Theodore Payne Foundation

Taking The Shot

Basic Garden Photography

Credits

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Notes

Course Goal: To familiarize the student with the basic process of taking garden photographs with emphasis on the digital format.

Lesson Objective: Upon completion of this lesson:

Using the student's own camera, the student will be able to take a properly exposed, sharply focused, close-up photograph of a plant, or plant part, which clearly reveals the botanic detail (texture, hair, etc.) of the subject plant or plant part.

At the conclusion of this course the accomplishment of the objectives of this lesson will be demonstrated by printing a photograph (digitally) of a plant or plant part that is properly exposed, focused, and reveals the botanic detail (texture, hair, etc.) of the subject plant or plant part.

Recommended Time: 3 Hours

Notes

Notes

I. Introduction (10 minutes - Theodore Payne Foundation Education Center)
- A. Introduce Instructor(s) and Assistants
- B. Welcome to TPF
- C. Facilities (Restrooms, water, etc.)
- D. Course & lesson description

II. Photographic equipment (Discussion: 30 minutes - Classroom)

- A. Tripod
  1. Leveler head
  2. Inverter head
  3. Ball head
- B. Cable/Remote release
- C. Filters
  1. Polarizer
  2. UV
  3. Color
  4. Graduated Neutral Density
- D. Lens hood
- E. Extension tubes/bellows
- F. Focusing rail
- G. Light meter
  1. Reflective
  2. Incident
  3. Spot
- H. Diffusion tents
  1. Large
  2. Folded
- I. Reflectors
  1. Cardboard
  2. Fabric

III. Techniques (Demonstration: 30 minutes - Yard)

- A. Three guidelines
  1. Identify the subject
  2. Have a theme
  3. Simplify

- B. Tripod and remote release
  1. Keep camera steady (tripod)
  2. Essential for slow shutter speed (both)
  3. Essential for close up due to shallow depth of field (both)
  4. Mirror up release (if available)

Notes

C. Light
1. Best light
   a. Side light (for texture)
      1) Low sun
      2) Reflectors
      3) Flash
   b. Diffuse light (softness, color)
      1) Overcast
      2) Open shade
      3) Diffuser (tent, fabric)
2. Best times
   a. Early morning/late afternoon (sun low)
   b. Overcast days (diffuse light)

D. Focus
1. Macro lens and telephoto (very shallow depth of field)
2. Longer lens allows more working space
3. Selective focus (emphasize subject)
4. Focusing rail
5. Focal plane parallel to subject surface
6. Wind motion
   a. Tent
   b. Card
   c. Wire
   d. Plamp
   e. Assistant

IV. Field Project (Student activity: 1 hours - In garden)

A. Image types
1. Film
   a. We will not have time to get film processed in time for class)
   b. With sufficient time we could scan previous photos into digital format
2. Digital
   a. If images remain in camera, bring cable (USB) and software for next class
   b. If the card containing the images is removed from camera that can be opened on the computer
   c. Card reader is available that will read most cards and formats

B. Field Photo Shoot Assignment Examples

(2 person teams - one assignment each)

These are suggestions. However, it will all depend on what is available in the garden.

1. Arctostaphylus
   a. Ssp & cultivars
   b. Many nascent inflourescences

2. Solidago californica
   a. California goldenrod
   b. Flowers

3. Mimulus cultivars
   a. Monkey flower
   b. Flowers on grounds & nursery containers

4. Epilobium (Zauschneria)
   a. Ssp & cultivars on the grounds
   b. Flowers

5. Dendromecon harfordii
   a. Island Bush Poppy
   b. Flowers

6. Calliandra californica
   a. Red Fairy Duster
   b. Flower & seed pods

7. Eriogonum giganteum
   a. St Catherine's Lace (buckwheat)
   b. Seed heads

8. Salvia ssp
   a. Sage
   b. Seed heads

9. Grasses
   a. Seed heads
   b. Nursery containers

10. Fruits
    a. Rhamnus ilicifolia
    b. Manzinitas

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Selected Web Sites

www.birdsasart.com
www.edigitalphoto.com
www.hoothollow.com
www.leppphoto.com
www.naturephotographermag.com
www.outdoorphotographer.com
www.photographic.com
www.popphoto.com
www.shutterbug.com
www.tamron.com/lenses/learning_center/default-new.asp
www.vertexphoto.com

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WEB RESOURCES

Don't pay for a photo class again! Camera companies have great online resources to make you a better photographer. Try these:

Canon Digital Learning Center: www.photoworkshop.com/canon
Epson Print Lab Series: www.printlabseries.com
HP Digital Photography: www.hp.com/united-states/consumer/dpc
Nikon SLR Learning Center: www.slrlearningcenter.com
Pentax Learning Studio: www.pentaximaging.com/learn
Photoflex Lighting School: www.photoflexlightingschool.com
Tiffen guide to filters: www.tiffen.com/camera_filters.htm

HOW-TO | DO THE MATH

BY JASON SCHNEIDER

GO FIGURE!

12 quick calculations and formulas that add up to better pictures

1 35mm equivalent focal length. To calculate the 35mm focal-length equivalent of any lens used on any film or digital format, multiply the lens focal length (in millimeters) by 43.3 over the diagonal of the format (in millimeters) the lens is being used on. Example: The 35mm equivalent of a 150mm lens on a 2¼x2¼ camera (format size 56x56mm) equals 150

$$\text{Focal Length} \times \frac{43.3}{\text{Diagonal}}$$

x (43.3 over 79.2) or 150 x 0.55, which works out to 82.5mm, a medium telephoto.

2 Multiple-exposure rule. To calculate the proper exposure for each frame of a multiple exposure on film, multiply the ISO by the number of exposures to be recorded on the single frame. Example: When shooting four exposures on a frame of ISO 100 film, set the ISO to 400. (Remember to set it back for the next frame!) This rule does not apply to digital "multiple exposures," which are actually layered composites.

3 Exposure latitude rules of thumb. The exposure latitude of color slide film is approximately −1½ to +½ stops. With color print film, it's about −1½ to +3 stops–and even +4 stops can give decent results. Digital capture generally has an exposure latitude of about −2 to +⅔ stops without enhancement. General rule: Err on the side of underexposure with slide film and digital, and on the side of overexposure with color print film.

4 Linear distortion rules of thumb. For general photography, the maximum level of barrel or pincushion distortion considered acceptable is about 3 percent (barrel gets a plus sign, pincushion a minus). For architectural work, 1.5 percent may be tolerable, but values under 1 percent are preferable. For critical applications such as flat copying, linear distortion should be less than 0.1 percent. (These numbers are part of the Lens Test data from the POP PHOTO Lab; look up your lenses on POPPHOTO.com.)

5 Blue sky exposure rule. The clear north blue sky is a middletone. Using it as the basis for your exposure reading will yield a proper daylight exposure of the overall scene.

6 Correct viewing distance. The correct distance for viewing a photograph to avoid apparent perspective distortion equals the focal length of the lens multiplied by the enlargement factor. Example: For a picture shot with a 50mm lens and enlarged 10 times (e.g., a 10x15-inch print from a 24x36mm full-frame 35mm), the correct viewing distance is 500mm, or just under 20 inches.

7 Guide Number rule of thumb. To convert the output of a large flash or studio light given in watt-seconds (Ws) to a more useful footage Guide Number, take the square root of (Ws x ISO x 1.2). Example: The ISO 100 Guide Number of a 400 Ws flash is the square root of (400 x 100 x 1.2). That is, the square root of 48,000, which equals a Guide Number of 219. (Average reflector efficiency and coverage assumed.)

8 Optimum aperture rules of thumb. An "average lens" delivers the best overall image quality when stopped down 2–3 stops from its maximum aperture. The optimum aperture of many pro-caliber, high-speed (f/2–2.8) telephoto lenses is at or near their maximum apertures. Many ultra-wide-angle lenses need to be stopped down 3–4 stops to deliver optimum image quality, and some inexpensive off-brand zooms perform reasonably well only at their smallest apertures.

9 Shooting backlit subjects. When shooting directly into the sun, open up the aperture by 1½ to 2 stops, or set your exposure-compensation control to +1.5 or +2. The same correction factor applies to snow and white sand beach scenes, which will often be recorded as 18-percent neutral gray on film. With digital, check your results on the LCD and choose the compensation or ISO setting accordingly.

10 Hyperfocal distance. If your lens lacks a depth-of-field scale, you can calculate the hyperfocal distance (the closest distance at which objects will be in focus at any aperture with the lens set at infinity) by dividing the square of the lens focal length in millimeters by (f-stop x 0.3). Example: The hyperfocal distance for a 50mm lens at f/4 is 2500 divided by (4 x 0.3), which equals 2083mm, or 6.8 feet.

$$\frac{\text{Focal Length}^2}{\text{F-Stop} \times 0.}$$

11 Color balancing. Auto white balance (AWB) usually provides accurate color balance, but for more precise results, use the tungsten setting with household bulbs (2800K–2850K) or tungsten photofloods (3200K–3400K), and the fluorescent setting with cool white fluorescents. The daylight setting is optimized for noon daylight (5600K–6000K), and is OK for overcast days (6700K–7000K). Custom white balance lets you set color balance precisely by taking a reading off a gray card or a white sheet of paper. Manual K settings (available on some DSLRs) may give better results in late afternoon sunlight (4300K) or very overcast days (over 7000K).

12 Teleconverter exposure factors. To calculate the exposure-decrease factor of any teleconverter, multiply the lens aperture by the multiplication factor of the teleconverter, and compare the resulting f-stop to the lens aperture to get the loss in f-stops. Example: With an f/4 lens and a 3X teleconverter, the result is f/12, or 3.3 stops slower. Other common light-loss values: With 1.4X converter, 1 stop; with 1.7X, 1.5 stops; with 2X, 2 stops.