

Photographing things that fly...

The second of a possible series of articles by Graham Anderson

Digital Single Lens Reflex (DSLR) cameras are now appearing with more and more really sophisticated features, as well as enough pixels to rival medium format film cameras. Some aspects of flight photography now get a lot of help from the camera itself: dynamic auto-focus, and predictive focus, and vibration reduction, all make it easier to follow a bird in flight and to take fabulous, dramatic photos as it goes about its normal life in your viewfinder. Remember the shot of the osprey grabbing a fish on the cover of AP March 2009 ?

That sort of photography deserves a how-to article, but this isn't it. My sort of photography of things that fly usually involves the use of infra-red light beams to trigger the camera, and in this context, DSLR cameras bring two significant problems.

First, if you try to keep a digital shutter open on the Bulb setting for more than a minute or so, then electronic noise becomes visible in your picture as random brightly-coloured pixels. The camera's noise reduction feature can take as long as your exposure-time to fix the noise, with the camera inoperative, while you're missing great shots of birds, bats, or lightning strikes. An altogether unsatisfactory arrangement.

Second, it can take a DSLR camera a long time to get its shutter open. With no warning, it can take around 200 mS (milliseconds), or one fifth of a second. A bird can be well away from where you focused in that time. With some warning, and the shutter button half-pressed in advance, it will still take around 50 mS to open, fast and slow enough for your subject to be well framed but tantalisingly out of focus.

I've built a machine (a microprocessor-driven control box) that has five different ways of dealing with these problems, each with its own advantages and disadvantages. None of them is as totally suited to the job as my old medium format camera with its fast shutter; but my old slides are fading, and I hope my new digital shots will last forever. Disadvantages or not, we need to make the transition.

IR light beams

Light beams for flight photography have infra-red (IR) light-emitting diodes just like your TV's remote control. They emit a continuous narrow beam or stream of pulsed IR light, not just when you press a button. When something interrupts the beam, the receiver unit sends a message to your equipment, usually causing the camera or flashes to fire.

With the latest technology, light beam transmitters and receivers are about the size of a matchbox. Mine are cast in resin so they're completely waterproof.



Now, rather than getting all technical about my machine, I'm going to talk about a photo-shoot that used just one of its five special modes for flight studies on a DSLR.

The operating mode used for this shoot is one I call Rear-Curtain Flash mode. When a flying creature blocks light beam number 1, the machine tells the camera to open its shutter, which

is set to Bulb. When the creature hits beam number 2, about 30 cm further on, it tells the camera to close its shutter. The camera, being set to Rear Curtain Flash, triggers the flash immediately before closing, which means my subject creature is right where I've focused, in the second light beam. This mode is really only suitable for nocturnal creatures, like bats, and I'd like to try it on owls, frogmouths, or nightjars. But anyway, it works quite well.

The shot I didn't get

I've photographed a lot of bats, mostly at mine-shafts or caves or sometimes artificial caves. (That's for another article, using different modes on my machine.) One species of bat that I wanted to photograph has the habit of flying over water, hunting for moths, aquatic insects, maybe even an occasional small fish or shrimp. It was recently scientifically renamed as *Myotis macropus*, meaning Large-footed Myotis. The only flight study I'd ever seen of it is Noel Speechley's fine shot published in *The Complete Book of Australian Mammals*. I wanted to get some shots of my own.



The threads behind this bat and near the upper wing-tip are streams of water flying off feet and wings.

There's a spot near the Queensland Sunshine Coast where I'd been told they fly in sufficient numbers for my purposes. I arrived at this creek never having seen a *Myotis* or observed its behaviour before, and not having reconnoitred the location at night either. In these circumstances, the odds of getting a shot 'on film' that first night were hundreds to one against. But the weather was fine, the place was beautiful, and I've never lost the boyhood pleasure of paddling around in a creek, so I set up the gear anyway. I found a sleeve of water where the bats might fly between one pond and the next, if they wanted to stay over water; or if they came at all.

Against all odds, you could say I did get a shot of *Myotis* that night. If I assembled together the cut-off right wing, a head and a bit of body of one shot with the other shot of a left wing and a bit of body, I had a shot of a bat. But it was a start. The next night, it rained, so I couldn't take photos, but I observed the bats flying in the mist for a while, and got some ideas about their likely behaviour.

In the following nights three and four, with a new equipment layout, I got some shots, not perfect, but getting better. On night three, with the beams 25 cm apart, they were too close, so the bats were slightly out of focus.

On night four, with beams 30 cm apart, things went well. The metadata of the photos taken indicated a shutter-open duration of only 1/10 second for most shots. That's not bad

considering it was a sort of open-shutter technique using the Bulb setting. No problem with long-exposure visual noise there! So this technique had overcome both of the disadvantages of DSLR cameras that I described earlier.

The most interesting shot of all is the last one in this series, shown below. Just behind the bat is a double ripple where it has scooped an insect off the surface of the water. In the photo, it is bending forward to transfer the insect to its mouth. Now, imagine if I had placed the camera more to the side for this shot. Or a second camera. To get the side view of the bat transferring the insect to its mouth. Now that would be a shot worth chasing!

I have to go back. I've got to get that shot ! I've gotta get it !!!!

Don't hold your breath though. This last fairly-successful shoot was fitted into a window of opportunity between two rainy weeks. Since then, the creek has been running high, there have been few insects cavorting on its surface, and the season is rapidly turning cold. Considerably fewer bats are flying. I need reasonable numbers to have the chance of getting photos. So I now have to wait for the Spring, after it warms a bit, before the rains. And when I get back there, the chances of getting **that shot** made to order are... pretty low. Wish me luck.

I'm curious to know if there are other members out there interested in this kind of photography, and if you want another article, and if you mind if it gets a bit technical.

Graham Anderson



There's a ripple in the water where this bat just scooped up an insect with its feet. It's transferring the insect to its mouth as the photo was taken.