# Repeat photography: How to find and take a well-matched repeat photo

**ESSENTIAL EQUIPMENT:**

1. Historical photo printed on an A4 sheet (full extent of page)
2. Digital camera or smart phone
3. Field Datasheet
4. Instructions on how to find and take a well-matched photo (i.e. this document)

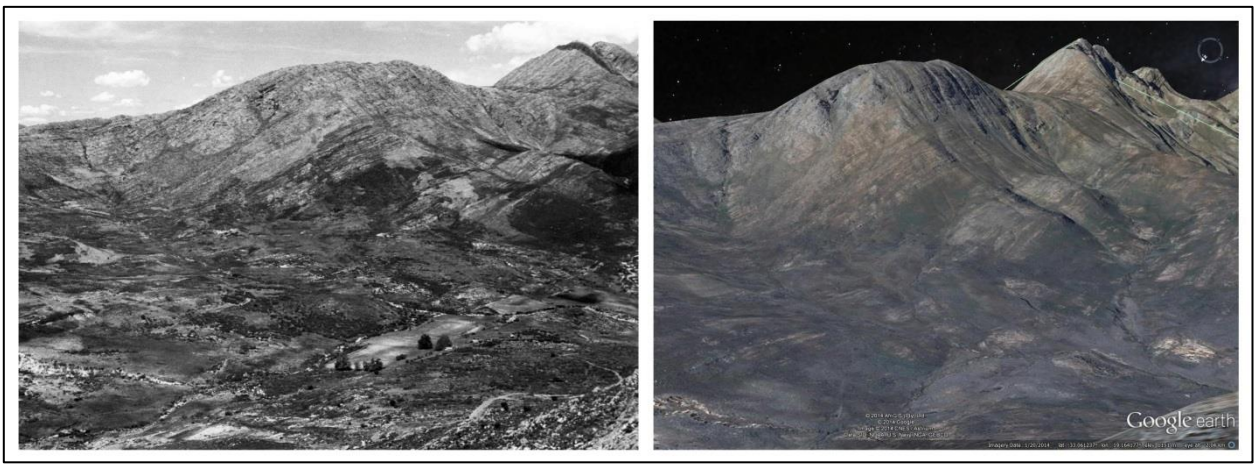
**ADDITIONAL EQUIPMENT THAT WILL GREATLY IMPROVE THE QUALITY OF YOUR REPEAT:**

5. Digital Single Lens Reflex (DSLR) camera
6. Sturdy tripod extendable to approx. 2m with pan-tilt head and spirit level
7. GPS device
8. Measuring tape (5m)

## 1 FINDING THE LOCATION OF THE HISTORICAL PHOTO

**Broad-scale search**

Relocating the position from where an historical photo was taken can be easy if one has GPS coordinates or a detailed description for finding the site. However, this is often not the case and some detective work is usually required. Historical photos in the rePhotoSA database have all been assigned to a Quarter Degree Square (QDS) - an area of approximately 25 x 25 km - which is a useful starting point from which to begin your photographic treasure hunt! Topographical features, man-made structures, watercourses, vegetation, etc., can all be useful clues to finding the likely photo-location. Here some prior knowledge of the landscape can be very valuable, but often the photo-location is found serendipitously by exploring the area in question and matching features in the photo with features on the ground. The use of GoogleEarth can be extremely helpful in this regard (see below) but sometimes physical exploration of the area reaps the best rewards. Luckily most historical photos are located beside (or in the vicinity of) historical and current transport routes as these provided convenient access to early photographers with bulky photographic equipment.

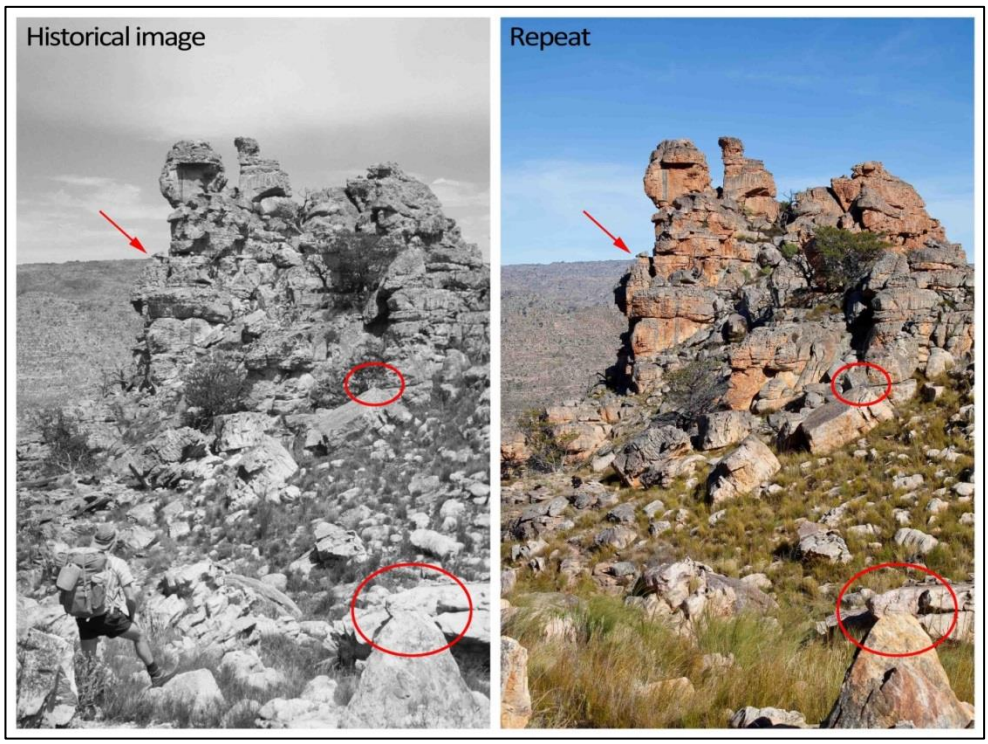



***'Matched' historical and Google Earth images. This technique allows one to search 'virtually' for the photo-location and thereby generate rough GPS co-ordinates.***

**Fine-scale positioning**

Once you've found the general area you need to hone in on exactly where the original photographer's camera was positioned in space. Patience and careful attention to detail at this stage separates a mediocre repeat from an excellent one, so take your time. While constantly referring back to the historical image, move around so that the relative position, size and angle between features in the photo matches with what you see in reality. Rely on well-defined fixed features such as large rocks, buildings, fences and telephone poles, large old trees, jagged mountain silhouettes, etc. Try to avoid using features that might've changed their position in the intervening period.

*[Tip: Especially useful are clearly defined objects that overlap each other from the photographer's viewpoint and are separated from each other by some distance (e.g. two rocks at different depths in the photo). One can easily identify these objects as the ones that move the most relative to each other when slowly moving your head from side to side].*




***Paired arrows and ellipses indicate nearer features that overlap with features further away. The relative position of one feature to the other is a useful guide in finding the precise position of the original photographer.***

## 2 TAKING THE REPEAT

Once you're satisfied that you've relocated the exact position in space from where the historical photo was taken, steady yourself, zoom in to the approximate extent of the historical image (then zoom back out a little to be safe) and repeat the photo. If you're feeling more adventurous and have the requisite equipment, follow the steps in the box below for better results.

## 3 COMPLETING THE CITIZEN SCIENTIST REPEAT PHOTO DATASHEET

Be sure to fill out the empty fields below the Original Photograph metadata on the Field Datasheet. GPS co-ordinates would be very useful for anyone wanting to find the location of the historical and repeat photo in the future. As geographic co-ordinates recorded by GPS devices contain some error, a small rock cairn marking the exact spot at which the photo was taken can also be very useful. Also important is to record the height at which the repeat photograph was taken. Record this measurement as the distance from the ground to the middle of the camera lens (an approximate distance will suffice if no measuring tape is available).

**With a tripod and/or a Digital Single Lens Reflex (DSLR) camera you can achieve a far more precise repeat…**

*Optimal camera settings:*

***Photo Quality: RAW** – this format retains all the light information recorded by the camera-sensor and allows for greater latitude in post-photo corrections or adjustments.*

***ISO: 100** – the greatest amount of detail and the least amount of 'graininess' or 'noise'.*

***Aperture Priority (Av): f8** – the greatest clarity on modern lenses is found at mid-range apertures, hence the choice of f8. The use of a tripod allows for slower shutter speeds in low light.*

Set your tripod up over the spot you've chosen and mount your camera on top. Some readjustment is usually required to position the tripod and lens of the camera in exactly the right position. Recheck you position against the historical photo. A useful trick to double-check if you're in the correct place is to fold the historical photo length-ways, and then width-ways. This creates a 'cross' in the exact middle of the page. Orientate your camera so that the centre of the camera field of view corresponds to the centre of the 'cross' on the page. Zoom to the approximate extent of the historical image. Now check if the edges of the historical photo correspond to the edges of your camera field of view. If one or more edges is dramatically different (either cut-off or extended), readjust your position. When the relative position, size and angle between features in the original and repeat match, *and* the edges of the field of view line up nicely, go ahead and snap the repeat!

While you're at it, zoom out to the full extent of your lens and take a wide-angle shot. Then pan 30° left and right, and take a wide-angle shot to either side of the repeat (15° if the photo is portrait format). These additional images provide useful context for interpreting the historical image and valuable additional information for the future.

Lastly, carefully de-mount the camera from the tripod head, take a few paces backwards and take a photo of the tripod location. This is important to document the position of the tripod for future photographers. This last image needn't be shot in RAW; a small JPEG would be fine.