

# **Developing Best Practices for Native Plant Flower Photography**

By Wendy Anthony for Eric Higgs, UVic ES 490 Directed Studies, 12 July 2014

*In science, beauty. In beauty, science.*

- UBC Botany Photo of the Day, 2014

Even 114 years ago, the authors of the *Botanical Gazette* deplored the lack of photographic knowledge among scientists, believing that the camera was underappreciated as scientific equipment (Waugh & McFarland, 1900). Today, very little contemporary information on the techniques of botanical photography is available, and tends to be documented in an ad-hoc fashion (Dr. Gerry Allen, UVic Biology, personal communication, June 26, 2014). In an attempt to find a set of best practices to use when photographing native plant flowers in the context of their environment, using a compact digital camera, I have consulted and summarized techniques from both professional flower photographers and botanical artists, and will address three main botanical photography considerations: subject selection, image composition, and photography techniques.

## **Subject Selection:**

Botanical photography requires the knowledge of plants, their habitats and phenophases, as well as “a keen eye for a picture” (Harcourt-Davis, 2014). Botanical photos show descriptive details of the flower and/or foliage to depict “what makes this plant different from others in the same family” (Magura, 2005), and to provide accurate identification for teaching aids and research (Swan & Burrill, 1990).

Though leaf shape may vary between plants of the same species, flower structures will always remain consistent, and thus, along with the fruit and seeds, are the most useful tool for identifying a species (Leech, 2011). Although plants look

best with fresh new flowers, photos should not be limited to perfect specimens as dying flowers also illustrate the phases of life (Davis, 2012; Vincent, 2014).

Be prepared to walk distances over varied terrain, to squat down to view at plant-levels, and to have patience to wait for the right light, wind and flower phase (Berardi & Berardi, 2009). Plan ahead, to know when flowers will be expected to open, and choose the best time of day for the weather and light conditions of the location (Davis, 2012). Take lots of pictures, from different angles, by focusing on different plant parts (Magura, 2005), or by taking series of flower shots, from a general view to close-up, “peeling the onion” to find the details (Antunes, 2013).

### **Image Composition:**

Show the flower in the context of its environment by taking multiple views, to include the general landscape, canopy cover, groupings, and individual plants, representing typical examples of both the young and mature. Show botanical details of distinctive characteristics, with newly opened leaves and flowers, and sequence of opening buds, as well as developing fruits and seeds. Include close-up details of how flowers are positioned on the stalk, their structure, size, colour, shape, petal arrangement, and angle placements and attachments of reproductive structures and flower-leaf-stem junctions (Leech, 2011). To show the true purpose in a flower’s beauty, capture the parallel lines, or pollinator “runways”, running from petal tip to the reproductive organs in the flower’s core (Davis, 2012, p. 142).

Avoid shooting down at a flower by getting low to ground, with the point of view at flower-level (Antunes, 2013; Kelby, 2006). Take care to also not disturb insects, birds or wildlife by using a zoom instead of a macro lens, or by waiting

quietly and patiently, to let them get comfortable with your presence; don't remove plant matter, rocks or sticks, which may also be habitats for small creatures.

Simplify the composition by eliminating anything unnecessary, or by getting very close to fill the frame with the flower (Berdan, 2010; Kelby, 2006; Vincent, 2014). To find the best view of a flower, or emphasize the plant's growth habit, use different zoom levels and camera angles, or shoot in different light at different times of day (Magura, 2005, Sweet, 2005). Use framing techniques to avoid putting the subject in the centre, creating a better balance by showing the flow of foliage and stems across the frame, and keeping the elements an equal distance from the photo edges (Henderson, 2005; Peterson, 2013). Instead of using the rule of thirds, better suited to landscape photos, try using dominance, to make the main element stand out using size, colour, or a selective focal point; and subordination, using elements that support making the dominant element more interesting (Berdan, 2010). A vertical format with portraiture techniques captures single plants and flowers, while a horizontal landscape format shows wide-angle views of the habitat (Harcourt-Davis, 2014). Focus on details of both flowers and leaves (Exposure Guide, 2012).

Frame the flower with a different background, either by choosing an angle to best show foliage or flowers, or if the background is too distracting, place contrasting coloured cards two to three feet behind the plant to simplify the image (Antunes, 2013; Berdan, 2010; Exposure Guide, 2012; Kelby, 2006; Sweet, 2005).

### **Photography Techniques:**

Small compact digital cameras, with a variety of manual controls, can often shoot just as close as a DSLR (Berdan, 2010). Carry extra, charged batteries, and

large capacity memory cards to ensure the ability to take a variety of images. As these images will eventually need to be archived, create a workflow to download, modify, store, and label images on a CD, DVD or an external drive, using folders with subject and date (Magura, 2005).

Accurate colour depiction is essential to botanical photography as pollinating insects and hummingbirds are attracted to the colour of flowers (Berdan, 2010). Adjusting the white balance, by choosing the appropriate light source, will ensure correct colour (Harcourt-Davis, 2014; Henderson, 2005; Magura, 2005; Sweet, 2005), and is particularly important when shooting in jpg format, as any post-image processing seriously degrades the quality of compressed images (Berdan, 2010).

Exposure, which is a combination of ISO speed, f-stop and shutter speed, determines how light or dark the photo is, and is correct when the maximum detail is shown in a flattering view (Berdan, 2010); changing one element will mean that the other exposure elements will also need to be adjusted. Shooting in manual mode allows for incremental changes in aperture, shutter speed and exposure (Davis, 2012; Harcourt-Davis, 2014; Magura, 2005; Peterson, 2013).

Histograms help to determine exposure by analyzing the distribution of light, and along with highlight warnings, can be used to correctly adjust the exposure (Sheppard, 2010). Overexposure permanently burns out detail in the highlights; underexposure loses detail in the shadows, and though this shadow detail can often be retrieved, the image will be grainy with digital noise (Berdan, 2010; Henderson, 2005; Magura, 2005). Exposure compensation can be used to make a background appear darker by using a negative value, especially for blue, violet or

dark toned flowers, or for flowers that have light is shining on them; use a positive exposure value for flowers with lighter tones (Olympus, 2014).

The harsh light of the sun, which can blow out highlights, create dark shadows, and wash out colours, can be avoided by shooting in the morning or late afternoon when the light is softer, waiting for the sun to go behind clouds, or by placing a diffuser or reflector between the sun and the plant (Berardi & Berardi, 2009; Berdan, 2010; Kelby, 2006; Peterson, 2013; Sweet, 2005). Both backlighting and sidelighting can accentuate the shapes, textures, colours and veins of leaves and flower petals, though backlighting may show colours differently. Shooting with a zoom lens into the direction of the sun can result in sunflares unless blocked (Berdan, 2010; Henderson, 2005; Kelby, 2006; Sweet, 2005).

Windy days can affect detail sharpness, and, though with patience the wind may stop, or reflectors can be used to block the wind, often the best plan is to come back at another time, particularly early in the morning before the sun's heat starts the wind thermals. To freeze wind motion, use a tripod, change the camera mode to shutter priority, and increase the shutter speed to 1/250 of a second or more (Berardi & Berardi, 2009; Henderson, 2005; Kelby, 2006; Peterson, 2013). Tripods can also be used with a remote trigger, or self-timer, to steady the camera for sharp close-up images, and to avoid any blur when using slow shutter speeds; tripods with a short centre-post can be lowered to the level of the flower (Harcourt-Davis, 2014; Kelby, 2006; Peterson, 2013; Sweet, 2005).

Depth of field, set with the aperture f-stops, is the range of focus in front of and behind the subject, while still focusing on the flower; controlling the depth of

field separates the flower from its background to avoid distracting the eye. Using smaller f-stop numbers will create a shorter, wider depth of field, making the background blurry and out of focus, though the larger lens opening also requires a faster shutter speed (Kelby, 2006; Magura, 2005).

Zooming to fill the frame with the flower enlarges the details, and creates some distance from the background, compressing the focus plane and causing it to blur (Antunes, 2013; Olympus, 2014; Sweet, 2005). Getting closer to the flower by using a macro lens, with a low ISO and a tripod, will also create shallow depth of field, though close-up photos need to have a focal point to emphasize their point of interest (Henderson, 2005; Kelby, 2006; Magura, 2005; Sweet, 2005).

**Conclusion:**

The goal of botanical photography is to accurately document a plant's form, color, function, life history, and relationships with its environment (Harcourt-Davis, 2014). A good botanic photograph will represent the chosen subject as a focal point, using image composition to ensure that relevant detail is shown, and appropriate photographic techniques to produce an aesthetically pleasing image. A botanical photo, showing the plant and its flowering stages, in the context of its environment, can function as both a realistic learning tool, as well as an object of great beauty.

Though this paper compiles and summarizes many photographic techniques from both flower photographers and botanical artists, a clear, comprehensive best practices guide for botanical photography would be a welcome addition to both flower photography and botanical science.

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