

# Remote identification of otters with conventional camera traps, SLR camera traps and the use of CCTV.

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## Background

Given their elusive nature and often nocturnal activity, the live observation of otters can be difficult (especially for extended periods). Camera traps and CCTV are useful tools but not without their problems and limitations. Using conventional and SLR camera traps as well as CCTV, we have observed and recorded the otters on an upland stream for over 15 years. Observation of the CCTV monitors (and the use of a linked alarm system) has enabled us to react, in real time, to the presence of an otter. As a result we have achieved many hours of direct observation and live filming over an extended period in what is, possibly, a unique insight into the ecology of an otter population on a small upland stream. One particular female (Hammer Scar), present for nearly five years, was very closely studied through most of her home range. In this time she gave birth to five litters, successfully rearing four cubs in all. The study site is the River Dart, a tributary of the River Exe in the south-west of the U.K. .

## Camera traps

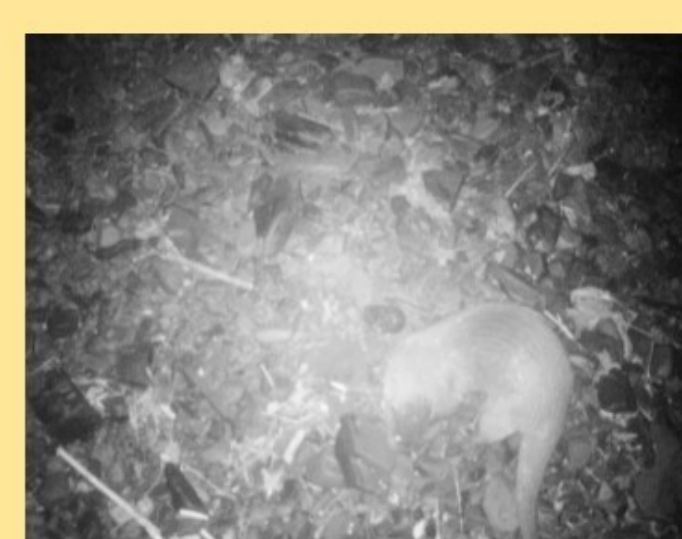
Camera trapping has become a very useful technique to gather information on elusive animals such as otters. Much can be learned about otter behaviour using the technique. Images can be obtained with either a conventional "all in one" camera trap or the use of an SLR camera combined with a flash gun and linked to an external trigger (e.g. an infra-red sensor).

Conventional camera traps are relatively easy to deploy and will record either still images or video. High end versions are available that can record excellent quality stills and video making it easier to see features for identification purposes. SLR camera traps are more expensive and more difficult to deploy but produce images of greater quality more suited to the identification of individuals.



Conventional camera trap

SLR camera trap & flash



Standard camera trap



"High end" camera trap



SLR camera trap and flash



Camera trap & white flash

The older conventional camera traps use white flash and record colour images at night. Whilst the night time images are of reasonable quality, the cameras are no longer widely available, are slow to trigger and have a very poor battery life. A few of the more recently developed camera traps use white LED flash to capture colour images.

Image from camera trap with white flash



## CCTV

CCTV systems are an alternative technique for remotely monitoring otter activity. The authors use two CCTV systems, installed in their private homes (2.5km apart). Two CCTV cameras are installed at one site, one at the other. Images are "beamed" back to their homes and 24-7 recordings are made on a DVR. Live feeds from the river have enabled one of the authors (Stephen Powles) to spend many hours observing, photographing and filming the resident otters. As a result, one female (named Hammer Scar) soon became habituated to him. For nearly five years her life was studied in great detail until, in January 2018, she and one of her twin 8wk cubs were killed on the road.



CCTV camera  
DSC\_4987\_Pbb LB  
15-16th Apr 2013 02:59hrs

Hammer Scar (named after the hammer-shaped scar on her nose when she was first identified)

and one of her twin 8wk cubs were killed on the road.



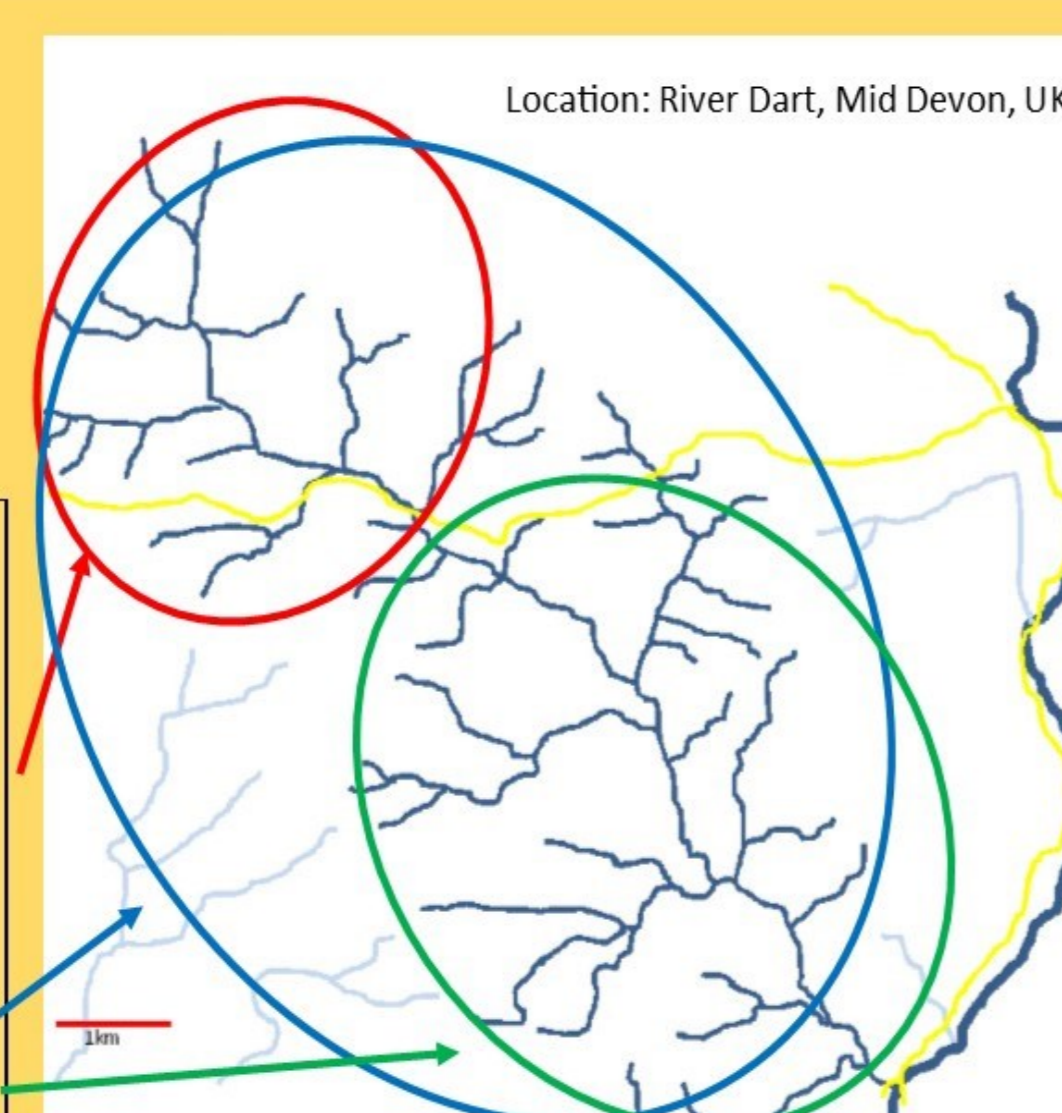
DVR

## Collating camera trap and CCTV data

Information that we have obtained from our data has included:

- Which individuals are resident and some indication of transient individuals.
- Size of home ranges and speed of travel through the home ranges.
- Use of the home range.
- Changes in the size of an individual's home ranges through time.
- Timing of the birth of cubs and cub.

As an example, the likely home ranges in April 2018 were:  
16 month old George (male) and Kate (female) who were twins born to Hammer Scar. This was also the home range of Hammer Scar at the time of her death and the main study site  
William, the one eyed dog otter  
Another female with twin cubs (about 6m old)



Location: River Dart, Mid Devon, UK

## Identifying Individual Otters

Conventional camera trap images may be used to identify specific individuals but, unfortunately, given the quality of the images this is not usually possible. However, images can give a useful indication as to the likely ID or narrow down the possibilities. SLR camera trap images, given the extra detail, are more useful but significantly more challenging to obtain. Using the time and likely direction of travel, the ID of an otter caught on a camera can be further deduced (or suspected) from other images captured elsewhere on the river system.

### Criteria helpful in identifying individuals:

**Size** - size differences can be marked.

- larger individuals are likely to be a dog otter.
- average sized otters are likely to be an adult female or a younger dog .
- smaller individuals are likely to be a sub adult
- some are clearly cubs.

Left: Hammer Scar (female) and Right: Right Spot (male) - two superimposed SLR photographs at the same scale



Average size



Larger size, likely dog (also has dog-shaped head)



10 month cubs



3 month cubs

**By association** - an individual's likely identity may be inferred from the other otter(s) they are imaged with (especially if there is knowledge of the identity of the resident otters at the time).

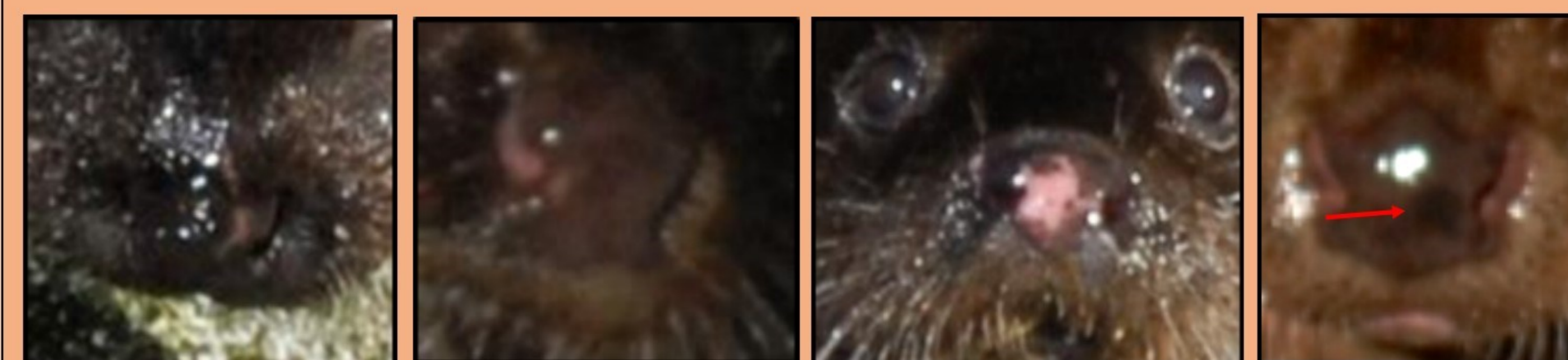


Female and cubs

In this image one otter is George (identified by the spot at the base of his tail). Knowing that he is a twin to a female (Kate), the other otter on the right of the image is likely to be Kate as it appears to be a similar size, the dam is known to have died recently and the resident dog would appear much larger.



**Nose** - distinctive marks are often present:



..... but may well change significantly with time, as shown here (Hammer Scar):



April 2013

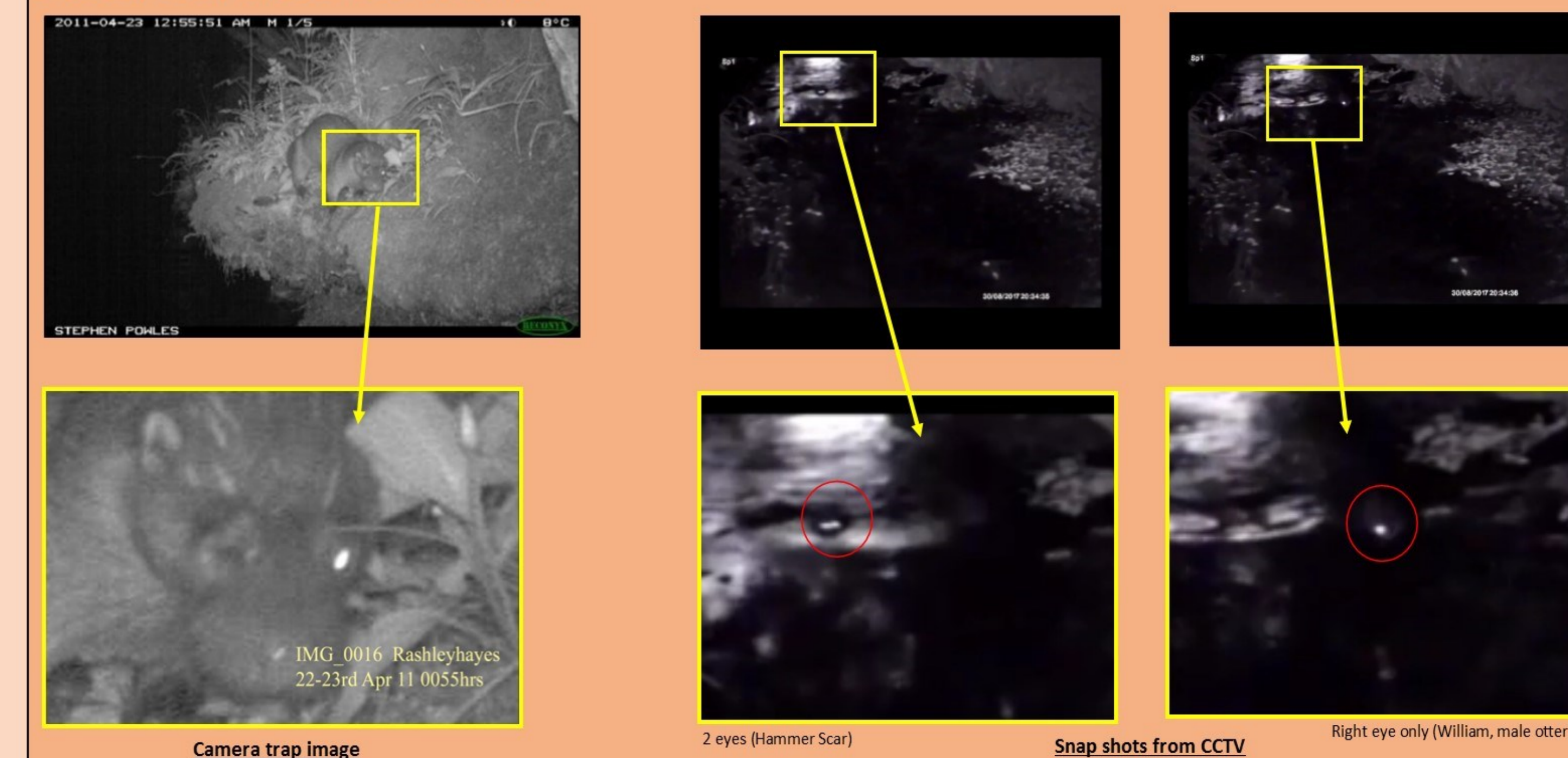
May 2013

May 2014

June 2017

## Identifying Individual Otters (cont')

**Eyes** - Damage to or the loss of one eye will show up as the loss of reflection on that side of the head when viewed by either a camera trap or on CCTV. When present this is a very useful ID feature as it shows up readily on both camera trap and CCTV images (including those of poor quality). It identifies the individual immediately (assuming only one such otter is present at the time):



Camera trap image

2 eyes (Hammer Scar)

Snap shots from CCTV

Right eye only (William, male otter)

**Ears** - may have an irregular border. This may be evident on SLR images and the occasional camera trap image:



**Spots** - when present, spots are a very useful means of identification:



William (dog otter)

George (male) @ 6 month old

George at 16 month old

**Injuries** - these can be very useful (especially when permanent):



5th June 2016 (Right Spot, dog)

25th June 2016

28th July 16

Hammer Scar—loss of web and damage to digit

Mark on right hind

Marks both on the front and underside of pads

**Sex**



With a low camera angle a scrotum is sometimes seen

Head and body shape can suggest a dog otter