



**wheatbelt**  
natural resource  
management

# **Land Manager Monitoring Guide**

**Version 1.1**  
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## 1. Introduction

The purpose of this guide is to provide land managers and NRM project officers with information and tools to undertake photopoint and condition monitoring through visual or observational assessment. Monitoring provides:

- a history of how the property is changing over the medium and long term;
- evidence to show if a management option is having any impact,
- information to make sound future management decisions.

The guide primarily focuses on the use of photopoint monitoring, but also includes a section on recording general information if taking photographs is not convenient.

The photopoint monitoring procedures and accompanying *Photopoint Monitoring Field Data* sheet were developed by Mike Griffiths, WWF in October 2009 and amended by Wheatbelt NRM in January 2010. Wheatbelt NRM would like to thank Mike Griffiths and WWF for their efforts in developing this methodology.

This guide can be used across all fields requiring monitoring of condition, for example, in the increase or decrease of salinity or waterlogging, post-fire change, growth of revegetation, or effects of Wandoo Crown Decline to name a few.

## 2. Photopoint Monitoring

The aim of photopoint monitoring is to establish fixed photo-points for medium to long-term monitoring of vegetation condition and to record useful data that can be replicated consistently and accurately. The procedure as outlined in the *Box Gum Grassy Woodland Project Land Manager Monitoring and Reporting Information Kit* (CFOC) was initially followed as far as possible, then amended to suit local Western Australian conditions. Land For Wildlife's *Photographic Monitoring of Vegetation* was also referred to (see "References").

### 2.1. Equipment / Materials

- i. 3 star pickets (steel posts), 1.65m long, per photopoint. Suggest 1 silvery/metallic colour (egg "High-Galv") and two black.
- ii. Sledgehammer or star picket driver (with handles) for driving in star pickets
- iii. Tape measure (up to 50m)
- iv. Coloured flagging tape

- v. Camera
- vi. GPS
- vii. Aluminium tags and soft tie-wire or cable ties (or other means of identifying the photopoint position)
- viii. Blank *Photopoint Monitoring Field Data* forms (see Appendix 1), and a pen
- ix. You may also wish to attach reflective materials (such as bike reflectors, reflective paint or steel picket caps) for safety and visibility reasons.

## 2.2. Setting Up

1. Place a star picket at the point at which the photo will be taken. This is the camera post (abbreviated here as “C”), and may be outside the area of the photo target.
2. Place a second star picket 10 m from the camera post, this being one of two sighter posts (Sighter Post 1 or “S1”).
3. Sighter Post 2 (“S2”) should then be positioned in line with S1 and C, and in such a position so as it and S1 capture the target area (for example vegetation, weeds or creekline etc).

The distance between S1 and S2 should be set according to the vegetation and topography of the site, but in Wheatbelt woodlands and heathland, distances of approximately 15m and 35m have been found to be most appropriate. A distance of 20-25m or more is only suited to open areas such as grassy woodland. Star pickets in cross section have three “arms” (as shown in Figure 1 below), and can be made to “point” in a particular direction. A convenient practice in setting up photopoints is to “point” C towards S1 and S2, and to “point” S1 and S2 towards each other. This may assist in quick location of all three pickets once any one picket is found in future years. [Figure 2](#) shows how the camera posts and sighters should be set up for photopoint monitoring of vegetation.

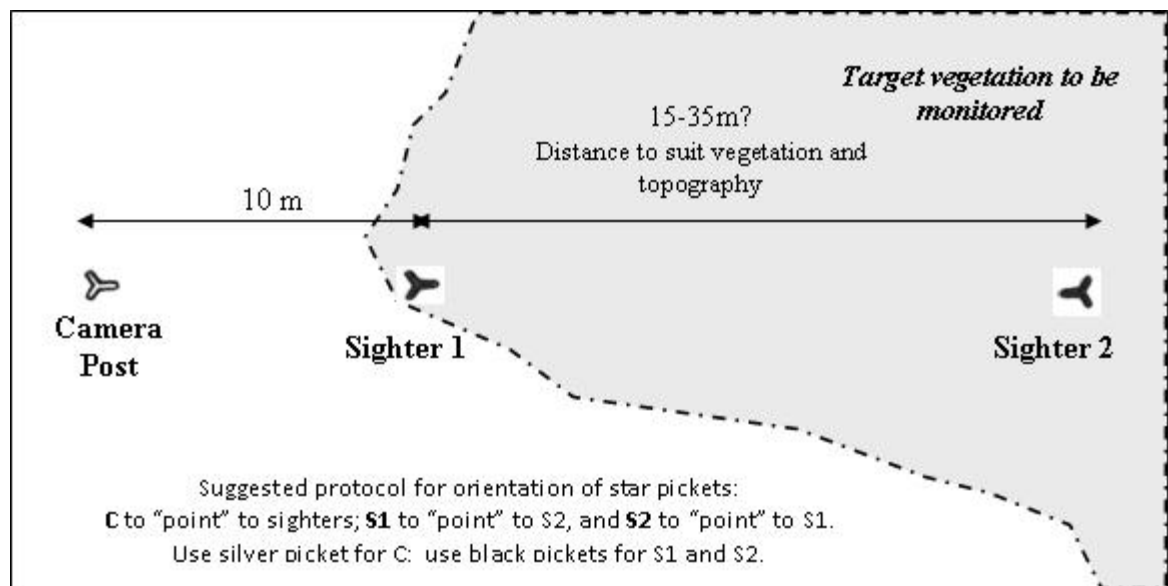
### 2.2.1. Figure 1: Star picket in cross section, ‘pointing’ to the left hand side.



S2 should be flagged with coloured flagging tape for greater visibility before the photograph is taken, but this can then be removed. C can also be “permanently” flagged for reference, though the tape invariably fades and rarely lasts more than

one year or so with normal weather conditions. If landholders were not present during set-up and have not seen the site, this flagging of the camera post may be helpful for them to recognise the site at a later time. Also, it is important to note that star pickets among vegetation can be a safety hazard for people or animals moving quickly, being difficult to see in bushland and among trees and shrubs, particularly black pickets in poor light. Logs or sticks placed on the ground around the star pickets highlight their position for people and/or livestock (where monitoring points may have been set up in areas with livestock). In addition you may wish to attach a reflector or paint the picket with reflective paint to increase visibility of the picket.

### 2.2.2. Figure 2: Set-up for photopoint monitoring of vegetation



### 2.3. Taking the Photo

The photo should be taken at eye level, with the field-of-view being taken from the bottom of the S1 star picket, (showing S2 in line behind) or with minimal foreground in front of the base of S1. The photo should focus on the understorey vegetation. The *Box Gum Grassy Woodland Project Monitoring and Reporting Information Kit* says "With the standard focal length of 50-55mm, or if the focal length cannot be identified, use the camera's default focal position." Land For Wildlife's *Wildlife Notes* mentions that 50-55mm is closest to the image as seen by human eyes, and for consistency, zooming should not be used when taking the photos (note that the width of the photo field-of-view is manipulated by zooming). For the purposes of monitoring in the Wheatbelt, no parameters have currently been established to define the width of the field-of-view on-site.

## **2.4. Tagging / Labelling Sites**

The camera posts are the reference points for photopoint sites, and should be labelled with aluminium tags secured at the top of the picket with soft tie-wire (or cable ties). These wire strands should be as short as possible to minimise long-term wind movement that may eventually cause the wire to break.

Aluminium tags can be written on with a pen or any sharp object. They should include:

- The words “Photopoint” and project name for future reference (e.g. “Wheatbelt NRM Dale Ecoscape Project”)
- The date
- The words “Camera here. Photo to south-west.”

It should be remembered that in years to come, the property may have new owners without knowledge of the project nor of photopoints established. Mention of the organisation responsible for installation of the photopoint (e.g. WWF, Greening Australia, NEWROC etc), and “Wheatbelt NRM” (or equivalent) on the tags should assist them in locating relevant project and monitoring information.

## **2.5. Other Monitoring Photos and Information**

Aside from the photopoint photos, photographs can also be taken of other features of the vegetation to show change in condition etc, for example, close-up photos showing annual native plants, cryptogams or soil crust (see Figure 3 below.) Additional photos may also be taken to show reference points etc to assist people in locating the site in future years, or to give general context to the target area at the time of monitoring (e.g. shrubs and trees in the whole area may be heavily grazed or drought-stressed due to the season).

**2.5.1. Figure 3: Examples of how photos other than photopoint photos can be useful to attach to Field Data Sheets**



**Photo 1:** Soil crust close to Sighter 1 at location XY showing liverworts and mosses



**Photo 2:** Location of photopoint monitoring site at location XZ showing Camera Post (pink flagging tape) on new fence-line. There is a corner strainer approximately 20m behind where this photo was taken.

### 3. Observational Monitoring

Monitoring condition of vegetation, erosion, water logging, post-fire change, regrowth of vegetation or seedling survival, amongst other things can also be done through observational measurement and assessment. This can be recorded alone, or in conjunction with photopoint monitoring.

Examples of the types of information that can be recorded include:

- Number of native plant species present, including species names if practical;
- Recruitment of native plants (seedlings);
- Weeds present, species and abundance;
- Leaf litter and soil crust condition and status;
- Survival rates and health of seedlings, shrubs and trees;
- Percentage of ground cover on erosion prone sites;
- Changes in wildlife present (e.g. after a fire);
- Fire induced changes to vegetation (e.g. new species and abundance).

This may be a more convenient option for land managers, who can carry the *Observational Monitoring Field Sheet* with them, and can then make notes of dates, sites and condition quickly and easily in their daily routines. [Appendix 2](#) provides a form to record this information.

### 4. Data Management

To enable monitoring to be useful and valuable in the longer term, it is imperative that the details of the site are appropriately recorded. Storage of the information is also important, to allow the information to be found and compared in the future. Additionally, in the case of photopoint monitoring, this will allow consistent photographs of the site to be taken, and ensure that information can be easily found and compared in the future.

The *Photopoint Monitoring Field Data Form* is available in [Appendix 1](#) of this guide and the *Observational Field Data Monitoring Form* is available in [Appendix 2](#). Electronic word copies of these forms are also available on the Wheatbelt NRM website at [www.wheatbeltnrm.org.au](http://www.wheatbeltnrm.org.au) for download. Alternatively, contact the Wheatbelt NRM office for a copy to be posted, faxed or emailed to you.

If monitoring is occurring as part of a Wheatbelt NRM program, the completed forms, with accompanying photos (for photopoint monitoring), should be sent to Wheatbelt NRM at:

PO Box 311, Northam WA 6401

Alternatively, you may wish to email the form to the Wheatbelt NRM Program Manager. For further information, contact Wheatbelt NRM on 9690 2250.

A copy should also be retained by the land manager and project officer.

If monitoring for your own interest or purposes, set up a filing system that is convenient to you, to allow all the information to remain together and which is easily accessible in the future.

## 5. References

Australian Government (Caring for our Country): *Box Gum Grassy Woodland Project – Land Manager Monitoring and Reporting Information Kit* (pdf format).

<http://www.nrm.gov.au/stewardship>

BMJ Hussey: *Photographic Monitoring of Vegetation*, Wildlife Notes No. 9 July 2001 (Information Notes for the Land for Wildlife scheme in Western Australia). Department of Environment and Conservation, Perth.

## Appendix 1: Photopoint Monitoring Field Data Form

PROJECT INFORMATION	
<b>Project Name:</b>	
<b>Project Sponsor:</b>	Wheatbelt Natural Resource Management Inc.
<b>Photopoint Coordinator / Recorder:</b> <i>(name of primary person responsible for setting up photopoint and recording data)</i>	
<b>Organisation responsible for establishing photopoint:</b> <i>(e.g. WWF)</i>	

LAND MANAGER INFORMATION			
<b>Name of Property Manager:</b>			
<b>Postal Address:</b>			
<b>Phone No.</b>		<b>Email address:</b>	

PHOTOPOINT REFERENCE DETAILS		
<b>Date of Photograph:</b>		
<b>Coordinates of Photopoint:</b> <i>(i.e. Camera Post, with aluminium tag attached)</i>		
<b>Was site tagged/labelled?</b> <i>Please circle/delete as appropriate</i>	Yes or No	
<b>If 'yes', was the site (picket) tagged using:</b> <i>Please circle/delete as appropriate</i>	Aluminium tag	<i>Other (describe):</i>
<b>Distance between Sighter 1 and Sighter 2:</b>		
<b>Direction of photographs:</b>		

## PHOTOPOINT REFERENCE DETAILS

(Sighters 1 and 2 in relation to Camera Post, e.g. :  
"north-west")

## GENERAL COMMENTS / OTHER INFORMATION

### General site location comment

e.g. "south side of dam", "Camera Post at corner strainer in old fence", etc

### What is the aim of this monitoring photopoint? What particular aspects of the site are to be monitored?

e.g. change of vegetation condition after fencing to exclude livestock

## INSERT / ATTACH PHOTOPOINT PHOTOGRAPH HERE

**Attach other photos of or around monitoring site on extra pages**

## Appendix 2: Observational Field Data Monitoring Form

**Site Location:**

*e.g. paddock name, GPS location, street address*

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Date	Name of Recorder	Observation / Comments