

Scanning Dragonflies

If you have ever collected dragonflies, you know how annoying they can be to add to a collection. Apart from the fact that they're hard to catch in the first place and take up a ton of space in your collection if you pin them, they are notorious for losing their colors. If you don't treat a dragonfly specimen properly the colors WILL fade dramatically. You can preserve the colors to some extent by soaking dragonfly specimens in acetone, but I personally like to avoid using toxic chemicals when I can. Thankfully, there's another method you can use to ensure near perfect, long-lasting color preservation that doesn't use toxic chemicals. Instead, it uses this:



Flatbed scanner. Image from http://www.amazon.com/Canon-CanoScan-9000F-Color-Scanner/dp/B003JQLHEA/ref=sr_1_13?ie=UTF8&qid=1309327081&sr=8-13

The method of scanning dragonflies that I use was originally developed by Forrest Mitchell and James Lasswell of Texas A&M University and is described in limited detail on their website, dragonflies.org. While I don't follow their method exactly, my adaptations have worked quite well for my purposes. I'm passing along my method here, but please note that Mitchell and Lasswell's complete method is a lot better in many circumstances. If you want to learn more about it, they detail their process in their excellent and beautiful book [A Dazzle of Dragonflies](#). I highly recommend this book for any dragonfly lover, but it's an excellent source of additional information about scanning dragonflies if you want to go further than what I present here.

Things You'll Need:

- A computer, preferably one with a big hard drive, a fast processor, and a lot of RAM
- A flatbed scanner. Personally, I've found that the compact scanners that use low light LEDs produce inferior images because they just don't produce enough light. I use a scanner like the one in the image above, though a few models older, and I've been reasonably happy with it. The faster the scan speed, the better!
- Image processing software. I use Adobe Photoshop CS4 currently.
- A couple of thick mousepads. If you can't find thick mousepads (I've had a hard time the last few times I've gone out looking for them), you can either a) buy several and stack them or b) buy a piece of foamcore board and cut it to size.

- A refrigerator
- Dragonfly specimens

Making Scans:

You'll be scanning the dragonflies live, so the scans need to be as quick as possible to work. Get everything up and running before you collect your dragonflies! Follow the directions for installing the scanner and any software you use. Prepare the mousepads for use by cutting out the center so that you create a hole big enough to fit the largest dragonfly in your area into the space with ample room to spare all the way around. I cut my mousepads like these...



...but I wouldn't do it this way again because the holes aren't quite big enough for the really large dragonflies in my area. One larger hole in the center would work much better. If you use foam core, cut three 8x10 inch pieces and then remove the center as described for the mousepads. You need the mousepads/foamcore for two reasons. First, these materials keep the scanner lid from crushing the dragonfly as you scan it. Second, the frame around the hole prevents light from escaping out the sides of the scanner and produces a sharper, higher quality image.

Once you have your mousepad/foamcore, scanner, and software ready to go, collect your dragonflies. Place the dragonflies into individual bags as you collect to protect them. If you're going to be out collecting a long time, it's best to place the bags in a cooler with ice to cool the dragonflies down. You want the dragonflies to be alive when you scan them, so minimize their sun exposure and keep them cool!

When you return home, place the dragonflies in the refrigerator and let them cool for 2-24 hours. Just before you want to start scanning, place the mousepad(s)/foamcore on the scanner glass:



My dragonfly scanning setup

If you have several pieces, stack enough of them so that the dragonfly will not stick out past the upper surface at all or it will be crushed. Choose a dragonfly that is no longer moving from those in the fridge and remove it from the bag. Place the dragonfly in the center of the mousepad so that its wings lay flat against the glass:



Dragonfly on scanner

Position the legs and body as you like. Then put the lid down carefully and scan the dragonfly! The heat from the lights will start to revive the dragonfly, so you need to balance your need for detail with your need for speed. I scan my dragonflies at 1800 dpi, which is high enough to generate large images while low enough that the entire scan only takes about 15 seconds. The faster the scan the better! Play around with your equipment and figure out the right balance for your setup.

After you scan the back of the dragonfly, quickly flip the lid up and reposition the dragonfly to scan the side. To do this, carefully fold the wings up over the dragonfly's body and then lay the bug onto the glass, positioning the body parts according to your preferences, like this:



Pantala hymenaea male, side view

I like to keep the tips of the wings pointed toward the far end of the scanner so that I don't accidentally crush the wings as I close the lid. Then scan as described above.

At this point, you can either release the dragonfly (if you live close to the area where you collected it), return it to the collection site, or dispatch the dragonfly and add it to your collection. Regardless, you'll have a high quality image that preserves the colors and other details of the dragonfly forever. By scanning both the back and the side, you also capture enough detail that you can identify many of your dragonflies without the physical specimen.

I send my scanned images directly to Photoshop and then crop out any extra space around the dragonfly. The colors are often off a bit, so the Levels adjustment tool comes in very handy for quickly adjusting the colors to match those you see in life. Alex Wild has already [described the process I use with the levels tool in a blog post](#), so I recommend that you visit his post for more information on how to use this fabulous tool! If everything goes well, the final image should look something like this:



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Spot-winged glider male (Pantala hymenaea)

I save my images with the name and sex of the species and organize them into folders that include the location and the date. That way, I can remember all of the important details about the images later. You could also include the information on the image itself by adding text with a text tool. That way the locality data, date, species, and sex are always attached to the image.

Because I don't like to soak my dragonflies in acetone, I scan nearly every dragonfly in my collection as they are incorporated so that I can remember what the colors looked like while they were still alive. I do not, however, spend a lot of time getting everything perfectly lined up in my images. If you aim to produce images for print documents or other purposes that require better images, I recommend that you get Mitchell and Lasswell's book and follow their more complex, complete method. Their full method will help ensure that the dragonflies in your images look as nice as possible.

I love scanning dragonflies! It helps me preserve colors in an insect that fades more horribly than you'd ever expect and it's quick and easy to do. It's also fun to build a collection of dragonfly images as you build your specimen collection. Thank you Mitchell and Lasswell for making your scanning method available to the world so that dragonfly enthusiasts and scientists like me can benefit from your brilliance!

Tutorial produced June 2011 by C. L. Goforth. For this and other insect collecting tutorials, please visit <http://thedragonflywoman.com/educationalmaterials/>.