



SARG Smooth Snake ID Photo Guide



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The SARG Smooth Snake ID Photo Guide

1. Introduction

- 1.1. The Smooth snake (*Coronella austriaca*) is the UK's rarest native reptile species. Surrey is one of only three English counties that hosts natural populations of this snake, which have been augmented over time through a reintroduction programme.
- 1.2. Although much of SARG's survey work deals with determining the presence or probable absence of Smooth snakes, supporting reintroductions, we also monitor current Smooth snake populations.
- 1.3. To determine the Smooth snake's conservation status, we need to estimate the population size. This can be done by crude methods, such as calculating the product of a nominal carrying capacity and the inhabited area, however; the best method is to conduct a *mark recapture* programme that monitors the number of individual specimens observed.
- 1.4. Rather than use traditional methods such as scale clipping, SARG has adopted a non-invasive *photographic mark recapture* protocol, recording the unique patternation of each snake observed.
- 1.5. Although the driver for this work is to assist with population estimation, such a *mark recapture* programme also yields useful ecological data such as the age attained by individuals and the range of individual animals.

2. Individual characteristics

- 2.1. Typically, Smooth snakes' markings along the dorsum (back) comprise a heart-shaped dark patch on the head, referred to as the 'crown', and two parallel rows of dots running the entire length of the body.
- 2.2. These dots along the dorsum vary in shape, size and position with relation to each other. Sometimes two or more dots are fused along the length of the body forming stripes, and sometimes are fused across the body forming bars.
- 2.3. This combination of dots and crown is unique to each individual animal, in a similar way that finger prints are for humans. Closely related snakes may demonstrate similarities in patternation, but no two animals have the same markings.
- 2.4. It is not necessary to compare all dots along the dorsum, and the head and first five pairs of dots are sufficient for a unique identification.



Striped form with dots fused along the body.



Barred form with dots fused across the body

3. Taking an ID photo

3.1. blah blah blah blah...

4. Formatting the Photo

4.1. Photos taken in the field will vary in format and quality. It is essential for the comparison of images that the photos are processed to be as similar as possible in terms of rotation, scale and fullness of frame.

4.2. Digital images may be processed using a variety of image-editing software. Most applications have similar tools so the particular package you use is not important. The following examples use *Adobe Photoshop Elements* to manipulate the image to the right. The required operations are: **Rotation, Cropping, Resizing, Contrast Adjustment** and **Saving**.



4.3. **Rotation** – The image should be rotated such that the snake's head is pointing towards the top of the image. When the snake's body is straight, this is relatively easy using the custom or free rotation tool. Where the snake's body is curved, it may be necessary to rotate the image such that the head does not point to the top of the image, as the goal is to have even margins either side of the snake which includes the head and first five pairs of dots.



Cropping the image before rotation would help, but we must do the rotation first, otherwise we risk having blank portions of the final image.

- 4.4. **Crop** – The image should be cropped such that the entire head and the body showing the first five pairs of markings are shown.
- 4.5. **Resize** – The image should be resized to conserve web disk space. The image should be resized, keeping the relative proportions, to a height of 600 pixels. If the image is already less than 600 px high, then keep the full image size.
- 4.6. **Contrast adjustment** – Although modern compact digital cameras provide excellent results; in almost all cases, careful adjustment of the brightness and contrast of the image can improve specimen identification. The aim of Smooth snake ID photos is to recognise an individual animal when recaptured, so exact colour-matching is not a requirement. Indeed the contrast of the markings against the animals background colour varies naturally with slough state of the skin. Automatic contrast correction tools on image editing software are not well suited to obtaining the best contrast for identification purposes. Where possible, manual adjustment should be conducted until markings and scale edges appear clearest.



An example of contrast and brightness adjustment; original image left, and corrected image right.

- 4.7. **Saving** – The processed image may now be saved to your computer's local hard drive. SARG-supported digital image formats include:
- Jpeg/Jpg
 - Gif
 - Png
- 4.8. The size of the saved image must not exceed 250KB in size. For Jpeg images the compression ratio can be adjusted to meet this size limit. For other formats, you may need to make the image smaller (reduce the height) in order to meet the 250KB limit.
- 4.9. Care should be taken when naming the image, as the right image needs to be later associated to a specific sighting. Basic information which should be included is a reference to the surveyor's name, the reptile site, the date and where appropriate, the tin number for the sighting. An example might be: **'Ca-Wilson—17APR11-HWD-007T.JPG'**. The image filename will be automatically created when associated with a specific record.

5. Uploading the image to the SARG database

- 5.1. Appropriately formatted images can only be uploaded to the SARG database by a committee member. The means of upload is via the *'Smooth Snake Image Manager'* which is an application on the *Reptiles Officer* menu of the *Committee Tools* section of the website. Only images of Smooth snake sightings which have already been recorded via the reptile survey and sightings tool can be uploaded, as each image is associated with a specific sighting.
- 5.2. Allocating a specimen ID code to the photo is managed by a separate tool: the *Smooth Snake ID Comparator* application.