

SCANOPICS

Taking photographs with a flat-bed scanner

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The idea of scanning live fungal specimens directly into the computer came to me during my first outing with the North West Fungus Group at the Styal Country Park foray in autumn 2000. I was doing what newcomers do – shadowing members and keeping my ears and eyes open and my mouth firmly shut! Margaret McCormick, one of our members was showing some of the others an A4 size print of Giant Club, *Clavariadelphus pistillaris* that she had done with her scanner. . . . My mind clicked into another gear and I thought – ‘I can do that’!

Unfortunately, I had several days to wait until my next slot of weekly leave, but when it

came around I made sure some fungi arrived home in mint condition. And so it began. Over the next few months several specimens found their way onto the glass and were tried and tested. Some worked better than others. Very small or whitish things don’t seem to work at all well as though the scanner cannot focus on them properly. A pity too that the best of the fungus season was over and I was going short of specimens! On a cold, snow-spiced day in March a ‘new tick’ for my personal records and a splendid specimen for the scanner appeared – *Mitrula paludosa*. There were around a hundred in a ditch beside the tiny road to Aber Falls, North Wales (we were road walking due to the foot and mouth crisis). My husband first spotted them, I had walked straight past apparently, when I heard him ask ‘What are these orange blobby things then?’!

I knew from listening to Margaret at Styal that the specimen has to be covered with something on the scanner. You need to keep the scanner light in and extraneous light out. Obviously you cannot use the scanner lid as normal, otherwise you would be well on the way to producing ‘squashes’ for the microscope! I hunted through the kitchen cupboards and decided on a solid white microwaveable



Suillus clintonianus (= *S. grevillei* var. *badius*) with its intense red-brown sticky cap.
Photo © Pauline Greenhalgh.



Cortinarius conicus with characteristic blackening caps and swollen, rooting stems. Scanned by the editor on an inexpensive (£120) Umax flat-bed scanner. Photo © G. Kibby.

sandwich box. This turned out to be such a good choice that I have not experimented with anything else. It gives an even grey background, which is so very complimentary to fungi. Possibly an insert of coloured, or black card may be worth trying sometime for certain species?

You will need a graphics program to 'tweak' your mushroom scan into something extraordinarily close to a digital photograph. The results can be astounding with a little patience. I have three graphics applications – Adobe Photo Deluxe, Adobe Photoshop and Paint Shop Pro and I frequently use components from all on the one scan. I'm no computer expert (entirely self taught) so it's trial and error as I don't have the patience to read the Help! In the early days it frequently



Mitrula paludosa showing just how good a flat-bed scanner can be even with small fungi. Photo © Pauline Greenhalgh.

led to bad language and storming off upstairs – mainly so that I didn't take a hammer to the monitor. . .

My technique is to lay the specimen carefully on the glass, removing as much loose or gritty material as possible. The vacuum cleaner more or less lives plugged in beside the computer at this time of year. After each session and before putting the scanner lid down, I use the little brush attachment on the Hoover to 'hover' just above the glass and suck up any bits. Scratch the glass and the scanner is useless. Set the scan resolution between 600 and 900 ppi. Do the prescan first then select just the area you want for the finished picture and click on full scan and wait. It takes longer the higher the resolution and if you go too high your machine may 'choke' from lack of memory and stop responding, causing a close down/start from scratch scenario – I did warn it was trial and error!

Once you have your full scan picture you can start to 'tweak' it. And this is where, if you have an artistic eye, you can influence the end result, whilst keeping true to the specimen's colours and contours. I use the tone adjustment in Iphoto Plus (the program that runs my Mustek scanner). Then I take it off to Adobe PhotoD because I like their 'clone' tool. Just before you take it off you should name the scan and make it a .tif (dot tif) extension. Extraneous bits (grit, stray pieces of grass, maggots and any other lively things galloping about in the sudden heat, intrusive shadows and occasionally marks in the plastic box) can all be removed from the picture with the clone tool. A tip though – try to leave some shadows otherwise the finished picture can look false, but you can certainly even out the background grey until it is pleasingly nondescript. Avoid the instant fix button – for some reason it turns live scans into something very unreal, changing the fungi into a completely different and usually wrong colour altogether! From Adobe I go to Paint Shop Pro and as this application is still new to me, I have not fully mastered it yet. At this stage it is a matter of taste as to how much you sharpen, sharpen more, sharpen edges, despeckle or remove 'noise' (computer-speak for getting rid of bits

caused by too much sharpening – not turning off the TV!) Colour adjustments can be done here too, hue, saturation, highlights and so on until you have a picture which you think is a correct representation of the real thing. In fact you can 'do' and 'undo' to your hearts content until you have a stunning picture.

Now you are ready to check the print preview and adjust the size of the pic to the paper if you want a print. Also adjust the printer properties settings to high, best, advanced photo, etc and tell the printer what sort of paper you are going to use, photo paper or glossy film (the latter gives stupendous results). Then wait while it produces a stunning print for the living room wall, or a whole series for the stairs, or even a couple for the loo! What? You mean all mycologists' houses are not like this?

Now is also the moment when you may want to send a copy to your e-mail friends, but for e-mail you must save a second copy from the .tif and save it as a .jpg (dot jpeg). Both Adobe and Paint Shop Pro have reduction buttons to use with jpeg and you will need to either experiment or be very good at arithmetic! The jpg reduction reduces the amount of pixels in the finished picture and if done right does not affect the looks of the image (on screen) and allows it to be sent fairly quickly (and cheaply) via e-mail. Remember .tif is for printing a superb high-resolution print – .jpg is for sending with e-mail via the phone without costing the earth! Depending how good you want it to look you can aim for a reduced file size between 20Kb and 90Kb. Again, this is trial and error, but do not skimp this part of the procedure or you may risk losing your friends. When I first tried sending via e-mail to a dear friend, she told me that my picture took 12 minutes to crawl into her inbox. Oh dear. . . we are still friends and I have improved as far as the file size – or should I say – lack of file size is concerned!

[For an earlier article exploring this theme, written when scanners were considerably more expensive, see Shelley Evans: *Electronic Fungi* - a virtual possibility. *Mycologist* 10(1):8-10 (1996) - Editor].