LAND FOR WILDLIFE

Balijup Farm
Balijup Road,
Tenterden

Sign Numbers: 1732 and 1733
Registration Number: 2155

NRM Region – South Coast
NRM Sub Region – Upper Kent Wetland Suite (Gillamii Centre)
DEC Region : Warren
DEC District : Frankland

LAND FOR WILDLIFE

PROPERTY ASSESSMENT FORM

1. Property Description

Contact Details -

Name :	Alan Hordacre – Balijup Farm
Main wildlife interest of contact/s :	General – Everything; wetlands, plants, birds, etc
Member of Land Conservation District?	Oyster Harbour Catchment
Member of Catchment Group?	Narrikup Creek
Member of Conservation Group?	n/a
Company/Property Name:	"Balijup"
Address:	Hay Loc 791, Balijup Road off Martagallup Road, Tenterden
Postal Address:	PO Box 5637
	ALBANY WA 6332
Ph: 08 98 416386	Email: ahordacre@bigpond.com
Mobile: 0428 416 386	

Property Details

Location no/s:	Hay Loc 791 on Plan 145527
Shire:	Cranbrook
Position: latitude: S 34 ° 24' 58.69"	longitude: E 117 ° 29' 20.17"
Total area of property: 921 ha	Area of remnant vegetation: approx. 715 ha including waterbodies
Cleared area for cropping and sheep: 119ha	Lakes and waterbodies: approx. 100ha

Tree plantings: approx. 87.3 (FPC Plantings) (my calculations from Basil Schur's map 57.7)
Old Plantings: my calculations from Basils map 37.6ha

Area of specific LFW site(s)	approx. 715ha
% of whole which contains remveg:	approx. 78%
% of whole which is LFW site(s):	approx. 78%

Maps attached (ticked) -

- Aerial map (or similar) for general location of Hordacre property.
- sketch map of layout of property
- agroforestry map for property
- wetland map for property

Airphotos attached courtesy of – Google Earth, maps courtesy of Greenskills and FPC

History of Property - Alan Hordacre has in recent years taken over the management of this family farm from his father. The family has purchased this Conditional Purchase block in the 1930's. Stared building house in 1957The cleared agricultural areas of the property are used for running sheep and also some cropping. There are large stands of remnant bush and wetlands on the property. Alan Hordacre plans to fence the bushland and plant areas as soon as possible (ie within 2 years, funding support pending) and to replace and reposition some existing fences to better protect the remnant vegetation.

Other Points - The property has a share planting arrangement with Forest Products Commission under the Strategic Planting Initiative. About 57 hectares of mixed eucalypts, 7.5 ha of sandalwood *(Spicatum santalum* and Acacia hosts), and 22.8ha of saline tolerant plantings (*Casuarina obesa* et al) have been planted strategically on the property to use surface water to lower the water and reduce salinity.

Describe the landholder's overall aims for the property:
Follow my grandfathers legacy and protect and enhance the property to improve the longterm health of the landscape .
Describe the landholder's specific goals with regard to Land For Wildlife.
Assistance with applying for funding to fence off the bush and regain the biodiversity in the understorey.

2. General Description of Property

The Balijup property is a 921 ha property with about 715 ha of remnant bushlands and wetland areas. It was identified as an extremely important corridor link in the DEC macro corridor connection from the Stirlings Ranges through to the Forests corridor link. 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 mean annual rainfall of past 20 years is 545mm.

Geological formations in the area as described by Muhling and Brakel (1985) describe the pre-cambrian base rock of the region being composed of granites and gneisses. Throughout the region there are changes in topography and soils. There is a deeply weathered mantle of laterite lying over both the granitic and sedimentary rocks.

> "The wetlands are imbedded in Tertiary Eocene sediments . The gently sloping areas that surround the wetland zone are composed of *in-situ* weathered Precambrian rocks. The small wetlands that are along the parameters of the wetland zone are associated with the lower slope of granitic highs. These are virtually collapsed sinkholes that existed after the lime based material was leached out of the landscape. In the study area, the wetlands that have remained fresh are mostly of this type.
>
> The larger wetlands have formed over complete tertiary sequence (Werillup Formation and the overlying Pallinup Siltstone). There are many lunettes and sand dunes associated with some of the lakes and swamps. Lunettes and sand dunes were probably formed during the Pleistocene when there was more fluvial erosion than at present. Lunettes have moderately inclined (10 to 32%) inner slopes (towards the lakes) and gently inclined (3 to 10%) outer slopes. Natural vegetation associated with the lunette system is usually very different from those in other areas." (Ferdowsian, R. Dec. 2011)

About 78% of the property is covered in remnant vegetation. Marri and Wandoo woodlands with areas of *Euc decipiens* and other southern wheatbelt Eucaylpts. There are sand swales occurring upslope and generally to the south east of wetlands. Flat top yate (*Euc cornuta*) occurs on flats and heavier soils outside the Melaleuca stands fringing wetlands. There are extensive areas of heath-lands on both swamps and flats. Woodland understory is in good condition mostly long unburnt (40years + with grazing excluded from most areas for over 30 years. There has never been heavy grazing by livestock of 90% of the bush areas. Mature Christmas tree (*Nuytsia floribunda* and *Banksia spp* species are present along with many Acacia spp, *Hakea spp* and *Melaleuca spp* species.

A summary of some of the significant components of the area extracted from the Catchment Action Plan;

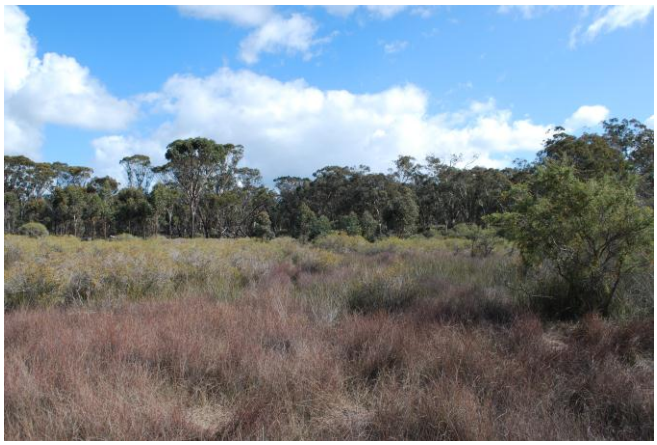
- the Balicup wetlands listed in the National Directory of Important Wetlands in Australia. Many of these Balicup wetlands are regionally significant on the South Coast, but many are threatened or at risk.
- Some bird species are listed on international treaties such as the Banded Stilt, an endemic Australian Shorebird of international significance
- A number of species such as the endangered Carnaby's cockatoo occur in the area and rely on old trees with hollows for breeding and nesting. In addition phascogales, bats and birds utilise the upper branches and hollows of standing wandoo trees and possums often rest in tree hollows during the day and come out at night to feed on the leaves. Old wandoo trees with their large branches also provide nesting sites for a range of birds including ducks, owls and eagles.
- The black-gloved (or western brush) wallaby (Macropus irma) is known from the area — is possibly in decline — and relies on dense understorey habitat for protection from predators and landscape-scale bushland connec-tivity. If strong black-gloved wallaby populations can be sustained in the area it is believed that other species such as the brush-tailed possum, and other "snack-sized" mammals (35 - 5,500 g) such as quendas (also known as bandicoots – pictured below right) that are vulnerable to predation, will also benefit.

One of the spectacular wetlands on the property

A view from the property across to the Stirling Ranges

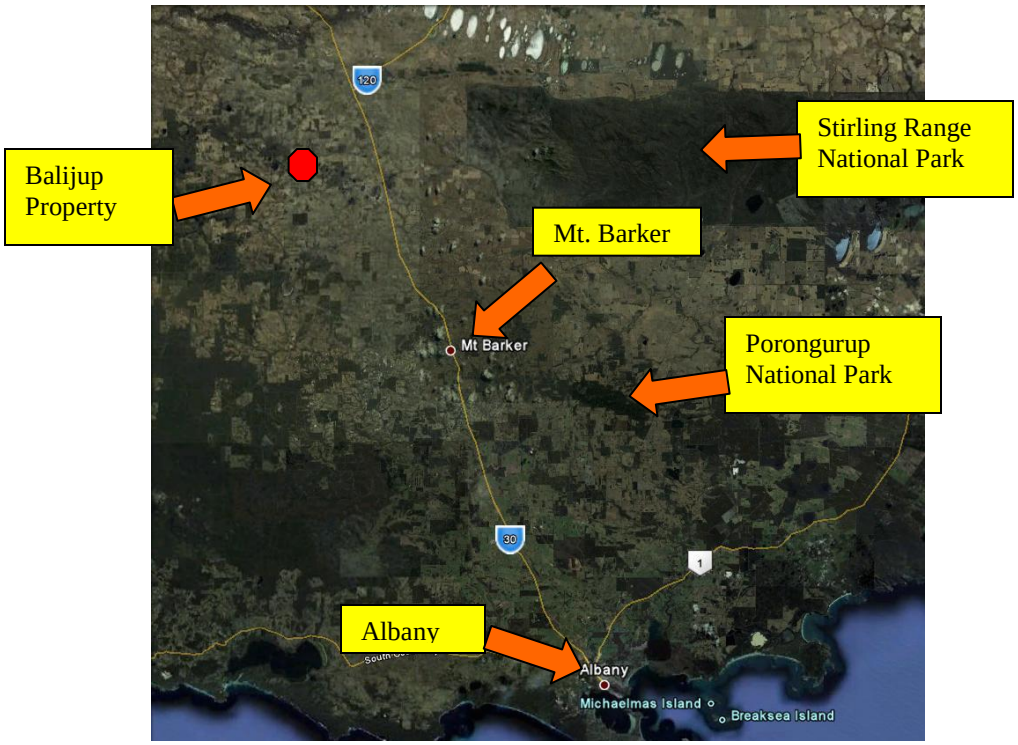
A ‘clump’ of *Nuytsia floribunda* on one of the lunettes on the south eastern side of one of the lakes

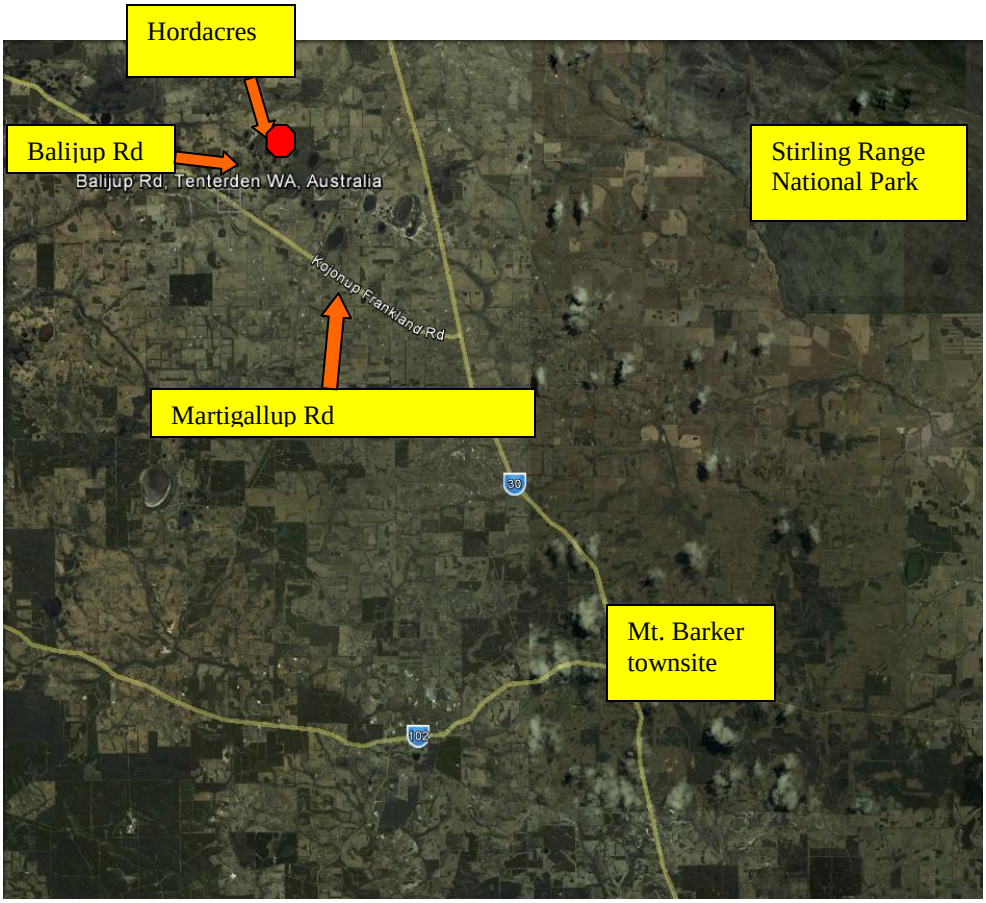
Some marri jarrah woodland on a laterite area of the property



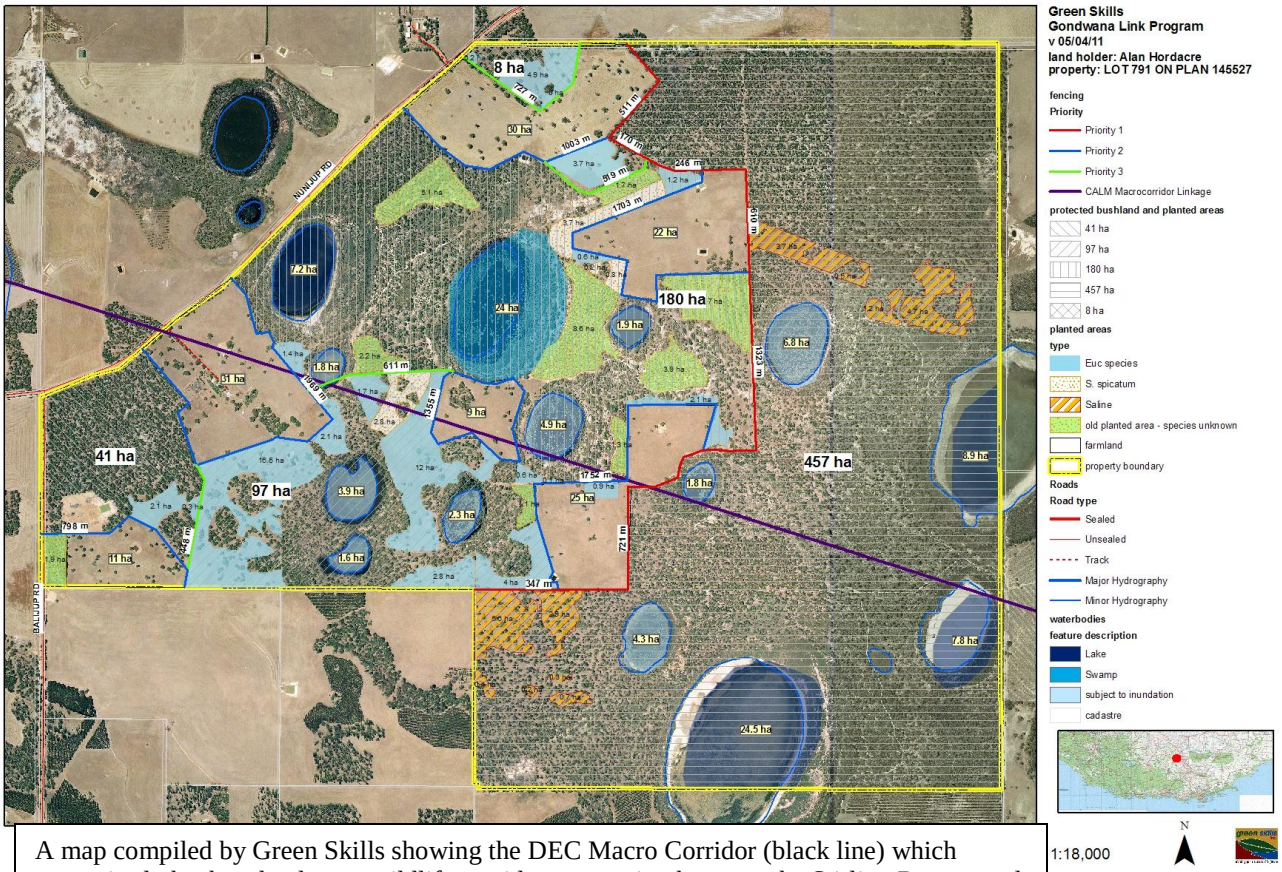
Sedge meadow and tea tree thicket on the edge of a wetland

Flat Topped Yate *(Eucalyptus occidentalis)* and tea tree in one of the permanent wetlands. This wetland also had healthy *Banksia littoralis* (swamp banksia)


Balijup Property
Stirling Range National Park
Mt. Barker
Mt Barker
Porongurup National Park
Albany
Albany
Michaelmas Island
Breaksea Island


Hordacres
Balijup Rd
Balijup Rd, Tenterden WA, Australia
Stirling Range National Park
Kojonup Frankland Rd
Martigallup Rd
Mt. Barker townsite

The boundaries of Balijup farm with Balijup Road adjoining on the north western boundary.



A map compiled by Green Skills showing the DEC Macro Corridor (black line) which recognised the best landscape wildlife corridor connection between the Stirling Ranges and the Forest region to the west. It passes straight over the middle of Balijup farm.

Indigenous Heritage Sites

Alan Hordacre had these notches pointed out to him when he was a child by an elderly man. The notches were used for climbing allowing the hunter to climb up to a hollow higher in the old wandoo tree see if there was any 'food' to be found.

Water Features

The suite of lakes and wetlands across the Balijup property are all part of the Kent River Catchment and sit over the top of an ancient paleochannel. Almost all the wetlands on Balijup have formed because of fluvial erosion and lunette formation that have deepened the landscape and clogged the ancient flats and valley floors. Many of these wetlands are significant habitat for migratory birds and other special wetland species like the DRF Australian Bittern. Some of the wetland sites are becoming saline when they were previously fresh. The owners of Balijup farm are very interested in trying to carry out ground works which may help preserve the integrity of the wetlands into the future. They are also fencing off some of the most significant areas of bushland to ensure they are not grazed by stock in the future.

On Balijup Farm groundwater flows inform the east, south and north. Limited groundwater flows to the west and out of the area. On Balijup Farm groundwater flows inform the east, south and north. Limited groundwater flows to the west and out of the area. Prior to European clearing there were many more fresh lakes and wetlands across the property which were in balanced equilibrium. There are still some lakes present which have fairly high saline levels but appear to be in their natural unchanged condition. They have very healthy natural vegetation around the edges indicating the native vegetation is adapted to the saline conditions.

All of the lakes dries up over summer 2012 except for the two large lakes on the southern and eastern boundary

Salinity

Is any part of the property currently saline? **Yes** Area (ha**): unable to measure as it is a changing dynamic**
What % of the saline area is naturally saline? **Some of the lakes are saline and the surrounding healthy veg. indicates this is a system in balance and was like this pre-european clearing**
What % of the saline area is secondary salinity? **This is rapidly increasing as the groundwater rises and discharges saline waters into the lakes sitting low in the landscape.**
If not currently saline, is there a perceived salinity risk in the near future (ie next 10 years)? **YES – this is a high risk if there is no measures are taken to try and intercept the water table and cause its reduction in rise.**

The saline sumps in the district are stored in the deeper ground water. The ground water levels in this part of the catchment continue to rise between 0.06m/year and 0.14m/year. This has seen some of the freshwater lakes that are a little bit lower in the landscape get an influx of saline groundwater in the wet times of the year. The perched lakes high in the landscape are most protected from saline influx but are still threatened if the rising groundwater is not treated. However the areas covered by bluegum plantation have had a significant reduction in their groundwater.

Two thirds of the wetlands on Balijup are saline and the lakes and wetlands sitting lower in the landscape are receiving increased levels of saline groundwater discharge so are rapidly becoming more saline. A detailed report has been compiled by Ruhi Ferdowsian (2011) detailing the conditions of the major wetlands on the property, ranking the wetlands in health and status and proposing rehabilitation actions. These actions include:

- Reducing recharge by growing perennial pastures
- Preventing stock access to the fringes of the wetlands
- Treatments to reduce alkalinity of the wetlands

This is possibly the Cole/Hordacre wetland 7 which is in its natural status. It has high salinity and low alkalinity with native vegetation surrounding it highly adapted to these conditions. It sits at 242m and is about 2 m below the surrounding areas. The lower than expected pH of 8.56 may be attributed to; very high salinity and the impact of uncleared natural veg. that surrounds it. The piezometric level of groundwater is higher than its floor level so it is a window of groundwater discharge. Possibly the bluegum plantation to the east of the area has stopped recharge.

The wetland southeast of the Farmhouse has just shown a rapid increase in tree deaths in the last two years. Ruhi Ferdowsian labelled this wetland No. 7 and his assessment stated that it was still in good condition but its deterioration was imminent. Its alkalinity is very low (pH 6.44) but its salinity is (13500) and increasing. The cleared area to the south of the lake has probably resulted in more groundwater discharge.

Another photo from the perimeter of wetland No. 7

Wetland No. 2. Ruhi graded this wetland as in good condition – elevation 246m. It sits 2 metres below the native veg. around it.

Wetland No. 2. Ruhi graded this wetland as in good condition and inhabited by sedges and paperbarks etc. that cover its floor – it has freshwater

A terrible sign of the inundation of excess saline ground water down near Wetlands 3, 6 & 7 causing the rapid decline in the flat topped yates etc.

3 Land For Wildlife Habitat Description

(LFW sites are those areas of the property where nature conservation is a primary management aim. These are listed in order of health, size and quality)

There are many different vegetation communities presented on the Balijup property. These are all affected by elevation, geology, soil type, aspect, hydrology etc. As an example of this complexity we can look specifically at the differences between each wetland. Every single wetland has a slightly different elevation, different hydrology, different water quality which is then reflected in the different vegetation communities that have established on these sites. Some are samphire meadows, others sedge meadows, some have a paperbark upper storey with a tea tree middles storey and others have yates in the upper storey with banksias and paperbarks in the middle storey.

In general the jarrah, marri and wandoo woodlands occur on the higher ground on top of the lateritic gravelly soils. However – in amongst this there is great variability in the composition of the middle and understorey. There are also small pockets of the mallee eucalypts which mainly occur at the high points on the property…….but sometimes there are midslope pockets relating back to the complexity of the underlying geology and soil types.

On the sandy lunette areas there appears to be proteaceous rich flora and again there are changes in the middle and understorey depending on the depth of the sand, the aspect and hydrology. Libby Sandiford (2102) provides a description below from her draft "Proteaceous Veg. report", which also emphasises the vegetation complexity.

> *Many of the vegetation units within the survey area were observed in very small patches. Sometimes this is governed by physical factors e.g. the Banksia littoralis confined to small drainage depressions. However, it is not clear why small patches of Banksia sessilis occurred in the jarrah &/or wandoo woodlands, surrounded by seemingly similar vegetation. As this adjacent vegetation was not surveyed it is not known if there are floristic differences between areas with or without Banksia sessilis. A similar scenario applies to Banksia armata dominated patches which appear to occur on slightly heavier soils than Banksia sessilis.*

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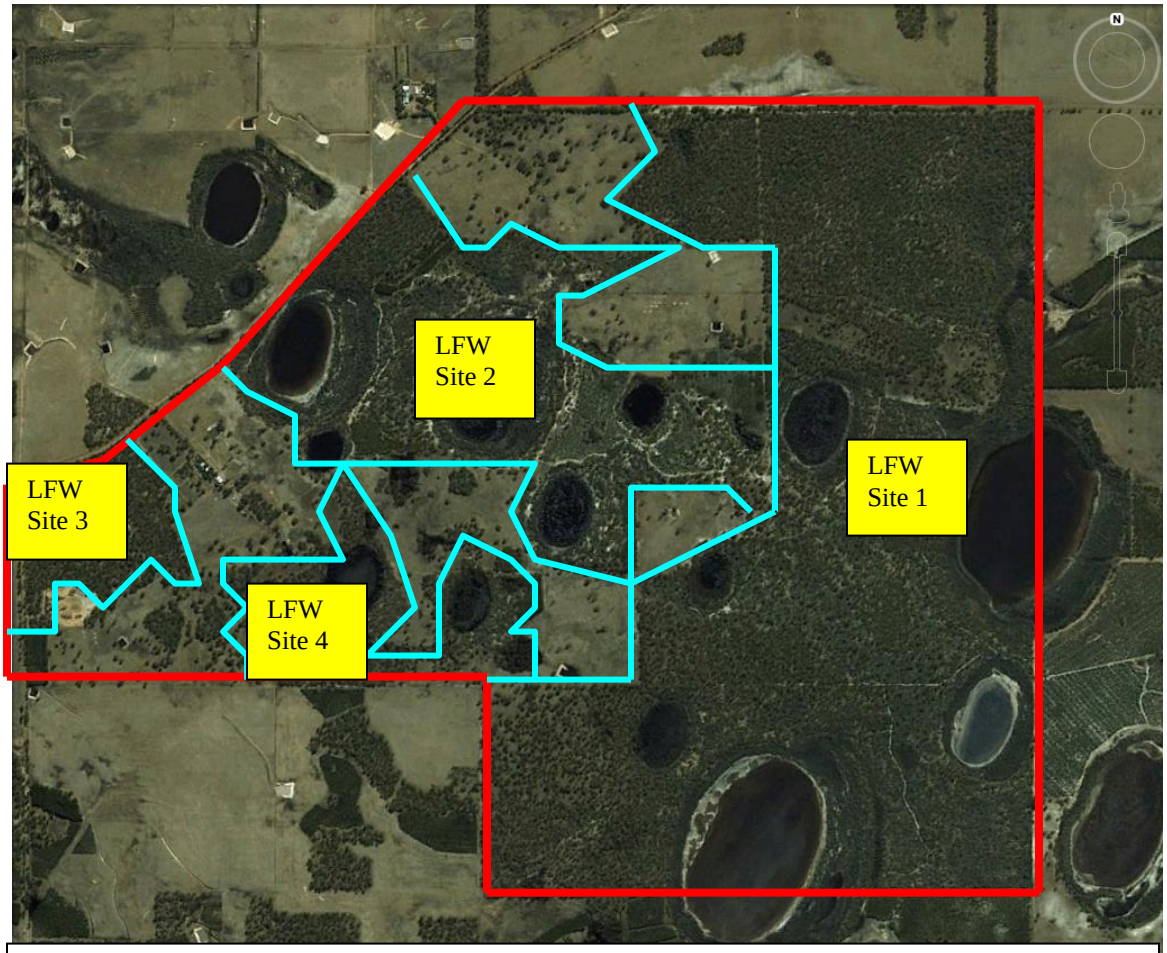
It is complex and requires many follow up botanical surveys to map the beautiful botanical variability across th Balijup property.

To keep the *Land For Wildlife* Site mapping simple I have simply identified the major blocks of remnant vegetation. Each one of these may contain the full range of vegetation communities from wetland riparian through to mallee low woodland through to jarrah marri wandoo tall woodland.



The rough boundaries of the major four blocks of remnant vegetation on Balijup Farm.

Site No.	Site Name	Area (ha)	Geol./Landform/Soils	Veg. Type
1	Balijup east block	approx.450 ha	Complex duplex soils with weathered laterites interspersed on top of granite and siltstones as base rocks	The full range of vegetation communities that occur on this property ranging from Tall open woodland/forest of yate, marri, jarrah and wandoo through to wetland sedge and samphire meadows
2	Balijup north block	approx.150 ha	As above	As above
3	Balijup west block	approx. 50 ha	As above	Mainly jarrah and marri tall open woodland
4	Balijup south block	approx. 65 ha	As above	low marri/jarrah woodland and open wandoo woodland

It would be interesting to set up a few photographic monitoring points (especially at one of the sites that you fence off) and to actively monitor the regrowth of the native plants. You will find a detailed discussion of 'Photographic Monitoring' in Wildlife Notes No. 9 July 2001, which is attached at the end, also an article in the Western Wildlife July 2002 (any back dated issues will be sent out on request or download them from the LFW website.)

Some of the outcropping rock down near some of the wetlands. It could be highly oxidised weathered granite or part belong to the Werrillup or Plantagenet sedimentary deposits.

Some flat topped yate woodland which possibly has had grazing in its understory in the past

A clump of Silver mallee (*Eucalyptus falcata)* sitting on top of a slightly raised area in wandoo woodland between two wetlands

Some of the tea tree thicket in under the yate in a wetland area

Low open woodland of yate slightly higher up slope with a thicker undisturbed understorey

Some of the seasonally wet lakes have sedge meadows across them with the occasional flat topped yate in the upperstorey

Some tall marri woodland with a grazed understorey

The low *Banksia attenuata* woodland on the sandy lunette areas. The lunettes are generally on the eastern and south eastern sides of lakes

Fringing a wetland is wandoo with a tea tree understorey.

Typical open wandoo woodland with a healthy undisturbed understorey

Alan and Wendy Bradshaw looking at the red flowering *Calothamnus quadrifidus* in under the mari/jarrah woodland

Libby Sandiford and Wendy Bradshaw looking at a one of the wetland edges that has salt tolerant Chenopods (pigfaces).

Threatened Communities & Priority Ecological Communities

Are any of the vegetation associations listed as a 'Threatened Ecological Community'?
The remnant vegetation on the Hordacre property is of high conservation value and is in the highest priority area for a vegetative landscape link from the Forest to the Stirlings. The Department of Environment and Conservation has identified this property a key asset in the Forest To Fitzgerald link of Strategic Zone A in the South Coast Macro Corridor Project (Wilkins Et al., 2006) which also fits into the Gondwana Link vision for the region (www.gondwanalink.org).

An initial visit by the South Coast Regional Ecologist Sarah Comer suggests that there will be significant biodiversity values retained in the high diversity of remnant vegetation on the property, which includes wandoo and yate woodland, marri/jarrah woodland (apparently disease free) and a range of wetland communities. Much of the 500+ ha of remnant vegetation is in very good to excellent condition.

There is NO Threatened Ecological Communities listed at present in the Tenterden, Cranbrook, Frankland, area on the State and Federal Databases in Jan. 2012.

Plant List for the 'Balijup Farm'

Extra Notes: Plants noted on visit

Please note this is not a full plant list.
* = Exotic/introduced species
? = unsure of identification
These plants were identified by a visiting botanist to Balijup farm in 1999 – Source: A. Hordacre
+ These plants were identified during Libby Sandifords Vegetation Surveying in the area
Blue print – assume plant is there but haven't seen yet

FAMILY	SCIENTIFIC NAME	COMMON NAME	BRIEF DESCRIPTION
	Sallaginella gracillima+		
ANTHERICACEAE	*Chamaescilla corymbosa*	blue squill	ground cover, distinctive blue flower
ASTERACEAE	*Cotula coronopifolia**		
ASTERACEAE	*Helichrysum leucopsideum*		
ASTERACEAE	*Podolepis gracilis*	Slender polepsis	
ASTERACEAE	*Siloxerus humifusis +*		
ASTERACEAE	*Waitzia citrina*		
CASUARINACEAE	*Allocasuarina lehmanniana* subsp. *lehmanniana or A. thuyoides*	sheoak	Needle like foliage on tree, indigenous people didn't like to camp under these 'spirit tree'.
CELASTRACEAE	*Stackhousia monogyna*	Stackhousia	White flowered ground cover
COLCHICACEAE	*Burchardia congesta*		
CUPRESSACEAE	*Callitris pyramidalis#*	Swamp cypress	
CYPERACEAE	*Lepidosperma effusum*		Narrow leaved sword sedge
CYPERACEAE	*Mesomelaena stygia +*		
CYPERACEAE	*Mesomelaena tetragona#*	Semaphore sedge	
CYPERACEAE	*Tetraria octandra+*		
CYPERACEAE	*Tricostularia neesii+*		
DILLENIACEAE	*Hibbertia acerosa*	Yellow guinea flower	Very fine leaved species
DILLENIACEAE	*Hibbertia commuta*	Yellow guinea flower	
DILLENIACEAE	*Hibbertia cunninghamii*	Yellow Guinea flower	bush ,yellow flowers, leaves wrap around stalk of plant
DILLENIACEAE	*Hibbertia graciilpes*	Yellow guinea flower	

FAMILY	SCIENTIFIC NAME	COMMON NAME	BRIEF DESCRIPTION
DILLENIACEAE	*Hibbertia pillosa*	Yellow Guinea flower	bush ,yellow flowers,
DILLENIACEAE	*Hibbertia spicata*	Yellow Guinea flower	bush ,yellow flowers, very narrow pointed leaves with no stalk
DILLENIACEAE	*Hibbertia subvaginata+*	Yellow guinea flower	
DROSERACEAE	*Drosera pallidum*	sundew	40 cms, pink/white flower
DROSERACEAE	*Drosera sp.*	sundew	Need a flower
ELAEOCARPACEAE	*Tetratheca affinis*		
ELAEOCARPACEAE	*Tetratheca virgata +*		
EPACRIDACEAE	*Leucopogon australis*		
EPACRIDACEAE	*Leucopogon australis*		Large leaves
EPACRIDACEAE	*Leucopogon obovatos*		Tea tree with insect bracts, small shrub
EPACRIDACEAE	*Lysinema ciliatum*	Curry flower	Very lovely curry smell
ERICACEAE	*Astroloma baxteri*		
ERICACEAE	*Monotoca tamarascina*		Distinctive spindly low shrub
FABACEAE	*Acacia melanoxylon#**	Tasmanian blackwood wattle	Large shrub, yellow flowers
FABACEAE	*Acacia puchella* var. *goadbyi*	Prickly moses	Ground cover acacia
FABACEAE	*Acacia saligna#*	wattle	Distinct veins in leaves
FABACEAE	*Acacia stenoptera#*		Winged wattle
FABACEAE	*Bossiaea eriocarpa#*	Common Brown pea	tall shrub, orange flower, hairy
FABACEAE	*Bossiaea linophylla*	fire tree pea	tall shrub, orange flower – weeping form
FABACEAE	*Bossiaea linophylla#*		orange pea flower
FABACEAE	*Bossiaea ornata#*	Brown pea	
FABACEAE	*Chorizema ilicifolium*		Distinctive prickly leaf, ground cover
FABACEAE	*Daviesia cordata#*	Bookleaf pea	
FABACEAE	*Gastrolobium latifolium#*		Twining or trailing shrub or climber. Fl. pink, orange
FABACEAE	*Gompholobium knightiatum*	Handsome wedge pea	Large pink/purple pea flower
FABACEAE	*Gompholobium polymorphum*		
FABACEAE	*Gompholobium scabrum*		Medium sized shrub, purple pea flower, very attractive
FABACEAE	*Gompholobium tomentosum*	Hairy yellow pea	Ground cover
FABACEAE	*Hovea chorizemifolia*	holly leaved hovea	Blue flowered hovea
FABACEAE	*Hovea ellipticum*	Tree hovea	Beautiful vibrant purple pea flower on this small shrub
FABACEAE	*Jacksonia spinosa*		Orange pea flower, spindly prickly bush, grey foliage
FABACEAE	*Kennedia coccinea*	Running postman	Ground cover creeper
FABACEAE	*Templetonia retusa#*	Cockies tongue	
GOODENEACEAE	*Scaevola calliptera?*		Blue flowered ground cover
GOODENEACEAE	*Scaevola striata*		Blue flowered ground cover
GOODENIACEAE	*Dampiera sp.*		Blue coloured flower ground cover
GOODENIACEAE	*Goodenia coreulea +*		
GOODENIACEAE	*Goodenia pulchella+*		
GOODENIACEAE	*Velleia trinervis*		Orange flowered herb
HAEMODORACEAE	*Anigozantos humilis*	Cats paw	Distinctive low red/orange flower

FAMILY	SCIENTIFIC NAME	COMMON NAME	BRIEF DESCRIPTION
HAEMODORACEAE	*Conostylis setigera*		Small yellow flowered groundcover
HAEMODORACEAE	*Haemodorum spicatum*	Mardja – distinctive tall black flower spike	Has a onion bulb which can be cooked and eaten
IRIDACEAE	*Patersonia occidentalis#*	wild iris – flag "koma"	Purple flower
LAMIACEAE	*Hemiandra pungens*	Snake bush	
LAURACEAE	*Cassytha sp*	dodder	Green creeper that twines around other shrubs
LOGANIACEAE	*Logania serpyllifolia*	-	small ground cover
LORANTHACEAE	*Nuytsia floribunda*	Christmas tree	Orange flowered parasitic plant
MALVACEAE	*Thomasia foliosa*		Low shrub, sandpaper leaves, purple flower
MALVACEAE	*Thomasia grandiflora*	Small ground cover shrub	Purple flower
MALVACEAE	*Thomasia paniculata ?*		Small shrub, purple flower
MALVACEAE	*Thomasia rhynochocarpa ?*		Small shrub, purple flower
MYRTACEAE	*Agonis theiformis*		Leaves are opposite on sides of branches, shrub
MYRTACEAE	*Astartea fascicularis#*		
MYRTACEAE	*Babingtonia camphorosmae*	Camphor myrtle	
MYRTACEAE	*Calothamnus quadrifidus*		
MYRTACEAE	*Calothamnus sanguineus??*	bottlebrush	Soft needle like leaves
MYRTACEAE	*Calytrix flavescens*		
MYRTACEAE	*Calytrix leschenaultii#*		Very attractive purple flower
MYRTACEAE	*Corymbia calophylla#*	marri tree	
MYRTACEAE	*Eucalyptus angulosa*	Ridge fruited mallee	Distinctive buds and fruit
MYRTACEAE	*Eucalyptus decipiens*	Red heart "Toolibut"	
MYRTACEAE	*Eucalyptus falcata#*	Silver mallee	
MYRTACEAE	*Eucalyptus incrassata*	Lerp Mallet	
MYRTACEAE	*Eucalyptus marginata#*	jarrah	
MYRTACEAE	*Eucalyptus occidentalis#*	Flat topped yate	
MYRTACEAE	*Eucalyptus pluricaulis*	Purple leaved Eucalypt	
MYRTACEAE	*Eucalyptus rudis*	Flooded gum	Identified by Phil Worts
MYRTACEAE	*Eucalyptus thamnoides*	Brown mallett	
MYRTACEAE	*Eucalyptus uncinata#*	Hook leaved mallee	
MYRTACEAE	*Eucalyptus wandoo#*	White gum	
MYRTACEAE	*Hypocalymma angustifolium#*	White myrtle	
MYRTACEAE	*Kunzea preissiana*		Purple brush flower
MYRTACEAE	*Kunzea recurva#*		
MYRTACEAE	*Leptospermum erubescens#*	Roadside tea tree	
MYRTACEAE	*Leptospermum oligandrum ?*		
MYRTACEAE	*Melaleuca cuticularis*	Saltwater paperbark	
MYRTACEAE	*Melaleuca densa#*		
MYRTACEAE	*Melaleuca laterita#*	Robin redbreast	
MYRTACEAE	*Melaleuca pentagonia#*		
MYRTACEAE	*Melaleuca preissiana#*	Freshawater paperbark	
MYRTACEAE	*Melaleuca rhaphiophylla*	Swamp paperbark	
MYRTACEAE	*Melaleuca thyoides#*		Yellow terminal brush flower
MYRTACEAE	*Melaleuca viminea#*		
MYRTACEAE	*Pericalymma ellipticum*	Swamp tea tree	White flower
MYRTACEAE	*Pericalymma spongiocaule+*		Tea tree
MYRTACEAE	*Rinzia fumana+*		

FAMILY	SCIENTIFIC NAME	COMMON NAME	BRIEF DESCRIPTION
MYRTACEAE	*Thryptomene saxicola*		Similar to tea tree, small pink flower
MYRTACEAE	*Verticordia densiflora* var. *cespitosa Or V. pennigera OR V. plumosa var. brachophylla*		Purple/pink feather flower, small woody herb
ORCHIDACEAE	*Caladenia brevifolia subsp. brevifolia*		
ORCHIDACEAE	*Caladenia discoidea*	Dancing bee Orcid	
ORCHIDACEAE	*Caladenia flava*	Cowslip Orchid	
ORCHIDACEAE	*Caladenia footeana?*	Crimson Spider orchid	
ORCHIDACEAE	*Caladenia sp.*	White spider orchid's	
ORCHIDACEAE	*Caladenia spp.*		Quite a few unidentified species
ORCHIDACEAE	*Cryptostylis ovata*	Slipper orchid	These orchids are unusual in that they have an evergreen leaf and they flower in the summer months
ORCHIDACEAE	*Diuris corymbosa*	Donkey Orchid	
ORCHIDACEAE	*Thelymitra aff. holmesii*	The blue sun orchid	Fairly tall orchid
PARMELIACEAE	*Flavoparmelia sp*	lichen	
PHYLLANTHACEAE	*Phyllanthus calycinus*		
PITTOSPORACEAE	*# Marianthus erubescens#*		Creeper with red tubed flower
PITTOSPORACEAE	*Billardiera fusiformis*	Australian bluebell	blue bell flowers
PITTOSPORACEAE	*Billardiera sp*		Blue and white flowered small leaved creeper
PITTOSPORACEAE	*Marianthus erubescens*		
POACEAE	*Neurachne alopecuroidea +*	Foxtail mulga grass	
POLYGONACEAE	*Rumex brownii **		
PROTEACEAE	*Adenanthos cuneatus*		Red tinge to new growth on leaves
PROTEACEAE	*Banksia armata*	Prickly dryandra	
PROTEACEAE	*Banksia attenuata*	Candlestick banksia	"Piiara"
PROTEACEAE	*Banksia dallaney*	couch honeypot	Used to be a Dryandra
PROTEACEAE	*Banksia drummondii*	Picture at back of report	Distinctive prostrate banksia in under wandoo
PROTEACEAE	*Banksia formosa#*	Showy Dryandra	
PROTEACEAE	*Banksia gardneri*		Prostrate banksia
PROTEACEAE	*Banksia grandis*	Bull banksia	"Pulgarla"
PROTEACEAE	*Banksia littoralis*	Swamp banksia	"Pungarra"
PROTEACEAE	*Banksia porrecta*	PRIORITY 4 sp.	Prostrate banksia - distinctive
PROTEACEAE	*Banksia sessilis*	Parrot bush	Very prickly leaves, terminal flower
PROTEACEAE	*Hakea ceratophylla+*		
PROTEACEAE	*Hakea corymbosa*	Cauliflower hakea	
PROTEACEAE	*Hakea lissocarpha*	Honey bush	Fairly prickly Hakea with a small bird beak like nut
PROTEACEAE	*Hakea prostrata*	-	Distinctive shaped leaf
PROTEACEAE	*Hakea ruscifolia*	Beautiful Hakea	This is an extremely prickly white flowere hakea with very small nuts
PROTEACEAE	*Hakea trifurcata*	three leaved hakea	extremely prickly hakea
PROTEACEAE	*Hakea undulata*	Wavy leaved hakea	

FAMILY	SCIENTIFIC NAME	COMMON NAME	BRIEF DESCRIPTION
PROTEACEAE	*Isopogon axillaris?*		
PROTEACEAE	*Isopogon teretifolius?*		Yellow cone flower – prickly terete foliage
PROTEACEAE	*Persoonia elliptica*	tree	Tree with round leaves, slightly glaborous leaves
PROTEACEAE	*Persoonia saccata#*		Yellow flower
PROTEACEAE	*Petrophile ericifolia#*		
PROTEACEAE	*Petrophile longifolia#*	PRIORITY THREE SPECIES	
PROTEACEAE	*Petrophile serruriae*		
PROTEACEAE	*Pimelea spectabilis*	Bunjong	White brush flower, ground cover shrub
PROTEACEAE	*Stirlingia latifolia*	blueboy	
RANUNCULACEAE	*Clematis pubescens*	common white clematis	creeper
RESTIONACEAE	*Chordifex laxus+*		
RESTIONACEAE	*Desmocladus fasciculatus*		Ground cover
RESTIONACEAE	*Loxocarya sp*		Curly grass groundcover
RUBIACEAE	*Opercularia hispidula*		Small ground cover
SANTALACEAE	*Exocarpos sparteus*	Broom Ballart or wild cherry	Distinctive weeping wiry foliage – lovely tree
STYLIDACEAE	*Levenhookia stipitata*	Common stylwort	
STYLIDACEAE	*Stylidium brunonianum*		Pink flowered triggerplant
STYLIDACEAE	*Stylidium calcaratum*	Book triggerplant	White flowered triggerplant
STYLIDACEAE	*Stylidium crassifolium*		Delicate pink flowers
STYLIDACEAE	*Stylidium piliferum*	Common butterfly triggerplant	White flowered triggerplant
STYLIDACEAE	*Stylidium repens+*	butterfly triggerplant	White flowered triggerplant
STYLIDACEAE	*Stylidium tenue*	Purple flower stem	
THYMELAEACEAE	*Pimelea clavata?*		White flower head , long flower tubes
THYMELAEACEAE	*Pimelea suaveolens #*		Distinctive small shrub with weeping form flowers
USNEACEAE	*Usnea sp.*		Old mans beard lichen
VIOLACEAE	*Hybanthus floribundus*		Small herb with blue lily like flowers
XANTHORRHOEACEAE	*Xanthorrhoeaceae platyphylla*	balga	Grass tree with green skirt
ZAMIACEAE	*Macrozamia riedlei*	Zamia palm	Fabulous old palm

TREE AGE OF MARRI AND JARRAH FROM TRUNK DIAMETER

Measurements of diameter include the bark. Data sourced from report; Whitford K.R.; Forest Ecology and Management 160 (2002) 201 - 21

25cm = 60 years
50cm = 120 years
75cm = 190 years
100cm = 240 years
125cm = 300 years
150cm = 360 years

Some of the wandoo trees are very large

These look like the fruit of Silver mallee – *Eucalyptus falcata*

The distinctive clumped calls of *Eucalyptus decipiens* fruit

The fruit of the prickly *Hakea lissocarpha*

H

The distinctive *Hakea prostrata*

Helichrysum leucopsideum

Old mans beard cryptogram – *Usnea sp.*

Leptospermum erubescens (if it has hairs on its ovary area) or *L. oligandrum* (no hairs over ovary)

Swamp dock ? *Rumex brownii*

Possibly one of the Loxocarya species of the Restionaceae

Banksia dallanney – the couch honeypot

Billardiera fusiformis – the

Kennedia coccinea – the running postman

Chorizema ilicifolium?

The large leaves make this possibly *Leucopogon australis?*

These could be the juvenile leaves of *Banksia calophylla* (P3) or *B. porrecta (P4)*

Banksia armata

Desmocladus fasciculatus

The beautiful sun orchid – *Thelymitra aff. holmesii*

Cats paw - *Anigozanthos humilis*

Burchardia congesta

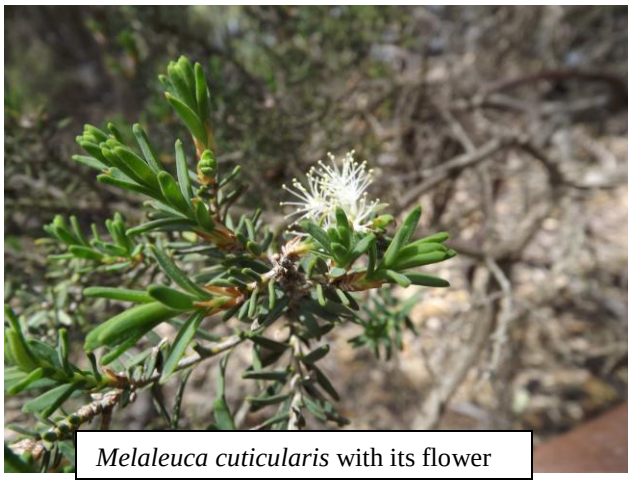
A Melaleuca raphiophylla with a pollinator beetle

Melaleuca sp – flower has just dried out

Cotula coronopifolia - this is an alien(weed) to WA

Melaleuca raphiophylla ?

Melaleuca cuticularis with its star like fruit

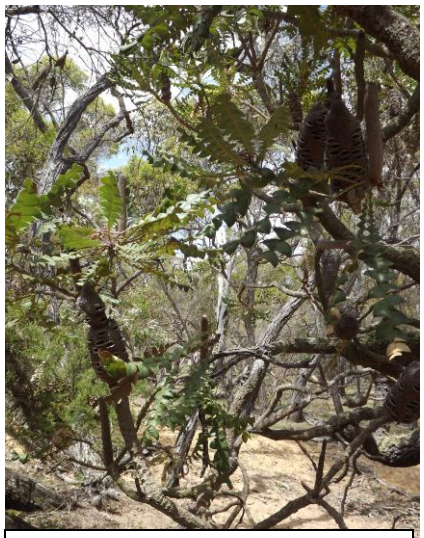


Melaleuca cuticularis with its flower

A gathering of *Nuytsia floribunda* – xmas tree

Banksia attenuata up on the lunette

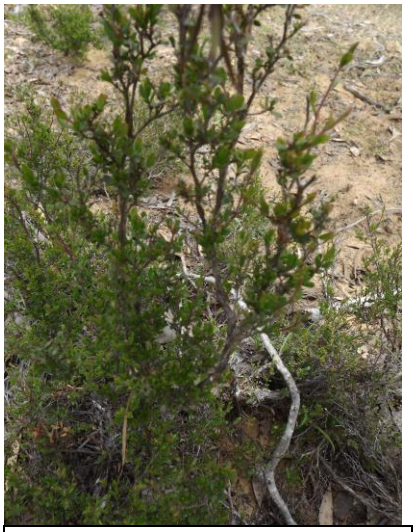
Banksia littoralis with wet feet



Banksia grandis on one of the lunettes

A sprawling *Scaevola calliptera ?*

The nuts of the *Hakea ruscifolia*



The *Pericalymma elliptica* bush down near the wetland areas

Hakea corymbosa- cauliflower hakea

Waitzia citrina

A nice old Zamia palm – *Macrozamia riedlei*

The tell tale heart shaped leaf of juvenile leaves of the *Eucalyptus decipiens*



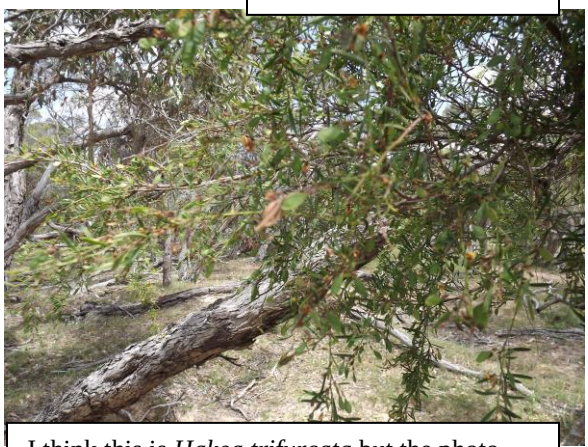
Redheart tree – *Eucalyptus decipiens* with its cluster nut, small bud and flowering in Nov.

Marianthus erubescens

Marianthus erubescens

Jacksonia furcellata - grey stinkwood

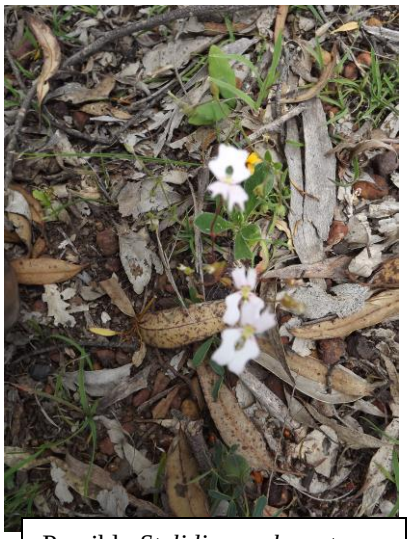
I think this is the leaf of the *Marianthus erubescens* again



I think this is *Hakea trifurcata* but the photo isn't good

Possibly *Acacia pulchella* var. *goadbyi*

Hypocalymma angustifolium



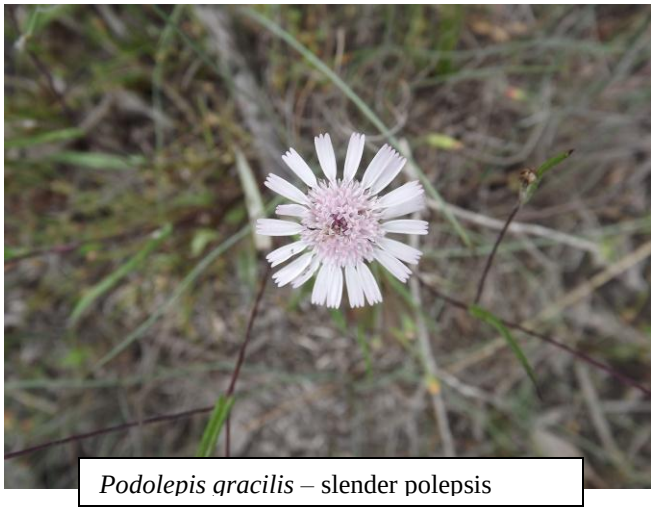
Possibly *Stylidium calcaratum* – the book triggerplant

Possibly the *Stylidium piliferum* – the common butterfly triggerplant

Hakea lissocarpha – honey bush

Hakea lissocarpha – honey bush

A meadow of annuals on the edge of a wetland floodplain



Podolepis gracilis – slender polepsis

Stylidium tenue with its purple flower stem

Caothamnus quadrifidus – this is probably one of the subspecies

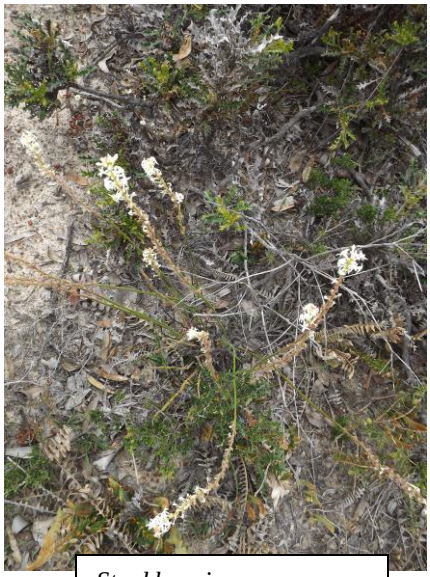
Ridge Fruited Mallee – *Eucalyptus angulosa* – or it could be *E. incrassata.* The buds and fruit don't distinguish the plant DISTINCTLY as one of these two species. We will have to collect a sample to send into the herbarium just to check this identification out.

Gompholobium polymorphum – Hairy Yellow pea

Hakea undulata

Beautiful Flavoparmelia lichens growing on wood – sometimes alive wood like on this Banksia

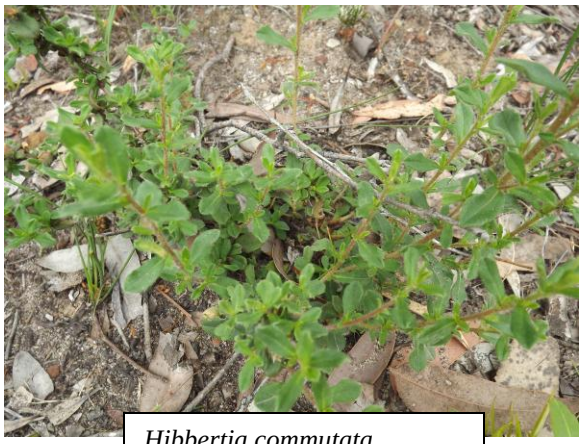
This looks like Banksia porrecta *(*this a Priority four species). We need to look at this more closely to see if you do have this species on your property



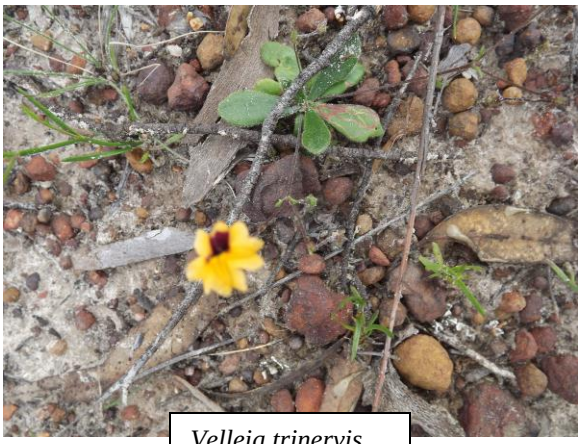
Stackhousia mongyna

Isopogon teretifolius? (Need a flower)

A very pretty trigger plant with delicate pink flowers. Could be *Stylidium tenue* again



Hibbertia commutata



Velleia trinervis

Conostylis setigera – Bristly cottonhead

Melaleuca thyoides

Stirlingia latifolia

Possibly *Hibbertia gracilipes*

Possibly a dry, collapsed *Pimelea spectabilis*? (Bunjong)

The leaves are spine tipped – possibly *Hakea ruscifolia*

Jacksonia furcellata in flower

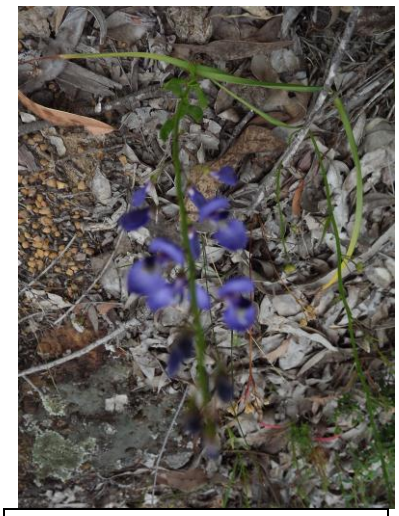
Hemiandra pungens

Levenhookia stipitata – common stylwort

Beautiful balga *Xanthorrhoea preissei*

Babingtonia camphorosmae – camphor myrtle

Monotoca tamarascina



Hybanthus floribundus ? ?– wild violet

Tree hovea – *Hovea elliptica*

Adenanthos cuneatus

Gompholobium knightiatum

Could be *Kunzea preissiana, K. recurva or K. micromera*

Guinea flower – *Hibbertia spicata*

Phyllanthus calycinus – false

Persoonia elliptica – only saw a single tree

Tetratheca affinis

Thomasia foliosa

Petrophile serruriae

Thomasia rhynchocarpa or *T. paniculata*

Cowslip orchid – *Caladenia flava*

Cowslip in amongst *brevifolia* subsp. *brevifolia*

Caladenia discoidea – dancing bee orchid

Donkey orchid – *Diuris corymbosa*

Spider Orchid - *Caladenia sp.*

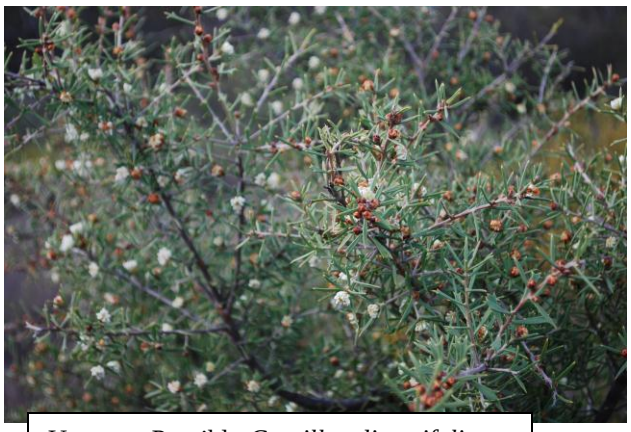
Spider Orchid - *Caladenia sp.*

Spider Orchid - *Caladenia sp.*

Spider Orchid - *Caladenia sp.*

Spider Orchid - *Caladenia*

Drosera rosette- lovely carnivorous plant



Unsure – Possibly *Grevillea diversifolia*

Sarah Comer's little girl Matilda in amongst some beautiful wandoo woodland

Spider Orchid - *Caladenia sp.*

Spider Orchid - *Caladenia sp.*

Hovea chorizemifolia – holly leaved hovea

Gompholobium scabrum

Astoloma baxteri

Calytrix flavescens – summer star flower

Banksia grandis – bull banksia

Isopogon or Petrophile

Banksia attenuata

Hakea ruscifolia

Verticordia sp.

Verticordia sp

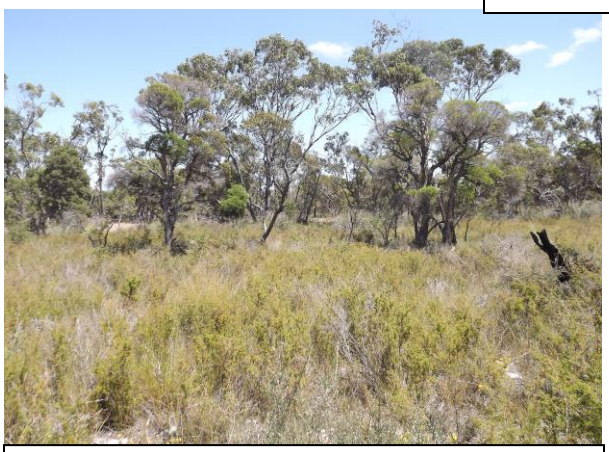
Astroloma pallidum ?

Banksia dellyanii

Possibly *Grevillea trifida??*

Banksia gardneri -

Some more cryptograms – Flavoparmelia lichens on a paperbark in one of the wetlands



4. Flora Notes

Rare or locally unusual flora within a 10 kilometres radius of the property

Site No.	Rare or unusual flora present (or possible)
Both sites	Plant species which are on the Declared rare list within a 10 kilometres buffer of the property include: Diuris drummondii Tall Donkey Orchid **T,** Caladenia luteola **P1,** Hibbertia helianthemoides **P3,** Synaphea preissii **P3,** Wurmbea sp. Cranbrook (A.R. Annels 3819) **P3,** Andersonia jamesii **P4,** Acacia trulliformis **P,** Banksia porrecta **P4,** Caladenia integra **P4,** Orthrosanthus muelleri **P4,** Tecticornia uniflora Mat Samphire **P4**

Declared Rare Flora - Presumed Extinct: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee

Declared Rare Flora - Extant: (T) which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee. *(= Threatened Flora = Endangered + Vulnerable)*

Priority One - Poorly Known: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under

immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey

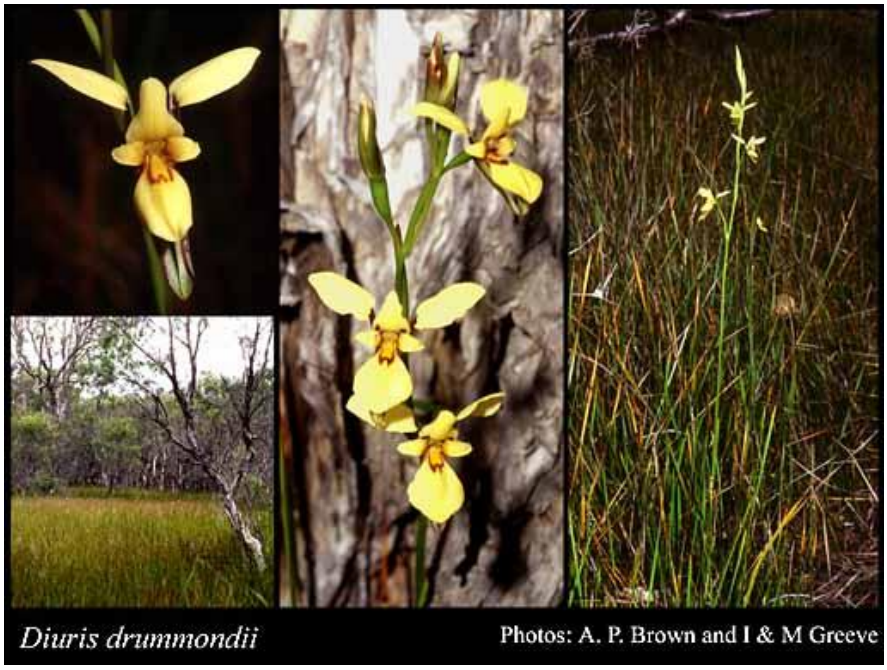
Priority Two - Poorly Known: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey

Priority Three - Poorly Known: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey

Priority Four - Rare: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years

Diuris drummondii Tall Donkey Orchid **Conservation Code:** Threatened Flora (Declared Rare Flora — Extant)

Naturalised Status: Native to Western Australia
Name Status: Current Tuberous, perennial, herb, 0.5-1.05 m high. Fl. yellow, Nov to Dec or Jan. Low-lying depressions, swamps. **Distribution**: South-west. AW, JF, SWA and WAR.



Caladenia luteola Hopper & A.P.Br.

Conservation Code: *Priority One*
Naturalised Status: *Native to Western Australia*
Name Status: *Current Tuberous, perennial, herb, ca 0.3 m high. Fl. yellow & red/brown, Sep. Lateritic sand.*
Distribution*: South-west. AW and JF.*

Hibbertia helianthemoides ***Conservation Code:*** *Priority Three*

Naturalised Status: *Native to Western Australia*
Name Status: *Current Spreading to erect, low or prostrate shrub, to 0.3 m high. Fl. yellow, Jul or Sep to Oct. Clayey sand over sandstone or loam over quartzite. Hills and scree slopes.* ***Distribution****: South-west. AW, ESP, GS, JF and SWA.*

Unfortunately No Photo Available

Synaphea preissii **Conservation Code:** Priority Three

Naturalised Status: Native to Western Australia
Name Status: Current Erect, low shrub, 0.15-0.4 m high. Fl. yellow, Jul to Nov. Sand, gravelly loam.
Distribution: South-west. ESP, JF and WAR.

Unfortunately No Photo Available

Wurmbea sp. Cranbrook ***Conservation Code:*** *Priority Three*
Naturalised Status: *Native to Western Australia*
Name Status: *Current Cormous, perennial, herb, ca 0.25 m high. Fl. white, Sep. Valley floor.* ***Distribution****: South-west. JF.*

Andersonia jamesii ***Conservation Code:*** *Priority Four*
Naturalised Status: *Native to Western Australia*
Name Status: *Current Shrub, to 0.4 m high. Fl. blue, Jun. Gravel.* ***Distribution****: South-west. JF.*

Unfortunately No Photo Available

Acacia trulliformis **Conservation Code:** Priority Four
Naturalised Status: Native to Western Australia
Name Status: Current Spreading shrub, 0.9-2.2 m high. Fl. yellow, Sep. Sandy loam. **Distribution**: South-west. AW, ESP and MAL.

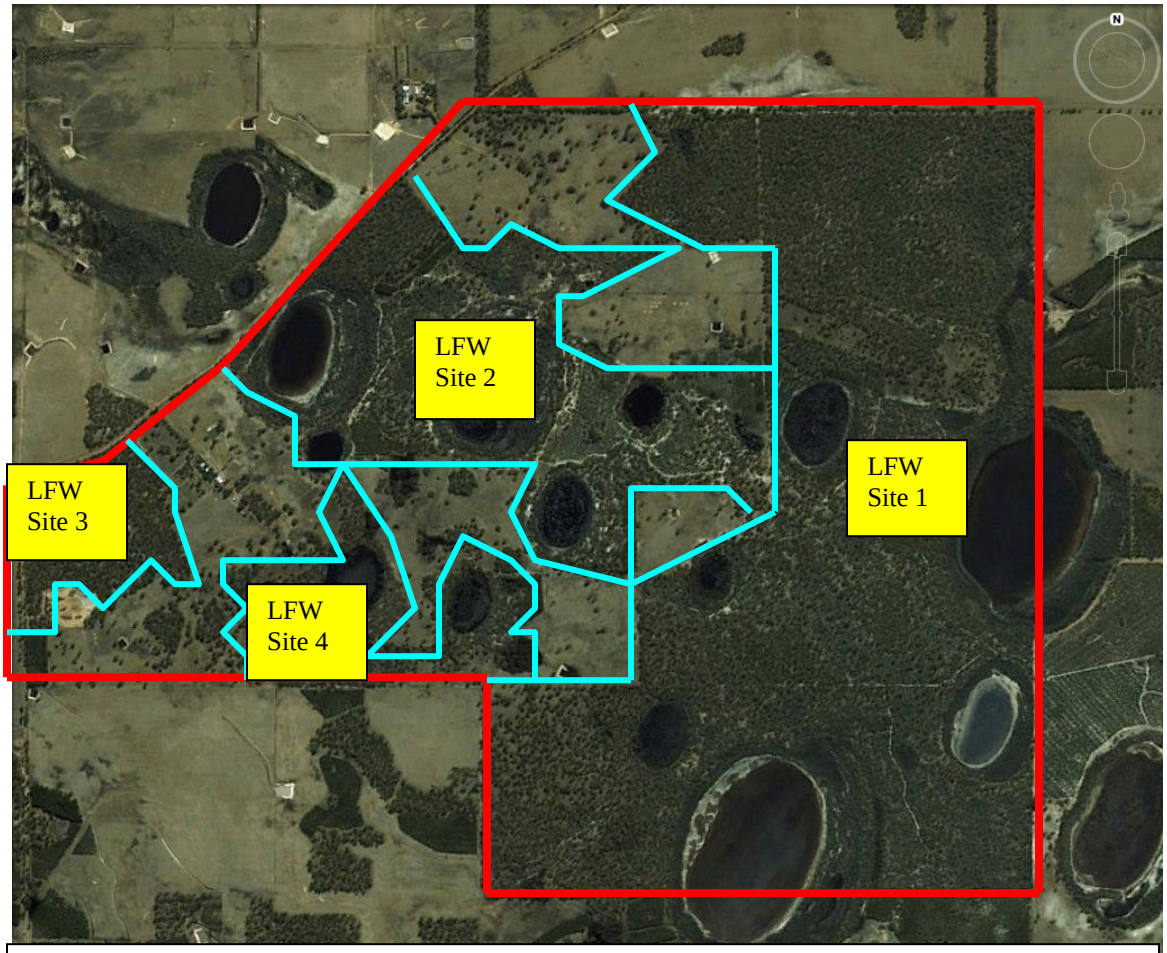
Banksia porrecta ***Conservation Code:*** *Priority Four*
Naturalised Status: *Native to Western Australia*
Name Status: *Current Prostrate, sprawling, mat-forming, lignotuberous shrub, 0.2-0.35 m high, 0.6-4 m wide. Fl. white-cream, Jul to Aug. White/grey sand, sandy loam.* ***Distribution****: South-west. AW, ESP, JF and MAL.*

***Caladenia integra* Conservation Code:** Priority Four
Naturalised Status: *Native to Western Australia*
Name Status: Current *Tuberous, perennial, herb, 0.2-0.5 m high. Fl. green & red, Sep to Oct. Clayey loam. Granite outcrops, rocky slopes.* ***Distribution****: South-west. AW, ESP, GS, JF and MAL.*

***Orthrosanthus muelleri* Conservation Code:** Priority Four
Naturalised Status: *Native to Western Australia*
Name Status: Current *Rhizomatous, tufted perennial, herb, 0.2-0.3 m high. Fl. blue, Sep to Oct. Sand.*
Distribution*: South-west. AW, ESP, JF and MAL.*

Tecticornia uniflora *Mat Samphire* ***Conservation Code:*** *Priority Four*
Naturalised Status: *Native to Western Australia*
Name Status: *Current Prostrate perennial, herb, 0.01-0.03 m high, 0.8-1.5 m wide. Clay, sandy clay, loam. Salt lakes & creeks.* ***Distribution****: South-west. ESP, JF and MAL.*

Vegetation quality and health



The rough boundaries of the major four blocks of remnant vegetation on Balijup Farm.

Vegetation quality assessment is based on the combination of a number of factors, including disturbance, plant health and proportions of weeds. There are four descriptors; excellent, good, moderate and fair.

Site No.	Disturbance?	Plant health	Expected diversity	Weeds		Therefore QUALITY
				name spp.	%	

1 - 4	Yes. The bush has been disturbed by selective logging for fence posts. Some of the remnants have been exposed to stock grazing and this will be indicated on the map below. There is also rising watertable bringing very saline water which is causing plant deaths and some lakes to turn saline.	excellent	excellent	Pasture grasses	Varies according to stock Grazing Disturb -ance	excellent

This is an example of the proteaceous vegetation community on the sandy lunettes next to the lakes senescing due to the age of the community. There is no known fire to have burnt through this area for over 40 years. There also has been no surveying for Dieback. There are Banksia deaths at many of the sites.

Ruhi Ferdowsian has said some of the agroforestry on the property is assisting in combating the rising water table issues and stopping some of the fresher lakes from being impacted by the saline underground water

Regeneration

Site No.	Regenerating naturally?	Ways to improve regeneration
1 -4	Yes - but the stock grazing in the past in just a few areas has caused a reduction in the diversity of understorey species and allowed some fo the grass pasture species to dominate	Natural regeneration in the understorey is occurring in nearly all bush sites. Unfortunately, weed control along the edges of remnants is a task which requires constant management. Because weeds are such aggressive competitive plants they dramatically reduce the regeneration of the native species. Some landholders regularly spray the edges using a small hand held spray pack *and Land For Wildlife* will try to keep you updated with any new effective weed (native friendly) sprays. However most landholders have very little spare time so they are encouraged to observe the situation of weed intrusion on the edges of and note any dramatic changes where the weeds are dominating. It is not recommended to try and stimulate further regeneration through the use of fire. Fire can often cause the bush to be more exposed and open to weed intrusion around its edges. If you choose to try and stimulate growth with the use of fire, very careful patch burning within the remnant and not out near the edges would be the preferred method. Another option is to purchase 'smoked water' through a local nursery and spray this through the remnant and observe if it stimulates seedling germination. (Smoked water is very reasonably priced.) The leaf litter layer on the ground serves as a good weed retardant and it is not recommended to gather these up and burn them unless the fuel load is causing high fire risk and the local fire officer is pressurising you to reduce your biomass on the ground

Matilda Comer walking through a stunning bit of marri jarrah woodland with its understorey intact.

Edge effects

The edge of an isolated remnant suffers greater stress from outside influences than does the centre. Thus, the greater the 'edge-to-area-ratio' of a remnant, the more management may need to be undertaken. Many threats to isolated remnants - such as weed seeds, herbicide drift, or wind-blown debris - enter from outside and the remnant can be buffered from their influence

Site No.	Edge to area ratio - specifically, what % of the site is greater than 100m from an edge?	Action required?
1 -4	Variable – but on most of the larger remnants there is about 80 – 90% which uis further away than 100metres from an edge	Each one of the remnants on Balijup has an edge that are caused by pastures areas. These edges can cause increased weed intrusion, easier access by feral animals and increased physical impacts like increased wind erosion, fertiliser drift etc. Note that fire can also effectively create an edge by opening up cover shrub and ground cover in the bush providing the opportunity for the introduction of weeds and diseases.

Current management

Site No	fencing?	grazing?	Timber cutting?	other? (feral control etc)
1 -4	The property has all of the boundary fences installed. There are many internal fences installed dividing paddocks and protecting the bush sites from being grazed. Balijup farm has also recently received fencing funding to install more fences to protect the bushland	At some of the remnants the understorey has had some impact from grazing sheep stock	Fence posts have been cut out of the bush	unknown

Old fence lines running across some of the wetland area. Note the posts are cut probably from wandoo

Vegetation notes

Notes on the vegetation quality assessment:

- disturbance: There is minimal disturbance on the block to most of the bush
- plant health: Plant health is generally excellent except for where the rising watertable and salinity is occurring
- expected diversity: Diversity is excellent across the whole property

Notes on weed management

- Management actions: Unfortunately weeds require constant management.

Notes on methods of encouraging regeneration for each vegetation type.

Regeneration is good on this property. If there are discreet sites where you would like to encourage regeneration such as previously disturbed areas you might like to try the following steps to re-establish bushland.

Vegetation Establishment – Hierarchy of Action

Bush regeneration, corridors, stream zones. Stop at the first successful number

1. Weed
2. Wait – to see what native plants appear
3. Stimulate regeneration – raking, smoking etc
4. Direct seed with seed from the same site.
5. Plant seedlings grown from seed collected from the same site.
6. Direct seed or add top soil collected from as close as possible with same soil type and dominant species, ensure dieback free
7. Plant seedlings grown from seed collected from as close as possible with same soil type and dominant species.
8. Direct seed or add top soil collected from a nearby site with same soil type, ensure dieback free
9. Plant seedlings grown from seed collected from a nearby site with same soil type and dominant species.
10. Plant non-local species, ensuring that they are unlikely to set seed or sucker.

Wait between any and all steps, sometimes amazing things happen

5 Fauna notes

During the informal visit by Sarah Comer in early 2011, two of the threatened Black Cockatoos – Carnaby's and the Forest Red-tailed Black were recorded on the property. Crested Shrike Tits (P4) were hear calling in the wandoo woodlands and a number of waterbirds observed on the wetlands. . Bandicoot diggings were observed in the Jarrah/Marri woodland and the remnant woodland habitat is also likely to be used by the Wambenger or Brush-tailed Phascogale.

The diversity of the wetland habitats on the property range from naturally saline to perched, and most likely provide habitat for shorebirds such as the resident Hooded Plover and Banded Stilt, and most likely for migratory shorebirds also. DEC has indicated (Letter to Green Skills by Deon Utber, A/Regional Manager of 5th April 2011) that the Department is supportive of any efforts that may be directed to the conservation of this important remnant bushland and its associated wetlands.

In 2011/2012, Green Skills/Gillamii Centre plans to run a small pilot project aimed at surveying the no of feral bee swarms on a property, the number of the swarms occupying valuable hollow habitat (and thus competing with such endangered species as the Carnaby's Cockatoo, as well as many other avian and mammalian native species dependent on hollows) in Forests to Stirlings study area of the Gondwana Link program. If feasibile the pilot project will also undertake feral bee control measures and associated monitoring of recolonisation of hollows by native fauna.

Alan Hordacre has agreed to offer his property as one site for the pilot project. He has provided the following comments;

" We support the proposed feral bees project. Our observations are that the occurrence of feral bees has greatly reduced in the last 20 years. They were commonplace in the 60's and 70's but even long term hives seems to have died out. I'm sure if you look hard enough there may be some still in existence. I have asked my father but he was unable to pin point where a hive exists now yet he could identify many trees where they once flourished.

While there has only ever been one canola crop on Balijup the neighbours have regularly grown it for at least a decade. We have only ever used small quantities of insecticide once on the canola and never on pastures. Neighbours to the north have not been croppers until the last 2 years and therefore were not big insecticide uses. Canola growers have used insecticides, at least once from aircraft but I doubt that drift would have been significantly off target. Generally ground based boom sprays are used with no misting observed. There seems to be an association with the drying trend though this is the only time I can remember so many dams being dry except in the early 70's. Wandoo has rarely seeded (maybe twice to any significant level) in the last decade and this may well extend to other species including Marri which seems to be suffering decline. Maybe there is not the native nectar that occurred"

Information extracted from Basil Schur's Green Skills Report

On the Department of Environment and Conservation Naturemap site there are no fauna recordings within a five kilometer radius of the property. Within a ten kilometer radius of the property there are about one hundred and fifty bird species recorded. Within a fifteen kilometer radius of the property there are fourteen species of mammal recorded (these do include the bilby and the western barred bandicoot which definitely are not still in the area), six species of frog, and ten species of reptile.

Fauna	Fauna observed on visit or noted by landholder (inc ferals)
Mammals	western grey kangaroo, possible brush tailed possums, brush wallabies (not seen for a long time), ring tailed possum (not seen for a long time), Alan's Dad saw echidna's
Birds	Peregrine Falcon (nesting), spotless crake (S. Comer heard call), nesting white tailed cockatoos, nesting red tailed cockatoos, swans, pelicans, main geese, wood ducks, red breasted robin, white robin, blue wrens, spotted pardalote, tree creeper, grey teal, Mr Hordacre had a bird list of over 86 bird spp.
Reptiles	Probably goanna, tiger and dugite snakes, geckoes, skinks, carpet python, bobtail, Napoleon's skink
Amphibians	Banjo frogs. Motorbike frogs, tree frogs, lots of small Crinea frogs (clicking and creaking frogs) Populations of frogs have definitely dropped off in the last decade
Other	Lots of insects, brine shrimp in the water,

Some other mammals that could be found in this area in this kind of habitat are;

brush tailed phascogales	honey possum
pygmy possums	yellow footed antechinus - mardo
water rat	dunnarts
short beaked echidna – probably too wet for these	southern brown bandicoots
bats	tammar? woylies?

Priority/Rare fauna

It is possible that the property forms part of a home range for other rare or threatened wildlife. The following 'Priority' fauna are found in the area:

Mammals: *Hydromys chrysogaster (Water-rat) (P4)*
Quokka (DRF) – small possibility
Western Quoll – unlikely but you never know
Dibbler – unlikely but you never know

Birds: *Botaurus poiciloptilus* (Australasian Bittern) (DRF)
Ardeotis australis (Australian Bustard) (P4)
Macronectes giganteus (Southern Giant Petrel) (DRF)
Calyptorhynchus banksii subsp. naso (Forest Red-tailed Black-Cockatoo) *(*DRF)
Calyptorhynchus baudinii (Baudin's Cockatoo) (DRF)
Calyptorhynchus latirostris (Carnaby's Cockatoo) *(DRF)*
Charadrius rubricollis (Hooded Plover) *(P4)*
Falco pegrinus (Peregrine Falcon) *(S) – special protection*
Numenius madagascariensis (Eastern Curlew) *(P4)*
Phascogale tapoatafa subsp. sp – Brush Tailed Phascogale (special variety)

Freshwater Aquatic life:
Galaxiidae - *Galaxiella nigrostriata* (Black-stripe Minnow) (P3)

(Please inform LFW/DEC Wildlife Branch if any of these species are noted.)

Fauna enhancement

Specific notes of methods (not covered above) to improve fauna habitat.

- feral predator control
  Contact South Coast NRM – there is funding available for 2012 for feral animal control
- habitat creation - leave leaf litter and dead timber on ground to ensure that weed seeds don't become established.

Fauna caught on the night camera's; emu, kangaroo, fox and rabbit

Termite mound. Need to look for scratchings for possible presence of echidna

There were quite a few active rabbit warrens present

Fallen logs, rocks and leaf litter also provide good habitat for some for the ground dwelling mammals like dunnarts.

Cheeky bobtail doing its things

The nest of the Peregrine falcon way up high in an old wandoo. The adult bird circled around above us calling out loud

White tailed black cockatoo – Sarah identified them as Carnaby's.

Fauna enhancement

Specific notes of methods (not covered above) to improve fauna habitat.

- feral predator control
  The use of 1080 poisoned eggs or meat baits may be effective to control foxes on the property. Contact the Protection Officer ('APB') at Department of Agriculture for advice in a permanent baiting station
- rabbit control - attached notes on Rabbit control using 1080 poisoned oats.
- habitat creation - Leave fallen leaf litter and dead timber to ensure that weed seeds don't become established. Maintain the creeklines so that they remain healthy and habitable.

6 Connectivity

Relationship of LFW sites to conservation reserves and other significant remnant vegetation

The property appears (from the aerial photo) to have strong vegetation links through to adjacent privately in all directions.

7 Fire

Since before humans arrived in Australia, fire has been a significant factor the ecology of the continent. The frequency, intensity and season of fires have a profound effect upon the plant community that regenerates after the fire. A modern complicating factor is the presence of weed species. LFW will provide advise on biodiversity issues relating to fire but will not make comment about; safety and property.

Nothing said here can override a landholder's responsibility under the Fire and Emergency Services Act. Contact your local Fire & Rescue Station for advice.

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Site No	Fire history	Current Fire Management and the Role of fire in the vegetation community
1 - 4	Not known . However, some of the bush viewed has fire scars on the trunk. Alan remembers a fire that came in from the north wst of the house about 20 years ago.	The Cranbrook Shire requires firebreaks to be installed around the property boundaries.

Fire management points discussed:

Allan is experienced with fire management. If the managers of Balijup Farm decide they might do a bit of mosaic burning (possibly in the senescing proteacous rich lunette areas) then it would require a very careful burn to make sure it only covers a very small area. I would not recommend burning sites adjacent to the cleared areas of your neighbour – this would only allow quick access by the weeds species. Fire is a very tricky issue and very personal to each individuals property safety requirements and to the unique conservation components of the landscape and vegetation communities present.

Evidence of a fire in the past.

8 Role of Sites in Landcare

Site No	Value of site to landcare (eg hydrology, erosion control, shelter etc)
1 -4	• The vegetation protects the loams from erosion by wind and water • It uses water and therefore limits the recharge of the ground water from this area. • This bushland provides precious habitat for native fauna to move across the landscape. • Due to the high clay content of some of the duplex soils it is vital that the native vegetation is maintained to minimise soil erosion. Underneath the yates there is usually fairly sodic (mobile) clays • All remnant bush has a heritage role to play in that it is a historical record of the vegetation community which occurs at this particular elevation in the district with this particular outlook.

9. *Overall Summary*

Is any part of the property subject to a Conservation Covenant?	***Yes – there is a soils conservation covenant There is also to be 14 kilometres of fencing provided by Greenskills to protect the bushland***
Is the landholder interested in covenanting, now, or at some future date?	***No***
Have any grants been received to assist with this?	***There is a grant for the 14 kilometres of Green Skills fencing***
Is the landholder prepared to allow an organised Field Day to include this property?	***Yes if given plenty of notice***
Is the landholder happy to have the property location marked down on a Land For Wildlife distribution map	***Yes***
Is the landholder happy to have the property marked as a shape map on the DEC GIS database	***Yes***
Is the landholder interested in being on a LFW nature-based tourism contact list?	***No***
Are any facilities for tourists/visitors provided?	***No***
Any other relevant observations?	***Beautiful block and really fascinating vegetation community mix***

Signed: ……

Position: Land for Wildlife Officer

Date: 06/02/2012

***LFW* ASSESSMENT SUMMARY**

Name of assessor:	**Sylvia Leighton**
Date on request for admission to *LFW* received:	**25/08/2010**
Date on which property visited:	**01/11/2011**
Is *LFW* Registration of property recommended?	**Full registration**
Registration number:	**2155**

Specific comments given to landholder in respect to the above recommendation: **None**

Date of issue of sign: **04/11/2011** Sign number **1732 & 1733**

ADDENDUM

1. LFW Signage Agreement
2. Naturemap Species Report for Balijup Farm Area
3. Animals of Western Australia's South West
4. Most Unwanted Plants for WA Environment
5. Katrina Syme Fungi Identification Notes

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Websites: hhtp//•naturemap.dec.wa.gov.au

Personal Communication:

Alan Hordacre, Nov. 2011, part owner of the Balijup farm

Mathilda Comer and Alan Hordacre sitting in the bush having lunch. A family heirloom sitting in the farm yard (great lichen growing on the bonnet of this old holden)