Department of
Parks and Wildlife

Balijup Farm Fauna Survey
2011 – 2013

by Sylvia Leighton, Land For Wildlife Officer, Albany District
Department of Parks and Wildlife

Supported By:

Green Skills Inc

Great Southern Institute of Technology

Executive Summary

The Land For Wildlife (LFW) Balijup Farm Fauna Survey presents the results of a pilot fauna survey carried out in 2011 – 2013 to identify some of the native fauna species still residing on this rural property. It also presents invaluable historical bird sightings compiled from records made by land owner, Tom Hordacre, between 1978 – 1981.

Balijup Farm has an area of 919 hectares of which 585 hectares is still under remnant vegetation or re-vegetation and a further 102 hectares are wetlands. Bushland on the property was protected under the State Government's clearing ban legislation for the Upper Kent catchment in the 1980s (Schur, B. 2011). The Balijup property was identified as an extremely important corridor link in the macro corridor wildlife connection from the Stirlings Ranges through to the Forests corridor link (Wilkins, et al, 2006).

Over 14 different species of Eucalypt have been identified to occur on the property. These are reflective of Balijup Farm being located in the vicinity of the junction of four recognised Interim Biogeographic Regions of Australia (IBRA) zones; Avon Wheatbelt, Jarrah Forest, Esperance Plains and Mallee. Another aim of the Balijup Farm Fauna Survey was to ascertain whether this mix of northern and southern IBRA species was also expressed in the faunal suite present on the property. The survey revealed that it was most strongly expressed in the range of 16 species of reptile that were recorded on the property.

The wetlands scattered across the property are all part of the Unicup Suite of wetlands listed in the National Directory of Important Wetlands in Australia. These wetlands play a significant role in providing habitat for some of the international migratory wader bird species listed on international treaties such as the Banded Stilt. Many of these wetlands are recognised to be threatened or at risk to rising watertables and salinity (Ferdowsian, R. 2011).

A number of significant bird species such as the peregrine falcon, the wedge tailed eagle and the endangered Carnaby's cockatoo have been recorded to nest on Balijup Farm. The cockatoos rely on old trees with hollows for breeding and nesting. In addition phascogales, brushtail possums, bats and birds utilise the upper branches and hollows of standing wandoo trees.

The project revealed that there are definitely more than 125 different native species of fauna that have been recorded on this property including; six mammals, eight frogs, 16 reptiles, and over 95 different sorts of birds. Bats were not surveyed in this project and this could be easily done in the future using a sonic recorder. The invertebrates could also be surveyed in the future.

The black-gloved (or western brush) wallaby (*Macropus irma*) was last sighted on the property about 30 years ago. Its population in the district is in decline. It relies on dense understorey habitat for protection from predators and landscape-scale bushland connectivity. If a strong black-gloved wallaby population can be sustained in the area it is believed that other 'snack-sized' mammals species such as the brushtail possum, quenda (also known as bandicoots) that are vulnerable to predation (35 - 5,500 g) will also benefit.

It is hoped the *Land For Wildlife* Balijup Farm Fauna Survey 2011 – 2013 provides some baseline data to assist the property managers make future management decisions which incorporate the special faunal values of this area.

Acknowledgements

I would like to thank the owners of Balijup Farm; Alan, Richard and Anne, for generously allowing all the project participants access onto the property to carry out the fauna survey over a period of two years. They have also generously allowed many public education workshops to be run at Balijup Farm and it is very much appreciated.

Thanks to Sarah Comer, the South Coast Department of Parks and Wildlife (DPaW) Regional Ecologist, for recognising Balijup Farm as a 'special place' that needed to be surveyed and then generously sharing her skills assisting me with the reptile and invertebrate identification.

Thanks also to Basil Schur from Green Skills who organised many workshops on Balijup Farm to inform the local community about the significance of the property and help promote the fauna survey project. I would also like to thank all the students from the Albany Great Southern Institute of Technology (GSIT) – who assisted with installing the field equipment for this survey. They were studying their Certificate II, III, IV & Diploma level of the Conservation and Land Management Course in 2011 & 2012.

Thanks to my supervisor at the Department of Parks and Wildlife, Penny Hussey, who allows me to carry out community based fauna surveys as part of the *Land For Wildlife (LFW)* programme. Thankyou also to Claire Hall (*Land For Wildlife officer*) for all her editing assistance with this report.

Thanks to all the members of the public who have a keen enough interest in their local environment to come up to Balijup Farm in the early hours of the morning to see what native animals we were catching in the survey trap lines.

The Volunteer team for the Balijup Farm Fauna Survey

Alan Hordacre – property owner
Max Hordacre – uncle to LFW property owner
Anne Vanderbyl – LFW property owner
Jack Vanderbyl – family to property owner
Daniel Vanderbyl – family to property owner
Joe Porter - family to property owner
Max Porter - family to property owner
Stephen Janicke – DPaW Volunteer
Geraldine and Geraldine - DPaW Volunteer
Edith Young - DPaW Volunteer
Peter McKenzie- DPaW Volunteer
Alex Leighton - DPaW Volunteer
Mathilda Comer - DPaW Volunteer
Delma Baesjou - DPaW Volunteer
Jackie Baesjou - DPaW Volunteer
Sandra Gilfillan – GSIT tutor
Leah Goodrem - GSIT tutor
Jon Marwick - GSIT tutor
Larry Blight - GSIT tutor
Phil Worts – LFW Officer – plant/ bird surveying
David McNamara – Green Skills Bird Surveying
Nicki Green – Green Skills tutor Art Workshop

Darryl Sloane - GSIT student
Milo De Bonde - GSIT student
Jessie Stein - GSIT student
Alain Collins - GSIT student
Roger Sweetman - GSIT student
Ashley Shiels - GSIT student
Matthew Musgrave –DPaW Work Experience student
Emma Ashton - GSIT student
Amanda Davies - GSIT student
Carly Burrow - GSIT student
Paula Chisolm - GSIT student
Nancy Harrison - GSIT student
Sean Mettam - GSIT student
Lewis newton - GSIT student
Jayden Vitler - GSIT student
Wayne Williams - GSIT student
60 pupils from Flinders Park Primary School (FPPS)
Maxine McLennan – FPPS 2012 Year 7 teacher
Sarah Macnamara – FPPS 2012 Year 7 teacher
Thomas Dimer – DpaW Indigenous Interp. Officer
Mark Parre – LFW /Green Skills Workshop
Ben Murphy – LFW /Green Skills Workshop

To all the people that have helped over the two years and I have forgotten to include your name – I Humbly Thank You All!!!

Sylvia Leighton, *Land for Wildlife* Officer , Department of Parks and Wildlife, February, 2014

Contents

Tables and Figures

In memory of Tom and Nancy Hordacre whose love and appreciation of nature has left a precious natural heritage legacy at Balijup Farm.

1.0 Introduction

1.1 The *Land for Wildlife* Programme

Land for Wildlife is a voluntary conservation programme which began in Western Australia in 1996 and is based at the Department of Parks and Wildlife. The program encourages and facilitates land managers and groups to contribute to regional biodiversity conservation by maintaining and improving native habitat on their properties. The program builds the capacity of members through workshops, environmental assessments on properties, newsletters, advice and access to the local conservation network. *Land For Wildlife* also operates in Victoria, Queensland, Tasmania, New South Wales and the Northern Territory with over 15, 000 properties registered.

Land for Wildlife members contribute to natural resource management on private land by managing habitat as well as controlling threatening processes like invasive weeds, feral animals, erosion and altered fire regimes. They are encouraged to contribute to the conservation of remnant native vegetation upon which survival of plants and animals is dependant. Wildlife corridors are created or maintained between nature reserves or surrounding natural areas, allowing wildlife movement and genetic interchange between populations of plants and animals.

1.2 Community Education Field Surveys

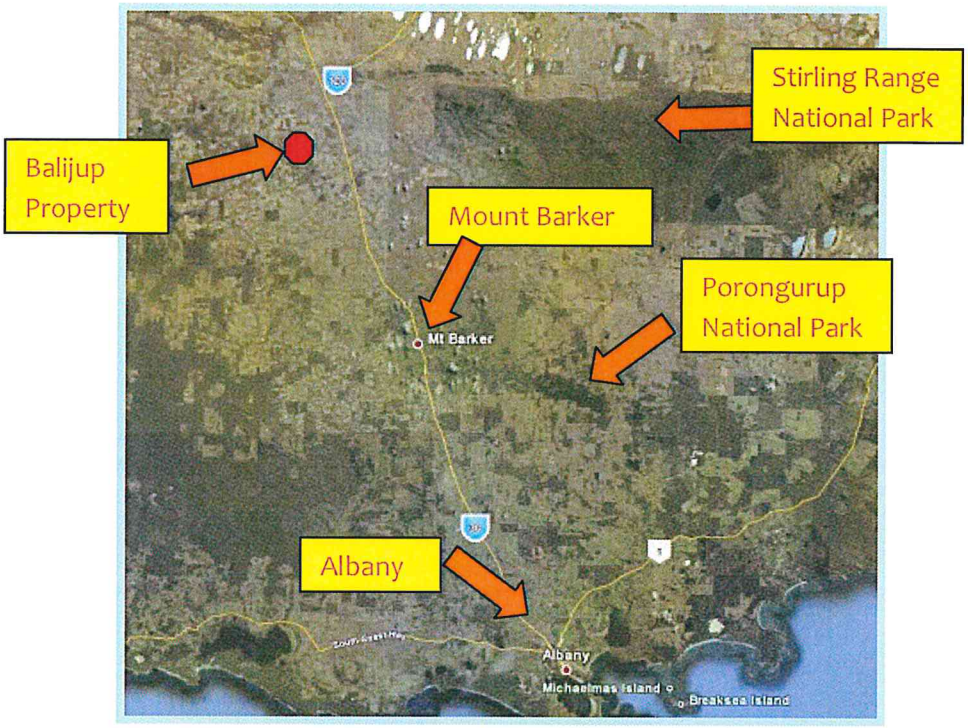
Land for Wildlife has conducted community biodiversity field surveys in the past. These can be used as baseline data in determining the success of particular land management activities being carried out and add to the knowledge of species distributions. The surveys also contribute to the core objective of public education in the *Land for Wildlife* program and encourage the involvement of stakeholders and other volunteers engaging in their local environment. This teaches valuable skills to the participants as well as enhancing knowledge of local flora, fauna and their interactions within an ecosystem. This report has been written in an informal style so that it is more accessible to the general public.

1.3 Balijup Farm

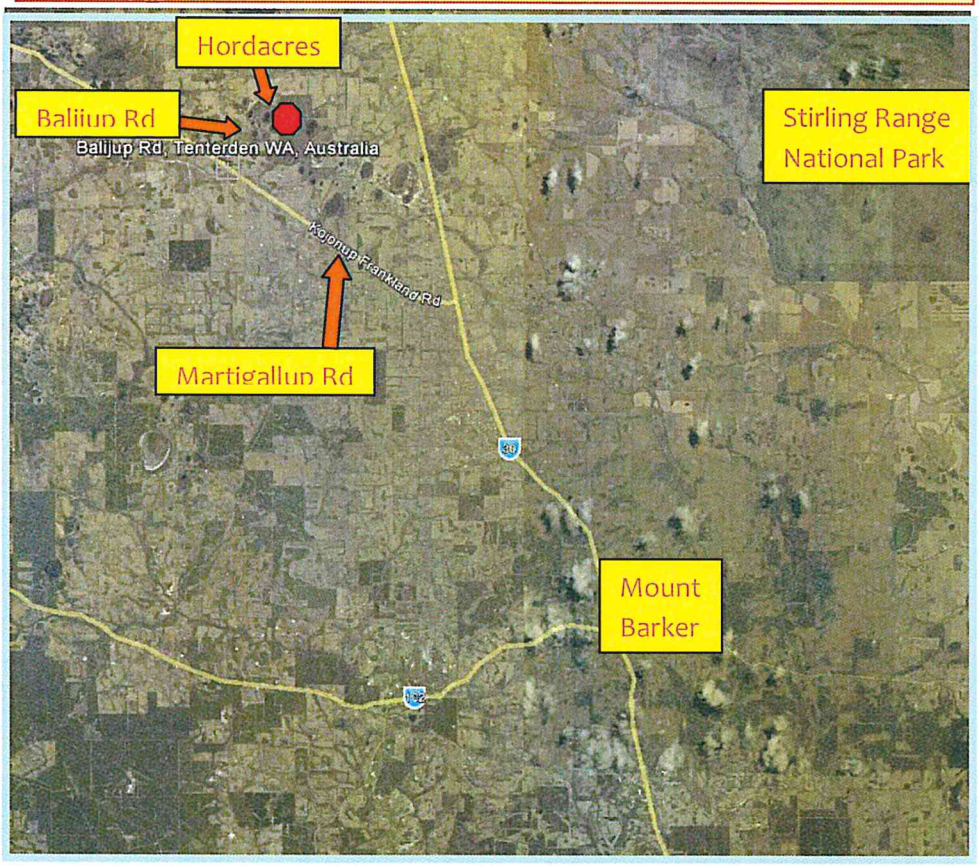
Balijup Farm is located approximately 25 kilometres north west of Mount Barker in the Cranbrook Shire in the south west region of Western Australia (refer to map 1) . It has an area of 919ha of which 585 ha is still under remnant vegetation or revegetation and a further 102 hectares are wetlands. The mean annual rainfall for the past 20 years is 545mm. Balijup Farm has been identified as an extremely important property within the corridor link in the Department of Parks and Wildlife macro corridor connection from the Stirlings Ranges through to the Forests corridor link (Wilkins, et. al 2006). The wetlands scattered across the property are all part of the Unicup Suite of wetlands in the Kent River Catchment. These wetlands have been identified as 'significant' on a national database and play a significant role in providing habitat for some of the international migratory wader bird species.

The property ranges in elevation from around 284 metres above sea level in the north western corner of the property to just under 245 metres on a wetland along the northern boundary of the property. The change in elevation, geology and soils provides the perfect situation for the property to express a diverse range of vegetation community associations ranging from tall open marri , flat-topped yate and wandoo woodland, large areas of low eucalypt woodland including many southern wheatbelt Eucaylpt secies. , closed stands of low banksia woodland, extensive areas of heath-lands and then sedge and samphire meadows on many of the wetlands. Over 150 plant species have been identified by *Land for Wildlife* on the property. Proteaceous rich vegetation communities have been identified on the sandy lunettes near some of the wetlands (Sandiford, L., 2012).

The reserve is large enough in size to also provide habitat for a diverse range of native fauna. A Naturemap search of all historical fauna records on the state database within a 10 kilometres radius of Balijup Farm revealed 84 fauna recordings; 73 bird species, two mammals (the bilby and the brush tailed phascogale), two amphibians and seven reptile species. It is hoped this project can update and increase this record.



Figure's 1 & 2 : Aerial images showing the general location of Balijup Farm within the surrounding hinterland Image courtesy of Google Earth



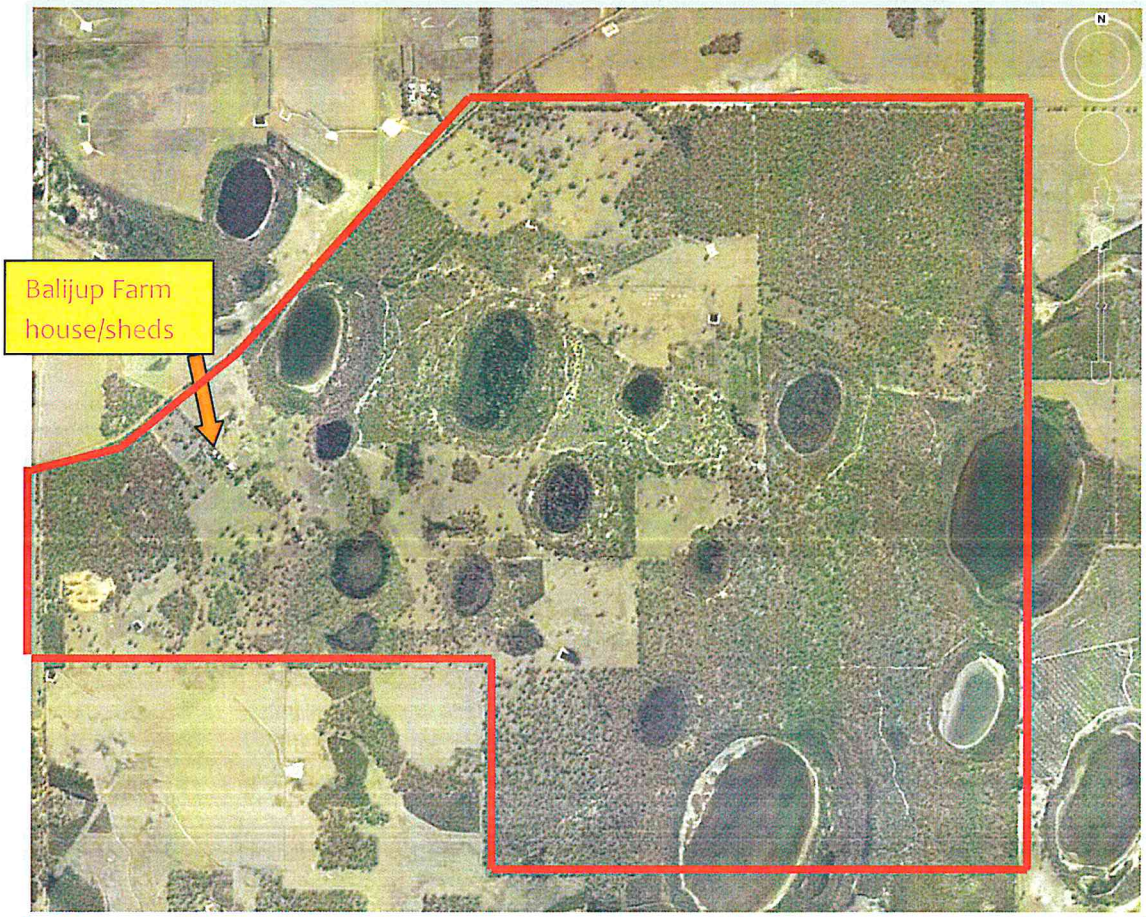


Figure 3: Approx. boundary of Balijup Farm. Image courtesy of Google Earth

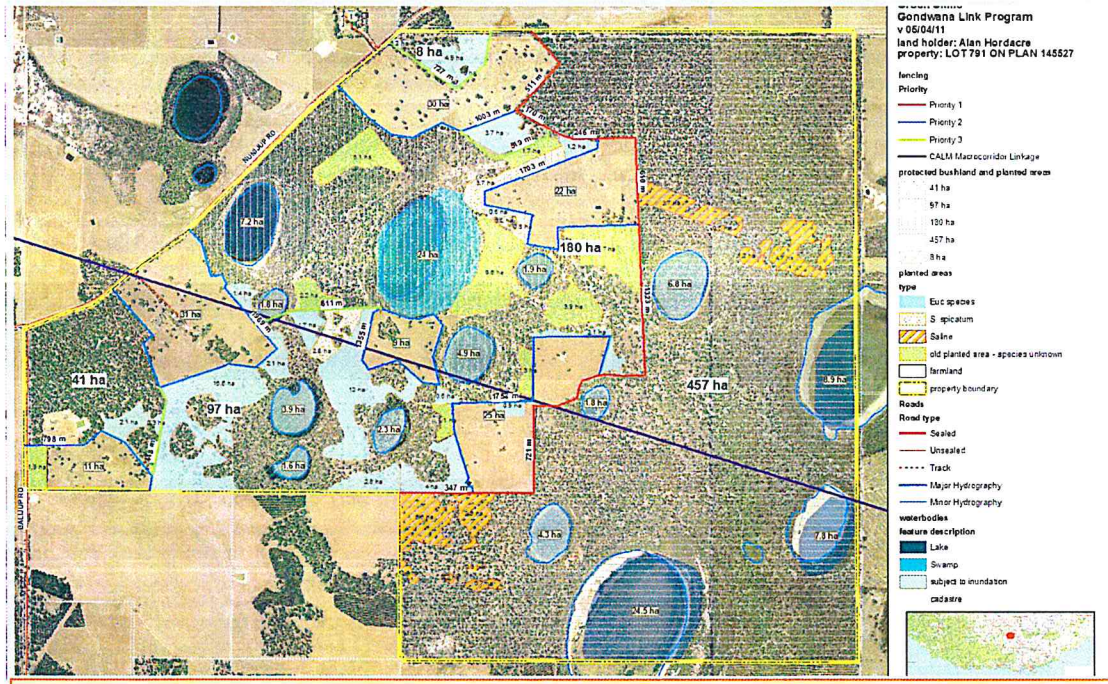


Figure 4: The map by Green Skills showing the DPaW Macro Corridor (purple line) representing the best vegetated wildlife corridor connection between Stirling Ranges and the Forest region

Fig. 5: The spectacular eastern wetland on Balijup

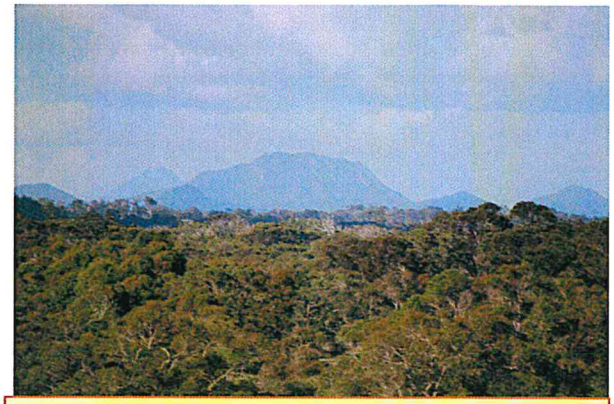


Fig. 6: A view to Stirling Ranges from the farm

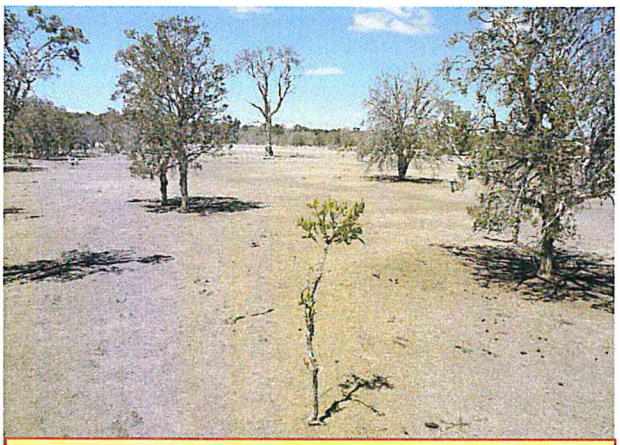


Fig. 7: All of the lakes dried up over summer 2012

Fig. 8: Some marri jarrah woodland on Balijup

Fig. 9: A sedge meadow wetland

Fig. 10: Flat-Topped Yate *(Eucalyptus occidentalis)* and tea tree in one of the seasonal wetlands.

2.0 Methodology

Survey methods included: a small animal trapping survey, night cameras and hair wires. Historical Bird records have also been included that were collected by property owner, Tom Hordacre, between 1978 – 1981.

2.1 Trapping Survey Methodology and Site Selection

The Balijup Farm Fauna Fauna Survey was undertaken under a 'Licence To Take Fauna for Scientific Purposes' issued to Sylvia Leighton as a *Land For Wildlife* Officer of the Department of Parks and Wildlife. The methodology for the project was reviewed and accepted by the WA State Animal Ethics Committee.

The major selection criterion for the trapping sites was finding four different vegetation associations which were typical and representative of the vegetation communities on the farm (refer to Table 2 for a description of the selected vegetation associations and Figures 8 - 14 for visual representations of the sites). There are many different vegetation communities represented on the Balijup property. These are all affected by elevation, geology, soil type, aspect and hydrology. In general the jarrah, marri and wandoo woodlands occur on the higher ground on top of the lateritic gravelly soils. On the sandy lunette areas near the wetlands there appears to be proteaceous rich flora.

Other site selection influences included: deep enough soil profiles allowing the installation of the pit traps to a depth of 40 cm, easy vehicle access to the sites so that field equipment did not have to be carried long distances, and dispersal across the property so that sites were 'spread out' across the remnant vegetation on the property (refer to Fig. 7 for a map of the survey site locations).

Each survey site contained ten pit traps, eight baited Elliott box traps, three /four baited wire cage traps and in summer some funnel traps were used for reptiles. To provide seasonal variation in fauna presence the traps were opened over five consecutive nights (weather permitting) in different seasons of the year. Each pit trap was placed approximately three meters apart with a line of aluminium netting running through the distance of the five pits. The traps would be set in the afternoon then checked early in the morning to see if any animals had been trapped. The traps were generally left closed during the course of the day due to the risk of invasion by ants except for the mid summer reptile surveying where they were cleared twice a day. Auditory calls were also used to help identify birds and frogs. Photographs were taken to provide a visual record of fauna surveyed. Due to lack of expertise with invertebrates only a small sample were identified to Family or Order level. A few samples were collected and sent to the W.A. museum for identification (groups that have been identified as high possibility site endemic: snails (*Bothriembryon sp.*) and spider *(Mygalomorphae and Lycosa spp.)).*

Fig 11 : Setting up the pit traps

Fig 12: Installing Elliot box traps

Fig 13: Setting Funnel traps

Fig 14: Cage traps were baited with 'universal bait'

Fig 15: Elliott Box traps were also baited

Fig 16: A pit trap with the fly wire connecting the buckets

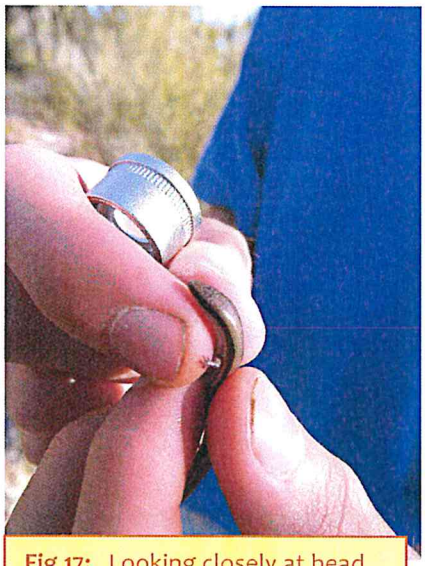


Fig 17: Looking closely at head scales and toes

Fig 18: Weighing specimens

Fig 19: Photographs for records

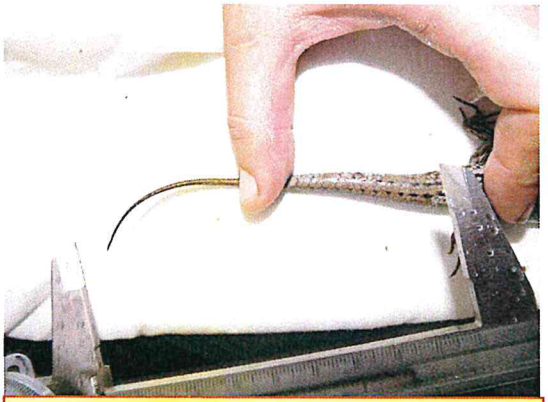


Fig 20: Recording morphological data

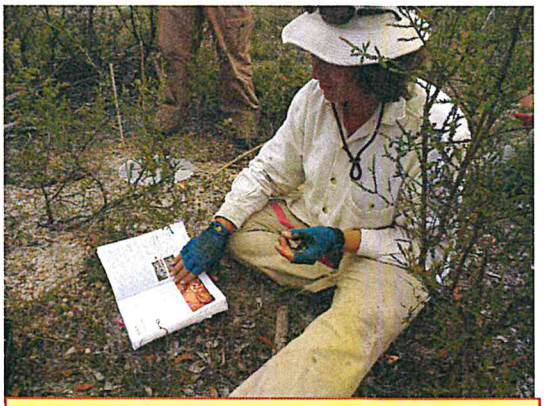


Fig21: Identification keys were definitely needed in the field for the reptiles

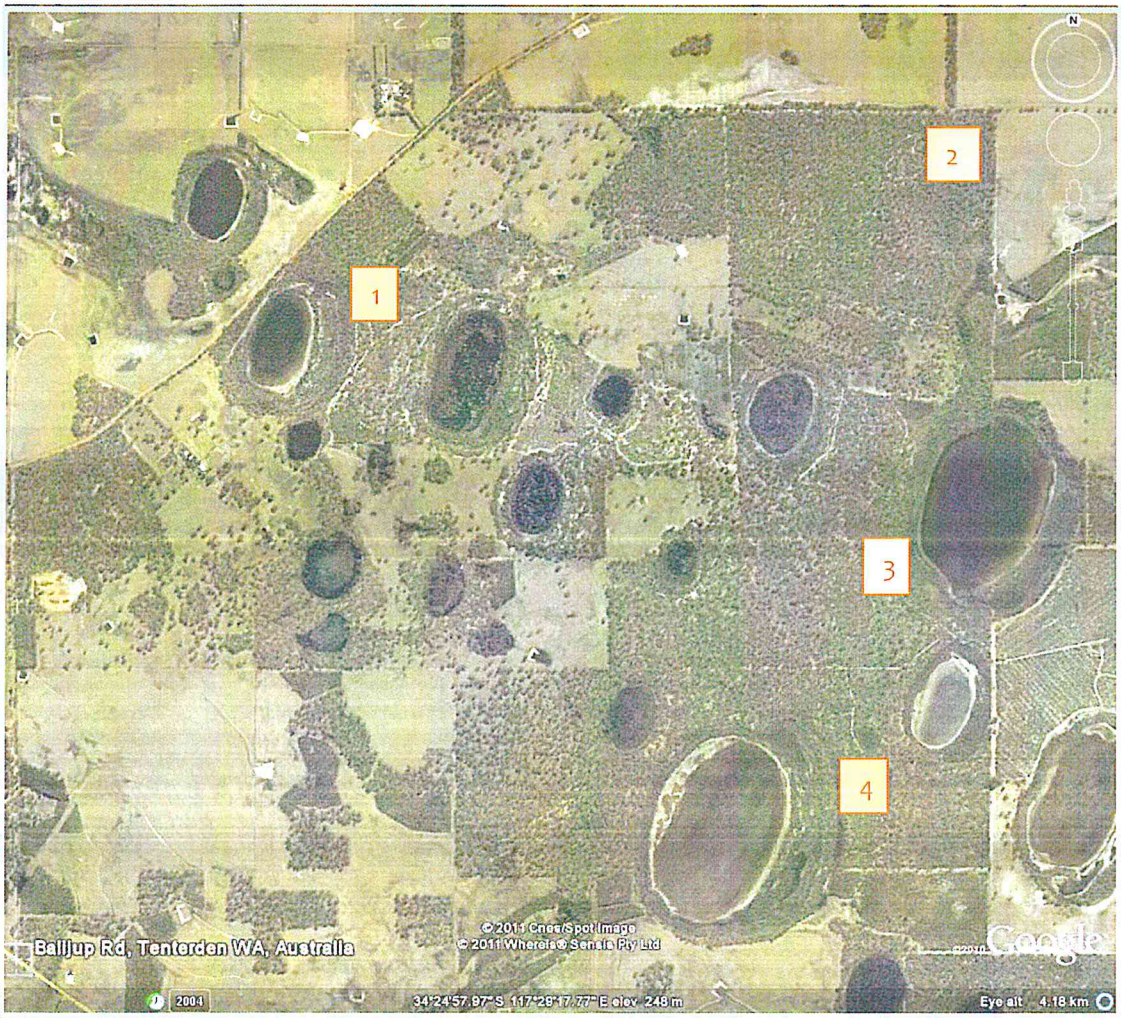


Fig. 22 – Approximate locations of the four fauna survey trapping sites on Balijup Farm

Fig.23: Site 1 - Marri, Jarrah Tall Open Woodland with fairly sandy top soil.

Fig. 24: Site 2 - Jarrah and Wandoo Open Tall Woodland on a laterite duricrust

Fig. 25: Site 3 - *Banksia attenuata* low woodland on sandy soil

Fig. 26: Site 4 - Flat Topped Yate and *Eucalyptus decipiens* Open Low Woodland on sandy soil

Table 1: The GPS location, elevation and brief vegetative description for each of the four fauna survey sites

Site No.	GPS location of Site	Soils and Elevation (above sea level)	Description of Vegetation Community at Fauna Survey Site and brief list of main plant species present
1	S 34° 24.582 E 117 ° 28.749 North western corner of main bush block	Fairly deep sand adjacent to laterite 246 metres	**Marri, Jarrah Tall Open Woodland** - *Corymbia calophylla, Eucalyptus marginata, Banksia grandis, Banksia attenuata, Jacksonia furcellata, Adenanthos cuneatus, Leucopogon obovatus, Acacia puchella* var. *goadbyi, Andersonia caerulea, Donkey orchids*
2	S 34° 24.207 E 117 ° 30.410 North eastern corner of main bush block	Laterite duricrust 272 metres	**Jarrah and Wandoo Open Tall Woodland** – *Eucalyptus marginata, Eucalyptus wandoo, Banksia sessils, Banksia armata, Xanthorrhoea preissii, Hakea prostrata, Allocasuarina thuyoides, Acacia puchella* var. *goadbyi, Melaleuca preissiana, Leucopogon obovatos, Stylidium sp., Dampiera sp. , Anigozanthos humilis, Drosera pallidum*
3	S 34° 25.208 E 117 ° 30.208 South western side of wetland on eastern boundary of property	Deep sand profile 267 metres	***Banksia attenuata* low woodland** - *Eucalyptus marginata, Banksia attenuata, Nuytsia floribunda, Melaleuca thymoides, Leucopogon obovatus, Patersonia occidentalis, Haemodorum spicatum, Daviesia preissii, Stirlingia sp., Acacia puchella* var. *goadbyi, Acacia dentata, Dampiera alata, Diuris corymbosa, Drosera sp.*
4	S 34° 25.583 E 117 ° 30.116 Between two wetlands near the southern boundary in main bush block	Sand 250 metres	**Flat-Topped Yate and *Eucalyptus decipiens* Open Low Woodland** – *Eucalyptus decipiens, Eucalyptus occidentalis, Exocarpos sparteus, Melaleuca cuticularis, Melaleuca preissiana, Hakea amplexicaulis, Acacia saligna, Acacia puchella* var. *goadbyi, Melaleuca thymoides, Adenanthos cuneatus, Jacksonia furcellata, Hakea corrymbosa, Lysinema ciliatum, Isopogon teretifolius, Leucopogon obovatos, Verticordia sp., Pimelea clavata, Andersonia caerulea, Calytrix leschenaultii, Acacia alata, Drosera sp.*

2.2 Night Camer's and Hair Wire Survey Methodology

The Great Southern Institute of Technology(GSIT), Certificate IV, Monitoring Biodiversity, Conservation and Land Management students installed 20 hair wires and six night cameras in different GPS locations nearby to access tracks within the remnant bush. These were left in the field for a two week period and then retrieved.

2.3 Tom Hordacre's Historic Bird Records and Recent Bird Sightings

Bird Atlas data sheets recorded by property owner, Tom Hordacre, between 1977 – 1985 were transferred into electronic form and included in this report. Various ornithologists visited the property between 2011 – 2013 and recorded opportunistic bird sightings.

2.4 Opportunistic Fauna Sightings on Balijup Farm

Opportunistic Fauna sightings were recorded and sometimes photographed when people were driving around the property during the fauna survey period.

3.0 Results

3.1 Fauna Trapping Survey Results

For the purposes of this report the trapping survey results have been collated into tables of major fauna groupings; mammals, amphibians, reptiles and invertebrates.

Table 2: A summary of the faunal species recorded for each survey site during the 2011- 2013 Balijup Farm Fauna Survey

SCIENTIFIC NAME	COMMON NAME	Site 1	Site 2	Site 3	Site 4	Opportunistic
MAMMALS						
Cercartetus concinnus	western pygmy possum (Mundarda)			3		
Felis catus	feral cat					scats collected
Macropus fuliginosus	western grey kangaroo					lots of sightings
Mus musculus	feral mouse	7	2	5	9	
Oryctolagus cuniculus	rabbit					scats mounds everywhere
Tachyglossus aculeatus	short beaked echidna					distinctive diggings in termite mounds
Tarsipes rostratus	honey possum (Noolbenger)	2			2	
Trichosurus vulpecular subsp. *vulpecula*	common brushtail possum					scats in most tall tree areas
Vulpes vulpes	fox					scats everywhere

AMPHIBIANS						
Crinea pseudinsignifera & Crinea sub insignerfa	false western froglet/ sign bearing froglet	7		10	16	
Crinea glauerti	clicking froglet	3	2	1	1	
Lymnodynastes dorsalis	banjo frog	1	6	15	1	
Heleioporus eyrei	moaning frog	2	1			
Myobatrachus gouldii	turtle frog	2		14	2	
Neobatrachus pelabotoides	humming frog	1	1	3	3	
Pseudophryne occidentali	western toadlet				4	
REPTILES						
Acritoscincus trilineatus	southwestern cool skink			1		
Aprasia repens	s.w. sandplain worm lizard			1	1	
Ctenotus impar	odd striped ctenotus	1		11	16	
Egernia napoliensis	southwestern crevice skink	1		1		
Hemiergis peronii peronii	4 toed mulch skink		3	1	5	
Lerista distinguenda	southwestern 4 toed lerista	6	1	7	2	
Lerista elegans	west coast 4 toed lerista	2				
Menetia greyii	common dwarf skink	1	5	1		
Morethia butleri	dark flecked morethia	1	1			
Morethia obscura	pale flecked morethia	5	3	7	4	
Notechis scutatus occidentalis	western tiger snake					sighted once
Parasuta gouldii	hooded gould snake				1	
Pogona minor minor	western bearded dragon			1	4	
Pseudonaja affinis affinis	dugite snake					sighted once
Teliqua rugosa rugosa	bobtail		2		1	
Varanus rosenbergi	goanna					sighted twice
INVERTEBRATES						
Blattidae	bush cockroach				2	
Bothriembryon sp.	snail				1	
Carabidae	ground beetles				3	
Cercophonius sp.	scorpion			2	1	
Curculionidae	weevil				3	
Diplopoda	millipede		1			
Hemiptera, Coccoidea, Kuwaniidae	pink bodied scale bugs	4		37	1	
Lycosa spp.	wolf spider	1	1		3	
Mygalomorphae Spider	mouse spider				1	
Mygalomorphae Spider	trapdoor	3	7	5	14	
Order - Craterostigmorpha	centipede	1		6	1	
Pterohelaeus sp	piedish beetle			1		

3.1.1 Trapping Survey Results – Mammals

Nine species of mammal were recorded to be present on Balijup Farm during the survey: five native mammals and four introduced mammal species (refer to Table 2). The small mammal captures were fairly low but definitely revealed that the two small possums; the western pygmy possum and honey possum are still present on Balijup Farm. They were recorded during the spring time trapping session in September 2012 which is when the Proteaceous plants have their maximum nectar production time (refer to Table 3). The western pygmy possums were only captured at Site 3, the *Banksia attenuata* low woodland site. The honey possums were only found at Sites 1 and 4. Both these sites had springtime flowering plants with strong nectar production.

The only site that did not record either of these small possums was Site 2, the jarrah and wandoo tall open woodland. This site does contain *Banksia sessilis* and *Banksia armata* but it has very little middle storey vegetation possibly making it too exposed for these small mammals.

All four sites had feral mice present. The population of mice was most prevalent in the late autumn month of May and completely dropped away in the dry summer month of December.

Table 3: Mammal species capture rates for the different seasonal trapping sessions

Species Name	May 2012	Sept. 2012	Dec. 2012	Feb. 2013
Cercartetus concinnus western pygmy-possum		3		
Mus musculus feral house mouse	21			2
Tarsipes rostratus honey possum		4		

Fig. 27 & 28: Honey possums (*Tarsipes rostratus*) were caught in pit traps at high nectar production times. These animals are reliant on a nectar supply all year round so the proteaceous rich vegetation communities are their favourite .

Fig. 29 & 30: Western pygmy possums (*Cercartetus concinnus*) were only caught at Site 3 in amongst the *Banksia attenuata* low woodland in springtime. The image on the right shows the possum in torpor.

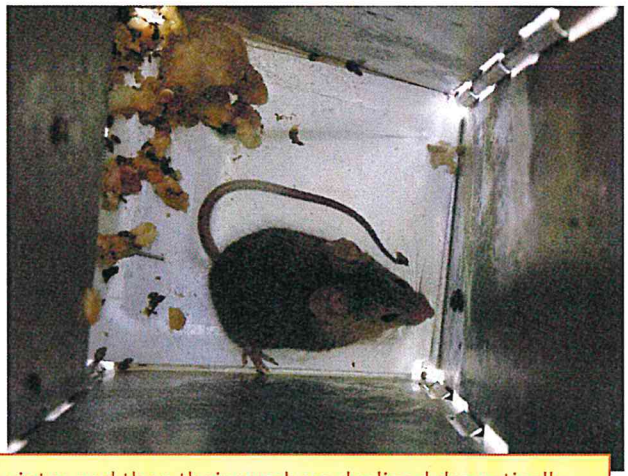


Fig. 31 & 32: Feral Mice (*Mus musculus*) were prolific in early winter and then their numbers declined dramatically during summer. They were caught in pits and Elliot box traps. Their tails were marked to record recaptures.

3.1.2 Trapping Survey Results – Amphibians

Eight species of frog were recorded as present in the remnant bushland on Balijup Farm (refer to Table 2). They were most prolific in the wetter trapping sessions of May and September and completely absent in the dry February trapping session (refer to Table 4).

Different species of frogs favoured different survey sites, possibly indicating they are probably influenced by vegetation community and site habitat. The jarrah wandoo tall open woodland at Site 2 was once again the least favourable to all the frog species especially the small Crinea frogs. This is probably due to the surface laterite at this site with almost no soil horizon for the frogs to burrow. The burrowing western toadlet was only found at Site 4 which sat between two wetland areas and has deep sandy soil. The turtle frog was only found in the May trapping session and very definitely favoured Site 3, the *Banksia attenuata* woodland site with its deep sand. The banjo frog was found at all sites but was most prolific at Site 3. The humming frog was found at all sites .

Table 4: Amphibian species capture rates for the different seasonal trapping sessions

Species Name	May 2012	Sept. 2012	Dec. 2012	Feb. 2013
Crinea pseudinsignifera & C. subinsignerfa false western froglet & western sign bearing froglet	15	16	2	
Crinea glauerti clicking frog	6		1	
Lymnodynastes dorsalis western banjo frog	20	2	1	
Heleioporus eyrei moaning frog	2	1		
Myobatrachus gouldii turtle frog	18			
Neobatrachus pelabotoides humming frog	6	2		
Pseudophryne occidentalis western toadlet	4			

Fig. 33 & 34: Moaning frog (*Heleioporus eyrie*) have distinctive calls and toe pattern to help with identification

Fig. 35 & 36: The three Crinea frogs; clicking frog (*C. glauerti*), false western froglet (*C. insignifera*) and the western sign bearing froglet (*C.pseudinsignifera*) are extremely difficult to identify to species level. Detailed morphological data was used to help with identification. Their audio calls distinctly separate them.

Fig. 37 & 38: Western banjo frog (*Limnodynastes dorsalis*) has a fairly distinct line down the middle of its back with a protruding gland on the upper surface of the frog's hind leg calf. Its call is also distinctive.

Fig. 39 & 40: The humming frog (*Neobatrachus pelabotoides*) has a distinctive call and is physically distinctive

Fig. 41 & 42: The burrowing western toadlet (*Pseudophryne occidentalis*) was only found at Site 4. It is a fairly slow moving medium sized crawling frog so it is extremely vulnerable to predation when on the soil surface

Fig. 43 & 44: The amazing turtle frog (*Myobatrachus gouldii*) was only found in the May trapping session which coincided with some of the first major rainfall events for early winter at Balijup Farm. Interestingly the turtle frogs were of all sizes from about 10 mm in length through to about 65 mm in length.

Fig. 45 & 46: Patterning on the frogs bellies (granulated or markings) and toe shape were morphological features used to help with the frog identification process

3.1.3 Trapping Survey Results – Reptiles

Sixteen species of reptile were recorded as being present in the remnant bushland on Balijup Farm (refer to Table 2). They were most prolific in the warmer trapping sessions of December and January and much reduced in the cooler months of May and September (refer to Table 5).

Different species of reptile favoured different survey sites, possibly indicating they are influenced by the site habitat. Possibly the more closed vegetation canopy of sites 3 & 4 favoured the increased variety of species found at these sites. Interestingly there was a slightly different suite of species found in early summer through to late summer. The small hooded Gould snake was a very exciting specimen to catch. These nocturnal burrowing snakes are not seen very often this far south.

Table 5: Reptile species capture rates for the different seasonal trapping sessions

Species Name	May 2012	Sept. 2012	Dec. 2012	Feb. 2013
Acritoscincus trilineatus southwestern cool skink			1	
Aprasia repens southwestern sandplain worm lizard			1	1
Ctenotus impar odd striped Ctenotus	1	2	14	11
Egernia napoliensis southwestern crevice skink	1		1	
Hemiergis peronii peronii 4 toed mulch skink	3		5	1
Lerista distinguenda southwestern 4 toed Lerista			3	13
Lerista elegans west coast 4 toed Lerista				2
Menetia greyii common dwarf skink			1	6
Morethia butleri dark flecked morethia			2	
Morethia obscura pale flecked morethia		4	5	10
Parasuta gouldii hooded Gould's snake			1	
Pogona minor minor western bearded dragon		1	1	3
Teliqua rugosa rugosa bobtail		2		1

Fig. 47: The western bearded dragon (*Pegona minor minor*) was only found at Sites 3 & 4.

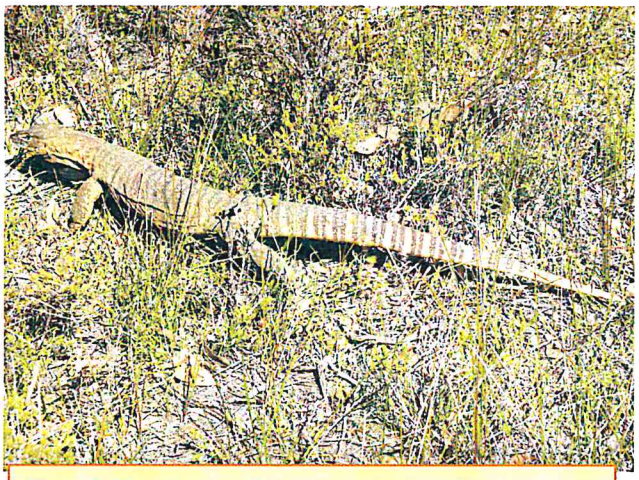


Fig. 48: The goanna (*Varanus rosenbergi*) was sighted a few times on warmer days

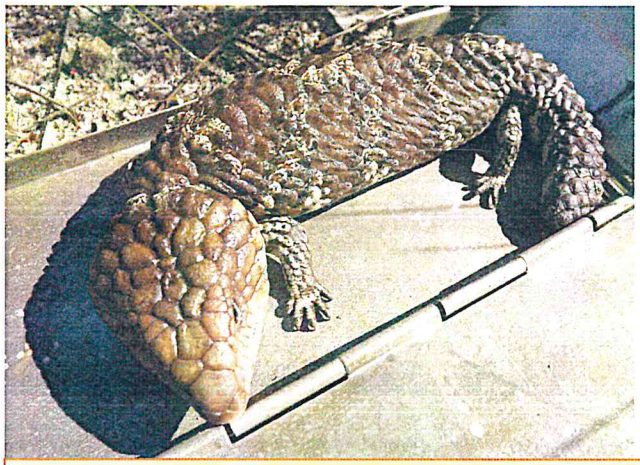


Fig. 49 & 50: Bobtails (*Teliqua rugosa rugosa*) were caught in both pit traps and Elliott Box traps

Fig. 51 & 52: South western crevice skink (*Egernia napoliensis*) was only caught two times during the survey

Fig. 53 & 54: The Odd Striped Skink *(Ctenotu impar)* was found at Site 3 & 4

Fig. 55 & 56: Southwestern sandplain worm lizard *(Aprasia repens)* was only found in the summer months of Dec. & Jan.

Fig. 57& 58: The hooded Gould's snake *(Parasuta gouldii)* was only caught once at Site 4 and is on its southern distribution boundary. This is mainly a nocturnal snake so rarely seen.

Fig. 59 & 60: The pale flecked morethia *(Morethia obscura)* with its peach coloured throat in the mating seasons

Fig. 61 & 62: The four toed mulch skink *(Hemiergis peronii peronii)* with its yellow underbelly breeding colours

Fig. 63 & 64: The southwestern four toed Lerista *(Lerista distinguenda)* with its distinctive sleek, slithery body

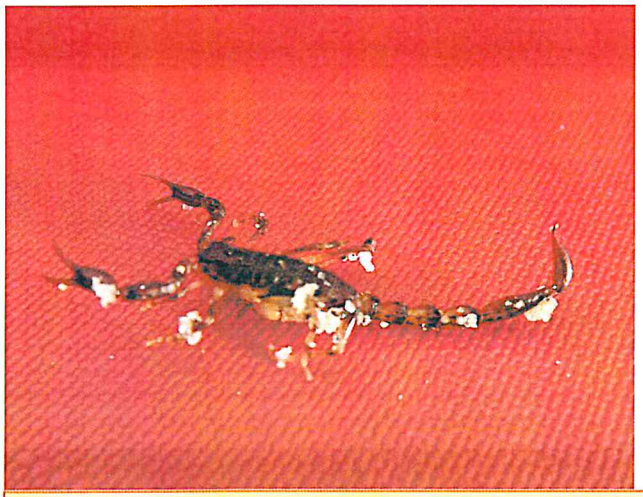
Fig. 65 & 66: The Common dwarf skink *(Menetia greyii)* had variable colours but the distinctive grey stripe

3.1.4 Trapping Survey Results - Invertebrates

Only a few of the trapped invertebrates were photographed and identified to their class or order level to provide a sample of this diverse faunal group (refer to Table 6). It is hoped an invertebrate expert may wish to survey them in more detail in the future. The invertebrates of special interest due to their high levels of endemism includes scorpions, millipedes, centipedes, molluscs and Mygalomorphae spiders.

Table 6: Selected Invertebrate species capture rates for the different seasonal trapping sessions

Species Name	May 2012	Sept. 2012	Dec. 2012	Feb. 2013
Blattidae - bush cockroach		2		
Bothriembryon sp. land snail of southwestern WA		1		
Cercophonius sp. - scorpion	3			
Curculionidae - weevil		3		
Family - Carabidae - ground beetles	3			
Hemiptera, Coccoidea, Kuwaniidae pink bodied scale bugs	41	1		
Lycosa spp. wolf Spider		2	2	1
Mygalomorphae Spider - mouse spider	1			
Mygalomorphae Spider - Trapdoor	21	8		
Order – Craterostigmorpha - centipede	1	4		3
Order – Diplopoda - millipede	1			
Pterohelaeus sp. - piedish beetle		1		



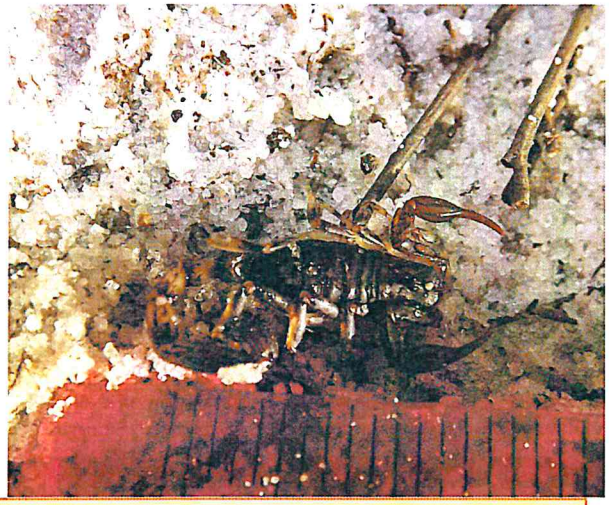


Fig. 67 & 68: **The** scorpion's (*Cercophonius* sp.) were only caught in May in the more sandy sites of Site 3 & 4

Fig. 69 & 70: These spiders have lungs external to their bodies. They are in the Mygalomorphae spider group. Specimens were sent to the WA Museum. The size and shape variation could possibly just be gender differences

Fig. 71: Specimen sent to the Museum.

Fig. 72: Specimens sent to the Museum. Hoggicosa wolf spider group

Fig. 73: wolf spider - *Hoggicosa* group. An unusual pink and grey Hoggicosa was also sent to the WA Museum

Fig. 74: Red headed mouse spider, *Missulena octatoria* with its distinctive red fangs and bluish abdomen

Fig. 75 & 76: Two eye catching caterpillars foraging on the native flora. The caterpillar on the left exceeded 70 mm in length. More opportunity for an invertebrate specialist to identify these into their taxonomic grouping

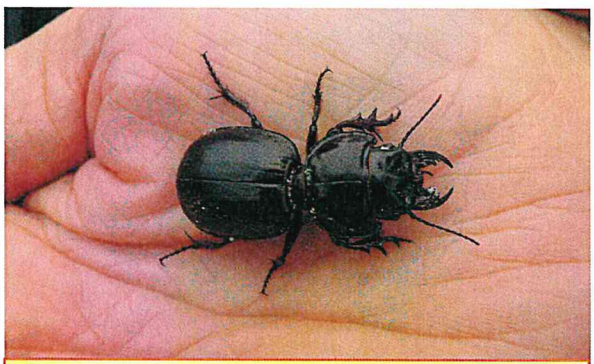


Fig. 77: A ground beetle from the Family Carabidae

Fig. 78: One of the weevils in the Curculionidae

Fig. 79 & 80: Hemiptera, coccoidea (scale bugs) Keys out to Kuwaniidae

Fig. 81: Land snails have high endemism

Fig. 82 & 83: The pink mollusc shells are found on some of the Balijup Farm wetlands on not on others, In the dry months there are thick layers of the shells around the lake edges

3.2 Night Camera and Hair Wire Survey Results

The Great Southern Institute of Technology students undertaking their Certificate IV Conservation and Land Management studies installed six night cameras and 20 hair wires in different GPS locations nearby to access tracks within the remnant bush. These were left in the field for a two week period and then retrieved. The data was compiled in a short report. The night cameras did not record any new faun species. The hair wires only collected two hair samples suspected to belong to a western brush wallaby. The site was revisited by brush wallaby expert Sandra Gilfillan but no further field evidence of the wallaby was obtained.

Fig. 84: A fox caught on a night camera

Fig. 85: A western grey kangaroo

3.3 Historic Bird Atlas Records and Recent Bird Sightings

Bird Atlas data sheets recorded by property owner, Tom Hordacre, between 1977 – 1985 were transferred into electronic form and included in this report. Opportunistic bird sightings during the 2011 – 2013 survey time period were recorded by various ornithologists visiting Balijup Farm.

Table 7: Tom Hordacre's Historic Bird Atlas records made between 1977 – 1985 and recent sightings made in 2012 -13

Aust. Atlas code	Scientific name	Common name	Month sighted	Years sighted	Rating of sightings: rare, seasonal & common	Recent sighting 2012 - 2013
001	*Dromaius novaehollandiae*	Emu	All months	All years	Common	*
009	*Coturnix pectoralis*	Stubble Quail	Nov.Feb. , April - May	'79 &'81	Rarely seen	
014	*Turnix varius*	Painted Quail	Jun - Jul	1980	Rarely seen	
34	*Phaps chalcoptera*	Bronze Winged Pigeon	All months	All Years	common	*
043	*Ocyphaps lophotes*	Crested Pigeon	Sept. , Oct., Dec., Jan., March, April	1979 & 1981	Rarely seen	*
56	*Gallinula tenebrosa*	Dusky MoorHen	Aug	'85	Only 6 seen	
059	*Fulica atra*	Eurasian Coot	Dec	1988		
100	*Microcarbo melanoleucos*	Little Pied Cormorant	April	1980	Rarely seen	
106	*Pelecanus conspicillatus*	Australian Pelican	Sept	'84	Rarely seen only two seen	
135	*Vanellus tricolor*	Banded Lapwing	Oct. Dec, Feb. May	1978 - 1981	Rarely seen	

AA code	Scientific name	Common name	Month sighted	Years sighted	Rating of sightings	Recent sighting
138	*Thinornis rubricollis*	Hooded Plover	Aug. - Dec	1977 - 1979	seasonal	
143	*Charadrius ruficapillus*	Red Capped Dotterel	Aug. - Feb	All Years	Seasonal, one sighting in April in 1981	*
144	*Elseyornis melanops*	Black Fronted Dotterel	Aug. Oct	79- '80	Rarely seen	
146	*Himantopus himantopus*	Black Winged Stilt	Jan	1977	Rarely seen	
147	*Cladorhynchus leucocephalus*	Banded Stilt	Oct	1977	Rarely seen	
158	*Tringa nebularia*	Common Greenshank	Dec	85	Only one seen	
180	*Threskiornis spinicollis*	Straw Necked Ibis	Oct	'83	Rarely seen	
182	*Platalea flavipes*	Yellow Billed Spoonbill	Sept. - Nov	All Years except 1978	seasonal	
187	*Ardea modesta*	Eastern Great Egret	October	'78, '79, 1981	Rarely seen	
188	*Egretta novaehollandiae*	White Faced Heron	Feb.- Apr, Jun. - Dec	All Years	seasonal	
189	*Ardea pacifica*	White Necked Heron	Aug - Jan	All Years	seasonal	
192	*Nycticorax caledonicus*	Nankeen Night Heron	Jun	1988	Rare	
202	*Chenonetta jubata*	Aust. Wood Duck	All months	All Years	Common	*
203	*Cygnus atratus*	Black Swan	All months	All Years	Summer months only in 1979 &'81	
207	*Tadorna tadornoides*	Aust. Shelduck	All months	All Years	Common	*
208	*Anas superciliosa*	Pacific Black Duck	May – Dec.	All Years	Seasonal	
210	*Anas castanea*	Chestnut Teal	Aug	1988		
211	*Anas gracilis*	Grey Teal	May - March	1979 – 80	Rarely seen	
213	*Malacorhynchus membranaceus*	Pink eared duck	Feb.	'88	Two birds only	
217	*Biziura lobata*	Musk Duck	Aug	1988		
221	*Accipiter fasciatus*	Brown Goshawk	Oct.-Nov., Jan – Feb.	'77, , '79 – '80	Rarely seen	
224	*Aquila audax*	Wedge Tailed Eagle	All Months	All Years	Common	*
225	*Hieraaetus morphnoides*	Little falcon	Aug. - Nov	1979	Rarely seen	
229	*Milvus migrans*	Black Kite	Aug.-Sept	1979	Rarely seen	
230	*Lophoictinia isura*	Square tailed Kite	Aug. – Feb.	'78 - 81	Seasonal	
235	*Falco longipennis*	Australian Hobby	Feb. - Mar	'79, '80	Rarely seen	
237	*Falco peregrinus*	Peregrine falcon	Jul.-Jan	'79 - 81	Seasonal	*
242	*Ninox novaeseelandiae*	Boobook Owl	Apr. – May, Jul. – Dec.	'78 - 81	Sort of seasonal	*
259	*Glossopsitta porphyrocephala*	Purple Crowned Lorrikeet	All months	All Years	Common	*
264	*Calyptorhynchus banksii*	Red Tailed Black Cockatoo	April & Oct.	1979 & 1979	Rare	*

AA code	Scientific name	Common name	Month sighted	Years sighted	Rating of sightings	Recent sighting
266	*Calyptorhynchus baudinii*	White Tailed Black Cockatoo	All months	All Years	Common	*
273	*Eolophus roseicapillus*	Pink and Grey Galah	Oct	'87	Three birds only	*
278	*Polytelis anthopeplus*	Regent Parrot	All months	All years	Common	*
289	*Platycercus icterotis*	Western rosella	All months	All years	Common	*
290	*Purpureicephalus spurius*	Red Capped Parrott	All months	All years	common	
294	*Barnardius zonarius*	Twenty Eight Parrot	Aug. – Oct, April	1979	Rare	*
294	*Barnardius zonarius*	Port Lincoln Parrot	All months	All Years	Common	*
307	*Neophema elegans*	Elegant Parrot	All months	'78 - 81	common	*
313	*Podargus strigoides*	Tawny Frogmouth	Feb. Sept	'79 – '81	Seasonal	
322	*Dacelo novaeguineae*	Laughing Kookaburra	All months	All years	Common	*
326	*Todiramphus sanctus*	Sacred Kingfisher	Sept. - March	All Years	Seasonal	
329	*Merops ornatus*	Rainbow Bee Eater	Oct. – Feb.	All years	Seasonal	*
337	*Cacomantis pallidus*	Pallid Cuckoo	Jul - Dec	All years	Seasonal	
338	*Cacomantis flabelliformis*	Fan Tailed Cuckoo	Jul – Sept., March	'77, 79 – 81	Seasonal	
342	*Chalcites basalis*	Horsefields Bronze cuckoo	Jul	'79	Rarely seen	
344	*Chalcites lucidus*	Shining Bronze Cuckoo	Jul - Jan	All Years	Seasonal	
357	*Hirundo neoxena*	Welcome swallow	All months	All years	Common	*
359	*Petrochelidon nigricans*	Tree Martin	All months	79 – '81		*
361	*Rhipidura albiscapa*	Grey Fantail	All months	All year	Common	*
364	*Rhipidura leucophrys*	Willie Wagtail	All months	All years	Common	*
380	*Petroica boodang*	Scarlet Robin	All months	All years	Common	*
381	*Petroica goodenovii*	Red Capped Robin	All months	'78 – '81	common	*
385	*Melanodryas cucullata*	Hooded Robin	May-Jul, Oct-Nov, Jan	'79, '81	Possibly seasonal	
387	*Eopsaltria georgiana*	White breasted robin	Mar - Sept	'79 – '81	Rarely seen	
394	*Eopsaltria griseogularis*	Western yellow robin	All months	All Years	Common	*
398	*Pachycephala pectoralis*	Golden Whistler	All months	All years	Common	*
401	*Pachycephala rufiventris*	Rufous Whistler	Mar/apr/Jun/oct	'79-'80	Rarely seen	
408	*Colluricincla harmonica*	Grey Shrike Thrush	All months	All Years	Common	*
415	*Grallina cyanoleuca*	Magpie Lark	All months	All Years	Common	*
416	*Falcunculus frontatus*	Western Shrike tit	Jul-Oct.	'79-80	Rarely seen	
424	*Coracina novaehollandiae*	Black Faced Cuckoo Shrike	All months	All years	common	*

AA code	Scientific name	Common name	Month sighted	Years sighted	Rating of sightings	Recent sighting
430	*Lalage sueurii*	White winged triller	Sept. - Mar	All years	Seasonal	
448	*Epthianura albifrons*	White Fronted Chat	Sept.-Jan, May - Jun	'79 -81	Rarely seen	
463	*Gerygone fusca*	Western Gerygoyne	Jun-April	All years	Common	*
465	*Smicrornis brevirostris*	Wee Bill	Feb., Aug. - Sept	1981	Rare	*
476	*Acanthiza apicalis*	inland Thornbill	All months	'79 -81	Common	*
486	*Acanthiza chrysorrhoa*	Yellow rumped thornbill	All months	All years	Common	*
509	*Cincloramphus mathewsi*	Rufous songlark	Oct. Dec	'77, 79 -81	Rarely seen	
532	*Malurus splendens*	Splendid wren	All months	All years	Common	*
547	*Artamus cyanopterus*	Dusky Wood Swallow	All months	All Years	Common	
549	*Daphoenositta chrysoptera*	Varied sittella	All months	'79-'81	Common	*
556	*Climacteris rufa*	Rufous treecreeper	All months	All Years	Common	
574	*Zosterops lateralis*	Silvereye	All months	All Years	Common	*
578	*Melithreptus lunatus*	White naped honeyeater	All months	All years	Common	*
592	*Acanthorhynchus superciliosus*	Western Spinebill	Jan – Nov.	78 - 81	Not seen in all years	
593	*Glyciphila melanops*	Tawny Crowned	May – Sept.	78 -79, '81	seasonal	
597	*Lichmera indistincta*	Brown Honeyeater	All months	All Years	Common	*
608	*Lichenostomus virescens*	Singing Honeyeater	All months	All Years	Common	*
631	*Phylidonyris novaehollandiae*	New Holland Honeyeater	All months	All Years	Common	*
638	*Anthochaera carunculata*	Red wattle bird	All months	All Years	common	*
647	*Anthus novaeseelandiae*	Richards Pipit	All months	All year	Commonly seen	
697	*Strepera versicolor*	Grey Currawong	All months	All Years	Common	
700	*Cracticus nigrogularis*	Pied Butcherbird	Feb., April – May, Oct	'79, 1981	Rare	
702	*Cracticus torquatus*	Grey Butcherbird	All months	All Year	common	*
705	*Cracticus tibicen*	Magpie	All months	All years	Common	*
728	*Myiagra inquieta*	Restless Flycatcher	All months	All years	common	*
930	*Corvus coronoides*	Raven	All months	All years	Common	*
976	*Pardalotus striatus*	Striated Pardelote	All months	'79 – '81	Less sightings in Autumn	

Fig. 86: The peregrine falcon near its nest

Fig. 87: A Carnaby's cockatoo near Site 1

Fig. 88: Emu foot prints on the edge of a wetland

Fig. 89: A flock of teal sheltering out of the wind

3.4 Opportunistic Fauna Tracks, Scats & Sightings

During the survey time period, other fauna observations made opportunistically were usually photographed. This data included scats, tracks, diggings and any other 'signs' that could be used to identify the presence of specific faun species. These recordings were invaluable for recording the presence of larger species like kangaroos, goanna, echidna, foxes, cats, rabbits and the brush-tail possum. A specific search was made for southern brown bandicoot diggings and western brush wallaby scats in habitat areas favoured by these two species but there were no physical signs of their presence.

Fig. 90: Possibly echidna diggings into a termite mound

Fig. 91: A large Rosenberg goanna

Fig. 92: The scats of a Common Brushtail Possum (*Trichosurus vulpecula subsp. vulpecula*)

Fig. 93 & 94: Alan Hordacre had these foot notches notches pointed out to him when he was a child by an elderly Noongar man. The notches were used to hunt for possums up in hollows in the taller trees.

Fig. 95: The eggs of a reptile – probably a skink

Fig. 96: The web lined burrow possibly belonging to a Lycosod spider as there is no trapdoor lid

4.0 Discussion

The Balijup Farm Fauna Survey project revealed that there are definitely more than 125 different native species of fauna that have been recorded on this property including five mammals, eight frogs, 16 reptiles and over 96 different sorts of birds. Even though all these species were found inside their normal boundary of distribution, they are an interesting record indicating which species are still surviving in the Balijup Farm remnant bushland which is adjoined by broad acre commercial agricultural operations.

The larger nocturnal mammals such as; the brush-tailed wallaby, the brushtail possum, the brush-tailed phascogale, and possibly the threatened western ringtail possum (historically it may have once lived here) could be monitored by regular spotlighting and installation of night camera traps. Hair wire surveying may also help reveal the presence of some of these more elusive mammals. Bats could be recorded on sonar recorders.

The diversity of the 16 species of reptile recorded on the property is possibly reflective of Balijup Farm being located in the vicinity of the junction of four recognised Interim Biogeographic Regions of Australia (IBRA) zones: Avon Wheatbelt, Jarrah Forest, Esperance Plains and Mallee. Some species are on the edge of their population distribution. Further investigation into the diverse invertebrate group may also identify more faunal species that are endemic to the area and reflective of the IBRA zonal overlap.

It would be very useful to have permanent monitoring survey sites on Balijup Farm to collect fauna data over a long period of time. This allows more rigorous data sets to be collected which can allow statistical analyses and possibly detect population trends.

5.0 Conclusion

It is hoped that the data presented from this pilot fauna survey on Balijup Farm will be of value to future property managers. The black-gloved (or western brush) wallaby (*Macropus irma*) was last sighted on the property about 30 years ago. Its population in the district is in decline. It relies on dense understorey habitat for protection from predators and landscape-scale bushland connectivity. If a strong black-gloved wallaby population can be sustained in the area it is believed that other 'snack-sized' mammal species such as the quenda (southern brown bandicoot) may also benefit. Some examples of management practices for consideration when trying to protect special habitat components of bushland include:

- ensuring there is a mosaic of different aged vegetation;
- the very old wandoo/marri/jarrah woodland areas are protected from fire to preserve the hollows;
- rocks and logs are left on the ground for ground dwelling fauna, leaf litter is left to ensure soil dwelling fauna have food and shelter;
- vegetation communities are mapped and protected from dieback;
- proteaceous rich vegetation communities are managed with suitable fire intervals to promote seed set and reduce plant community senescence;
- closely monitoring the complex hydrology on this property to assist with management actions that can try to reduce the destructive effects of the rising water table;
- feral animal control and
- continued monitoring of fauna and flora

The greatest pleasure of this project was sharing the joy that people felt when visiting the scenic landscape of Balijup Farm and viewing some of the special native animals that reside there in the bushland.

Bibliography

Bush B., Maryan B., Browne-Cooper R., Robinson D., 2007: *Reptiles and Frogs in The Bush: Southwestern Australia,* University of Western Australia Press.

Ferdowsian, R., 2012: *Wetland Assessment in the Upper Kent Catchment, Report No. 2 Balijup Wetland Study Area*, unpub., Green Skills Assoc. , Denmark.

Ferdowsian, R., 2012: *Wetland Assessment in the Upper Kent Catchment, Report No.'s 1 & 3,* unpub., Green Skills Assoc. , Denmark.

Gondwanalink, 2011: Forests to Stirlings – a nature conservation plan, Connecting people to nature, Booklet outlining key elements of the Gillami – Green Skills Conservation Action Plan, Aug. 2011, Albany, WA.

Great Southern Institute of Technology. Cert. IV., 2011: *Fauna Study Hordacre Farm Tenterden, Night Camera Results,* Monitoring Biodiversity Unit, unpub., GSIT, Albany, Western Australia.

Leighton, S., 2012: *Land For Wildlife Property Assessment Report - Balijup Farm,* unpub., Land For Wildlife, Department of Parks and Wildlife, Albany Office, WA.

Sandiford E.M., Barrett, S.: 2010 *Albany Regional Vegetation Survey, Extent, Type and Status,* Department of Environment and Conservation, WA, Unpublished Report.

Sandiford, L., 2012: *Draft Findings of Proteacous Veg. Survey Report for Gondwana Link Forests to Stirlings* , unpub., Green Skills Assoc. , Denmark.

Schur, B.,2011: *Update on Hordacre Bushland Conservation and Gondwana Wildlife Corridors Project*, unpub., Green Skills Assoc. , Denmark.

Storr, G.M., Smith, L.A., Johnstone, R.E., 1983: *Lizards of Western Australia, II Dragons and Monitors,* Western Australia Museum.

Storr, G.M., Smith, L.A., Johnstone, R.E., 1986: *Snakes of Western Australia,* Western Australia Museum.

Storr, G.M., Smith, L.A., Johnstone, R.E., 1990: *Lizards of Western Australia, III, Geckos and Pygopods,* Western Australia Museum.

Storr, G.M., Smith, L.A., Johnstone, R.E., 1999: *Lizards of Western Australia, Skinks,* University of Western Australia Press.

Strahan, R., 2008: *The Mammals of Australia, 3rd Edition,* The Australian Museum Trust/Queensland Museum.

Triggs, B., 1996: *Tracks, Scats and Other Traces, A Field Guide to Australian Mammals,* Oxford University Press, Melbourne.

Wilkins, P. et al.,1999: South Coast Macro Corridor Project – A Bioregional Strategy For Nature Conservation, Protected Areas Programme, Parks, Vol. 9, No. 3, Oct. 1999, World Commission on Protected Areas (WCPA) of IUCN . The World Conservation Union.

Websites:

http://tolweb.org/Mygalomorphae/2641/2008.09.14 in The Tree of Life Web Project , Mygalomorphae. Tarantulas, trapdoor spiders & kin. Version 14 September 2008, Bond, Jason and Marshal Hedin. 2008. (under construction).

http:// naturemap.dpaw.wa.gov.au - Naturemap, Mapping Western Australia's biodiversity, search on website at locality of Balijup Farm, Department of Parks and Wildlife & the western Australian Museum, WA.

Appendix

1 Media releases for Balijup Farm Fauna Survey Project
2 Waypoints for trapping sites of the Balijup Farm Fauna Survey Project
3 Balijup Farm Fauna Survey Data Recording Sheet – sample
4 Volunteers for Balijup Farm Fauna Survey Project

Appendix 1 – Media Releases

the great southern weekender
locally owned & operated
107 STEAD ROAD, ALBANY, 6330
PHONE: 9842 2788; FAX: 9842 2789
CLASSIFIEDS 9842 2787
MANAGING EDITOR: Wayne Harrington.
email: manager@gsweekender.com.au
JOURNALISTS: Ken Matts and Owen Davies.
email: journo@gsweekender.com.au
ADVERTISING MANAGER: Jamie Huesgen.

p 2.

COVER PICTURE: A TINY honey possum sleeps through a recent fauna survey at Balijup Farm near Tenterden. See more on page 6.

Survey reveals a wealth of fauna

A FARM south-west of Tenterden has become the focus of a Department of Environment and Conservation (DEC) fauna survey.

The survey has been conducted at Balijup Farm as part of the International Year of the Farmer celebrations.

The DEC's Land For Wildlife program carried out the September fauna survey session with the help of keen volunteers from the community.

Balijup Farm strives to find a sustainable commercial balance between agricultural production and bushland conservation.

The property integrates grain cropping with agroforestry in a complex hydrological landscape which includes 14 fresh and saltwater lakes.

The fauna survey found pygmy and honey possums which are enjoying the springtime nectar on the flowering banksia and bottlebrush plants.

Birds are also making use of the Balijup Farm's 775ha of fenced-off bushland to breed.

They include the specially-protected peregrine falcon.

The falcon is famous for being recorded as the fastest animal on the planet and Australia has one of the last stronghold populations.

It was sighted in the wandoo/marri/jarrah woodland where it competes with the brushtail possum population for nesting hollows.

The endangered Carnaby's cockatoo was also observed nesting in a wandoo tree hollow in the woodland area.

Red-capped plovers were seen with newly-hatched chicks on two of the farm lakes, alongside Australian chestnut breasted shelducks, wood ducks, teal and white-faced herons.

The recent warmer weather also brought out some of the reptiles including a bearded dragon, skinks, bobtails and tiger snakes.

The insects on the property are also very diverse, including some ancient trapdoor spider species.

"It is a fascinating place and I love sharing it with the brave volunteers who get out of bed at 5am to come and look at some of nature's gifts," said Land For Wildlife officer Sylvia Leighton.

HEALTHY POPULATION: A morethia skink, with a coloured throat for breeding time, was found during the fauna survey at Balijup Farm.

The Weekender Newspaper, OCT 4, 2012, p 6

Albany Advertiser Newspaper, August, 2009

Frogs emerge with a song for friends

THE first rains of the season triggered many ground-dwelling frogs to emerge from their protective burrows and hollows where they had been 'lying low' during summer.

The frog calls now heard across the south-west signal the active feeding and breeding times of the year for most local frog species.

Ready to find them on a protected area at Balijup Farm, south west of Tenterden, were volunteers who recently carried out an intensive wildlife survey.

The Department of Environment and Conservation's Land For Wildlife program encourages and supports commercial agricultural operations to protect healthy wildlife areas on their properties.

"We know it is very difficult for farm owners to juggle nature conservation in amongst increasingly stressful economic pressures associated with broad acre commercial agriculture," Land For Wildlife officer Sylvia Leighton said.

"However, there are quite a few funding sources available to assist land holders to carry out the first effective step of protecting their bushland by fencing it off from grazing stock."

Sustainable farming practices include managing and maintaining healthy natural environmental systems.

Balijup Farm installed 13 kilometres of fencing protecting around 775 hectares of bushland and associated vegetation.

GRINNER: The smiling face of a happy sand-burrowing Moaning Frog (Heleioporus eyrei).

Assistance was provided by Green Skills with funding from the Department of Environment and Conservation environmental community grants, the WA SNRM grants program and South Coast NRM through the Australian Government's Caring for Our Country program.

Some of the frogs found during the survey are unique to the south-west of Western Australia and have very unusual life cycles.

They range in size from a fingernail, such as the Bleating Frog, through to a tennis-ball size, fully grown Banjo Frog.

Most are named in relation to the sound of their call, such as the hopping Humming Frog, or due to their appearance, the crawling Western Toadlet.

Some frogs lay their eggs in one-metre deep sand burrows, such as the Moaning Frog, and others use shallow pools of water to lay their egg mass, like the Clicking Frog.

Most frogs feed on soil microbes and small insects, while the monotypic (single species) Turtle Frog favours termites as its main source of food.

Frogs can be identified from their individual and distinctive calls or by features - the patterns and colouring on their bellies, the shape of their feet, their body length and weight.

Frogs are very sensitive to environmental change and their supporters say it is heartening to still hear their sometimes deafening choruses.

To be involved in the spring survey that will be held later in the year, contact sylvia.leighton@dec.wa.gov.au

VOLLIES: Steven and Geraldine Janicke with Balijup Farm landholder Anne Vanderbyl ready to check the fauna survey traps.

DIFFERENT: The Turtle Frog.

e great southern
eKender
OCTOBER 4, 2012 www.gsweekender.com.au

The Albany Extra Newspaper, 28-4 OCTOBER 2012 p.5.

Student tillers visit farm

STUDENTS at Flinders Park Primary have been busy investigating sustainable farming practices, through long-term soil health.

As part of their science-based cross-curricular program, the Year 7 students continued their year-long investigation at Balijup Farm in Tenterden this week.

The visit to the farm provided the opportunity for students to see an integrated farming system where commercial agricultural cropping was undertaken alongside bushland conservation.

Balijup recently installed 13km of fencing, protecting about 775ha of bushland.

The students had the opportunity to look at the large wheat crops on the farm and compare the growth to their school wheat plots, adding to their research into Great Southern farming styles.

Department of Environment and Conservation land-wildlife officer Sylvia Leighton took a guided bushwalk and DEC Aboriginal liaison officer Thomas Dimer spoke on Noongar culture.

Flinders Park students recently visited a Balijup Farm in Tenterden. Picture: FPPS

Appendix 2 – Balijup Farm Fauna Survey Trapline Waypoints

S1C1	03-MAY-12 14:57:47	S34 24.610 E117 28.785	252 m	Symbol & Name
S1C3	03-MAY-12 15:28:59	S34 24.571 E117 28.752	250 m	Symbol & Name
S1C4	03-MAY-12 15:39:30	S34 24.608 E117 28.742	249 m	Symbol & Name
S1E1	03-MAY-12 15:02:20	S34 24.608 E117 28.782	254 m	Symbol & Name
S1E2	03-MAY-12 15:05:21	S34 24.604 E117 28.779	244 m	Symbol & Name
S1E3	03-MAY-12 15:06:59	S34 24.597 E117 28.779	238 m	Symbol & Name
S1E4	03-MAY-12 15:08:18	S34 24.591 E117 28.775	248 m	Symbol & Name
S1E5	03-MAY-12 15:31:43	S34 24.582 E117 28.749	246 m	Symbol & Name
S1E6	03-MAY-12 15:33:49	S34 24.587 E117 28.748	243 m	Symbol & Name
S1E7	03-MAY-12 15:35:18	S34 24.595 E117 28.747	250 m	Symbol & Name
S1E8	03-MAY-12 15:36:24	S34 24.596 E117 28.745	246 m	Symbol & Name
S1P1	03-MAY-12 15:12:06	S34 24.590 E117 28.767	248 m	Symbol & Name
S1P10	03-MAY-12 14:35:07	S34 24.612 E117 28.770	252 m	Symbol & Name
S1P2	03-MAY-12 15:21:48	S34 24.594 E117 28.766	251 m	Symbol & Name
S1P3	03-MAY-12 15:24:58	S34 24.594 E117 28.762	251 m	Symbol & Name
S1P4	03-MAY-12 15:19:34	S34 24.592 E117 28.766	242 m	Symbol & Name
S1P5	03-MAY-12 15:15:10	S34 24.592 E117 28.767	254 m	Symbol & Name
S1P6	03-MAY-12 14:45:55	S34 24.613 E117 28.770	249 m	Symbol & Name
S1P7	03-MAY-12 14:38:46	S34 24.614 E117 28.773	251 m	Symbol & Name
S1P8	03-MAY-12 14:41:53	S34 24.613 E117 28.773	253 m	Symbol & Name
S1P9	03-MAY-12 14:49:43	S34 24.613 E117 28.769	249 m	Symbol & Name
S2C1	03-MAY-12 16:17:16	S34 24.189 E117 30.404	268 m	Symbol & Name
S2C2	03-MAY-12 16:30:18	S34 24.208 E117 30.377	274 m	Symbol & Name
S2C3	03-MAY-12 16:37:15	S34 24.219 E117 30.413	271 m	Symbol & Name
S2C4	03-MAY-12 16:46:18	S34 24.203 E117 30.421	275 m	Symbol & Name
S2E1	03-MAY-12 16:18:40	S34 24.198 E117 30.396	272 m	Symbol & Name
S2E2	03-MAY-12 16:22:16	S34 24.197 E117 30.396	278 m	Symbol & Name
S2E3	03-MAY-12 16:25:27	S34 24.204 E117 30.394	276 m	Symbol & Name
S2E5	03-MAY-12 16:38:23	S34 24.217 E117 30.413	273 m	Symbol & Name
S2E6	03-MAY-12 16:40:24	S34 24.215 E117 30.412	273 m	Symbol & Name
S2E8	03-MAY-12 16:43:40	S34 24.205 E117 30.418	269 m	Symbol & Name
S2P1	03-MAY-12 16:47:41	S34 24.197 E117 30.414	275 m	Symbol & Name
S2P10	03-MAY-12 17:18:41	S34 24.212 E117 30.408	272 m	Symbol & Name
S2P2	03-MAY-12 16:51:19	S34 24.200 E117 30.412	269 m	Symbol & Name
S2P3	03-MAY-12 16:54:14	S34 24.200 E117 30.412	276 m	Symbol & Name
S2P4	03-MAY-12 17:00:04	S34 24.201 E117 30.413	270 m	Symbol & Name
S2P5	03-MAY-12 17:04:13	S34 24.207 E117 30.410	272 m	Symbol & Name
S2P6	03-MAY-12 17:06:55	S34 24.205 E117 30.399	280 m	Symbol & Name
S2P7	03-MAY-12 17:11:26	S34 24.210 E117 30.402	273 m	Symbol & Name
S2P8	03-MAY-12 17:14:39	S34 24.208 E117 30.401	271 m	Symbol & Name
S2P9	03-MAY-12 17:17:52	S34 24.211 E117 30.408	269 m	Symbol & Name
S3C1	03-MAY-12 17:51:51	S34 25.214 E117 30.215	263 m	Symbol & Name
S3C2	03-MAY-12 18:45:33	S34 25.196 E117 30.199	258 m	Symbol & Name
S3E1	03-MAY-12 17:56:17	S34 25.212 E117 30.216	266 m	Symbol & Name
S3E2	03-MAY-12 17:57:59	S34 25.210 E117 30.217	266 m	Symbol & Name
S3E3	03-MAY-12 18:00:17	S34 25.207 E117 30.216	266 m	Symbol & Name
S3E4	03-MAY-12 18:02:50	S34 25.197 E117 30.211	264 m	Symbol & Name
S3E5	03-MAY-12 18:35:56	S34 25.215 E117 30.204	260 m	Symbol & Name
S3E6	03-MAY-12 18:38:42	S34 25.210 E117 30.200	267 m	Symbol & Name
S3E7	03-MAY-12 18:40:09	S34 25.203 E117 30.196	277 m	Symbol & Name
S3E8	03-MAY-12 18:43:02	S34 25.202 E117 30.202	259 m	Symbol & Name
S3P1	03-MAY-12 18:13:44	S34 25.218 E117 30.211	266 m	Symbol & Name
S3P2	03-MAY-12 18:12:53	S34 25.215 E117 30.210	267 m	Symbol & Name
S3P3	03-MAY-12 18:11:42	S34 25.212 E117 30.209	264 m	Symbol & Name
S3P4	03-MAY-12 18:10:39	S34 25.208 E117 30.208	267 m	Symbol & Name

S3P5	03-MAY-12 18:09:44	S34 25.206 E117 30.207	266 m	Symbol & Name
S3P6	03-MAY-12 18:08:47	S34 25.202 E117 30.205	266 m	Symbol & Name
S3P7	03-MAY-12 18:07:49	S34 25.199 E117 30.205	267 m	Symbol & Name
S3P8	03-MAY-12 18:05:13	S34 25.196 E117 30.204	264 m	Symbol & Name
S3P9	03-MAY-12 18:04:25	S34 25.193 E117 30.204	267 m	Symbol & Name
S4C1	03-MAY-12 19:00:57	S34 25.571 E117 30.099	251 m	Symbol & Name
S4C2	03-MAY-12 19:48:55	S34 25.576 E117 30.143	243 m	Symbol & Name
S4E1	03-MAY-12 19:03:09	S34 25.572 E117 30.102	246 m	Symbol & Name
S4E2	03-MAY-12 19:05:06	S34 25.574 E117 30.108	243 m	Symbol & Name
S4E3	03-MAY-12 19:06:44	S34 25.578 E117 30.109	238 m	Symbol & Name
S4E4	03-MAY-12 19:08:58	S34 25.583 E117 30.110	248 m	Symbol & Name
S4E5	03-MAY-12 19:41:10	S34 25.560 E117 30.125	249 m	Symbol & Name
S4E6	03-MAY-12 19:43:33	S34 25.565 E117 30.133	244 m	Symbol & Name
S4E8	03-MAY-12 19:46:42	S34 25.571 E117 30.136	244 m	Symbol & Name
S4P1	03-MAY-12 19:35:43	S34 25.591 E117 30.123	246 m	Symbol & Name
S4P10	03-MAY-12 19:10:10	S34 25.565 E117 30.108	243 m	Symbol & Name
S4P2	03-MAY-12 19:32:17	S34 25.586 E117 30.119	251 m	Symbol & Name
S4P3	03-MAY-12 19:29:15	S34 25.583 E117 30.116	250 m	Symbol & Name
S4P4	03-MAY-12 19:26:16S4	S34 25.581 E117 30.117	246 m	Symbol & Name
S4P5	03-MAY-12 19:23:49	S34 25.580 E117 30.118	243 m	Symbol & Name
S4P6	03-MAY-12 19:21:37	S34 25.576 E117 30.115	246 m	Symbol & Name
S4P7	03-MAY-12 19:18:35	S34 25.572 E117 30.113	245 m	Symbol & Name
S4P8	03-MAY-12 19:16:12	S34 25.569 E117 30.113	249 m	Symbol & Name
S4P9	03-MAY-12 19:13:18	S34 25.567 E117 30.110	245 m	Symbol & Name

Appendix 3 – Balijup Farm Fauna Survey Sample Data Sheet

TRAPPING DATA SHEET - Balijup Farm Fauna Survey 2012 **GPS: S34° 24' 58.17" E117° 28' 28.14"**

DATE - ……………… WEATHER DESCRIPTION - ……………………………………………………………………………………………………

SITE NO'S - ……………………………….. TRAP TYPES/No. INSTALLED - ……………………………………………………..

PERSONNEL IN ATTENDANCE - ……………………………………………………………………………………………………

Site	Trap Type	Trap No.	Species	Common Name	Total Wt of Sp. (g)	Bag wt (g)	Net wt (g)	Snout –Vent mm	Tail Length mm	Total Length mm	Head L/W mm	Pes S/L	Sex	Comments

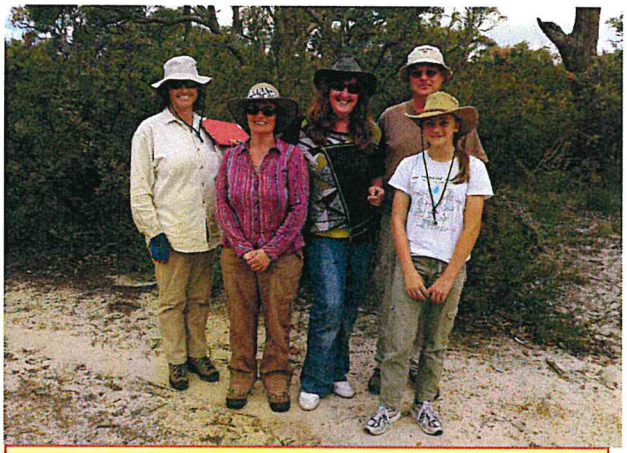
SAMPLE COLLATED AMPHIBIAN DATA SHEET - BALIJUP FARM FAUNA SURVEY

SPECIES	DATE	SITE	Pit Trap No.	Cage Trap No.	Elliott Trap No.	BODY WEIGHT	TOTAL BODY LENGTH	COMMENTS
Banjo frog ***(Limnodynastes dorsalis)***	4/05/2012	3	2				38mm	
	5/05/2012	2	1				21mm	
	5/05/2012	2	2				30 mm	
	5/05/2012	2	6			31g	58.2mm	
	5/05/2012	2	6			37g	58.4mm	
	5/05/2012	2	8			31g	12.0mm	
	5/05/2012	3	4			3g	26mm	
	5/05/2012	3	5					
	5/05/2012	3	5					
	5/05/2012	3	5					
	5/05/2012	3	5					
	5/05/2012	3	7			42g	68mm	
	5/05/2012	3	8					
	5/05/2012	3	8					
	5/05/2012	3	8					
	5/05/2012	4	1			5.5g	34mm	
	6/05/2012	3	2			6.5g	37.4mm	Small banjo
	6/05/2012	3	7			3.5g	25.8mm	small
	8/05/2012	3	8			2.5g	25.1mm	
	8/05/2012	3	10			2.5g	25.4mm	
	8/05/2012	3	10			3.5g	26.2mm	
Bleating Frog ***(Crinea pseudinsignifera)***	5/05/2012	1	5			1g	12.5mm	
	5/05/2012	3	3				19.1mm	
	5/05/2012	4	10			2.5g	26.8mm	
	6/05/2012	1	2				27mm	
	8/05/2012	1	2				18mm	Granular belly
	8/05/2012	4	10				22mm	Granular white belly – no black markings
Clicking Frog ***(Crinea glauerti)***	6/05/2012	1	5				17.5	Black on belly
	6/05/2012	1	5				14mm	Black on belly, gold on inner thigh and side
	6/05/2012	1	4				19.1mm	gold on legs in thigh area
	6/05/2012	2	2				16mm	Black bits on belly

APPENDIX 4: LFW Balijup Farm Fauna Survey 'Vollies'

L-R: Max Porter, Joe Porter, Max Hordacre, Sarah Comer and Alan Hordacre

L-R: Stephen Janicke, Geraldine Janicke & Anne Vanderbyl

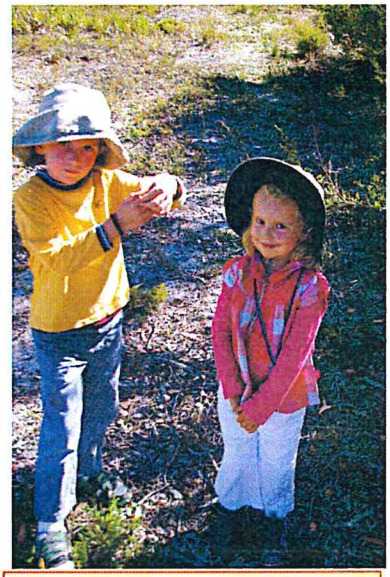


L-R: Sarah Comer, Delma Baesjou, Anne Vanderbyl, Jack Vanderbyl and Jackie Baesjou

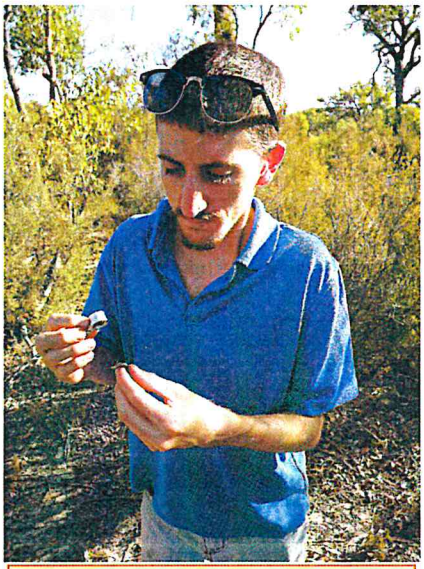
L-R: Ashley Shiels and Jessie Stein – Cranbrook Boys

Sixty students from Flinders Park Primary School (Albany) visited Balijup Farm during the fauna survey to get an idea about the natural heritage of the property

Matthew Musgrave – DPaW Work Experience student



The youngest volunteers; Alex Leighton and Matilda Comer

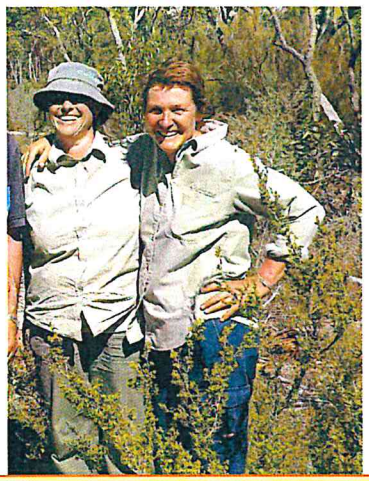


Joe Porter – reptile identification expert!!

GSIT students having fun in the field at Balijup Farm

L-R: Larry Bligh (tutor), Leah Goodrem (tutor) and the GSIT Cert. IV Monitoring Biodiversity students

Thomas Dimer – DPaW Indigenous Interpretation Officer



Sarah Comer (DPaW) Regional Ecologist & Sylvia Leighton (DPaW) *Land For Wildlife*