

Tips and Tricks for “Research-Worthy” Pollinator Photos

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Background

Capturing the details of an insect visitor to a flower requires the perfect combination of modern technological tools with the ancient skills of observing, stalking, and perhaps above all else, patience. We haven't completely lost those skill sets, though few employ regularly. Effectively documenting these flower visitors is a nice way to reconnect with those ancient observational skills, as well as connecting with an incredibly rich, diverse, and dynamic “ecoscape” that has as much complexity, species interactions, and drama as the grassy savannas of the Serengeti or the Amazon rainforest—all in your neighborhoods!

Why good photos are important

Taking useful photographs to document pollinators and other flower visitors doesn't require expensive cameras with giant lenses. We're not trying for the next cover of National Geographic. We are looking for photos that are “good enough” and that can make it easier for others to accurately identify an insect to the species level (or at least to the family level).

Better photos (with clear details of the right parts of the insect body) can also help train artificial intelligence programs, such as the pattern recognition program, that are being used to help identify species by iNaturalist. As visual recognition software becomes increasingly accurate and can recognize more species, it will greatly speed up our ability to monitor changes in biodiversity.

How to get better shots for each of the focal orders

The most important factor in making your picture “good enough” is whether it clearly captures the parts of the pollinators’ body that differ between species. The body parts that make an organism easily identifiable varies between different groups of insects. Here are some tips of what to focus on in photos of different types of pollinators:

BEES & WASPS

Prioritize shots of front/face; dorsal (top); side (including abdomen).



Neither of these is a prize-worthy shot, but they show enough detail to be able to tell that this individual is a Bicolored Striped Sweat Bee (*Agapostemon virescens*).

The same angles apply to bumble bees. It’s particularly important to be able to see where the abdomen and thorax meet. The color patterns on the segments on the abdomen called terga, the darker “tail” region on these bees) are often covered by their wings when at rest but are vital to determine species. Faces are also important for bumble bee identification. Below are pictures of bees captured in a small plastic vial allowing for clear pictures. They were then released.



FLIES

Prioritize shots of front/face; dorsal (top); side



BUTTERFLIES

Prioritize shots with the wings open (from the top when possible). Shots showing the wings closed (held vertically) from the side can also be useful.



MOTHS

Moths are most easily photographed when they have been drawn to a mounted light (porch light) or a light shining on a sheet. They are much harder to clearly capture while they are feeding at a flower. Flatter moths can be photographed from above, while those that are a bit more 3-dimensional can be photographed from the side. As they are pretty cooperative when drawn to a light source, take shots from multiple angles.



BETLES

A full body dorsal (top) shot that includes the head and antennae is usually sufficient for beetles. It is helpful to slightly overexpose darker beetles to better capture the details on their upper surface.



(L) Again, not a prize-worthy shot, but “good enough” for species identification—Fire-colored Beetle (*Dendroides canadensis*);
(R) Dogbane Leaf Beetle (*Chrysochus auratus*).

Photo processing

Ideally, a photo has enough detail to allow the pattern recognition algorithms and community experts to determine species without any computerized manipulations of the image. Too much image editing, in fact, can change the details (e.g., specific color or contrast patterns) and lead to incorrect identifications. Some edits, however, can increase the likelihood of a correct identification and “Research Grade” status for your photo.

Cropping

Insects frequently fly away before you can get close enough to get a good diagnostic photo. If you were taking photos as you approached your subject, you may still be able to crop the photo to provide better detail.



(Top) original; (L) cropped to bee and flower cluster; (R) cropped to bee and flower

In such cases, particularly if you are including photos of the plant the insect is visiting, you can include the original, non-cropped photo as well.

Color saturation

Sometimes slightly increasing the color saturation—while not changing the hue itself—can make diagnostic patterns stand out better.

Contrast

Likewise, many image editing software packages offer a simple slider to adjust the overall contrast of an image. Such adjustments should be done very lightly (if at all) and should not change the overall appearance of the insect.

Clarity/resolution

This often uses a slider interface to increase the clarity or resolution of an image. In Microsoft's default Windows *Photos* editing software, this "clarity" slider also increases the contrast, but I find it a useful tool for "flat" images.

Other tips

While foraging on nectar or gathering pollen, insects are often so focused on their work that you can slowly approach them without disturbing their activity. Even bees and wasps are easy to approach and tend to be much less aggressive than they are around their hives or nest sites.

When you see an insect on a flower that you'd like to photograph, slowly approach the flower while moving your camera into position. If your camera has the capacity to zoom in closer, try that and begin taking photos before you get too close. Think of these more distant shots as "insurance photos"—not great detail but often just enough should the insect fly off before you get close enough for those better details. Slowly move forward ("stalk") and take another photo or two with each step closer to your subject. Here's what a sequence of shots often looks like:



Don't be afraid to take a lot of photos! Digital cameras—whether embedded in a smart phone, a small point-n-shoot, or a fully rigged DSLR with a macro lens and flash array—now allow us to take a lot of images on one storage card, and most cameras allow people to preview and review the image to determine if they captured enough details to help figure out the species of the subject.

Pay attention to your shadow. When approaching an insect on a flower, be sure to keep your shadow from sweeping across your subject. Insects are “hard-wired” to flush and fly off if they think a predator might be after them. This includes the shadow of your camera as you slowly move it closer and closer to better capture details.

Here are some great resources to help make your photos even better:

- bumblebeewatch.org/photo-tips
- earthwiseaware.org/prepare/wildlife-documentation-photography-essentials/#Species-specific