

Photopoint monitoring

FACT SHEET

Why photopoint monitoring?

Monitoring is the process of observing and keeping records of change in something over time. Photopoint monitoring is a simple, yet effective method used to record physical changes at a given location over time. It involves the repeat photography of a fixed area of interest from a fixed 'photopoint' at time intervals.

Photopoint monitoring can be used to track short term changes, such as when demonstrating work undertaken or the impacts of an extreme event. It is also used to track long term changes resulting from management actions or changes in the environmental conditions.

By evaluating photopoint monitoring records, we get a better understanding of how effective management actions have been, or whether factors such as changes in climate are impacting environment condition.

Why should you follow a guideline?

Consistency is critical to ensure differences and similarities between photographs can be easily determined. Even slight changes in camera location, height or direction can make changes hard to see, and this can make your photos less useful. Changes to the way photos are taken can happen when there is a change in the person doing the monitoring, when the equipment changes (e.g. change of camera), or when there aren't clear instructions for the photographer to follow. For this reason, we have this guideline on how to set up, use and document photopoints. Please follow this to get the best outcome for your project.

There is no substitute for reliable monitoring to help determine the success or failure of management action

What do you need?

- Two marker posts per photopoint site, at least 1.6 m high. The posts need to last for the life of the monitoring, so star droppers are ideal. Rebar or wooden survey stakes can also be used.
- Paint the top of marker posts to improve visibility (optional).
- Hammer or post driver for driving in marker posts.
- Tape measure (minimum 10 m) or 10 m long rope.
- Labelling tag (preferably aluminium) and soft tie-wire (preferably aluminium) to attach tag (or other means of identifying the photopoint).
- Camera.
- Photopoint field data sheet (with clipboard).
- Pen / pencil.
- Map or aerial photo of the site / location (especially if replicating).
- Copy of prior photo and field data (if replicating).
- Marker board (this can be an A4 size white board that site information can be written on, a pre-prepared A4 page or similar).
- GPS (GPS on a mobile phone will work though is less accurate).
- Compass (optional).

2009



2019



Examples of photopoint data showing changes over 10 years natural regeneration (top) and growth of native pines (bottom)

Approvals

Approvals to install a permanent photopoint with marker posts may be required when the site is located on crown land, council land, private land and/or native title land. Consult your local Landscape Board officer for more information on what approvals may be required.

If approvals cannot be obtained, the photopoint can still be established, but without installing marker posts (see note in instructions point 2).

Choosing your photopoint location

Choose your photopoint location so that:

Essential

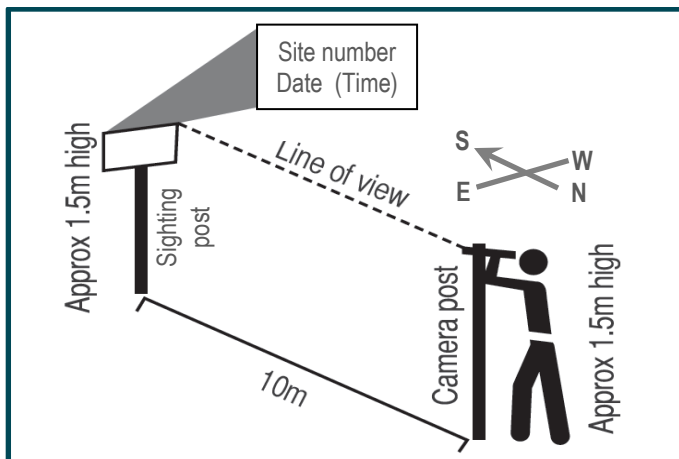
- The photo area clearly captures the feature or work you want to monitor e.g. typical vegetation, the area where weed control has been implemented, sited along a boundary or a new fence.
- The view through the camera to the central focus point is uncluttered. Anticipate things like plant growth which may obscure views in future.
- Avoid locations where other factors may influence change or trends (e.g. on a track), or where the site is likely to be disturbed.
- It is easily accessible.

Where possible

- The location is easily recognizable. Use identifiable landscape features that won't change much over time (e.g. place site 10 to 50 m off a track, corner paddock post, large tree, rocks, hills in background) to help make the photopoint easily found again.
- The site is as uniform as possible with respect to vegetation, soil, slope, works etc. (except where trying to show contrast between works and non-works areas).
- Steep slopes are avoided.
- The photopoint is located north to south, and the photo is taken **facing south** with the sun behind you and the sunlight shining on the landscape facing you. Although not essential, this helps reduce shadow, prevent glare and avoid direct sun light in the shot.

Step-by-step instructions

1. **Install camera post:** Once the location has been determined, install the **camera post** or photopoint. This should be a durable post or stake that is hammered into the ground so that it stands around 1.4 to 1.6 m high (the height doesn't need to be precise).
2. **Install sighter post:** Install the sighter post in a direct line from the camera post, about 10 m into the site. This sighter peg should be positioned so that the photograph does not include more than one-third sky or have any large objects that block the camera's view.
Note: it may not always be possible to install marker posts e.g. in primary production areas or where approvals have not been obtained to install a permanent photopoint. When permanent markers can't be installed, record the GPS location and height of the camera instead of installing a camera post. Use an obvious landmark in the photo as the sighter post.
3. **Tagging:** Attach a durable labelling tag (e.g. aluminium or hard plastic) to the camera post. The site identification number and the installation date should be on the tag. The tops of the posts can be painted to make them more visible (optional).



Photopoint layout - where possible orient the photopoint north to south and take the photo facing south (Source: DENR n.d.)

4. **Location:** Record the GPS location of the camera post. Record the compass or general bearing (e.g. NE) of the sighter post from the camera post. Record the height of the sighter post in case the sighter post gets removed or stolen and needs to be replaced.
5. **Marker board:** Prepare the marker board (if not pre-prepared) and place it in the photo area. The site number and date should be written on the marker board. Writing must be large enough to be readable in the photo.
Place the marker board in the photo area. It can be held at the top of the sighter post, placed upright at the base of the sighter post, or in the foreground of the photo.
6. **Take the photo:** Take the photo by sitting the camera on the top of camera post (ensures the photos are taken at the same height in the future). Remember, if you cannot fix a camera post in place, record the height of the camera when taking photos. Take the photograph from the camera post, focussing on the sighter post with the top of the sighter post in the centre view. Take at least two photos to ensure one is good.



Photopoint photo setup

7. **Record the data:** Fill in the data sheet (see *Photopoint Field Data Sheet*) about the site, photograph and identification information.
8. **Store and submit the data:** Store a digital copy of the photographs. When downloading photographs, clearly label

each one with the site identification number and date. Record the file name of the digital copy of the photo on the datasheet.

Tips and Hints

- When taking subsequent monitoring photos, it's a good idea to take a copy of the previous photos with you to ensure that the new photo will be framed the same way.
- Do not zoom in or use a wide angle lens.
- Try to take the photo at the same time of day.
- Photos taken between 9am and 3pm will help reduce shadowing and different colour cast which may conceal some features.
- Taking photos on a cloudy but bright day can help avoid strong shadows.
- Photos repeated annually should be taken at the same time in the season.
- Always take the photo in landscape orientation.
- In addition to the fixed photopoint shots, consider taking multiple photos to create a panorama, to help with interpretation of context and subject in the future.
- If monitoring the impact of different landuse from one side of the fence line to the other, a shot looking down the fence line can be useful. Fence posts themselves can become the photopoint posts, marking the fence posts for future reference.
- If you need two photopoints you may be able to set them out so that the sighter post of one photopoint is the camera post for another adjacent photopoint. This saves on the number of posts that need to be installed.
- Some cameras have the capability of recording the date on the photograph. For monitoring photographs, this can be useful, as long as it does not detract from an important feature of the photo.

How often should the site be monitored

Photopoints are used to show changes over time, so the time between photos will depend on what is being monitored.

Recommended intervals are:

- **Short:** 'before' and 'after' photos used to record site-works such as weed removal, planting or fencing; or at the start and completion of a project; or to record events such as large floods.
- **Medium:** 6 or 12 months, when a site is changing rapidly and a lot of visible work is being carried out e.g. when there has been a lot of planting followed by good rains.
- **Long:** used when subtle changes are happening. For monitoring changes in vegetation where no management actions are being taken, 5 or 10 years is recommended.

Supporting information

At the time of taking the photo, it is important to collect supporting data to help with the interpretation of the image and improve the value of the monitoring effort. The more complete the supporting information, the more we will be able to assess the environmental change and, if relevant, the impacts of management actions. See the '*Photopoint Field Data Sheet*' template for essential information fields.

References:

- DENR, n.d., *Photopoint Monitoring*, factsheet.
- Department of Sustainability and Environment, 2009, [Bush Tender – Photopoint Monitoring, Information Sheet No. 17](#), State of Victoria Department of Sustainability and Environment.
- National Parks and Wildlife Service NSW, 2003, [Photographic Monitoring of Vegetation](#), Conservation Management Note 9 - 2003.
- New Mexico Natural Resources Conservation Service, n.d., [Quick Guide to Photo Point Monitoring](#), United States Department of Agriculture.
- Nicholls, F, 2002, [Photographic Monitoring of Vegetation](#), Land for Wildlife Note No. 43, adapted from Wildlife Notes No. 9, 2001, Land for Wildlife, CALM, W.A., Department for Natural Resources and Environment (Victoria).
- NRM South, 2014, [Photopoint Monitoring – Fact Sheet](#).
- O'Connor, P, Bond, A & Jones, E, 2005, *Photo Monitoring Guidelines*, produced for the Goolwa to Wellington Local Action Planning Committee Inc., University of Adelaide, Adelaide.
- SA Urban Forests – Million Trees Program, n.d., [The Whys and Hows of Photopoint Monitoring: Grow a Great School Factsheet](#), Adelaide and Mount Lofty Ranges Natural Resources Management Board.
- South Australia Arid Lands Natural Resources Management Board, n.d., *Monitoring Photopoints*, factsheet.

Further information

For further information on monitoring and the establishment of photopoints please contact:
Landscapes Hills and Fleurieu on 8391 7500

Thank you to the Eyre Peninsula Landscape Board who produced this factsheet and allowed it to be rebranded for the Hills and Fleurieu region.

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