

Digital Cave Photography



By Garry K. Smith

Types of Digital Camera

- **Compact Digital** - also known as 'point & shoot' or 'consumer camera'.
- **Prosumer or Bridge Digital** are closely related to high end 'compacts', but they are often confused with Digital Single-Lens Reflex (DSLR) cameras due to their similar body shape and large zoom lenses.
- **Digital Single Lens Reflex (DSLR)** cameras are generally used by professionals and serious photo enthusiasts.

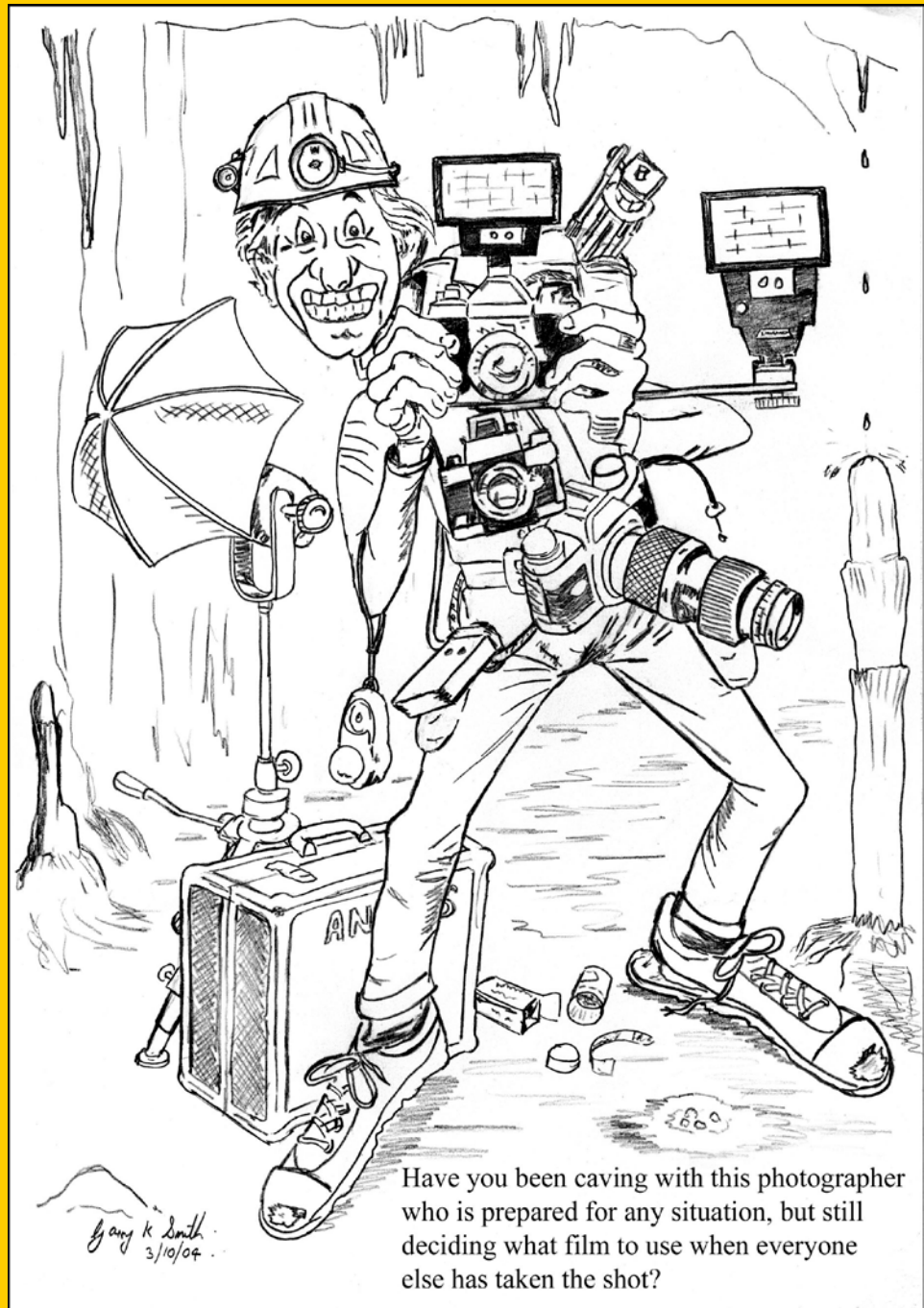


What did I look for when choosing a camera?

- Must use AA Batteries
- Non detachable zoom lens 24 ~ 720mm
- Adjustable diopetre in viewfinder
- 8Mpi or larger format
- Able to synchronise with slave units
- Full manual modes

My choice was FUJIFILM FinePix HS10

How much
gear do you
really need?



Essential equipment



Flash Unit with light sensing eye in base of hot shoe



Firefly 2 and 3 – slave units are triggered by IR & visible light

What makes a good picture?



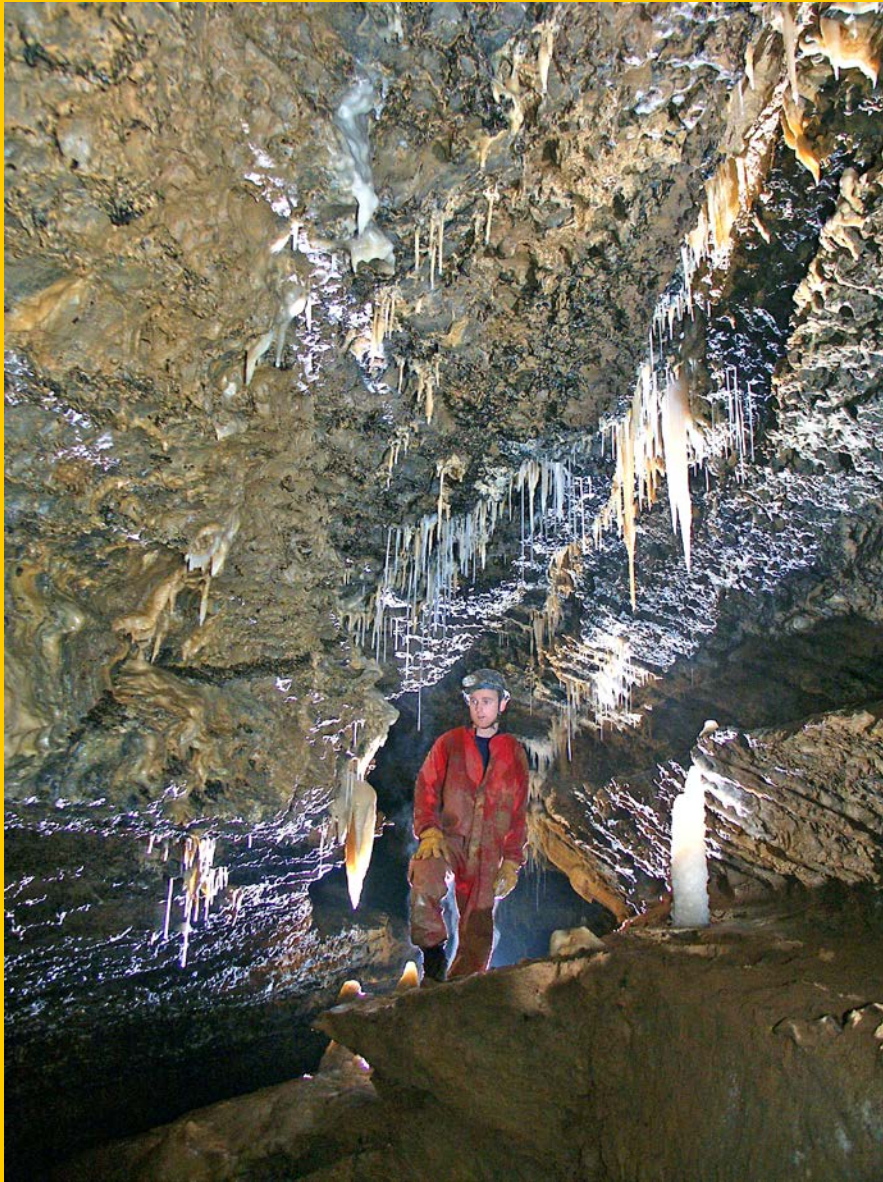
What makes a good picture?

- 1. Subject is of interest to the photographer and the target audience**
- 2. Include a comparison of scale**
- 3. A dominant feature catches observer's eye and leads toward the rest of photo**
- 4. The 'thirds principal' is a good rule of thumb**
- 5. Don't cut a person off at the knees, ankles or neck**
- 6. Model has an acceptable facial expression and posture**

- 7. Correct exposure**
- 8. No reflectors (clothing strips), stickers or torch beam spots**
- 9. Have a few dark areas to provide contrast (This may be achieved by side lighting the subject)**
- 10. Include near and far objects (this will require a small aperture setting to achieve a good depth of field)**

A photo will not contain every one of these elements however try and include as many as possible when framing the subject.

Practical example



- The lighting is good however the caver and decorations of interest are too small in the image.



The caver is a better proportion for the image size, but is too central to the overall image.

Practical example



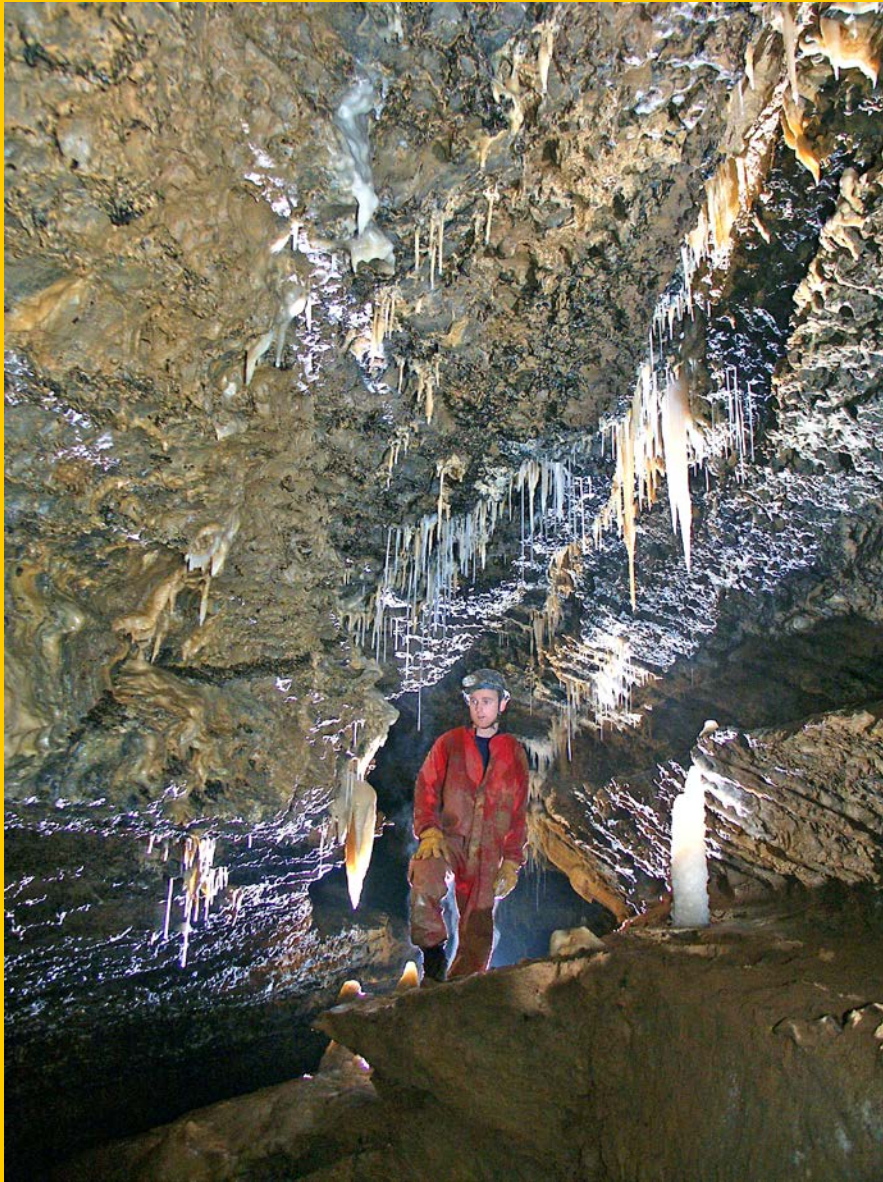
- The caver is well framed at 1/3 in from the side of image, but he is looking out of the picture.

Practical example

The caver is well positioned at $\frac{1}{3}$ across the image, looking at the most prominent stalagmite which is also $\frac{1}{3}$ in from edge of frame. The viewer is first drawn to look at the caver and then to where the caver is looking – toward the prominent white stalagmite.



Comparison



Original composition

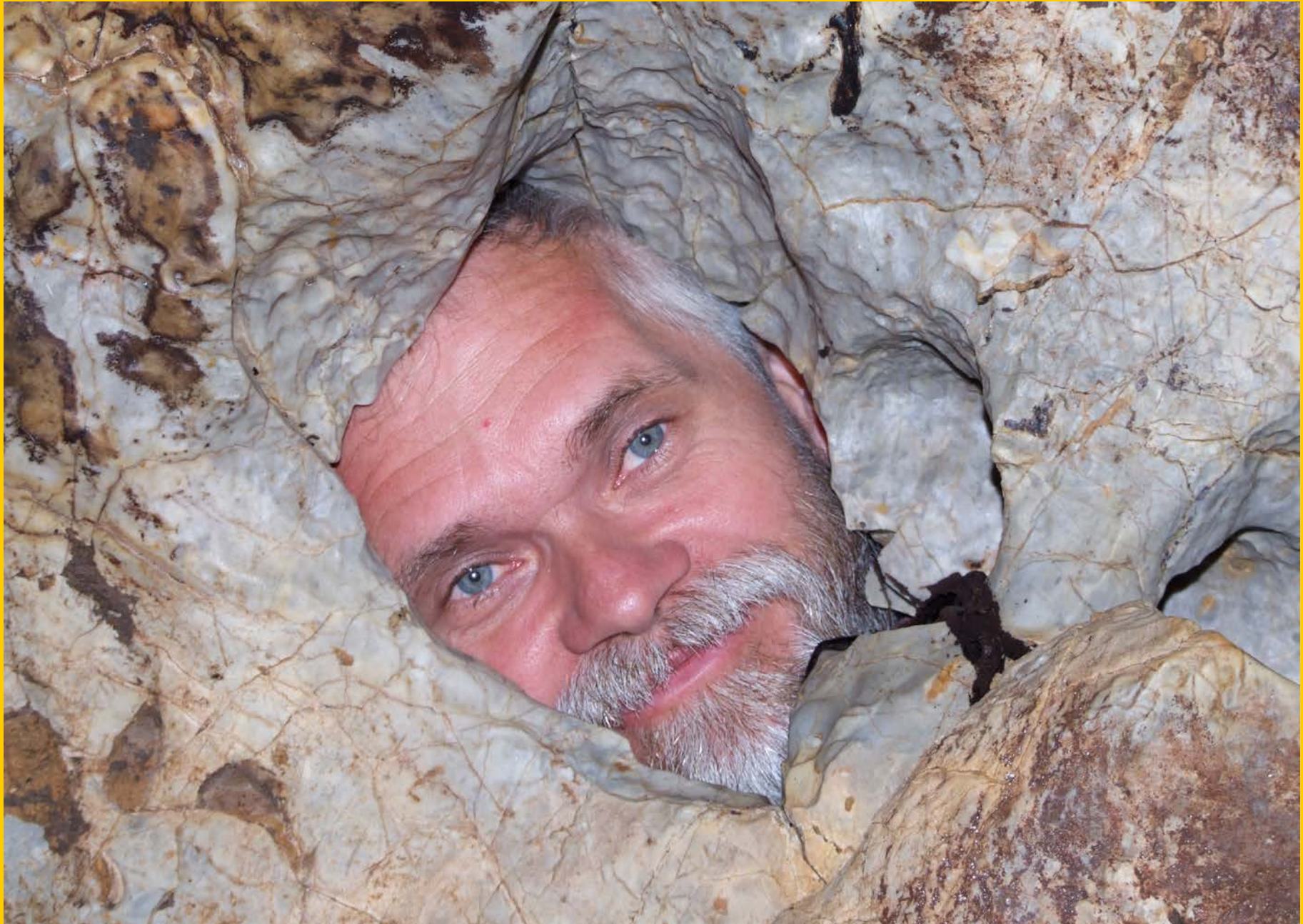


Ideal composition

Exceptions to the basic rules

- Thirds Principal





Common Mistakes

- An over exposed torch spot





Common Mistakes

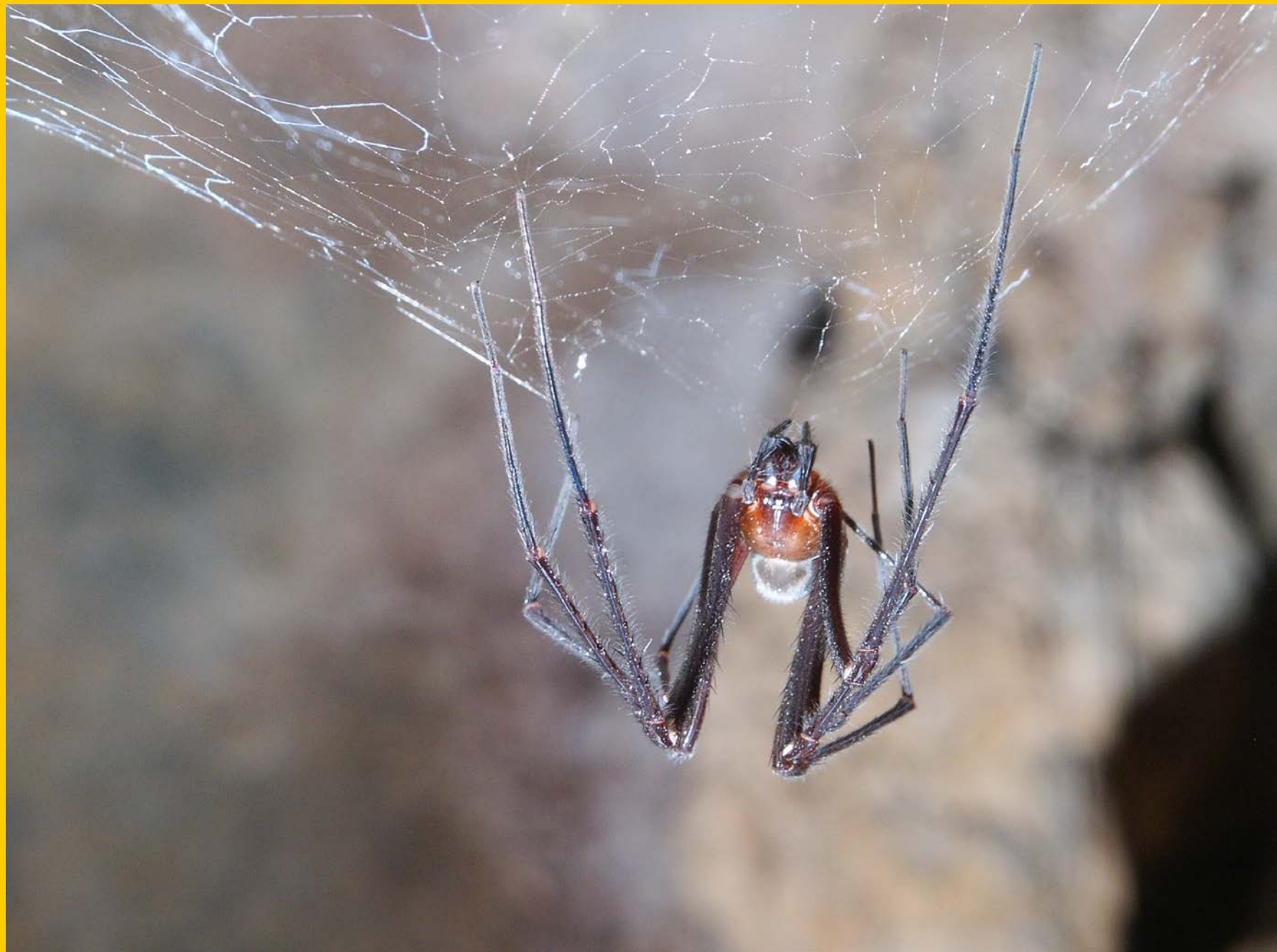
- An over exposed torch spot
- Harsh shadow due to poor placement of flash unit





Common Mistakes

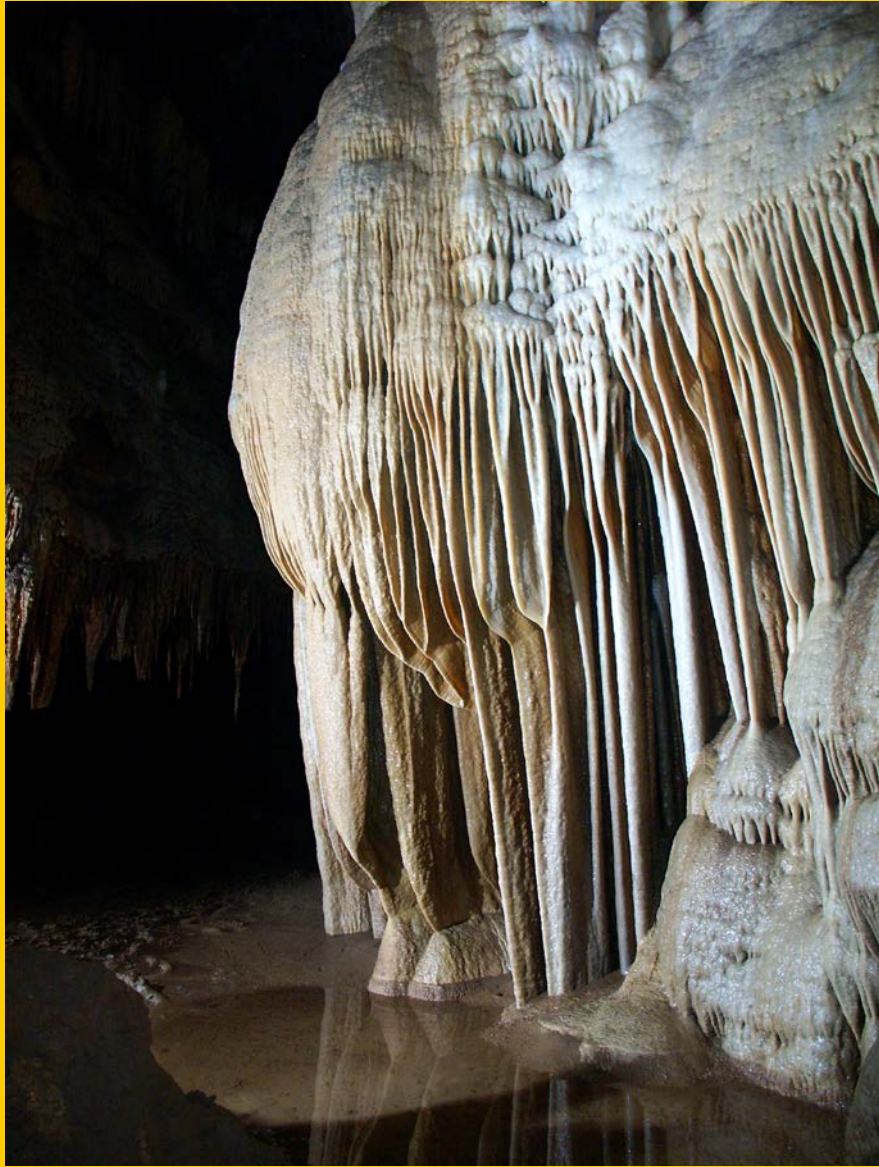
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- Harsh shadow due to poor placement of flash unit
- Flash lighting up the background and reducing impact of subject matter





Common Mistakes

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- Harsh shadow due to poor placement of flash unit
- Flash lighting up the background and reducing impact of subject matter
- No indication of scale



Common Mistakes

- An over exposed torch spot
- Harsh shadow due to poor placement of flash unit
- Flash lighting up the background and reducing impact of subject matter
- No indication of scale
- Well exposed but lacking good contrast





Common Mistakes

- An over exposed torch spot
- Harsh shadow due to poor placement of flash unit
- Flash lighting up the background and reducing impact of subject matter
- No indication of scale
- Well exposed but lacking definition
- Reflected flash – due to bad positioning





Be creative with the lighting - “Experiment”

- Flash light from one side or two?





Be creative with the lighting - “Experiment”

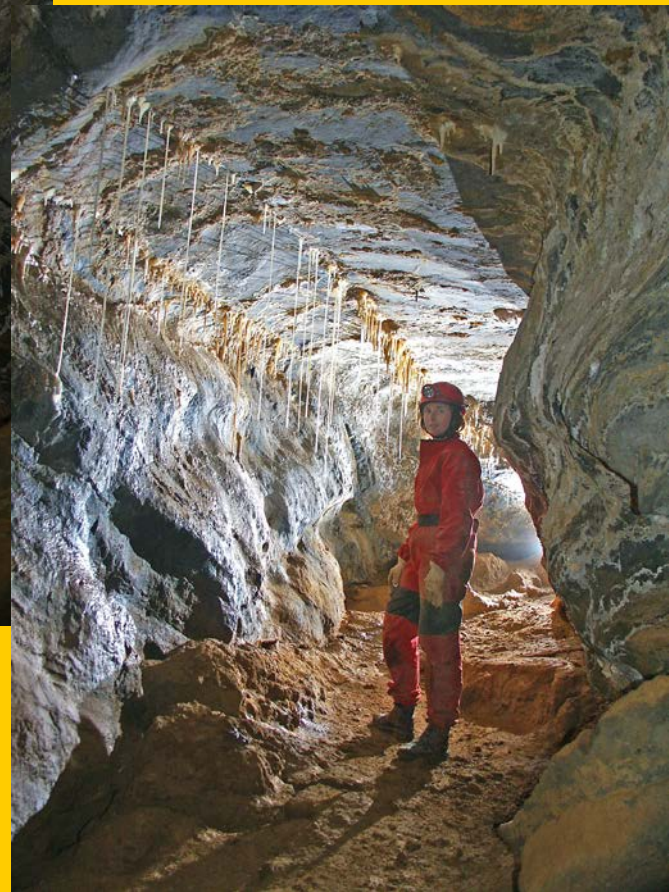
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- Utilise shadows for effect





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- Try lighting from different directions



Be creative with the lighting - “Experiment”

- Flash light from one side or two?
- Utilise shadows for effect
- Try lighting from different directions
- Plan the photo in advance with clear instructions to participants and models







Action shots are the most difficult to capture



General Tips

- Camera's with an adjustable dioptre in the viewfinder.
- Make sure head lamp beam is not in the field of view.
- A 5.0 or 6.0 megapixel camera will produce images which can be easily printed up to A4 sheet size.
- Always have the camera set on the highest resolution.
- Smallest possible aperture produces the greatest 'depth of field' or in-focus range.
- Do not obstruct the slave flash's light sensor.
- Carry camera gear in a good quality camera case.
- Avoid long exposure times and high ISO settings to reduce electronic noise.

Considering just lighting conditions, what is the most difficult scenario to photograph?

Correctly exposing outside daylight and flash lit cave, within the same image.





- Silhouette of caver at entrance



- Over exposure occurs at entrance, if you try to include a caver inside.
- The camera must be changed to a fully manual setting to get a better result



Larger aperture results in more over exposure



- Adding a flash inside cave allows aperture size to be reduced.
- Must work within the camera shutter speed range, to synchronise with flash



Reduce aperture to increase depth of field & correctly expose for Silhouette (Don't change ISO)



- Aperture is same as previous image.
- Flash power turned up and a second flash added.
- Final result

I would especially like to thank the
many patient cave models who
have posed for me over the years

**A paper on Cave photography was published in the 2009
ASF Conference Proceedings**

THE END

Happy underground
photography
Garry K. Smith



Questions

