

LEVEL	Basic
PEOPLE	2
BUDGET	\$
WHEN	Summer
REPEAT	Every 1-5 years

MODULE 2

PHOTOPOINTS

IN A NUTSHELL

- Visual record of changes in a wetland –
- Photos of points of interest taken at regular intervals, e.g. 1, 2 or 5 yearly
- Always same location, same time of year, same camera angle
- INDICATORS MEASURED: Plant composition and growth, visual features e.g. water levels



WETmak

WETLANDS MONITORING
AND ASSESSMENT KIT

Photopoints are the simplest, quickest and cheapest monitoring you can do. Photopoints are just a series of before, during and after shots that document visual changes over time. They are extremely useful for demonstrating project progress to other group members, funders, agencies and for media releases.

Skills needed

- Field navigation
- Camera use/set up
- GPS use

TOP TIP:

Set up new photopoints after major events like slips or floods to document recovery.

Equipment checklist

- Standard safety gear
- PHOTOPPOINT INFO BOARD (print and laminate)
- Fine tip whiteboard pen
- Cloth to wipe off Info board
- PHOTO RECORD DATASHEET
- Pencils
- Clipboard
- Digital camera
- Charged camera batteries
- Spare camera batteries
- Memory card and spare card
- Tripod (optional)
- Printout of original photo, mini plan, and completed datasheet (on re-visits)
- Compass
- GPS unit, batteries and instructions from manufacturer
- Spare GPS batteries
- Permanent site marking gear (when first setting up) – see ‘1.3 Complete a monitoring plan’ for suggestions



1. Plan your approach

1.1 Plan where to set up photopoints

Get together at the wetland with others who know the site. Decide what features/areas would be useful to have photos of. Ideally, take photos before you start the restoration so you can clearly show the changes that have resulted from your work. If you have already been working on site for a number of years, don't panic. See if anyone has old photos and try to work out where they were taken from. If useful set up your photopoint at the same place.

- Consider where you are expecting visual changes to occur e.g. areas which will be fenced off areas from stock, have weeds removed, natives planted or drains blocked.
- Set up a number of photopoints around and within the site to document points of interest e.g. plantings, water clarity, bank stability, weeded areas, as well as to capture the general 'picture'.
- Possibly take photos of areas which you aren't restoring ('control sites') to see how they fare over time.
- Once you have set up photopoint locations don't change them as you want a long-term record.

1.2 Plan the repeat visit

How often you re-take the photo depends on the site and what is happening there. If you just want to record what is happening in the absence of any specific restoration work (the 'control site'), every 5 years is probably fine. However, you may want to take photos more frequently e.g. to show how your weed work is progressing.

Photopoints should be taken at the same time of year to avoid seasonal variation. Summer may be easier for access (lower water levels), and will also show deciduous plants e.g. willow, raupo in full foliage. It will also help distinguish willows sprayed with herbicide from healthy ones in full leaf.

1.3 Complete a monitoring plan

If this is the first time you are setting up photopoints complete the WETLAND MONITORING MINI PLAN. You may wish to finalise the number and location of photopoints at the wetland on the day that you set them up. Decide in advance though, how you will permanently mark the photopoints so you can take the right equipment. Flagging tape and spray paint break down quickly. Consider cattle tags or strips of metal venetian blind nailed to trees or fence posts, metal tags attached to concrete paths, sturdy posts pushed/hammered firmly into the ground. Don't forget hammer, nails and permanent markers. Add these to your equipment list.

1.4 Check your equipment

Have all the equipment on the list? Camera working ok? Batteries charged up? Plenty of space on the memory stick? Have a field buddy and permission from any landowners for access? Laminated a copy of the PHOTOPPOINT INFO BOARD? Permanent marking gear to put in a new photopoint?

WETLAND MONITORING AND ASSESSMENT KIT

FOR THIS PLAN TO BE COMPLETED IT IS NECESSARY FOR EACH WETmak MODULE. MODULE INSTRUCTIONS WILL HELP YOU TO FILL IN THE MINI PLAN. (Other 'text applicable' in fields that are not relevant to your particular module. You may need to visit the site to complete some fields, e.g. where you will establish photopoints.)

Monitoring Mini Plan

WETmak
MODULE: _____

DATE: _____

PLAN PREPARED BY: _____

WETLAND NAME: _____

SIZE (HA): _____

SIZE OF AREA COVERED BY MINI PLAN (HA): _____

LOCATION: _____

OUR RESTORATION OBJECTIVE: _____

OUR MONITORING OBJECTIVE: _____

WHAT WE WILL MEASURE: _____

HOW OFTEN: _____

WHAT TIME OF YEAR: _____

START DATE: _____

FINISH DATE: _____



2. Collect data in the field

Tell a 'minder' where you are going, who with, and when you expect to be finished. Call or visit them when you finish so they know you are safe. Mark your wetland entry point or vehicle on your GPS unit in case you lose your bearings.

In the field you will set up photopoint stations and take photos that will be repeated every 1-5 years to create a visual record of change.



Lake Serpentine site #1 November 2006



Lake Serpentine site #1 May 2007



Lake Serpentine site #1 March 2008

2.1 Select photopoint sites

Give each photopoint location a unique name/number, e.g. 1_WILLOW, 2_PLANTINGS, 3_OVERLOOK

A close-up shot of solid raupo foliage isn't going to impress anyone. Look for a relatively close, safe highpoint, like a footbridge, adjacent wall or bank, and take your photos from there.

Ideally you should locate photopoints:

- To the north of the subject to minimise shadows and sun glare
- Fairly close to the subject to get good detail, minimise the need for zooming in, and avoid vegetation growth or construction in the foreground blocking the scene
- Somewhere that is easy to find and access e.g. along a path
- From a high point, so vegetation growth won't block the scene

PHOTO NUMBER(S)	GPS COORDS (NORTH) or UTM	COMPASS BEARING (°)	TIME	NOTES (e.g. description of where photo was taken, Photopoint # etc)



2.2 Mark the location

Permanently mark the place where you (or the next volunteer) will take the shot. Make sure it's easy to find. Mark a solid object such as a distinctive tree or fencepost, or distinctive part of a path.



2.3 Record the location

Carefully describe the location so it can be easily found in the future, by you or the next volunteer – add this information to the MINI PLAN.

Also record the GPS coordinates, but note that the average GPS unit won't be accurate enough to rely on a co-ordinate alone. Set your GPS coordinate system to NZTM (use the instruction guide for your particular GPS unit).

2.4 Set up the camera

Set the camera to take the image at high resolution (fine detail, large file) to capture as much detail as possible. You can always reduce a file size but you can't increase it later.

If possible, set your camera to print the date and time on the image. If your camera has GPS turn that function on also.

2.5 Frame up the shot

Look for solid, recognisable objects that you can use as reference points to help 'frame up' the shot – e.g. a power pole, chimney, distant hill or tree unlikely to be felled. These features can form the left or right hand side of the photo. Another option is to centre the photo on a permanent structure such as a pathway, bridge or stream channel.

If this is a repeat visit, use a copy of the original photo to capture the correct scene, compare the image in your view finder with the printed photo.



2.6 Complete the PHOTOPOINT INFO BOARD

Use a fine-tipped whiteboard pen to complete the PHOTOPOINT INFO BOARD for each photopoint. See what photo number your camera is up to, and write the next number in the line labelled First Photo Number – that will help you link your photo files to the correct info board photo.

2.7 Wait for the right light

Try to avoid taking a shot in bright sunlight if the scene has a lot of shadows. Wait for passing cloud to even out the dark and bright spots. The image will be sharper and clearer at a well lit time of day.

2.8 Shoot the scene

Take a photo of the scene with the info board held in front. Check the photo, zoom in and pan to ensure you can read all of the information on the info board. Delete and repeat if not clear. If you can't avoid glare, take a photo of the info board in the shade instead.

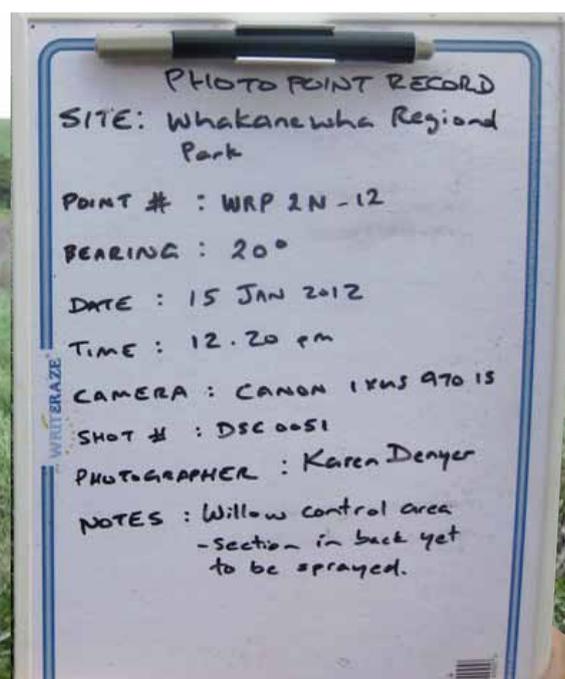
Take several shots without the info board. Check them to ensure they are sharp and clear.

When you are sure you have clear images, wipe the info board clean for the next photopoint.

2.9 Complete the PHOTO RECORD DATASHEET

Fill in the PHOTO RECORD DATASHEET for each photopoint. You can skip this if you are sure your photo info board shot can be clearly read, but its handy to have a paper back up and a single sheet with data for all of your photopoints. Before leaving the field, take a clear photo of completed datasheet as a handy backup.

Let your minder know you are back safe and sound.



3. Back at base

3.1 Store The Data

- Download photos at the first opportunity and save onto a hard drive (internal or external). Store the photos in folders labelled with the site name, module and year. If you have used the camera's pre-set photo number on your datasheet, don't rename the image file. Right click on an image file and select 'Properties' if you want to confirm the time and date a shot was taken.
- If you have a web-site, store the images there too, along with the relevant information. Or use an image hosting site such as Flickr. You can also load them onto Google Earth, positioning the image at its actual location especially if your camera has inbuilt GPS.
- Back-ups can be stored on DVD, also useful to send to others, but don't rely on them for permanent storage (don't believe the 100 year claims!). Keep back-ups in a different location to the originals.
- Print out of the best copy of each photopoint site, along with its preceding shot of the INFO BOARD and clip them together in a folder divided into relevant years. Ideally the folder will also contain this module's mini plan, reports, printed maps, directions to the photopoints and other relevant monitoring data, along with CDs/ DVDs and notes on where the hard drive copies are stored.

3.2 Interpret the data

Simply look at images captured over subsequent years and describe any changes you can see – e.g. changes in plant height, density, health or mix of species, maybe weeds have crept in, or raupo has been shaded out.

3.3 Report The Data

Fill out the WETLAND MONITORING REPORT template, inserting some of your key photopoint images in time series, commenting on any important changes (or lack of changes), along with any notes on why.

Useful websites/reading

Photopoints: www.openspace.org.nz/Site/Managing_your_covenant/Photopoints/default.aspx

Loading photos on to Google Maps:
www.youtube.com/watch?v=a2SB84D1YWM

Online photo management and sharing:
www.flickr.com

Converting GPS waypoints to NZTM
www.linz.govt.nz/geodetic/conversion-coordinates/online-conversion-service/index.aspx



Laminate this card, fill in for each photopoint, take a clear photo of it, check, wipe, re-use.

PHOTOPOINT – INFO BOARD

SITE NAME:

DATE¹:

PHOTOGRAPHER:

CAMERA MAKE/MODEL:

PHOTOPOINT STATION NUMBER:

GPS CO-ORDINATES (NZTM): E _____

N _____

BEARING (DEGREES):

TIME:

FIRST IMAGE NUMBER²:

NOTES (incl. description of where photo was taken):

¹ Write the date with month in letters, e.g. 1 JAN 2012 to avoid confusion between US and NZ date format

² **First image number** is the number of the first photo you will take of the info board at this location – i.e. the next photo that will be taken on your camera.

Completed example: (blank word version also available from NZ Landcare Trust website)

Photo Record Datasheet

SITE NAME: *Waïora Lagoon*

LOCATION: *Off Waïora Lagoon Rd, 10 km south of Onetaha.
E1783653 N5989582*

RECORDER: *Sandi Beech*

DATE: *07 March 2012*

CAMERA TYPE: *Canon Ixus 970 IS*

GPS TYPE: *Garmin 60CSx*

PHOTO NUMBER(S)	GPS co-ords (NZTM) or waypt	COMPASS BEARING (°)	TIME	NOTES (incl. description of where photo was taken, Photopoint # etc)
<i>DC 001-021</i>	<i>E 1783690 N 5989584</i>	<i>130°</i>	<i>11.32 - 11.45 am</i>	<i>Overview of willow in western tributary</i>
<i>DC 022-27</i>	<i>E 1783757 N 5989555</i>	<i>45°</i>	<i>1.40 - 1.50 am</i>	<i>Shot of restoration plantings from path where stream flows under wooden bridge - line up with power pole in background</i>
<i>DC 029-032</i>	<i>E 1783766 N 5989582</i>	<i>90°</i>	<i>11.32 - 11.45 am</i>	<i>Overview of whole wetland from high level footbridge at eastern end - line up with chimney of house with red tile roof</i>
	<i>E N</i>			
	<i>E N</i>			

For PHOTO NUMBER, write the unique number that the camera will use to name the image file. Don't use whatever shot number the camera is up to (e.g. shot number 23 out of 25 shots), because if you delete any images those numbers change. The photo number will probably be a 4 digit number – use the display options on your camera to find out which image number you are about to take and record that on this datasheet. Note: photos from same waypoint can be clustered per line e.g.

PHOTO NUMBER(S)	GPS co-ords (NZTM) or waypt	COMPASS BEARING (°)	TIME	NOTES (incl. description of where photo was taken, Photopoint # etc)
<i>DC 001-021</i>	<i>E 1783653 N 5989582</i>	<i>130°</i>	<i>11.32 – 11.45 am</i>	<i>Overview of willow in western tributary, shot taken from metal path at junction with boardwalk loop track.</i>

