

Sub-project 2: Environmental Protection and Biodiversity Conservation (EPBC) - Exploring new opportunities for improving the status of 20/20 priority listed threatened species in the South Coast Region Management Unit - bringing scientists, Indigenous people and NRM community together to protect threatened species. The species in the FBG's area of operation that meet the federal government's criteria for this work are chuditch and Malleefowl. Activities included fencing and pest animal control.

Sub-project 3: Coastal Threatened Ecological Communities (TEC) - Protecting coastal corridors and improving the condition of Proteaceous dominated Kwongkan Shrubland and Temperate Coastal Saltmarsh. The on-ground work carried out in this sub-project was in the Marra area. Activities focused on weed control, revegetation and remnant fencing.

Project details and outcomes

The on-ground actions for each of the sub-projects were as follows:

Sub-project 1: Climate and Markets - Climate action: supporting the region to adapt, innovate and address market demands for sustainable food production.

- 20 surveys were collected of baseline data on knowledge of climate change and adoption of new tools or strategies for future works.
- Five km of fencing were established at a location of marginal land with a salt scald and salinity problem. The fencing totalled 5.06 kms with an area of 49.57 hectares being protected and included protection to adjacent high value remnant vegetation of 132

hectares.

- Five ha of native fodder species was established in an area that suffered from salt encroachment and that was identified as non-productive for cropping. Revegetation works were completed by Dr Geoff Woodall.
- Two workshops were conducted, the first being a climate and weather workshop with Ian Foster from DPIRD and the second a native fodder revegetation demonstration workshop with Dr Geoff Woodall.

Sub-project 2: Environmental Protection and Biodiversity Conservation (EPBC) - Exploring new opportunities for improving the status of 20/20 priority listed threatened species in the South Coast Region Management Unit - bringing scientists, Indigenous people and NRM community together to protect threatened species.

- Five km of fencing were established which protects 66.33 hectares of remnant vegetation and in addition a further 377.3 hectares of high value native remnant vegetation within a nature reserve has been protected.
- A cat clinic was held with Dr Cathy Wishart and veterinary nurse Jess Brown where 13 cats were sterilised. The aim of the annual cat clinics is to reduce the long-term impact of feral cats on native species.
- A 1080 baiting accreditation workshop was held at Boxwood Hill with nine landholders participating.

Sub-project 3: Coastal Threatened Ecological Communities (TEC) - Protecting coastal corridors and improving the condition of Proteaceae dominated Kwongkan Shrubland and Temperate Coastal Saltmarsh.

- A weed information session was held with DPIRD's John Moore where local landholders gained a more detailed look into noxious weeds and the best ways to tackle them with an aim to help protect Kwongkan shrubland.
- One km of fencing was established that protects a creek line with Kwongkan shrubland already present.
- 2.47 ha that already consists of Kwongkan shrubland species and was revegetated with additional Kwongkan shrubland species. Infill revegetation was used to complete this.
- A number of different weed removal techniques were used including herbicide spraying, slashing and digging out weeds with an excavator to combat weeds over an area of 4 ha.



Natural Resource Management

National Landcare Program 2015-2018

Timeframe: August 2015 to June 2018

Funding Sources: National Landcare Program through South Coast NRM

Staff: Project Coordinators Georgina Griffiths (August 2015 to December 2017) and Reaghan Shalders (January 2018 to June 2018)

Summary

The National Landcare Program – Implementing recovery actions for EPBC species, protecting and restoring coastal environments and improving soil health program consisted of three sub-projects with each requiring set deliverables to be completed over the course of the funding timeframe.

Sub-project 1: Implementing recovery actions for EPBC species aimed to protect and conserve high quality remnant vegetation and maintain asset condition through monitoring activities. Activities were intended to improve habitats for EPBC species, by protecting key areas within the Fitz-Stirling macro corridor. This project involves private landholders implementing fencing, a coordinated bridal creeper monitoring program to judge previous control effort, and a targeted approach to developing a fit for purpose Revegetation guide for the Fitzgerald River catchment.

Sub-project 2: Protecting and restoring coastal environments encompassed improving the condition of coastal and estuarine environments, managing threats to coastal environments, and building community knowledge and capacity. The project supported community and partners to protect and rehabilitate coastal and estuarine environments of the South Coast NRM Region in the Fitzgerald Biosphere Region. Coastal community groups including schools and coastal users were engaged in on-ground coastal and waterway protection, education and capacity building activities to help protect and enhance healthy coasts in the Shire of Jerramungup.

Subproject 3: Improving Soil Health was designed to develop sustainable land management practices through increased understanding with demonstrations and engagement activities of long term management options for mitigating soil erosion for agricultural enterprises throughout the shire. The sustainable practices implemented included the use of native fodder species revegetation and fencing of vegetation to protect soils. A collection of associated workshops, field days and communication activities were also used to engage farming communities in innovative practices to increase skills, knowledge and confidence to adopt new behaviours.

Project details and outcomes:

The NLP-FBG program was completed successfully and was able to achieve all required outcomes from August 28, 2015 to June 30, 2018. Following is a description and totals of what the three projects were able to achieve over the course of the project timeline.

Sub-project 1: Implementing recovery actions for EPBC species:

- A total of 18 kilometres of fencing was erected to protect an area of 416 hectares of established vegetation and priority remnant.
- Monitoring of bridal creeper was conducted over a total of 230 hectares resulting in an effective reduction of the weed in monitored areas.
- A fit for purpose revegetation guide for the Fitzgerald River using endemic species for the soil types and systems in the catchment area to protect and improve the integrity of the remnant vegetation was produced and published.
- Two cat sterilisation clinics were held over the course of the three year project to help minimise population impacts in the Jerramungup Shire with a total of 28 cats being sterilised.
- Seven media products were released over the course of the project with each media output reaching a minimum of 290 people.

Sub-project 2: Protecting and restoring coastal environments:

- A total of five coastal community workshops, events and coastal busy-bees were held over the course of the project which included coastal erosion awareness at the Bremer Bay Easter markets, community fox shoots and erosion management at Wellstead Estuary.



Sub-project 3: Improving Soil Health:

- Two farming entities had sites that were used for native fodder revegetation, covering a total of 26 hectares.
- A total of 13 kilometres of fencing was completed by five landholders with an approximate total of 133.92 hectares of land being protected and addressing soil health issues by protecting soil from erosion.
- A needs analysis was completed researching the establishment of native species at agricultural scales within the Fitzgerald Biosphere.
- There were nine workshops and events held throughout the course of the project which had a focus on soil health and sustainable practices. These were Exploring Soil Health Options Field Walk, SEPWA DIY PA Course Wrap Up, Economically Driven Revegetation Field Walk 2018, FBG Spring Field Days and FBG Farmer Updates.
- Each of these workshops and events had post-event surveys completed by participants and the data was collated.
- Over the course of the project a number of media publications were produced that were used as a source for promoting knowledge and highlighting the importance of soil health.



Natural Resource Management

National Landcare Program 2013-2015

Timeframe: July 2013 – June 2015

Funding source: Caring for our Country (Federal funding devolved through South Coast NRM)

Project coordinators: Georgina Griffiths, Anne Sparrow

Summary

This over-arching project consisted of three sub-projects.

Sub-project 1: Protecting South Coast ecosystems: Recovery, threat abatement and connectivity actions for EPBC listed species.

This sub-project focused on the protection of habitat for Malleefowl and Carnabys Black Cockatoo on farming land. Activities consisted of fencing remnants, revegetating with native species and the publication of a local revegetation guide.

Subproject 2: Southern Soils – Best practice for sustainable soils in the South Coast of WA.

The focus of this sub-project was supporting farmers in the Jerramungup Shire to manage soil erosion. Activities included fencing of land vulnerable to wind and water erosion, the establishment of a demonstration site for fodder revegetation, production of a fact sheet using local sites where mitigation strategies had been employed and a range of workshops and field days.

Subproject 3: Restoring and Protecting Coastal Environments and Urban Waterways in the South Coast of WA.

The activities in this sub-project took place in Bremer Bay in an area known as the Green Belt, in collaboration with one of the FBG's two subgroups: Friends of Wellstead Estuary Plus. Activities included monitoring of wildlife and feral animal activity using motion sensitive cameras, bird, vegetation and Dieback surveys, management of Victorian tea tree infestations, a range of community awareness programs, remnant fencing and revegetation.

Project details and outcomes

Sub-project 1: Protecting South Coast ecosystems: Recovery, threat abatement and connectivity actions for EPBC listed species.

Outputs:

- Fourteen landholders completed 20 km of fencing, resulting in 591.4 ha of remnant vegetation being protected.
- Two landholders planted 15 ha of revegetation to increase habitats and improve connectivity to remnant vegetation.
- Publication of the Simple Systems for Revegetation

and Native Forage in the Upper Gairdner River Catchment Guide (author: Nathan McQuoid).

- Workshops included:
 - * annual community fox shoots,
 - * 1080 accreditation courses
- environmental awareness activities with the Jerramungup District High School.

Subproject 2: Southern Soils – Best practice for sustainable soils in the South Coast of WA. The focus of this project was supporting farmers in the Jerramungup Shire to manage soil erosion.

Outputs:

- Seven landholders completed 20 ha of fencing, resulting in 200 ha of land being protected.
- Sites on six properties were used to demonstrate successful protection of vulnerable soil from wind erosion through revegetation and the use of shelter belts. A fact sheet was produced to show how practice change had reduced soil and nutrient loss and wind and water erosion, and improved water quality on these properties.
- A 35 ha site trialling native fodder revegetation as a means of managing marginal land that was susceptible to erosion was established.
- Workshops included:
 - * *More Crop Less Weeds* Sustainability Day at which the Australian Herbicide Resistance Initiative (AHRI) presented.
 - * DIY Precision Ag Workshop for training on using mobile technology and precision agriculture for practical crop agronomy.
 - * FBG Farmer Updates for cropping – 2014 and 2015
 - * FBG Spring Field Days 2013 and 2014
 - * Subsoil constraints workshop 2015 (which gave rise to the One Paddock Challenge concept)
 - * FBG Ladies Day 2015 – Celebrating Women through Culture and Community

Subproject 3: Restoring and Protecting Coastal Environments and Urban Waterways in the South Coast of WA.

The FBG consulted with Friends of Wellstead Estuary Plus (FOWEG+) members to develop a strategic plan for the years 2013-2018 and to work out where the focus of their activities for this project should be. The area agreed on was a four-hectare parcel of unallocated crown land in the centre of the townsite known as the Greenbelt. A waterway that drains into the Wellstead Estuary runs

through its centre. FOWEG+ partnered with the FBG and was an integral part of the project for its duration.

Outputs:

- Fauna monitoring was carried out in the Green Belt, in wetlands behind the shire depot and along the estuary foreshore using motion-sensitive cameras. Images of foxes, feral cats, rats and rabbits were captured, but there were fewer images of native species.
- Up to 73 bird species were recorded in the Green Belt from a series of surveys over a number of years. Bird activity is concentrated in the north western end of the reserve where vegetation is denser and human activity is minimal.
- A survey of vegetation in the Green Belt identified 69 species ranging in condition from pristine to very good.
- A program to completely eradicate Victorian tea tree from the Green Belt was successfully carried out.
- A Dieback assessment in the Green Belt identified at least one affected area. The FBG worked with the Jerramungup Shire to reduce access to the reserve, improve the main path through the reserve, and better manage the introduction or removal of material to and from the Green Belt in order to prevent the spread of the disease.
- Community engagement activities (spearheaded by FOWEG+) included:
 - * Production of a community conservation brochure
 - * Tidy Towns submissions in 2013 and 2014 (Winner of the Environment Category in 2013 and Waste Management and Litter Prevention Category in 2014, and host of the Regional Tidy Towns Awards in 2014)

- * Sandbar monitoring
- * Erection of temporary foreshore fencing to protect nesting shorebirds and rehabilitate sand dunes
- * Initiation of the No Butts campaign to promote environmental responsibility
- * Photo competition: *What being in the Biosphere means to you*
- * Environmental awareness raising at the Bremer Bay Primary School
- * Green Card training for Dieback hygiene
- * Signs about Dieback around the Green Belt
- * Wellstead Estuary Advisory Committee Review

Additional activities included:

- Forty hectare of remnant vegetation protected on two private properties by the construction of 4 km of fencing.
- Four hectares of revegetation using local species in an area that links a remnant and a swamp.



Timeframe: July 2013 to June 2015

Funding source: State NRM (lead partner: South Coast NRM)

Staff: Anne Sparrow

Summary

This project was part of a much larger Dieback management project that operated across the state in four different regions. Its purpose was to implement a unified approach to landscape-scale management of Dieback in Western Australia. The activities focused on Priority Protection Areas (PPAs) that were rated of highest concern. The aspiration of the project was that no additional human vectored infestations would occur

and the further spread of current infestations in PPAs would be limited.

The FBG's work occurred mainly in the Fitzgerald Management Area which contains six PPAs. A rapid assessment process was carried out in this area to create a risk reduction plan. Four Dieback assessments were subsequently carried out in the Bremer Bay area to identify the presence or absence of the disease. Follow up on-ground work was taken as needed.

Activities to raise awareness about Dieback included 19 community events attended by 2026 people, the distribution of Dieback information through two different brochures, stubby holders, revegetation guides, articles in the FBG's newsletter and in local newsletters in Bremer Bay and Jerramungup, posters, presentations to community and stalls at local market days.



Project details and outcomes

At the start of this project the Fitzgerald Biosphere Dieback Reference Group was formed to guide the compilation of the Fitzgerald Risk Reduction Plan. Representatives from the FBG, Ravensthorpe Agricultural Initiative Network (RAIN), Department of Parks and Wildlife (DPaW) and professionals with expertise in Dieback identification and management were included. The Fitzgerald Management Area is located within the Fitzgerald Biosphere Reserve and covers approximately 300 000 ha, the majority of which is managed by DPaW. The remainder is vested in the shires of Jerramungup and Ravensthorpe or privately owned.

The Management Area contains six PPAs including:

- Two which form the Fitzgerald East Complex comprising the Hamersley and Steere River/Culham Inlet catchments
- Two which form the Fitzgerald Core Complex, encompassing Thumb Peak and Mid Mt Barren
- One which forms the Fitzgerald West (North) PPA encompassing Fitzgerald, Gairdner on the eastern side of the Bremer River catchments
- One which forms the Fitzgerald West (South) comprises the western side of the Bremer River catchment and Doubtful island area. This area was not merged with Fitzgerald West (north) for reasons including:
 1. a near impossible network of roads and tracks to manage
 2. the landscape values are equally represented in the Fitzgerald West (North) PPA
 3. Infestations are present
 4. The challenges of managing public access between the areas is seen as threat to the Fitzgerald Management area

The Fitzgerald Management Area contains two uninfested high value hotspots and four uninfested high value landscapes covering an area of 140 206.2 ha in total.

The FBG's subgroups, Friends of Wellstead Estuary Plus (FOWEG+), and the Bremer Bay Regional Trails Committee, were partners in this project. During the course of the project Dieback assessments were carried out at the Green Belt (a four hectare parcel of land in the townsite of Bremer Bay), the Carmichael Rd recreation and gravel reserve, the proposed path for the Bremer Bay to Point Henry walk trail and the Mary Street gravel pit in Bremer Bay. A further assessment was carried out at Chingarup private reserve in Boxwood Hill, where no Dieback was found.

Where Dieback species were identified in the other sites, management actions were carried out. Actions to mitigate against the Dieback infestation identified at the Green Belt in Bremer Bay included closing off vehicle access to the reserve and installing a boot cleaning station with associated signage. Any Dieback assessment carried out during the project was entered into the Dieback Information Delivery Management System (DIDMS). A boot cleaning station and Dieback signage were also installed at Quaalup Wilderness Retreat to lessen the risk of Dieback being introduced there.

An extensive community awareness program was carried out during the project. It included:

- Six FBG newsletters: article on project activities and events
- FBG calendars with Dieback focus: 2014 and 2015
- Six adverts and articles in local papers and Jerramungup DHS school year book
- Five Posters
- 20,000 Fitzgerald Biosphere brochures that included Dieback information distributed.
- 2,000 Dieback brochures distributed to visitor centres
- 1,000 Dieback stubby holders distributed
- One case study on Ravensthorpe Enduro Club produced
- 300 Upper Gairdner Revegetation Guides with Dieback information included distributed
- Two presentations; one at the Bremer Bay annual market day, the other at the Albany Dieback Forum
- Green Card training
- School visits and trips.



natural resource
management program



SOUTHCOAST
NATURAL RESOURCE MANAGEMENT

Timeframe: December 2015 to December 2017

Funding source: State NRM

Project Coordinator: Georgina Griffiths

Summary

The objective of this project was to support landholders in the Bremer River Catchment and surrounding areas to protect remnant vegetation and waterways and to support revegetation efforts. In total, 16 km of fencing were constructed and 10 ha of land re-vegetated across five farms.

The FBG and landholders worked with Greening Australia to coordinate additional revegetation work at one other site. A revegetation guide for the area was updated and land management agreements were developed.



Project details and outcomes

Three of the five sites in this project are located in the Devil's Creek catchment, which is a sub-catchment of the Bremer River. The site that included both fencing and 10 ha of revegetation had suffered from flood damage in the past and was salt affected and bare prior to revegetation. Three species of Eucalypt were planted on the least saline ground and Anameka saltbush was planted in the most salt affected areas. High rainfall in 2016 meant the site remained too wet to access so planting didn't occur until 2017, at which time it was noted that there had also been natural recruitment of local salt tolerant species since the area had been fenced off.

The second fenced site, not far from the first, was subsequently revegetated through Greening Australia's 20 Million Trees program. The third site is at the headwaters of the Devil's Creek catchment so its protection has benefits for the catchment downstream. The remaining two sites are wetlands located adjacent to the Bremer River Catchment. Each belongs to different, internally draining wetland systems fringed by Yate woodlands. The wetlands provide valuable habitat for a large range of woodland birds, waterbirds and native marsupials.

To support the on-ground works, the revegetation guide, *Simple Systems for Revegetation and Native Forage in the Bremer River catchment guide* by landscape ecologist Nathan McQuoid, was updated. This guide is a fit for purpose document to build knowledge and skills for best management practise in remedial Landcare practises.



natural resource
management program



Natural Resource Management (Coastcare) Bremer Bay

Overview of activities

The FBG's work in Bremer Bay is guided by the Wellstead Estuary Management Plan 2005-2020 (WEMP) to which the group is a signatory. The Wellstead Estuary Project ran from 2006 to 2009 and had the sole objective of acting on the recommendations of the plan.

Several other relevant strategic planning documents are also used to guide our work, including:

- Friends of Wellstead Estuary Group+ (FOWEG+) Strategic Plan.
- Shire of Jerramungup Coastal Management Plan 2017-2027.
- Southern Prospects 2019-2024
- Southern Shores 2001-2020

Recent activities include: supporting our active sub-group (Bremer Bay Regional Trails Committee), coordinating the annual Tidy Bremer Bay in May Day, sourcing funding for and implementing other projects that meet the plan's objectives for example, the Community Weed Management Plan, and the WEMP, liaising with other organisations whose work is relevant to the region (eg Greenskill's Sydney Golden Wattle program, Nowanup Rangers) and representing the FBG on a range of committees including:

- Bremer Bay Community Development Committee (BBCDC)
- Shire of Jerramungup Steering Committee for the Coastal Management Plan Review
- South Coast Management Group (which went into recess in 2019)
- Great Southern Centre for Outdoor Recreational Excellence (GSCORE)

FBG Subgroups

Bremer Bay Regional Trails Committee.

The Bremer Bay Regional Trails Committee was started in 2007 by the late Phil Hadley, then coordinator of the Wellstead Estuary Project. Early projects included development of the Wellstead Estuary Walk Track and the Point Henry Drive Trail. The group uses as its guiding document a master plan for local trails, called the Cycle and Shared-use Trail Plan for Bremer Bay/Point Henry, written by Landscape Ecologist Nathan McQuoid in 2013. With the completion of the dual use Native Snail trail in 2018, the group has made recommendation to the Shire to prioritize the Rock Caine for its next funding submission under its Dual Use Path Program. The Trails Committee has now turned its attention to the development of more informal walking tracks around

Bremer Bay and on Point Henry Peninsula. Initial scoping for suitable tracks was done in 2019 and ideas will be presented to the Shire for approval in 2020.

Trails Committee members are as follows:

- Acting Chair: Geoff Barr (following the resignation of the newly elected Chair, Craig Pursey due to him relocating).
- Secretary: Therese Bell
- Committee members: Nathan McQuoid, Mick Lance, Jan Roberts, Abbey Gooch, Julie Outram, Darryl Hockey and Barb Hornsey Miller.



Friends of Wellstead Estuary + (FOWEG+)

FOWEG+ was established in 2006 as one of the first actions of the Wellstead Estuary Management Project. It ran until 2017 when the decision was made for it to go into recess, pending the securement of funds to pursue the relevant aspects of the Wellstead Estuary Management Plan.

Throughout its 11 years of operation FOWEG+ was a very proactive group that consisted of some very knowledgeable, stalwart, committed members. Many of its early activities centred around fulfilling specific actions in the WEMP such as providing volunteer support to the professionals who gathered baseline data on bird use of



Overview of activities

the estuary, fish stocks and ground water quality around the estuary. FOWEG+ championed activities that saw Bremer Bay awarded a number of accolades in the national Tidy Towns Awards. The annual Clean Up Bremer Bay in May Day was instigated and organised by FOWEG+.

Temporary fencing on the estuary to protect nesting shorebirds was also championed by this group.

Although in recess, individual members of FOWEG+ are active in the community and the FBG will continue to liaise with them, with the view to providing on-going support to help achieve objectives that meet the WEMP targets.

Recent Projects



Recent projects in Bremer Bay have focused on environmental weed control and Dieback awareness raising. Details of these projects are provided in the following pages. Specific mention is made here of one weed in particular; Victorian tea tree. Eradication and control programs have been carried out for a long time by a number of stakeholders, including the FBG, the Shire of Jerramungup, the Department of Biodiversity and Attractions and South Coast NRM. The strategy underlying the FBG's approach is outlined below in order to provide the community with a greater understanding of it.

Victorian tea tree eradication and control program:

The FBG has devoted considerable time and resources to managing Victorian tea tree in the greater Bremer Bay area on reserves that are the responsibility of the Jerramungup Shire and in recognition of the fact that it is

a major threat to one of our most valued assets; our natural environment.

The species has long been recognised as a significant environmental weed on the South Coast of WA. It was introduced from the eastern states in the early 1940s and planted into hedges that provide shelter from prevailing winds. The South Coast's Mediterranean climate provides perfect growing conditions for Victorian tea tree, which readily out-competes native species and takes over large areas of native bush.

Infestations are wide-spread throughout the shire and there is no expectation that it can be eradicated completely. Knowing this, the FBG employs a three-part strategy when managing this weed:

1. We prioritise infestations that represent a risk to our highest value natural assets: the Wellstead Estuary, the Bremer River, the neighbouring Fitzgerald River National Park and corridors of high value native vegetation in the region.
2. We employ control strategies developed to circumvent issues with seed dispersal. Control is difficult because the plant has small fine seeds that are very easily dispersed by wind, vehicles, soil and water movement. Furthermore, the seed is released en-masse immediately following damage or stress caused by herbicide application, cutting or fire. **Due to the high risk of seed dispersal following treatment, it is critical that plants remain in-situ and are not removed to another location.**
3. We tailor management strategies to individual sites. The way in which individual Victorian tea tree sites are managed varies depending on such factors as the size and age of the stand, its location, and the presence or otherwise of buffers (either natural or man-made).

Management options for individual sites include:

- a. maintaining buffer and exclusion zones around existing stands
- b. removing plants outside buffer zones
- c. completely eradicating stands where possible
- d. removing plants of flowering age within stands
- e. reducing the seed bank of large stands over time.

The timing of the work is also dictated by experience and exploits the window of opportunity between when the species is in flower (and easily identifiable) but prior to seed set.

Critical to the success of this strategy is on-going control at each site over a number of years (at least three to five). The highly competitive funding environment in which we operate makes it challenging, if not impossible,

to fund large-scale, long-term control programs. Our approach is to source pockets of funding whenever we can to build cumulative impact over time at the sites selected using the above-mentioned criteria. Given these constraints, the other critical aspect of this program is the continuity provided over many years by our contractor, Johnny Alaouze. A horticulturalist by profession, Johnny developed the above-mentioned strategies based on years of experience. It is an effective approach that maximises control efforts despite scarce start-stop funding. Johnny's knowledge, not only of the distribution of Victorian tea tree sites all throughout the

Bremer Bay area, but also of their approximate ages, infestation sizes and control histories of individual sites are all invaluable to effective management. Further to this, Johnny has worked with a team of Nowanup Rangers to carry out recent Victorian tea tree control. The association has worked well, provided valuable experience to the Rangers team and offering the opportunity for ties to be built between the local Noongar community, the Bremer Bay community, the FBG and the Shire of Jerramungup.



Natural Resource Management (Coastcare) Bremer Bay

Weed Action Plan for Bremer Bay

Timeframe: March 2018 to March 2019

Funding source: State NRM

Project Coordinator: Therese Bell

Summary

This project had two objectives: firstly, to take stock of the current weed situation in the Bremer Bay area and secondly to carry out control of a Victorian tea tree infestation as part of an on-going overarching strategy to manage this environmental weed.

Community knowledge about environmental weeds of significance, their distribution and key infestation sites was sought through a number of avenues (interviews, online surveys, community events). The six weeds of greatest concern that were identified through this process were: Victorian Tee Tree, Bridal Creeper, Sydney Golden Wattle, Polygala, Lovegrass and Boxthorn. From the information collected, a brochure about these six species, a community weed management plan, and a register of control programs were created.

A large infestation of Victorian tea tree in Mary St, Bremer Bay was targeted for removal as part of this project. Local contractor Johnny Alouse worked with the Nowanup Rangers to remove a 10 ha stand and he carried out surveillance of a further 80 ha for outlier plants.

Project details and outcomes

Weed Audit

The Bremer Bay community has a long history of controlling environmental weeds that impact on the natural ecosystems in the area. Although the volunteers and organisations currently managing weeds are dedicated, we are very aware that everyone has limited resources and time. This project was devised to allow us to take a more strategic approach to weed control so that in future we can prioritise the species and infestation areas we target. We also needed to ensure we acted in concert with other stakeholders so as not to duplicate resources or inadvertently compromise other control efforts.

We approached key community members, local volunteers, contractors, local experts and other organisations carrying out weed control to gather the relevant information. We also approached the wider community through on-line surveys and by attending community events (which were also opportunities to raise awareness about weeds).

In this way, information about environmental weeds of significance, their distribution and key infestation sites,

the history of control and eradication programs and best management practices for control and eradication were collated.

We produced three things from this information:

- A brochure that covers control measures for the six weeds of greatest concern identified: Victorian tea tree, Bridal Creeper, Sydney Golden Wattle, Polygala, Lovegrass and Boxthorn.
- A register of control programs, both historical and current, carried out in the district by key stakeholders. This register is maintained by FBG staff.
- A community weed management plan, which, in addition to the above information, identifies priority areas in the townsite for weed control; includes resources to identify and carry out best management techniques for 15 weeds commonly found in the Bremer Bay area; and lists other available resources.

Victorian Tee Tree eradication and control program:

As outlined in the Bremer Bay Projects section of the Achievement Report, priority is given to Victorian tea tree infestations that represent a risk to the area's most significant natural assets: the Wellstead Estuary, the Bremer River and the neighbouring Fitzgerald River National Park. The Mary St site was chosen because of its proximity to the Wellstead Estuary and Bremer River. The work done in this project was designed to capitalise on previous tea tree control and eradication efforts, using methods developed by experienced personal. Our contractor, Johnny Alouse, worked with a team of Nowanup Rangers to carry out the work. The Mary St infestation will be followed up to ensure longer term control as and when funding becomes available.



natural resource
management program



Natural Resource Management (Coastcare) Bremer Bay

Bremer Bay Community Foreshore and Estuary Protection Project

Timeframe: August 2018 – October 2019

Funding source: Coastwest

Project Coordinator: Therese Bell

Summary

This project was designed to follow on from the 2018 Bremer Bay Weed Action Plan that identified weeds of most concern to the community and high priority areas to target within the townsite. This project focused on environmental weed control and awareness raising, Dieback hygiene and identification of threats in erosion sensitive areas along the Bremer Bay foreshore and the Wellstead Estuary.

A fledgling weed action group was created that carried out several working bees. Several small Victoria tea tree infestations were treated either to eradicate or control, depending on the site. Other activities included a foreshore assessment training workshop, vegetation foreshore assessment of one section of the estuary, production of a pamphlet on weeds and Dieback hygiene, Dieback education sessions in all schools in the shire and the installation of two boot cleaning stations with associated signage.

Project Details and outcomes

A fledgling Weed Action Group participated in a number of weeding bees in the Bremer Bay area. In conjunction with the weeding bees, participants also learned about local weed species on the foreshore, how to spread rust for Bridal Creeper control and how to carry out foreshore weed assessment and management skills.

Volunteer training for the foreshore assessment was carried out by Jack Mercer, the environmental consultant who conducted a comprehensive vegetation survey in 2007 that covered both sides of the Wellstead Estuary and Lower Bremer River for a distance of 19 km upstream.

This vegetation survey, entitled *Wellstead Estuary and Lower Bremer River Foreshore Vegetation Survey*, was a key action of the Wellstead Estuary Management Plan (WEMP) 2005-2020.

In addition to the training, one section of the estuary, between the fish cleaning station and the paperbarks park, was re-assessed using a methodology adapted by Jack from his 2007 survey. Visual assessments were carried out, and scores given to: bank stability, floodway and bank vegetation, verge vegetation, stream cover, habitat diversity and surrounding land use. The subsequent ranking was then converted to the grading system and management level used in the 2007 survey.

In 2007, the same area was given an environmental rating of moderate and a foreshore grading of B1: degraded and weed infested. Jack provided recommendations to improved the environmental value of the foreshore in that area.

Further Victorian tea tree management of a number of small sites around the Bremer Bay townsite was completed by the Nowanup Rangers in August 2019 in line with the strategic approach the FBG has taken to managing this weed (outlined in the Bremer Bay Projects section of this Achievement Report). These sites will be revisited in following years to remove emerging seedlings, thereby depleting the seed bank over time. A pamphlet that provided identification and management information about the six environmental weeds of greatest concern in Bremer Bay, and Dieback hygiene measures was produced and distributed in the local community.

The FBG contracted Dieback specialists, Bark Environmental to present a Dieback education program to the Bremer Bay, Gairdner, Wellstead and Jerramungup primary schools and the Jerramungup District High School in February 2019.

Two boot cleaning stations (one paid for through private donation) and associated signage were installed in the John Street Reserve, at either end of a path that runs from one side of the reserve to the other.



Natural Resource Management (Coastcare) Bremer Bay

Linking Bremer Bay to Point Henry Trail

Timeframe: May 2017 – June 2018

Funding sources: Lotterywest, Great Southern Development Commission, through Shire of Jerramungup and Greenskills Albany.

Project Coordinator: Therese Bell. On-site coordination: Nathan McQuoid

Summary

This project was a partnership between the Fitzgerald Biosphere Group, the Bremer Bay Regional Trails Committee and the Shire of Jerramungup. It completed a dual use path between the town site of Bremer Bay and nearby Point Henry Peninsula. The asphalt path was laid by the Shire in 2015 and 2016. In this 2017-18 project managed by the FBG a loop trail, interpretive and directional signage, lookout points, a sculpture of the local native snail and stone wall seating were added. The trail was officially opened in March 2018.

Project details and outcomes

The dual-use asphalt path runs approximately parallel to, and along most of the length of, Wellstead Rd between Point Henry Peninsula Rd and the Bremer-Borden Rd. A 600m crushed limestone loop trail was constructed off this main path, as were short spurs to two prime lookouts. Lay-bys were created at four suitable resting points. Seating in the form of low rock walls was constructed by a local stonemason at the lookout and resting points. A super-sized sculpture of the South Coast Native Snail *Bothriembryon melo* was installed at one of the resting points and a directional dial was installed at one of the lookouts.

Interpretive panels to explain the landscape through which the path winds, were installed on stone plinths and covered the following subjects:

- Crowned Snake
- South Coast Native Snail
- Sandy Shrublands
- Bush Rat
- Swamp Yate, Mor

Directional signage and trail head signs were also erected. A brochure which promoted this and other trails in the Bremer Bay area was completed as part of the project.





Fitzgerald Biosphere Group

8-10 Tobruk Road
Jerramungup WA 6337
or
Po Box 49
Jerramungup WA 6337

Ph: (08) 9835 1127
General Enquiries: admin@fbg.org.au



Produced by the Fitzgerald Biosphere Group 2019
