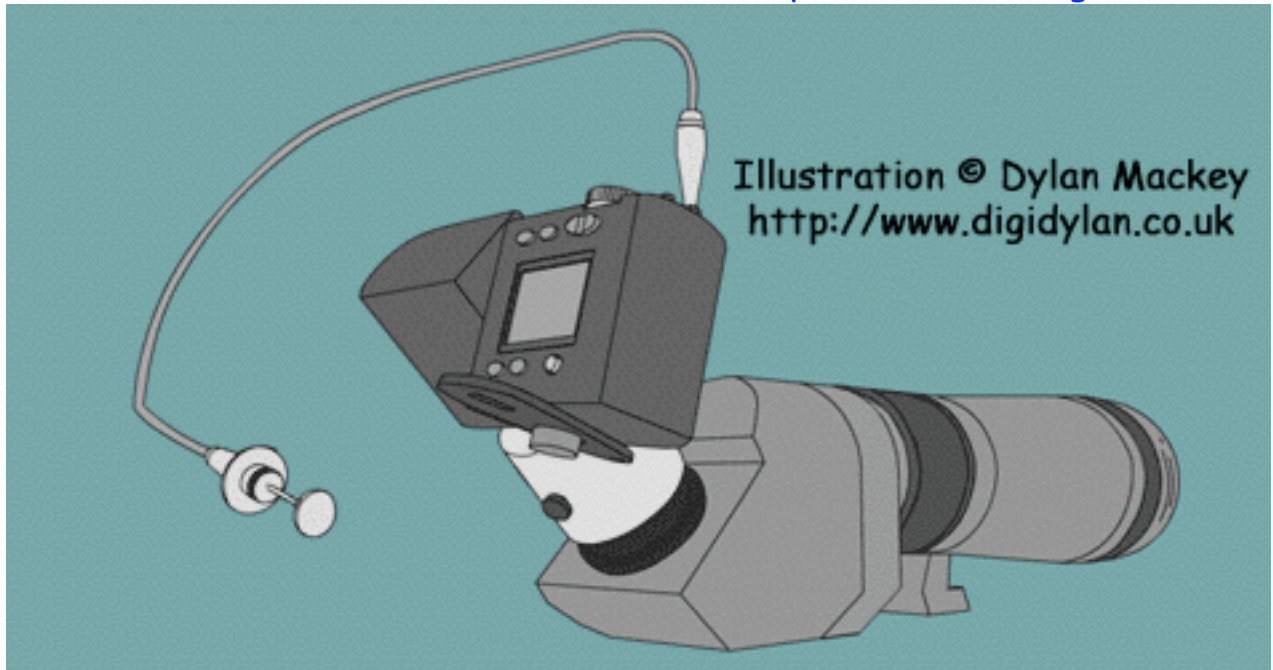


DIGISCOPING TIPS & TRICKS

©Bill Schmoker (<http://schmoker.org/BirdPics>)



- ✓ (Good): Most birders can do this with the scope equipment they already have and a digital camera or camcorder. These are mostly technique issues to consider.
- ✓ (Better): Takes a little more effort but can be done with regular birding equipment or with minor, inexpensive changes to the set-up.
- ✓ (Best): Yields the best results, especially in challenging conditions, but could significantly add weight, complexity, and expense. Consider some of these strategies if you plan on spending at least some days doing more bird photography than birding!

Note: Links to selected website resources have been included to help locate equipment. No commercial endorsement is implied and the author has no financial interest in any of the included links.

Get Steady: The extreme magnification of digiscoping set-ups can be a two-edged sword--while you can "reach out and touch" distant birds, any movement, vibration, and/or shake will be greatly magnified as well. This problem of "optical leverage" can be countered with some tripod-use strategies:

- ✓ (Good) Lower your tripod if possible. Try dropping the center post all of the way down. Consider partially or fully collapsing the legs. This is especially important in windy conditions.
- ✓ (Better) Spread your tripod legs to a wider position. This, along with collapsing the legs, can make a tripod much more steady, especially in the wind.

- ✓ (Best) Get a heavier, sturdier tripod. Most birders use tripods rated for about 11 lbs, but getting a 22 lb+ rated tripod will provide a more solid platform. Expect to pay more, and expect to develop a groove in your carrying shoulder! (Carbon-fiber tripods ease the weight problem and are very good at damping vibration but can destroy budgets, too!) (<http://www.bogenphoto.com>)
- ✓ (Best) Get a more robust tripod head. Many digiscopers have adopted the use of ball heads or gimbal-mount heads. Both are heavier and more pricy than "regular" heads, but are sweet to work with. (<http://tripodhead.com>) (<http://www.bhphotovideo.com>)

Get Connected: Snapping shots by hand-holding the camera to the scope is quick, convenient, and requires no additional equipment. Unfortunately it also requires good light, cooperative birds, and a very steady hand. It also can be tricky to center the camera over the eyepiece. One solution is to mechanically connect the camera to the scope.

- ✓ (Good) After locking off the scope on the desired target, hold the camera firmly to the scope to minimize shake and vibration. Zoom out as much as possible without excessive vignetting ("tunnel vision") to minimize optical leverage.
- ✓ (Better) Jury-rig a coupling device to center and steady the camera over the eyepiece. I've seen home-made versions made of old film canisters, PVC pipe, and wood. The camera is still hand-held, but "finding center" is faster and camera shake is cut down.
- ✓ (Best) Use a mechanical connector to attach the camera to the scope. This takes more time, but centers the camera and eliminates hand-held shake (but not other sources of shake discussed later.) There are scope-specific adapter systems (Kowa, Leica, and Swarovski), and general-use adapters that connect the camera to the eyepiece. Eagle Optics (<http://eagleoptics.com>), EagleEyeUK (<http://eagleeyeuk.com/>), and PhotoSolve (<http://www.photosolve.com>) have many systems for different set-ups.

Hands Off: The simple act of pushing the shutter button can induce image-blurring shake. Many film photographers use mechanical shutter release cables when shooting at slow shutter speeds or when using telephoto lenses with lots of optical leverage. Unfortunately most digital cameras aren't threaded for cable shutter releases.

- ✓ (Good) With your camera connected to the scope, use the self-timer feature of the camera. This will trigger the shutter a few seconds after you push the button, letting any finger-induced shake dissipate before the image is exposed. Of course, the bird has to be standing still for this method to work!
- ✓ (Better) Fashion a cable-release bracket out of common hardware store items like shelf brackets. I've seen many creative home-made cable-release brackets. Check out this website with directions for making an inexpensive home-made cable-release bracket using parts from the hardware store: (<http://www.angelfire.com/ga2/photo/bracket.html>)
- ✓ (Best) Buy a custom-machined wing bracket and cable-release arm to allow use of a mechanical release cable. A good supplier for many camera models is PhotoSolve (<http://www.photosolve.com>) OR:

- ✓ (Best) Buy an accessory electronic remote for your digital camera. Note: The electronic remote for Nikon Coolpix cameras is notoriously slow to boot up and prone to malfunction at inopportune times- buyer beware.

Balancing Act: If you are attaching your camera to your spotting scope you will quickly realize that the scope/camera combo is quite back-heavy and unbalanced on the tripod head. Your scope will want to wander up from the target, and the scope will only stay on target if you lock off the vertical pan *very* tightly.

- ✓ (Good) Plan on the upward "creep" by aiming a little below your target. Lock off the vertical pan FIRST, and THEN lock off the horizontal. As you tighten the horizontal pan on a "normal" tilt/pan tripod head, you will notice that the field of view "climbs" a little bit. This lets you fine-tune the camera's aim by tightening &/or loosening the horizontal pan. With so much optical leverage, a tiny bit of adjustment on the tripod head will make a noticeable difference on your subject composition.
- ✓ (Better) Fashion a home-made counterweight that hangs off of the front of your scope. Whenever you hang the camera off of the back, hang the counterweight off of the front. Experiment with weights and methods of attachments.
- ✓ (Best) Use a video quick-release plate system on your tripod head. This allows the scope to slide forward to a position of balance when the camera is attached, and to slide back into balance when the camera is off. Bogen, Wimberly, and Arca-Swiss make nice systems. See <http://tripodhead.com> or <http://www.bhphotovideo.com> for more info on these.
- ✓ (Best++) Use a gimbal-mount tripod head that doesn't just balance the load front-to-back, but adjusts so that the scope's center of gravity is aligned with the tilt and pan axes. You can point your scope at your target and begin taking pictures without locking off the tripod because it will stay wherever it is pointed. (Regular tilt-pan and ball heads are inherently out of balance because the center of gravity of the lens is above both axes.) See <http://tripodhead.com> for details.

Go Fast: Many of the problems with shake, vibrations, moving targets, bad air, etc. can be minimized by shooting with fast (as possible) shutter speeds. Under most conditions I like to shoot at a minimum of 1/250 second. For moving birds 1/500 second or faster is even better. For stationary birds, slower shutter speeds can work as long as everything else is rock steady.

- ✓ (Good) Operate your camera in Aperture Priority mode, opening up the shutter as far as it will go. Watch your shutter speed, adjusting the ISO to more sensitive levels or zooming out if needed to maintain appropriate speed. Higher ISO values will yield grainier pictures but they are almost always better than blurry pictures.
- ✓ (Good) Zoom out your eyepiece- this will give the camera more light, enabling higher shutter speed. Remember, you can virtually "zoom" back in on the bird later to some degree by cropping and enlarging your digital photo.
- ✓ (Better) Use a fixed, low power eyepiece. Modern zoom eyepieces are great, but have more lens elements than a fixed power eyepiece and therefore aren't quite as bright.

Major scope manufacturers have fixed power eyepieces in the 20 to 30 X range. (Bonus- these wide-angle eyepieces are wonderful to look through, too.)

- ✓ (Best) Use a long eye relief (LER) or 3rd party digiscoping eyepiece for digiscoping. I don't like looking through these as much since they have a narrow field of view, but they *let the camera zoom out much farther* without vignetting. This gets into the lower f-stop range of the camera, allowing faster shutter speeds. This also lets you compose closer subjects without cutting off important parts of the bird! Eagle Eye UK (<http://eagleeyeuk.com/>) makes an aftermarket digiscoping eyepiece that fits most major scope brands (I haven't personally tried it.)

Focus Pocus: Getting good focus can be one of the most challenging dilemmas facing digiscopers. Limiting shake and vibration using the above techniques is a huge part of solving the problem, but a few other techniques can help.

- ✓ (Good) I recommend setting your camera to spot focus mode, which will allow it to auto-focus on whatever is in the center of your frame. If continuous focus is an option on your camera, turn it off. This way, you can lock in the focus on the subject or a nearby object by half-pressing the shutter. If needed you can then re-compose the frame and take the picture. For some reason, setting Nikon Coolpix cameras to the macro setting ("flower" icon) seems to help the auto-focus work better with the scope. Also, if your camera has "focus confirmation", I recommend turning it on.
- ✓ (Good) To help the camera auto-focus on the subject, pre focus the scope as much as possible while looking at the camera's LCD screen. If you half-depress the shutter and the auto-focus locks on a nearby object instead of the bird, fine-tune the focus on the scope before completing the shot.
- ✓ (Good) Another technique that some digiscopers use is to set the camera to infinity focus ("mountain" icon on Nikon Coolpix cameras,) and then do all of the focusing through the scope. This can be faster than using the camera's auto-focus, but seeing fine details in the LCD monitor can be tricky, especially in bright light. This is also the best option if you are photographing a subject through branches or grass in the foreground that the auto-focus can't ignore.
- ✓ (Best) Bright sunlight can make it hard to see the camera's LCD. To see how the focus is working, either in auto-focus mode or when manually focusing the scope, shading the LCD can help a lot. There are commercially available magnifying LCD viewers that attach with Velcro or using a wing bracket (described above.) These help you see the pixels better to attain sharp focus. You can also improvise a sun shield using your hat, a towel, a dark cloth, a parasol, or whatever works. (<http://www.photosolve.com>)

On Target: Another challenge faced by digiscopers is finding the target! It can be really frustrating to see a great bird out in front of you but not being able to get it in your scope. Throwing a camera on the scope produces a much narrower field of view, making target acquisition tough.

- ✓ (Good) Remember what it was like the first time you got your scope? Finding birds in it wasn't always easy, especially if they were moving or if they were in a reference-free

background (big lake, empty sky, etc.) Starting with easy targets (big, close, still birds, like geese) is a good idea. Move off of the target and find it again- practice makes perfect.

- ✓ (Good) Don't forget the sighting guides built into most scopes. Birders often forget these as they get proficient with their scopes, but using them can get you on target with your camera fast.
- ✓ (Good) Enlist a spotter to help keep track of the bird while you are getting things set up and trying to find the target in your scope. A partner can really help by describing how the bird is moving, looking for nearby landmarks to assist location, etc.
- ✓ (Best) Buy or make an image-locating sight. Much like a rifle sight, this can get you centered on target quickly and accurately. The only commercial version I'm aware of is available from EagleEye UK (<http://www.eagleeyeuk.com>), and works like an adjustable two-pin rifle sight. It connects to the shade hood of a scope with a wide neoprene band or tape. A few bold digiscopers are using red-dot pistol sights attached to home-made brackets. Other clever digiscopers have rigged sights for their scopes using PVC pipes & toothpicks that work like a two-pin rifle sight. Attach the sight out at the sun shade so you can sight through it as you're looking at your camera's LCD monitor. (If the sight is too far back on your scope it will be difficult to use.)

Technique Tips: There are a few last things that I would encourage you to think about or try when digiscoping that can greatly improve the quality of your shots. Unfortunately, birds don't always show up where and when you want them to, and they don't always pose for long, but whenever you can control these factors your results should be great!

- ✓ **Aware of Air:** Very often the limiting factor for good photos of a distant bird isn't the magnification potential of the digiscoping set-up but the quality of the air. Atmospheric distortions can degrade image quality on targets as close as 50 feet. You may be doing everything right and still be getting soft or downright blurry images if you are fighting bad air ("heat waves", etc.) As a general tip, shooting early in the day before the earth's surface begins heating up can limit this problem. Ironically, wind can sometimes help by disrupting layers of different temperature air, creating more homogeneous atmospheric conditions (but making it harder to get a steady shooting platform.) If you are fighting bad air, shooting from an elevated platform can help, since your line of sight could plunge through the "bad layer" along a shorter path than if you are shooting evenly through the bad layer. Keeping your shutter speeds high can also help reduce the problems of bad air.
- ✓ **Right Light:** It's nice if a bird is illuminated from sunlight coming from behind you, but of course this can't always happen. Bright overcast days can provide even light for birds against good backgrounds but can be brutal if the bird is seen against the sky. With any photography it is important to pay attention to light, and to anticipate ways to handle difficult situations. One thing to try if the bird is against a bright sky and you think you are underexposing the subject is to bump up your exposure compensation. If the bird hangs around, bracket your shots, starting with a "normal" exposure, +.7, and +1.3,

for example. Conversely, if the bird is brightly lit but against a dark background you may overexpose the bird, burning out highlights or washing out the whole subject. In this case bump down the exposure compensation, ideally bracketing at "normal", $-.7$, and -1.3 or something like that. In either situation take a moment to review the shots on your monitor to see how the bracketing is working and to pick an exposure compensation setting that works. (Note: In general it is easier to "rescue" underexposed shots than overexposed shots when you are working with image processing software. Also, shots tend to look underexposed on LCD viewfinders that are in bright sunlight- get to know how bright light affects your camera's monitor.)

- ✓ **The "Lock-Tweak-Lock":** Another way to deal with difficult metering situations is to compose your shot and tightly lock of your scope. Then, you can "tweak" the exposure by nudging your scope off target a little until your center-weighted or matrix metering picks up the exposure setting you want. Lock in the exposure by half-depressing the shutter, and then let go of the scope. When it comes back to the composition you set earlier let the vibrations steady out for a second or so and then complete the shot by fully depressing the shutter.
- ✓ **Trigger Happy:** The last, and possibly best advice I can give you is to take tons of pictures. Even if you think you got a great shot of a bird, take lots more anyway. Try pictures at different exposures, different zooms, different ISO settings, different compositions, etc. I shoot in continuous mode and often take 3 or 4 pictures sequentially at a time. Then I stop, re-compose, re-focus, and take more pictures! It is amazing to me how sometimes in difficult air, light, or wind conditions one shot out of a series of dozens or even 100+ will turn out ok. Plus, taking lots of pictures is the best way to become familiar with your camera's features and to learn what works in various situations. You will also learn more and more about the birds as you see them in different poses and behaviors. Then, when a really good bird comes along and you don't have long to get that "shot of a lifetime" you will be ready. The best part about taking lots of digital pictures is that you can delete the ones you don't want without spending lots on film.

