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Science Photography: Communicating Research through Photos

JULIE PALAKOVICH CARR

Too often, taking photos of one's research is an afterthought. Photography is something that we put off until we have a need for the images, such as for a presentation. At such a late juncture, the only option may be to search online for appropriate images. Photos of science, particularly of one's research discipline, however, can be difficult to locate, so we must settle for something that is second rate or forgo using images at all.

Imagine instead a scenario in which you already have all of the photos that you need for a presentation, lab Web site, or print publication. Instead of a last-minute scramble for quality photos, some minimal planning on your part has resulted in a nice batch of images of your research. It is as simple as putting on your metaphorical photographer's hat.

Beyond providing an ample supply of images for your research products, photographing science is the simplest way to communicate your research. "Humans are visual creatures: We relate to images," said Alex Wild, a biologist at the University of Illinois at Urbana–Champagne and proprietor of Alex Wild Photography. Wild's images of ants have been published in *National Geographic*, *The New York Times*, and numerous other publications.

Research photography can also have a positive impact on the public perception of science. "Scientists need to communicate more, especially [about] the implications of our work," states Molly Mehling, assistant professor of ecology and sustainability at Chatham University, in Pittsburgh, Pennsylvania, and a member of the North American Nature Photography Association's College Scholarship Committee. Mehling uses her photography to document and promote sustainability. "At times, the public lacks appreciation for science because of its complexity. Photography can help researchers to demystify science."

Photography's roles in science should not just be limited to documenting research, according to Mehling. Participatory photography is a new movement that encourages citizen involvement. "It's not a one-way communication of science; it's bringing stakeholders into the scientific process," explains Mehling.

The Faces of Biology Photo Contest

Enlightening the public and policymakers to what science actually looks like was one of the goals of the Faces of Biology Photo Contest, organized by the American Institute of Biological Sciences (AIBS). The contest, which ran in the fall of 2011, encouraged researchers and students to showcase the varied forms that biological research can take, whether in a lab, the field, a natural history collection, or a classroom.

Geoffrey Gallice, a graduate student at the University of Florida, in Gainesville, won the grand prize for his self-portrait taken while he captured brush-footed butterflies in a baited trap in Soberanía National Park, located in central Panama. In his research, he investigates the relationship between the abundance and the distribution of butterfly species. Photograph: Geoffrey Gallice.

The grand prize winner of the contest is featured on the cover of this issue of *BioScience*, as well as in this article. The winners received a one-year membership in AIBS, including a subscription to *BioScience*. The grand prize winner also received $250.

"Pictures and images speak volumes in the language of their viewer [and are] are emotive, compelling, and something we don't do enough of as professionals," said Sheri Potter, the business and programs development manager at AIBS. "Visual communication is an important mechanism in communicating science to the public, and with new technologies, one that we are all equipped to participate in with tremendous ease. We hope this contest will inspire scientists to think about how they communicate about their profession and research visually, and we invite them to make these images more accessible to the public through sharing them on Facebook, Twitter, Flickr, and on their Web sites."

The photo contest drew interest from students, researchers, and faculty members from across the nation. The entries featured biologists conducting research on birds, reptiles, plants, fish, insects, mammals, and ecosystems. The depicted

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research took place in various terrestrial and aquatic habitats and inside research facilities.

Tips for the scientist turned photographer

No matter what your current skill set, taking better pictures is possible with a little know-how and practice.

"Most scientists should aim for basic proficiency, even with just a cell-phone camera," encouraged Wild. "Cell-phone cameras are inexpensive and take good-quality photos nowadays. Lack of a high-end camera shouldn't be a deterrent."

Here are some tips and solutions for common mistakes, offered by Mehling, Wild, and the author of this article.

Take pictures of people, not just equipment. Taking photos of research equipment seems to come naturally, but scientists sometimes forget to take pictures of themselves or their research assistants at work. Showing people doing research is a great way to communicate about science to the public and to demonstrate what research looks like.

Have people pose in natural and informative ways. The people that you photograph do not need to look directly at the camera and smile. Instead, have the subject freeze in a natural pose that demonstrates the research that is being conducted. (See the winning photos for good examples.)

Plan your shots in advance. Take a few minutes at the start of a research project to make a list of the images that you need to convey the narrative of your research. "A little forethought can make those images more intentional and multipurpose," said Mehling. "Think about your research as a story and plan on how to depict that story through images."

Keep your photos simple. The background of your image should be uncluttered and allow for a clear silhouette of the subject. Watch out for distracting elements like utility poles and signs. If the background of your photo contains unwanted elements, try moving a few feet to the left or right.

Zoom in. Watch out for extraneous space around the subject of the photo. Don't be afraid to zoom in or to physically move closer to your subject in order to keep the focus of the picture on the subject. (Laura Russo's photo is a good example.)

Take the photo at your subject's height. Too often, we take images while we are standing. This often means that the photographer is physically looking down at the subject, which can influence the viewer's perception of the subject. For instance, a photo of an insect taken from above is not as intimate as a photo taken at the insect's eye level. Try kneeling or even lying on the ground to take the photo at the subject's height. By changing your vantage point, you can help to engage the viewer and can better tell the story from the subject's perspective.

Do not center your subject. Placing your subject in the center of your frame is a common practice. Although it can be appropriate to center your subject, it is often more interesting if the subject is placed to the right or left of center. Use what is called the *rule of thirds*. Basically, imagine dividing a photo into nine equal parts, with two horizontal and two vertical lines. Placing the subject at any of the intersections of the lines creates more visual interest and energy. (Geoffrey Gallice's photo is a good example.)

Laura Russo, a graduate student at Pennsylvania State University, in University Park, won first place for her photo of visiting high school student Katherine Santiago. Katherine collects nectar from a sunflower in a lab in order to study the resources that plants provide to pollinators. Photograph: Laura Russo.

Jessica Celis, a field technician at the HJ Andrews Experimental Forest Long Term Ecological Research Network site, located in the Cascade mountains of Oregon, won second place in the photo contest. The photo shows Celis surveying rare plants in San Joaquin Valley, in California. Photograph: Jessica Celis.

Share your images online. Photo-sharing Web sites, such as Flickr, are a great and free way to make your images available for use by others. There are not enough photos of biology online. Pictures posted on Flickr are available for use by others, with proper attribution, when licensed through Creative Commons (*creativecommons.org*).

Get training and seek help. Take a photography workshop, read a book or blog about photography, or collaborate with a photographer. Many professionals are interested in learning about the species and ecosystems that they photograph. Look for local members of a nature photography association or a local photography club.

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