

Nature's workforce



Biodiversity Series: How To | April 2008 Issue 4 | Produced by Cotton Catchment Communities CRC

Monitor to Manage - How happy is the natural workforce?

Some tips and tools to help you monitor your natural workforce. Monitoring helps you understand how your management actions affect your natural workforce and allows you to adjust your management to get the results you want.



Monitoring the bird life on a cotton farm water storage, Wee Waa. *Melanie Jenson*

In Summary

The science

A diverse and productive 'natural workforce' provides ecosystem services which help secure continued productivity and long term sustainability of your enterprise. Monitoring and recording is fundamental in helping you understand what is happening to your natural workforce overtime and as a result of your management actions.

Helpful hints

- Monitor at the same place at the same time each year – summer and spring are best for animals.

- Keep a camera handy – take annual photos of areas under management.
- Go down to the river or bushland early in the morning or late at night with the family. Did you see any little bats emerging at sunset?

Benefits to the farmer

- Monitoring and recording helps you to demonstrate best management practise on your farm.

Are I making a difference?

Keep a biodiversity journal – record birds, insects, flowering times, weeds and atural regeneration.



Cotton Catchment Communities CRC

What can you do?

A summary of all of the monitoring tools from the 'natures workforce' fact sheet series is compiled here. Choose a monitoring method which best suits you and / or which best measures the success of an action you have recently undertaken to manage biodiversity on your farm. Monitor at the same place at the same time each year.

General biodiversity monitoring

Keep a journal dedicated to recording biodiversity on your farm with you at all times (like a diary in your vehicle). On a daily basis record what you see on your farm, like birds, insects, flowering times of native vegetation, emergence of weeds and any other observations. Use identification guides to identify species you don't recognise.

Invertebrates

One simple monitoring method is a variation on using the beat sheet in cotton. Take an esky lid, fill with a little water and hold it under a branch, then give the branch a sharp tap with a stick. The lid with water should catch the spiders and insects falling from the branch. Count the number of species or identify insect predators using the Cotton Pest Management Guide. Do 3 branches per tree or shrub, sampling 10 to 15 trees in this way. Repeat a few times throughout the cotton growing season as invertebrate densities are able to rapidly change within a short period of time.

Animals

Record traces of fauna on your farm in your biodiversity journal, like diggings, footprints on sand, scats under trees or on tracks, chewed bark, signs of wear or hair around tree hollows or scratches up trunks, nests, webs and insect, frog, bird and other animal calls.

At night, walk or drive 100m shining your machinery headlights, a spotlight or even a torch around your bush and in your trees. Record the location, date and time you spotlighted and any creatures that you saw.



Sampling invertebrates in cotton, ACRI, Narrabri

Birds/Vegetation

Walk for a 100m and look 20m either side of where you are walking for 20 minutes. Do this once each season for at least 1 year. Monitor early in the mornings or late in the afternoons when birds are most active.

Keep an eye out for the following birds in your large vegetation remnants. These birds have been identified as indicator species of healthy habitats in the Birds on Cotton Farms book.

Diamond firetail	Eastern yellow robin	Hooded robin
Golden whistler	Grey-crowned babbler	Speckled warbler
Variegated fairy-wren	Brown treecreeper	Purple swamphen
Spiny-cheeked honey eater	Striped honey eater	White-winged fairy-wren

Changes to native vegetation

Establish permanent photo points and take a landscape photo of each year of the same piece of vegetation. It is essential the distance from the camera to the photo point remains the same. For this reason, both the camera location and photo point require permanent markers, like a stake.

Contact your local CMA or environmental officer about getting a professional assessment of the biodiversity value of your remnant native vegetation using a method

like Habitat Hectares, Biodiversity Benefits Index or the Bush Tool Kit.

Compare historical aerial photos/vegetation maps of your property to measure changes to the native vegetation over time.



Bird watching with Birds Australia in woodland on a cotton farm near Wee Waa.

Plant diversity/ Changes to native grasses

Paint a liquid paper dot on top of your boot and after every 10 paces record what the paint dot on your boot has hit. Rather than identifying every species, you can group plants as annual grasses, perennial grasses, weeds, forbs (or herbs), legumes and woody vegetation. Record all the plants along a 100 m transect. Revisit the site during each season. This will tell you if species diversity and ground cover are increasing.

Revegetation

Inspect plantings for weed and pest impacts and water stress every 3 months within the first 2 years of establishment.

Assess the survival of different species by counting survivors after one month compared to number planted. Replant if less than 50%, otherwise fill in any big gaps. Check survival every year.

Water quality

Prepare farm maps indicating the position of rivers, streams, flood ways, drainage lines and blow out points that run

intermittently. Identify potential source areas for sediment and nutrient that could be transported into waterways.

Participate in community based water monitoring program (Waterwatch-Queensland, Streamwatch-NSW)

If you go fishing in your storage dam, make a note of what species of fish and how many you are catching.

Birds/Wetlands

Conduct bird surveys keeping records of species and numbers. Search an area around a central point. It can be a small area within 500m or a large area extending up to 5km. Search for 20 minutes. In particular, look for the Purple Swamphen, an indicator species of healthy wetlands.

Frogs

Become familiar with the local frog species. Go to www.fats.org.au for information about frogs.

Soil

Look down not out! Using a small quadrant, record the percentage of live and dead groundcover and handfuls of litter.

Measure the organic content of your soil using a jar with water. Place a sample of soil in the jar, shake it up and note how much organic material floats to the top.

Arrange a soil test from your local DPI or CMA or NRM body for a comprehensive assessment of your soils health.

Benefits to the cotton grower

- Ability to implement and demonstrate best management practise on farm.
- Increase the ecosystem services provided by your natural workforce, like natural pest control and improved water quality.
- Improve your property value - information on the history of natural resource management on your property will be of interest to valuers and buyers.

Benefits for biodiversity

- Improved diversity and number of species living in cotton landscapes.
- Contribution to wider monitoring programmes improving the understanding of biodiversity in cotton landscapes.



Sampling aquatic life in the wetland areas of 'Parker Farms' Emerald. *Dave Kelly*

Are you making a difference?

Use the results of your monitoring to fine tune your management. Keep clear records of your monitoring data. Always record the date, time and location of monitoring. Keep your monitoring records for as long as possible, the information could still be useful in 10 years time. Refer to it from time to time and you should be able to gauge whether you are making a difference.

For more Information:

Web pages

<http://www.qld.waterwatch.org.au/>

http://www.qld.waterwatch.org.au/resources/PDFs/fish_snapshot.pdf

<https://www.streamwatch.org.au/streamwatch/connect/Streamwatch/Home/>

www.fats.org.au

Scientific Publications

Department of Primary Industries Water and Environment (2004). A technical manual for vegetation monitoring. Department of Primary Industries, Water and Environment, Hobart, Tas.

www.cottoncrc.org.au

Department of Sustainability and Environment (2004b) Vegetation quality Assessment manual: Guidelines for applying the habitat hectares scoring method. Version 1.3. Melbourne Vic.

"Key aspects of photopoint monitoring" Fact Sheet, Qld NR&W, www.nrw.qld.gov.au/monitoring_guide/indicators/photopoints/key_aspects.html

Smyth, A., James, C. & Whiteman, G. (2003) Biodiversity monitoring in the rangelands. A way forward. CSIRO Sustainable Ecosystems and Department of the Environment and Heritage, Alice Springs NT.

Guides

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Ford, G. & Thompson, N. (2006) Birds on Cotton Farms. Cotton Catchment Communities CRC.

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Swan, G., Shea, G. & Sadler, R. (2004) A Field Guide to the Reptiles of New South Wales 2nd Edition. New Holland.

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