

Preface and Acknowledgement

This Monitoring Farm Flora and Fauna kit was developed to assist landholders in developing a long term record of changes within and around their project site and/or property. The kit is designed to be as simple as ticking the boxes or as complex as filling out as much information as the landholder has time to record. The goal is to have all landholders involved with Greening Australia's 'Accelerated on Farm Nature Conservation' project to be actively involved in monitoring their own flora and fauna.

The ideal is to record every 6-12 months and then compare the results from previous years. This will not only help the land holder manage their project site and property more effectively, but will allow extension staff from all departments make more informed decisions as to land management overall. In the event of the landholder requiring additional information or guidance, a comprehensive list of resources is provided in appendices.

Compilation of this kit was achieved by Greening Australia Queensland's Conservation Extension Officer in Dalby, Steve Cupitt. The project was funded as a component of the Natural Heritage Trust application for the 'Accelerated on Farm Nature Conservation' project. Additional administrative support was provided by the Department of Natural Resources at the regional level. I also gratefully acknowledge the following people for their support and participation in compiling this kit:

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and any other person(s) remotely involved in the process of getting this kit to the ground.

Thanks



Steve Cupitt (Conservation Extension Officer – Dalby)
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Monitoring Farm Flora and Fauna

Table of Contents

<i>Introduction</i>	5
<i>Background Information</i>	6
The link between farm productivity and native plants	6
<i>What this kit will do</i>	7
What you will need to complete this kit	7
<i>Property Owner Information</i>	8
<i>Enterprises and interaction on the property</i>	8
<i>General project/property characteristics</i>	9
<i>Flora - Monitoring Remnant Vegetation</i>	11
Vegetation assessment using a 'Vegetation Transect'	12
Notes on vegetation transect	13
Preparing a list of species	19
Plant Species List	20
<i>Fauna - Monitoring farm wildlife</i>	26
Some important reasons to encourage farm wildlife	26
Wildlife habitat on your farm	27
Wildlife survey techniques	27
<i>Mammals - survey techniques</i>	28
General native mammal observations	28
<i>Birds - survey techniques</i>	34
The binocular methods	34
General observations	34
When and where	34
<i>Reptiles (snakes, tortoises/turtles and lizards) - survey techniques</i>	39
General points to remember	39
Survey Methods	39
<i>Frogs - survey techniques</i>	44
Survey Methods	44
<i>Management options</i>	49
<i>Appendix 1 - References</i>	50
Essential books for identifying flora and fauna	
Practical Management	
General Reading	



Introduction by the author

Steve Cupitt, Greening Australia



Monitoring the flora and fauna within your project site, or indeed your whole property is very important. It allows you to establish what is really happening to the flora and fauna in the remnant, watercourse or shadeline you are aiming to protect, both before and after fencing.

Monitoring will help you make better management decisions by finding out:

- If total stock exclusion is the answer, or if flora and fauna will benefit more from different management strategies, eg. part-time grazing?
- If different management techniques are required within different vegetation communities.
- Is fencing leading to improved habitat conditions (after fencing)?
- In regard to the flora, is there natural regeneration, an increase in plant diversity (more plant species within a given area), a thickening of the understorey or are weeds becoming more of a problem?
- Are there any benefits in stock being watered away from the watercourse?
- Are crops benefiting from affects of remnant corridors and are creek banks stabilising?

Monitoring and noting this data will help establish the best management practices for the integration of nature conservation on your property. The following pages are designed to help you easily assess and monitor the natural resources and the changes that may be occurring within your project site(s) and/or property.

You do not need to be an expert on animals or a 'whiz' at identifying plants; you simply need a bit of common sense, a desire to learn more about the environment around you and a few basic 'tools of the trade'. The information presented in the following pages begins with a section on flora monitoring, finishes with a section on fauna monitoring and has sheets provided to record your observations.

If you feel a little uncertain at the thought of doing your own monitoring and need help starting off, please contact Greening Australia in Queensland:

Postal: GPO Box 9868
Brisbane Q 4001

www.qld.greeningaustralia.org.au

Email: general@qld.greeningaustralia.org.au

Background Information

The flora and fauna on your property are two of your most important farm resources. Plants provide food for stock, shelter from the sun and wind, habitat for wildlife, as well as contributing to the appearance of your farm. The presence of native wildlife on a property is not only a pleasant part of a landholder's lifestyle, but can provide important benefits such as insect control. Magpies eat thousands of scarab beetle larvae per hectare from pasture. A single Ibis will consume about 200 grams of insects a day and a flock of Ibis will remove about a half million grubs or insects a day. Generally, the presence of wildlife is an indicator of a healthy farm and catchment system. Learning to recognise the plants and animals (flora and fauna) on your property and their potential advantages and disadvantages will help put you in control of making important decisions about their future.

Additionally this is the first step towards implementing management strategies that will not only benefit wildlife on your farm but also the sustainability of your farming enterprise.

Monitoring the results of changed management will help you recognise:

- weed species;
- indicator plants which occur at various stages of land degradation;
- plants that can help stabilise landform and soil movement;
- plants that grow best in particular farm habitats;
- native grass species which may out perform exotic grass under certain conditions (eg. drought);
- native plants which can be used in land rehabilitation programs;
- native plants which are important habitat for wildlife;
- rare and endangered plant and animal species that can only survive with your active help;
- wildlife movements and how your activities are increasing this;
- feeding / breeding patterns and the factors influencing them; and
- future best management practices.



The link between farm productivity and native plants

By conserving existing patches of bushland and other native plants, together with planned plantings of local native species, it is possible to improve land stability and farm productivity. Well-designed native windbreaks positioned in the best places modify climate to advantage for crop and livestock production. Corridors, or buffer (strips) of native vegetation along watercourses and major drainage

lines stabilise potentially vulnerable parts of the farm and filter water flows. Bushland patches, farm trees and well managed native pastures help lower the watertable thus reducing the possibility of waterlogging and salting. Paddock trees provide critical shade and shelter for grazing stock.

Two added bonuses follow when native plants in the right places are conserved or intentionally put back on the farm:

- wildlife biodiversity will be maintained or even increased.
- property values will increase.

What this kit will do

This kit is designed to be as simple or as complex as you wish. The detail of the information you record is entirely up to you. The aim is to monitor changes in and around your project site by recording:

- changes in the physical environment.
- number of fauna observed before and after fencing.
- the feeding and breeding habits of fauna (particularly birds) within your project site or over your whole farm. Additional notes on feral animal activity, tracks, scats (animal faeces), nests or unusual weather conditions are also helpful.
- wildlife movements.
- amount of natural vegetation regeneration before and after altered stocking. Is stock exclusion best or is stock management a preferred option?
- increase in plant diversity.
- increased density of the understorey (heavier grass cover).
- increase in weeds.
- increase or decrease in watercourse bank stability.
- observed benefits for stock.

What you will need to complete this kit

- The farm decision makers - including the children and farm manager. You may occasionally need some help from other friends, volunteers or professionals who are knowledgeable about native plants and animals.
- A farm map or an aerial photograph of your property would be helpful, but is not essential.
- A plastic overlay for use with your aerial photograph may be useful, but is not essential.
- Pencil, clipboard and a notebook.
- Some of the plant / animal books listed in Appendix 1.
- Time, common sense and a desire to enjoy yourself.
- Some transport and careful observing.



Property Owner Information

Landholder Name(s) _____

Property Name _____

Address _____

Phone (hm) _____ Phone (wk) _____ Mobile _____

Shire _____ Parish _____

Portion _____ Lot on Plan No _____

Size of property (ha) _____ Vegetation remaining (ha) _____

Enterprises and interaction on the property

History of previous enterprises on the property

Current enterprises on the property

Your project's interaction with the rest of your property (eg. How does your shadeline, remnant or watercourse connect to the rest of your property?)

Your project's interaction with the surrounding landscape (eg. Does your project link with neighbouring vegetation, forestry etc.?)

General project/property characteristics

This section is for general information applicable to your project site, but may also be used for the entire property, hence the two (2) sheets. It is for 'basic' information only and does not need to be repeated annually. In the comments section, state current stocking rates, average annual rainfall or anything else you think may be relevant.

“Project Site”

Tick boxes if applicable

Date.....

Riparian Zone	Remnant / Shadeline
<input type="checkbox"/> Flowing Water <input type="checkbox"/> Mostly Dry <input type="checkbox"/> Swamp <input type="checkbox"/> Stagnant Ponds <input type="checkbox"/> Erosion Evident <input type="checkbox"/> Nil Erosion	<input type="checkbox"/> Area 50 ha <input type="checkbox"/> Area 500-1000 ha <input type="checkbox"/> Area 50-100 ha <input type="checkbox"/> Area 1000 ha <input type="checkbox"/> Area 100-500 ha
Vegetation	Vegetation
<input type="checkbox"/> Dead standing trees <input type="checkbox"/> Live trees <input type="checkbox"/> Reeds, Lilies etc <input type="checkbox"/> Understorey <input type="checkbox"/> Vegetation dense <input type="checkbox"/> Vegetation sparse <input type="checkbox"/> Vegetation nil <input type="checkbox"/> Vegetation diverse <input type="checkbox"/> Nil regeneration evident <input type="checkbox"/> Vegetation regenerating naturally <input type="checkbox"/> Connectivity to other remnants	<input type="checkbox"/> Eucalypt woodland <input type="checkbox"/> Brigalow / Belah <input type="checkbox"/> Bottlefree scrub <input type="checkbox"/> Vine dry rainforest <input type="checkbox"/> Predominantly Cypress Pine <input type="checkbox"/> Eucalypt woodland with grassy understorey Other..... <input type="checkbox"/> Vegetation degraded <input type="checkbox"/> Vegetation healthy and diverse <input type="checkbox"/> Nil regeneration evident <input type="checkbox"/> Vegetation regenerating naturally <input type="checkbox"/> Connectivity to other remnants
Habitat Opportunities	Habitat Opportunities
<input type="checkbox"/> Trees with hollows <input type="checkbox"/> Prone hollow timber in watercourse <input type="checkbox"/> Vertical banks (creek) <input type="checkbox"/> Clumps of reeds, grass etc <input type="checkbox"/> Deep waterholes <input type="checkbox"/> Shallow ponds <input type="checkbox"/> Flowing water over rocks <input type="checkbox"/> Rocks, caves or crevices	<input type="checkbox"/> Trees with hollows <input type="checkbox"/> Prone hollow timber on ground <input type="checkbox"/> Dense grass and matted clumps of dry grass <input type="checkbox"/> Dense shrub layer <input type="checkbox"/> Rocks, caves or crevices
Soil types (if known): _____	Soil types (if known): _____
_____	_____
Annual rainfall: _____	Annual rainfall: _____
_____	_____
Stocking rate/ha: _____	Stocking rate/ha: _____
_____	_____
Notes: _____	Notes: _____
_____	_____
_____	_____

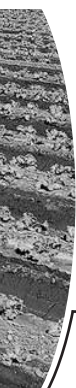
General project/property characteristics

“Entire Property”

Tick boxes if applicable

Date.....

Riparian Zone	Remnant / Shadeline
<input type="checkbox"/> Flowing Water <input type="checkbox"/> Mostly Dry <input type="checkbox"/> Swamp <input type="checkbox"/> Stagnant Ponds <input type="checkbox"/> Erosion Evident <input type="checkbox"/> Nil Erosion	<input type="checkbox"/> Area <50 ha <input type="checkbox"/> Area 500-1000 ha <input type="checkbox"/> Area 50-100 ha <input type="checkbox"/> Area >1000 ha <input type="checkbox"/> Area 100-500 ha
Vegetation	Vegetation
<input type="checkbox"/> Dead standing trees <input type="checkbox"/> Live trees <input type="checkbox"/> Reeds, Lilies etc <input type="checkbox"/> Understorey <input type="checkbox"/> Vegetation dense <input type="checkbox"/> Vegetation sparse <input type="checkbox"/> Vegetation nil <input type="checkbox"/> Vegetation diverse <input type="checkbox"/> Nil regeneration evident <input type="checkbox"/> Vegetation regenerating naturally <input type="checkbox"/> Connectivity to other remnants	<input type="checkbox"/> Eucalypt woodland <input type="checkbox"/> Brigalow / Belah <input type="checkbox"/> Bottlefree scrub <input type="checkbox"/> Vine dry rainforest <input type="checkbox"/> Predominantly Cypress Pine <input type="checkbox"/> Eucalypt woodland with grassy understorey Other..... <input type="checkbox"/> Vegetation degraded <input type="checkbox"/> Vegetation healthy and diverse <input type="checkbox"/> Nil regeneration evident <input type="checkbox"/> Vegetation regenerating naturally <input type="checkbox"/> Connectivity to other remnants
Habitat Opportunities	Habitat Opportunities
<input type="checkbox"/> Trees with hollows <input type="checkbox"/> Prone hollow timber in watercourse <input type="checkbox"/> Vertical banks (creek) <input type="checkbox"/> Clumps of reeds, grass etc <input type="checkbox"/> Deep waterholes <input type="checkbox"/> Shallow ponds <input type="checkbox"/> Flowing water over rocks <input type="checkbox"/> Rocks, caves or crevices	<input type="checkbox"/> Trees with hollows <input type="checkbox"/> Prone hollow timber on ground <input type="checkbox"/> Dense grass and matted clumps of dry grass <input type="checkbox"/> Dense shrub layer <input type="checkbox"/> Rocks, caves or crevices
Soil types (if known): _____	Soil types (if known): _____
Annual rainfall: _____	Annual rainfall: _____
Stocking rate/ha: _____	Stocking rate/ha: _____
Notes: _____	Notes: _____
_____	_____
_____	_____



Flora - Monitoring Remnant Vegetation

Retaining healthy strips and/or clumps of vegetation complements farm productivity by providing windbreaks for crops and shelterbelts for stock; a reduction in potential salinity problems; increases in the number of insect predators; drought fodder; increased timber production; reduced erosion potential and increased nutrient availability.

Managing and monitoring your project is an important part of successfully conserving remnant vegetation. Monitoring involves observing the changes that take place on your site during and after your work and keeping records to measure the success of your activities.

To effectively monitor your project it helps to assess:

- your aims (What is it you would really like to achieve?);
- what was there before you started;
- your work methods (How you organised your monitoring?);
- the outcomes of your work (how things changed due to you efforts). What was there after you completed your project?
- how you measured your achievements.

Method 1 - A 'Vegetation Transect'

The best method to assess your site is to establish a 'vegetation transect' within your project site, keep a photographic and written record and discuss your results with other people. The transect will enable you to record changes within a 'controlled' area where photographs are taken at set points and notes taken in a situation where the soil types are similar, climate variation is minimal and topographic variation is marginal. Establish the transect using the guide on the following page, fill out the survey and list of species sheets. The plant identification books listed in Appendix 1 will help you with plant identification.

Method 2 - Ticking the boxes in the survey sheets and preparing a list of species.

If setting up a transect does not appeal to you, simply walk through the remnant, watercourse or shadeline, tick the boxes in the survey sheets and if possible prepare a list of species using the plant identification books as indicated in Appendix 1.



The following methods of monitoring may be useful, however you will need some tools of the trade (plant identification book) as indicated in Appendix 1 to help with plant identification.

The step-by-step guide on the following pages will be useful in helping you to collect information. Use the tables provided and periodically (every 6-12 months) record the information to assess any changes that may be occurring.

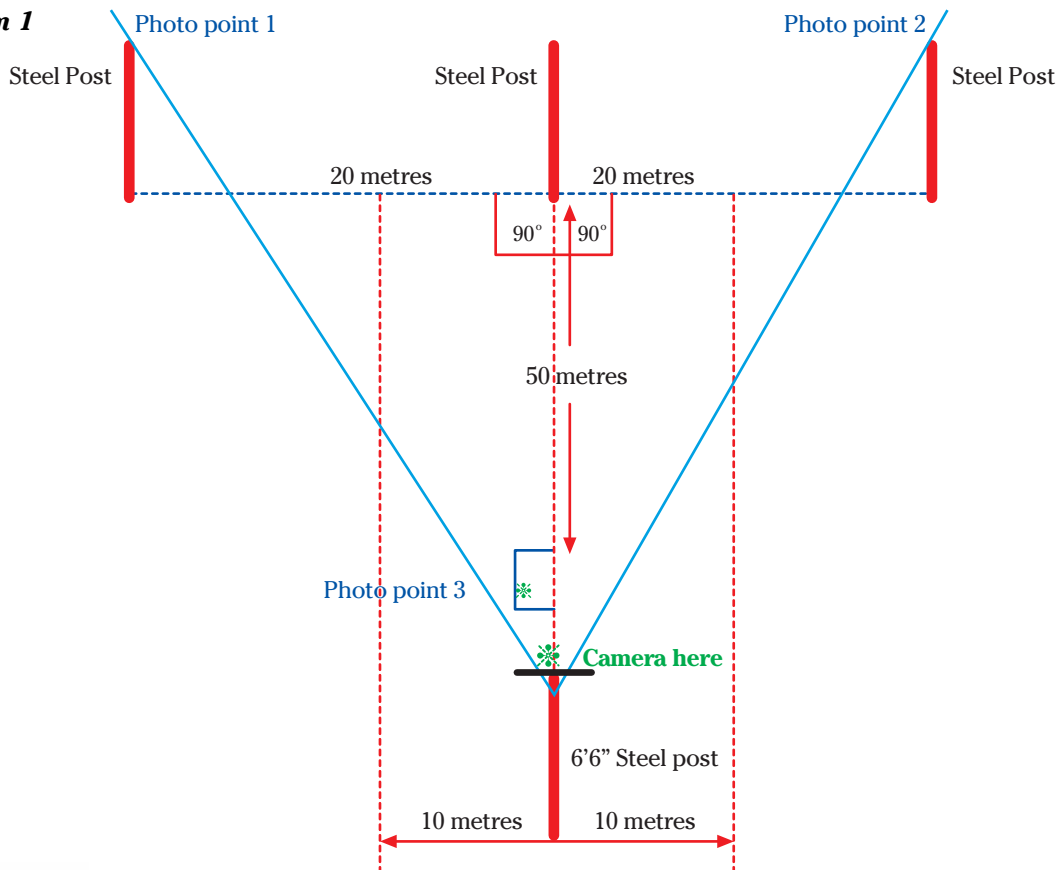
Vegetation assessment using a 'Vegetation Transect'

Setting up a Vegetation Transect

Step 1

Select an area within the project site that is generally representative of the vegetation you wish to monitor. Measure out 50 metres and stake with steel fence posts at either end as indicated via the central red dotted line in Diagram 1. Measure an area 10 metres either side of the 50 metre length as indicated by the red dotted lines. This area between the steel posts and 10 metres either side is your experimental zone or 'control area' where your aim is to record results over a standard area.

Diagram 1



Step 2

In addition to this, establish three permanent photo points (see blue lines in diagram). The first two photographic points are approximately 20 metres back and at a 90° angle to the transect. Take two photographs from this 'camera' point to provide a visual record. For the third photograph, mark a one metre square about midway down the 50 metre transect line. Take a photograph approximately one metre above this area (camera pointing straight down to ground at 90°) to reveal the density and variety of understorey species. Ensure that;

1. The same person takes all the photos (This ensures a consistent height where the height of species can be accurately compared) from the same point.
2. Photos are taken at the same time of the day.
3. The same camera and film is used for all photos for consistency of pictures.
4. Clearly label and date all photographs. On back of each photo record any information you think may be relevant.

Step 3

Note the following general information within the 'transect' (or the entire project site if the transect was not established) and fill out the table on the following pages. The information recorded here can be compared to future survey sheets to help determine any changes that may be occurring over time due to your changed management.

Notes on vegetation transect - initial survey

Date.....

✓ if applicable

In the project site (transect), is there:

- | | | |
|--|---|--|
| <input type="checkbox"/> regeneration evident | <input type="checkbox"/> regeneration not evident | <input type="checkbox"/> a range of tree ages |
| <input type="checkbox"/> regrowth or | <input type="checkbox"/> virgin or | <input type="checkbox"/> has it been logged |
| <input type="checkbox"/> signs of dieback | <input type="checkbox"/> domination by weeds | <input type="checkbox"/> healthy vegetation |
| <input type="checkbox"/> degraded vegetation | <input type="checkbox"/> signs of insect attack | <input type="checkbox"/> fungal disease |
| <input type="checkbox"/> excessive mistletoe | <input type="checkbox"/> branches with no leaves | <input type="checkbox"/> an understorey of grasses |
| <input type="checkbox"/> an understorey of shrubs | <input type="checkbox"/> signs of nests, tracks / scats | <input type="checkbox"/> heavy leaf litter, twigs |
| <input type="checkbox"/> evidence of feral animals | <input type="checkbox"/> evidence of bird calls | <input type="checkbox"/> exposed roots |
| <input type="checkbox"/> many fallen hollow logs | <input type="checkbox"/> few fallen hollow logs | <input type="checkbox"/> trees of differing sizes |
| <input type="checkbox"/> caves or rocky crevices | <input type="checkbox"/> large loose rocks | <input type="checkbox"/> small rock shale |
| <input type="checkbox"/> sandy loam soil | <input type="checkbox"/> cracking clays | <input type="checkbox"/> stone ridge |
| <input type="checkbox"/> evidence of erosion | <input type="checkbox"/> nil erosion evident | <input type="checkbox"/> aquatic plants |
| <input type="checkbox"/> a watercourse | <input type="checkbox"/> stagnant ponds | <input type="checkbox"/> deep pools |
| <input type="checkbox"/> flowing water | <input type="checkbox"/> stock pads to the water | <input type="checkbox"/> heavy trampling by stock |
| <input type="checkbox"/> nil access by stock | <input type="checkbox"/> limited access by stock | <input type="checkbox"/> random access by stock |

Additional Notes: (ie. time of year, climate, rainfall patterns, average temperature, unusual events, changed stocking rates, perceived benefits to stock or crops etc)



Notes on vegetation transect - 6 month survey

Date.....

✓ if applicable

In the project site (transect), is there:

- | | | |
|--|---|--|
| <input type="checkbox"/> regeneration evident | <input type="checkbox"/> regeneration not evident | <input type="checkbox"/> a range of tree ages |
| <input type="checkbox"/> regrowth or | <input type="checkbox"/> virgin or | <input type="checkbox"/> has it been logged |
| <input type="checkbox"/> signs of dieback | <input type="checkbox"/> domination by weeds | <input type="checkbox"/> healthy vegetation |
| <input type="checkbox"/> degraded vegetation | <input type="checkbox"/> signs of insect attack | <input type="checkbox"/> fungal disease |
| <input type="checkbox"/> excessive mistletoe | <input type="checkbox"/> branches with no leaves | <input type="checkbox"/> an understorey of grasses |
| <input type="checkbox"/> an understorey of shrubs | <input type="checkbox"/> signs of nests, tracks / scats | <input type="checkbox"/> heavy leaf litter, twigs |
| <input type="checkbox"/> evidence of feral animals | <input type="checkbox"/> evidence of bird calls | <input type="checkbox"/> exposed roots |
| <input type="checkbox"/> many fallen hollow logs | <input type="checkbox"/> few fallen hollow logs | <input type="checkbox"/> trees of differing sizes |
| <input type="checkbox"/> caves or rocky crevices | <input type="checkbox"/> large loose rocks | <input type="checkbox"/> small rock shale |
| <input type="checkbox"/> sandy loam soil | <input type="checkbox"/> cracking clays | <input type="checkbox"/> stone ridge |
| <input type="checkbox"/> evidence of erosion | <input type="checkbox"/> nil erosion evident | <input type="checkbox"/> aquatic plants |
| <input type="checkbox"/> a watercourse | <input type="checkbox"/> stagnant ponds | <input type="checkbox"/> deep pools |
| <input type="checkbox"/> flowing water | <input type="checkbox"/> stock pads to the water | <input type="checkbox"/> heavy trampling by stock |
| <input type="checkbox"/> nil access by stock | <input type="checkbox"/> limited access by stock | <input type="checkbox"/> random access by stock |

Additional Notes: (ie. time of year, climate, rainfall patterns, average temperature, unusual events, changed stocking rates, perceived benefits to stock or crops etc)



Notes on vegetation transect - 12 month survey

Date.....

✓ if applicable

In the project site (transect), is there:

- | | | |
|--|---|--|
| <input type="checkbox"/> regeneration evident | <input type="checkbox"/> regeneration not evident | <input type="checkbox"/> a range of tree ages |
| <input type="checkbox"/> regrowth or | <input type="checkbox"/> virgin or | <input type="checkbox"/> has it been logged |
| <input type="checkbox"/> signs of dieback | <input type="checkbox"/> domination by weeds | <input type="checkbox"/> healthy vegetation |
| <input type="checkbox"/> degraded vegetation | <input type="checkbox"/> signs of insect attack | <input type="checkbox"/> fungal disease |
| <input type="checkbox"/> excessive mistletoe | <input type="checkbox"/> branches with no leaves | <input type="checkbox"/> an understorey of grasses |
| <input type="checkbox"/> an understorey of shrubs | <input type="checkbox"/> signs of nests, tracks / scats | <input type="checkbox"/> heavy leaf litter, twigs |
| <input type="checkbox"/> evidence of feral animals | <input type="checkbox"/> evidence of bird calls | <input type="checkbox"/> exposed roots |
| <input type="checkbox"/> many fallen hollow logs | <input type="checkbox"/> few fallen hollow logs | <input type="checkbox"/> trees of differing sizes |
| <input type="checkbox"/> caves or rocky crevices | <input type="checkbox"/> large loose rocks | <input type="checkbox"/> small rock shale |
| <input type="checkbox"/> sandy loam soil | <input type="checkbox"/> cracking clays | <input type="checkbox"/> stone ridge |
| <input type="checkbox"/> evidence of erosion | <input type="checkbox"/> nil erosion evident | <input type="checkbox"/> aquatic plants |
| <input type="checkbox"/> a watercourse | <input type="checkbox"/> stagnant ponds | <input type="checkbox"/> deep pools |
| <input type="checkbox"/> flowing water | <input type="checkbox"/> stock pads to the water | <input type="checkbox"/> heavy trampling by stock |
| <input type="checkbox"/> nil access by stock | <input type="checkbox"/> limited access by stock | <input type="checkbox"/> random access by stock |

Additional Notes: (ie. time of year, climate, rainfall patterns, average temperature, unusual events, changed stocking rates, perceived benefits to stock or crops etc)



Notes on vegetation transect - 2 year survey

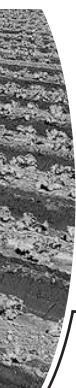
Date.....

✓ if applicable

In the project site (transect), is there:

- | | | |
|--|---|--|
| <input type="checkbox"/> regeneration evident | <input type="checkbox"/> regeneration not evident | <input type="checkbox"/> a range of tree ages |
| <input type="checkbox"/> regrowth or | <input type="checkbox"/> virgin or | <input type="checkbox"/> has it been logged |
| <input type="checkbox"/> signs of dieback | <input type="checkbox"/> domination by weeds | <input type="checkbox"/> healthy vegetation |
| <input type="checkbox"/> degraded vegetation | <input type="checkbox"/> signs of insect attack | <input type="checkbox"/> fungal disease |
| <input type="checkbox"/> excessive mistletoe | <input type="checkbox"/> branches with no leaves | <input type="checkbox"/> an understorey of grasses |
| <input type="checkbox"/> an understorey of shrubs | <input type="checkbox"/> signs of nests, tracks / scats | <input type="checkbox"/> heavy leaf litter, twigs |
| <input type="checkbox"/> evidence of feral animals | <input type="checkbox"/> evidence of bird calls | <input type="checkbox"/> exposed roots |
| <input type="checkbox"/> many fallen hollow logs | <input type="checkbox"/> few fallen hollow logs | <input type="checkbox"/> trees of differing sizes |
| <input type="checkbox"/> caves or rocky crevices | <input type="checkbox"/> large loose rocks | <input type="checkbox"/> small rock shale |
| <input type="checkbox"/> sandy loam soil | <input type="checkbox"/> cracking clays | <input type="checkbox"/> stone ridge |
| <input type="checkbox"/> evidence of erosion | <input type="checkbox"/> nil erosion evident | <input type="checkbox"/> aquatic plants |
| <input type="checkbox"/> a watercourse | <input type="checkbox"/> stagnant ponds | <input type="checkbox"/> deep pools |
| <input type="checkbox"/> flowing water | <input type="checkbox"/> stock pads to the water | <input type="checkbox"/> heavy trampling by stock |
| <input type="checkbox"/> nil access by stock | <input type="checkbox"/> limited access by stock | <input type="checkbox"/> random access by stock |

Additional Notes: (ie. time of year, climate, rainfall patterns, average temperature, unusual events, changed stocking rates, perceived benefits to stock or crops etc)



Notes on vegetation transect - 4 year survey

Date.....

✓ if applicable

In the project site (transect), is there:

- | | | |
|--|---|--|
| <input type="checkbox"/> regeneration evident | <input type="checkbox"/> regeneration not evident | <input type="checkbox"/> a range of tree ages |
| <input type="checkbox"/> regrowth or | <input type="checkbox"/> virgin or | <input type="checkbox"/> has it been logged |
| <input type="checkbox"/> signs of dieback | <input type="checkbox"/> domination by weeds | <input type="checkbox"/> healthy vegetation |
| <input type="checkbox"/> degraded vegetation | <input type="checkbox"/> signs of insect attack | <input type="checkbox"/> fungal disease |
| <input type="checkbox"/> excessive mistletoe | <input type="checkbox"/> branches with no leaves | <input type="checkbox"/> an understorey of grasses |
| <input type="checkbox"/> an understorey of shrubs | <input type="checkbox"/> signs of nests, tracks / scats | <input type="checkbox"/> heavy leaf litter, twigs |
| <input type="checkbox"/> evidence of feral animals | <input type="checkbox"/> evidence of bird calls | <input type="checkbox"/> exposed roots |
| <input type="checkbox"/> many fallen hollow logs | <input type="checkbox"/> few fallen hollow logs | <input type="checkbox"/> trees of differing sizes |
| <input type="checkbox"/> caves or rocky crevices | <input type="checkbox"/> large loose rocks | <input type="checkbox"/> small rock shale |
| <input type="checkbox"/> sandy loam soil | <input type="checkbox"/> cracking clays | <input type="checkbox"/> stone ridge |
| <input type="checkbox"/> evidence of erosion | <input type="checkbox"/> nil erosion evident | <input type="checkbox"/> aquatic plants |
| <input type="checkbox"/> a watercourse | <input type="checkbox"/> stagnant ponds | <input type="checkbox"/> deep pools |
| <input type="checkbox"/> flowing water | <input type="checkbox"/> stock pads to the water | <input type="checkbox"/> heavy trampling by stock |
| <input type="checkbox"/> nil access by stock | <input type="checkbox"/> limited access by stock | <input type="checkbox"/> random access by stock |

Additional Notes: (ie. time of year, climate, rainfall patterns, average temperature, unusual events, changed stocking rates, perceived benefits to stock or crops etc)



Preparing a list of species

It is useful to compile a list of species, which have been found within your 'transect' (although it may be useful to extend this to cover your whole project site or property), so that comparisons can be made to determine what, if any, species are present and those returning due to altered stock management. This knowledge will allow you to manage your site and/or property more effectively for agriculture and nature conservation. After a time, by the different plants present, you will know how long to leave the stock in for before they start to effect the condition of the vegetation.

A form suitable for recording this information is provided on the next page. It may be useful to photocopy this sheet, as you are likely to be able to identify 50 or more plant species on most properties over a period of time.

The information we suggest you record is:

Common name	These can change from place to place and property to property		
Botanical name	This name is likely to stay constant and enables other people to agree that a particular plant has been identified.		
I/N	I = Introduced; N = Native		
Occurrence (O)	Record	A	= Abundant
		C	= Common, always at least one
		R	= Rare, uncommon - not every time but >2-3
		1	= One specimen only found ie. Rare
Habitat (H)	Record	RZ	= Riparian zone (area adjacent to/in the watercourse)
		G	= Grassland
		EWL	= Eucalypt Woodland
		FF	= Farm Forest
		BB	= Brigalow / Belah
		SS	= Softwood Scrub
		M	= Mulga
		MGD	= Mitchell Grass Downs
		PW	= Pine Woodland
		Wa	= Water
		O	= Other

The right hand column of the table provides a space for you to record some of the advantages or disadvantages of particular species. Some suggestions are: useful shade tree; visually attractive; food source for honeyeaters; farm timber; noxious weed; poisonous to stock etc. Do not forget to date each sheet at the top. *Note: The following pages contain copies of each recording form for your use every 6-12 months.*



Fauna - Monitoring farm wildlife

Some important reasons to encourage farm wildlife

An important aspect of managing the vegetation on your property is to encourage as much wildlife as possible by retaining healthy vegetation. Why should we do this?

- About 50% of our native wildlife will become extinct if they are not conserved on the average Australian farm!
- Increasing farm diversity (or existing levels of biodiversity) is one useful indicator that **your** farm is remaining part of a sustainable land system, or improving the situation.
- Many wildlife species eat insect pests and other species, keeping a balance between species. Some of these predator/prey relations are subtle and quite important in keeping things in balance. For example Sugar Gliders can eat a large number of Christmas Beetles every year. If they are not on your farm that is one less check in place against destruction of eucalypts by beetles.
- Bird species in particular can be used as indicators of the health of bushland, watercourses and native grasslands.
- It's good to see that wildlife is still present on the family farm.



Wildlife habitat on your farm

Each native wildlife species on your property is found there either permanently or temporarily because suitable habitat is present. Some species are able to live in most places on your farm, while others are confined to specialist habitat such as bushland, native grasslands, wet areas, watercourses and so on. In the previous section (flora), you will have noted most of the habitats available on your property and/or remnant.

Below are **15 facts about wildlife habitat**. Do any of them apply to your property and/or remnant or can you improve what you already have?

- If there is no suitable habitat for a particular species that was known to be in your area, then it is unlikely that the species will be found on your farm. Many of the small native marsupials require dense grass cover or grassy clumps through a Eucalypt woodland for nest sites. If these requirements are not met, these small natives will not utilise the area.
- The area of available habitats will limit both the range and abundance of species present in each habitat type.
- The greater the number of habitats present, the greater the number of species likely to be present on your farm (greater biodiversity).
- Habitats can be managed to optimise the number of species likely to be present on your farm.
- Small patches of specialised habitat are better than none, provided they are interconnected.
- Given time, habitat areas can be created or rehabilitated in appropriate places on your farm which can promote greater agricultural productivity.
- Critical habitat areas to conserve on your farm include: existing bushland; farm watercourses; native windbreaks; native grasslands; roadside bushland areas; farm dams; dead standing trees; wetlands and swamps.
- Good habitat for particular species provide places for them to live, breed and feed.
- Some species will rest or nest in one type of habitat and feed in one or more other habitats. These can be kilometres apart.
- Degraded habitats (eg. bushland) can often be dominated by one or two common wildlife species (eg. the noisy miner).
- Habitats that provide resources all year round are more likely to remain attractive to a range of species.
- Some important factors contributing to habitat are: landform; elevation; aspect; moisture/water; plant species distribution and abundance; plant species present (diversity) and the structure and arrangement of plant species in the landscape (trees, shrubs, grasses, herbs, logs, litter, etc.).
- As a general rule, to attract the most wildlife, it is important to provide a range of habitats (eg. trees, shrubs, limb hollows).
- Habitats are always changing due to factors such as plant growth and decay and the effect of browsing by wildlife, insects, fire, seasonal influences, flood, drought and frost.

Wildlife survey techniques

It is often not practical to take time out of your day for specifically monitoring species like mammals, birds, reptiles, frogs or fish. The simplest method is to carry a notebook in your pocket and during your everyday work program, if you see any wildlife, jot them down and enter them into the form provided at a later date. Over a two, three or four year period it should be possible to compare sheets to provide you with an indication as to whether species are decreasing, increasing, remaining stable or if new species are utilising the area.

However, if you are really keen, the following sections (mammals, birds and frogs) will provide you with more detailed methods of surveying wildlife or recording observations.

Mammals - survey techniques

This section deals with native mammals (not the introduced species like pigs, rabbits, hares, foxes, dogs, cats etc). Many of the native mammals such as the Phascogales, Antichinus, Dunnarts and Bandicoots feed almost exclusively on insects and have the potential to remove large numbers of insects in a single night. Many of these insects have the potential to be detrimental to crops.

The techniques used to identify mammals are all relatively straightforward, but perseverance on your part is required. The books listed in Appendix 1 will help you identify many of the species.

- Search for scats (droppings), animal remains such as skin, hair, skulls, markings on trees, foot prints, diggings, sounds etc.
- Look under logs, leaf litter and observe streams at dawn/dusk.
- Spotlight (with binoculars handy) from a slow moving vehicle or walking along tracks.
- Spotlight in woodland, forest, road verges, watercourses and dams to observe larger mammals such as wombats, koalas, possums, gliders and bats.
- Spotlight in flowery eucalypts for flying foxes.
- Record the presence of any mammal in the forms on the following pages and tick any other general observations in the table on the next page.



General native mammal observations

Record general observations in the following tables every 6-12 months. Do not forget to date each table so that comparisons can be made. The survey sheets provided after these tables will enable you to record any species you have observed.

Native Mammal Observations

(record the information in this table every 6-12 months)

Date.....

✓ if applicable		
Scats (droppings) observed:		
<input type="checkbox"/> none	<input type="checkbox"/> some	<input type="checkbox"/> many
Markings/scratches on trees or footprints		
<input type="checkbox"/> none	<input type="checkbox"/> some	<input type="checkbox"/> many
Diggings or burrows		
<input type="checkbox"/> none	<input type="checkbox"/> some	<input type="checkbox"/> many
In general, do any of the mammals observed:		
<input type="checkbox"/> show signs of mange	<input type="checkbox"/> appear shabby	<input type="checkbox"/> have discoloured / matted fur
<input type="checkbox"/> evidence of being attacked	<input type="checkbox"/> appear fat / healthy	<input type="checkbox"/> appear thin & undernourished
<input type="checkbox"/> have weeping eyes	<input type="checkbox"/> have fouled backsides	<input type="checkbox"/> all appear generally healthy
<input type="checkbox"/> appear healthy generally, though some look diseased		<input type="checkbox"/> all appear unhealthy
Overall, there are:		
<input type="checkbox"/> many observed mammals	<input type="checkbox"/> few observed occasionally	<input type="checkbox"/> nil observed
Most mammals are observed:		
<input type="checkbox"/> along watercourses	<input type="checkbox"/> around dams	<input type="checkbox"/> in thick bushland
<input type="checkbox"/> around the home	<input type="checkbox"/> in the grassland	<input type="checkbox"/> on stony ridges or hills

Native Mammal Observations

(record the information in this table every 6-12 months)

Date.....

✓ if applicable		
Scats (droppings) observed:		
<input type="checkbox"/> none	<input type="checkbox"/> some	<input type="checkbox"/> many
Markings/scratches on trees or footprints		
<input type="checkbox"/> none	<input type="checkbox"/> some	<input type="checkbox"/> many
Diggings or burrows		
<input type="checkbox"/> none	<input type="checkbox"/> some	<input type="checkbox"/> many
In general, do any of the mammals observed:		
<input type="checkbox"/> show signs of mange	<input type="checkbox"/> appear shabby	<input type="checkbox"/> have discoloured / matted fur
<input type="checkbox"/> evidence of being attacked	<input type="checkbox"/> appear fat / healthy	<input type="checkbox"/> appear thin & undernourished
<input type="checkbox"/> have weeping eyes	<input type="checkbox"/> have fouled backsides	<input type="checkbox"/> all appear generally healthy
<input type="checkbox"/> appear healthy generally, though some look diseased		<input type="checkbox"/> all appear unhealthy
Overall, there are:		
<input type="checkbox"/> many observed mammals	<input type="checkbox"/> few observed occasionally	<input type="checkbox"/> nil observed
Most mammals are observed:		
<input type="checkbox"/> along watercourses	<input type="checkbox"/> around dams	<input type="checkbox"/> in thick bushland
<input type="checkbox"/> around the home	<input type="checkbox"/> in the grassland	<input type="checkbox"/> on stony ridges or hills

Birds - survey techniques

As most birds eat insects or nectar, they play a large part in reducing insect numbers around the farm and aid in the pollination of many native trees. In general, the higher the diversity (the number and variety) of vegetation on a property, the higher the diversity of birds and animals. This leads to a more healthy and sustainable property and farming enterprise overall.

Over 300 native birds, plus around 14 introduced species, can be found at various localities in mid and south west Queensland. Bird watching can be an enjoyable experience for the entire family and with a little practice, a bird identification book and some patience, you will soon be able to identify birds by both their appearance and their calls. There are three main ways to observe birds. The first two involve the use of binoculars, while the other involves nothing more than careful observations while carrying out your general farming activities. You can combine the three or choose the technique that suits you the best.

The binocular methods

1. Walk slowly through your remnant, watercourse or whole property and observe carefully the various birds you encounter. If you are a new birdwatcher, you will probably need to refer to suitable pictures and/or descriptions in your field guide.
2. Sit down in your favourite piece of bush or watercourse and wait for birds to approach you. A small bird call device available from 'Australian Geographic' stores has been found quite useful for calling the small brown species of birds (ie Wrens, Finches, Honeyeaters etc).

General observations

During your everyday activities, carry a small notebook and bird field guide with you. As you observe birds, jot them down along with a concise description and any other relevant details and enter them into a more formal record at your own convenience.

When and where

The best time to observe most species of birds is the early morning or late afternoon. Many of the smaller birds prefer the shrubby understorey or grass areas because this is where food is found (eg insects, fruit and seeds); there is protection from predators (they feel safe); and there are nesting sites (somewhere to live and breed). During the hot middle of the day, birds are usually resting. However, if you locate an area on your property with permanent water and thick surrounding shrubs, a number of species may be present.

The larger species (Parrots, Hawks etc), can often be found in the larger mature trees with hollows and thick foliage, while the water birds will be utilising reeds, rushes, waterlilies etc around the shallow edges of dams, swamps or watercourses or tree branches protruding from the water.



Remember!

Record the date and presence of all birds found. Use the following tables every **6-12** months to record the information.

Reptiles (snakes, tortoises/turtles and lizards) - survey techniques

There are over 100 reptiles found in the west, however some are found only in the far west and within that area undisturbed species may have penetrated distribution. To date, many reptiles have become extinct on Australian farms because of loss of suitable habitat.

As reptiles control insects, carrion, field mice and introduced rats, they tend to play a very important role on the average farm. While snakes in general appear to be coping, judging by the number still around, the lizards have taken a hammering because of cats, foxes and loss of habitat. If you do have a piece of bushland, make sure that logs and limbs of trees are left on the ground, giving these animals places to hide and shelter.

General Points to Remember

- Reptiles are more difficult than most to observe due to their shy nature and thus may often be difficult to locate.
- Tortoises/turtles prefer aquatic habitats and are often only observed in farm dams or crossing roadways.
- Snakes may be dangerous. **Do not pick up, try to kill or attempt to catch them, EVER.** They can be observed from a distance and particular markings on their skin noted for identification.
- Lizards can be tricky to identify and some may require gentle handling to correctly identify, however, remember the advice; the larger the lizard, the greater the bite! **Do not attempt to handle a goanna more than 50 cm long, as they can be dangerous.**
- Use a combination of reptile identification books and local knowledge to help you identify species you have found. Appendix 1 provides a list of useful identification books.

Survey Methods

Try the following methods for locating reptiles:

- Systematically search bushland, rocky outcrops, under bark, rocks and logs;
- Look out for them as you go about your farm business;
- Check along creeks and rivers;
- Make use of local knowledge;
- Spotlight along tracks at night (some are nocturnal).



Remember!

Record the date and presence of all reptiles found, and don't forget to indicate which habitat type they were found in, what they were doing, time of day, weather and the climate. Use the following tables every **6-12** months to record the information.

Frogs - survey techniques

Frogs are sensitive to a range of farm chemicals, particularly when those chemicals end up in the watercourse. Therefore it is a good idea to keep an eye on frogs to monitor your farm's chemical use. The number and/or presence of frogs can provide a guide to the health of a stream on your property. If few frogs were found when water is present in the watercourse during the Spring breeding period, then this would suggest that this stream was in poor health and could possibly be experiencing a range of environmental stresses. For this reason, frogs are often referred to as environmental indicators. As well as being indicators of stream health, frogs make a very positive contribution to farm ecology through their ability to consume many insects that denude pastures and crops.

For the above reasons alone, it may be quite useful to be aware of how many frogs are present, or if they are present, to determine if your property is as healthy as you thought it was. It is also useful to know that all 39 species of frogs in the region are harmless. There are no native toads in Australia. The only toad is the introduced cane toad which contains venomous glands behind the head and may be dangerous if handled.

Survey Methods

Frogs, particularly at night, are often hard to locate. The following methods and observations may be useful and remember, a quality frog identification book is quite useful.

- Listen to the range of frog calls, particularly at night in Spring and early Summer after rain, to try and determine the presence and/or number of frogs;
- At night, track down a calling frog using a portable spotlight. Use a dipnet and spotlight to catch frogs. Place the frog in a jar with some water for later identification. Always return frogs to the place where they were captured.
- Search around creeks, rivers and dams during the day, looking under logs, stones and bark.
- Some frogs can be found in old bits of equipment after rain.
- Walk through bushland, on farm tracks and open paddocks to see frogs at night, particularly after rain. Use a spotlight.

Remember!

Record the date and presence of all frogs found, and don't forget to indicate which habitat type they were found in, what they were doing, time of day, weather and the climate. Use the following tables every **6-12** months to record the information.



Management options

Hopefully, after working your way through the previous pages, you will be thinking about alternate management options for your overall property and not just your project site. Listed below are some additional options you may consider for integrating farm flora and fauna conservation without compromising agricultural production.

Increase or maintain bushland wildlife species

- Construct nest boxes and place on trees devoid of hollows;
- Create your own bushland patches using local native species in areas currently devoid of trees;
- Increase habitat diversity by additional plantings, adding logs, understorey plants etc.

Increase or maintain grassy woodland wildlife species

- Plant out groups of shade trees in fenced out corners of paddocks;
- Manage some grassland areas to allow seed formation to attract seed-eating birds each year.

Increase or maintain grassland wildlife species

- Manage parts of grassland to allow seed formation to occur each year;
- Consider planting trees on contour banks if present;
- Plant groups of shade trees in fenced out corner areas of paddocks.

Increase or maintain river, stream or wetland species

- Link vegetation along watercourses with other patches of native vegetation;
- Leave some logs and snags in rivers and creeks as fish habitat;
- Fence out one or two farm dams and plant out with native trees and shrubs;
- Fence out rivers and creeks and relocate stock watering points away from watercourses;
- Plant a range of water plants along rivers and creeks and around dams;
- When constructing large dams, incorporate a wildlife island.

Increase or maintain native wildlife species around house and buildings

- Increase use of native plants species;
- Provide water baths or similar;
- Keep domestic pets, especially cats, under control.

Increase or maintain wildlife species in planted windbreaks

- Increase native windbreaks along existing fencelines;
- Plant out native windbreaks along public roadside verges. Seek approval from your local council or Roads and Traffic Authority.

Remember: Help and advice are always available. Contact your local Greening Australia office - details available on the website <http://www.qld.greeningaustralia.org.au>

Appendix 1 - References

Essential books for identifying flora and fauna

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General Reading

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