

## **How to take good digital images by Liz Cole**

John introduced Liz Cole, a professional photographer who takes amazing pictures and also teaches students at RBGE.

Liz began her talk by admitting that she actually hadn't taken many photos of meconopsis over the years but warned those of a nervous disposition that there would be photos of the welsh poppy. This invoked laughter from the members present.

She explained that she would describe

- i) the types of camera available suitable for plant
- ii) techniques of photography
- iii) effects of light
- iv) taking photos in the garden and when travelling.

### **Compact cameras.**

Simple point and shoot compact cameras have all but disappeared, being replaced by smart phones. These have fixed semi wide lenses. They are good for taking general shots, plant labels etc but are not good for serious plant photography. One drawback is the difficulty of seeing their screens on a bright sunny day.

Modern compact cameras have superior features to those previously available. They have much improved lenses. Many have the ability to take close up photos sometimes as close as 1 – 2 cm Some have a built in zoom, others have a fixed lens. Several have aperture priority, indicated by icons such as a tulip for macro photography. They also have stabilisation features, incorporated into the camera, helpful when hands become more shaky with age, which helps get good shots, e.g Sony has 5 axis stabilisation This is not available in many smart phones. Most don't have viewfinders, therefore there can be problems with light on the screen. Some have a tilting screen so it is worth checking to see if the tilt is useful for your requirements. Compact cameras are small, light and can easily be carried in pockets.

### **Rugged cameras.**

These are the newer style of compacts resigined for use in wild places. They are waterproof, and shockproof, although the degree to which these features protect the camera differs between makes. Waterproofing is useful in rainy environments. Some are also dustproof with a seal around the lens. Many have WiFi which is useful for backing up pictures, either to be sent to a storage space such as Cloud on the internet or on a tablet. Pictures can be seen in more detail on a tablet and means that if possible the shot can be repeated. Liz suggested all photos should be backed up, preferably twice. Since memory cards are fairly cheap it may be an idea to carry more than one. Many also have built in GPS which allows the location of the plant to be recorded. However GPS does drain battery power, so it is necessary to carry spare batteries. Solar powered chargers are available. Many cameras have

auto focus, but some can be set to manual. Liz suggested that the camera should be set to auto white mode to ensure photos can be taken outside and inside without having to change controls.

### **Three parameters you need to know**

#### **Aperture.**

This is the adjustable 'hole' in your camera, which is almost circular in shape, and which lets light onto the sensor. The shutter speed controls how long the sensor is exposed to light coming through the lens, while the f/stop controls how much light is allowed through by varying the size of the hole the light comes through. The smaller the f/stop number the larger the aperture.

#### **Depth of Field**

A number of factors affect depth of field including the f/stop number used. The depth of field indicates how much of the photo is in focus. The area behind the focus point is approximately twice that in front. This area should be acceptably sharp.

#### **ISO Number** (International Standardisation Organisation)

This is the standard for film speeds which replaced the DIN and ASA systems. The higher the number the more sensitive to light the sensor becomes. When films were commonly in use, a 100 ISO film could be used for daylight photography while a 400 ISO film for lower lit conditions e.g indoors. Modern camera lenses are much more sensitive.

#### **Using a low ISO when taking photos results in more detail.**

#### **Taking photos.**

Tips to get good photos included

- a) Getting down to the level of the plant
- b) Get close to the plant, but not too close since distortion can occur when wide angle lenses are too close.
- c) Checking the histogram on the screen. The histogram should show a bell curve in the centre of the screen. A bell curve to the left indicates underexposure, while one to the right indicates overexposure. Overexposure results in loss of detail. Histograms are more reliable than looking at the screen on the back of the camera.
- d) Use a low ISO to get more detail.

#### **Sensor size**

There are many different sizes of sensor to be found in digital cameras. Generally the larger the sensor the more detail the camera can record. Smart phones have small sensors. Blowing up a photo from a smart phone makes

them more pixelated. The sensors in compacts are larger while those in mirrorless cameras and DSLRs are larger still. The bigger the sensor, the more the picture can be blown up before starting to lose detail.

### **Mirrorless Cameras. (Compact System Camera)**

These have more features including large sensors, interchangeable lenses, including macro lenses, the flash can be external, the flash being added using a flash shoe, or it can be internal. They have body or lens stabilisation. Some are waterproofed. Some have waterproofed lenses. They may have RAW files which can be described as a digital negative and worked on later, some have tilting LCD screens, good for those who find it difficult to get up, while some have an electronic viewfinder (EVF) where the image captured by the lens is projected electronically onto a miniature display. They are lighter than DSLRS.

### **DSLRs Digital Single Lens Reflex Cameras.**

These have large sensors, and interchangeable lenses. More lenses are available for this type of camera than for mirrorless cameras. They have a built in flash, either body or lens stabilisation and use a large battery. Larger batteries have a longer life than smaller batteries. Some have tilting screens.

### **Accessories**

- a) Extension tubes, to get closer to the subject.
- b) Macro lenses. These allow 1:1 close up photography  
(One company SRB provides macro lenses for every camera, measured in dioptries)
- c) Tripods. These can be heavy and may cause problems when travelling. Portable carbon fibre tripods are light, expensive but last.
- d) Using knee pads or a kneeler is useful when kneeling on wet ground or stones.
- e) Reflectors are useful. They fold up and are available in white, silver or gold. For plant photography a silver reflector is recommended. They can be attached to the lens with a cable clip.
- f) Always use a lens hood to keep off the rain, to improve contrast and to prevent the lens touching the flower.
- g) A filter that is useful to have is a polarising filter which removes all glare from non-metallic objects. It is expensive but worth it. It will intensify the blue of blue skies, and removes reflections from the surface of ponds. Two photos of the same scene were shown one with a polarising filter and the other without. There was more detail in the shot using the filter. The effect of this filter cannot be imitated in photoshop or other similar software.

### **Techniques.**

#### **1. Isolating the subject.**

This can be done with either a macro lens or a long telephoto lens. For the

best photos the background shouldn't distract from the subject. Often Liz uses back velvet set back from the plant. She used an example of the few flowered garlic where the subject was the flower with a blurred river behind it

2. A wide angle lens can be used to get everything in the shot, but can cause distortion. Liz often uses a wide angle shot to set the scene, then a photo of the whole plant, then a close up.
3. She advised that if unsure what to photograph then setting yourself a project helps. e.g. plants in their habitats, indoor plant portraits. Reflectors and sheets to hide any distracting background are useful. Sometimes wind is a problem when photographing plants. Some examples were shown of plants photographed in a polytunnel.
- 4, Take both landscape and portrait shots of plants.
5. Try photographing the same scene in different seasons. An example was shown of a laburnum walk in winter and early summer.
6. Frame the view using a doorway or a window or natural features such as trees.
7. Try photographing plants in their habitats.

## **Light**

For indoor plants use natural light

Photographing plants in dull light, although difficult can be good because although it doesn't produce massive contrast in the photos, lots of detail can be recorded.

Bright sunlight is the worst although nice effects can be produced after rain. Liz uses a diffuser which lets some of the light through.

She suggested that overcast conditions produce the best results because it shows all the detail.

Her particular favourite is to use back lighting and a reflector to photograph plants.

## **Questions**

- i) A question was asked concerning the difficulty of taking photos of plants in the magenta – blue range and getting the colours exactly right. Two solutions were suggested. a) The custom mode could be adjusted, b) Shoot the photos in RAW then adjust all the parameters after,
- ii) A further question concerned the difficulty of remembering the exact colour

of a plant when out in the wild. A solution was to carry a plastic card with a three colour bands of white, black and grey. Once the grey band is correct on the screen, then all other colours should be right as well. The computer screen does need to be calibrated.

- iii) A further question concerned the use of bridge cameras. Liz thought that the f5.6 long lenses were too slow, and that many of the cameras were not waterproof or dustproof and that the other cameras discussed would be better.

John thanked Liz for her talk and also suggested the use of an umbrella.