— SMALL WONDERS —

Why smaller sensor cameras are great for outdoor photography

Text & Photography By Josh Miller

I love the portability of using smaller cameras when scrambling. Having left my wider lens and tripod in the car when I climbed up some roadside cliffs, I really appreciated the ability to handhold a series of vertical frames and stitch them together afterward using Lightroom to make a higher-resolution final image.

As a photographer, I'm lucky to have come of age in photography at the very end of the film era. In college, I worked as a darkroom assistant and for several newspapers shooting sports with manual-focus prime lenses on super grainy black-and-white film. But it wasn't too many years after college that I bought my first digital camera.

As those of us "lucky" enough to have shot film know, while fun, film was a temperamental medium. Film was unforgiving, from scratched negatives and developing mistakes to minimal dynamic range and grain that would make today's noise-adverse photographers cry. When you compare that to the abilities of today's modern cameras, there's no question we have it easy today. Any digital camera made in the last 10 years can easily blow away the best of the film era, and the current generation of high-end full-frame cameras is just mind-blowing. But as digital cameras have gotten better, they have also gotten bigger.

For us outdoor photographers, full-frame camera systems from Nikon, Canon and Sony are the most popular and offer the best combination of image quality and lens options. But at what expense? Full-frame lenses and bodies are expensive and heavy. As an outdoor photographer who regularly travels to both front-country and backcountry destinations, I have always made weight and portability big priorities in my choice of equipment.

Going Small

In my never-ending search for lighter and more portable gear, I have tried just about every camera system and format on the market over the years—everything from a tiny Sony RX100 compact camera for lightweight backcountry ski or climbing

Above: For many years, Canyon de Chelly has been a place I wanted to visit and photograph. When we spent a couple days there during a road trip this fall, I couldn't wait to photograph the ruins with the full moon. This single-frame sunrise image was made by shooting the ruins from a distance and zooming in with the Olympus 40-150mm lens to make the moon larger and add compression to the image.

Opposite: While camping in Grand Staircase Escalante region, I hiked out to these falls in the early morning to avoid any sunlight reaching into the canyon. By photographing the falls and leaves in full shade, I was able to both avoid high-contrast light and slow my shutter speed down to blur the water. Sadly, the sunlight came in faster than I expected, and I only got to make this one composition before the top of the falls came into the sun.

days to APS-C sensor cameras from Fujifilm and the newest Micro Four Thirds sensor camera, the OM System OM-1, from OM Digital Solutions (formerly Olympus).

What really turned me on to the abilities of smaller sensor cameras was when I printed a 30x40-inch image shot with my Sony RX100 for the local climbing gym. I was blown away by how great the image of my friend traversing a ridge in the Yosemite high country looked. Sure, the print would have looked better if it was shot from my full-frame Nikon, but there was no way I could carry the big Nikon camera on the climb. And the print from the tiny 20-megapixel RX100 was perfectly usable in that size.

To me, the main advantage of using smaller sensor cameras (i.e., smaller than full frame) is that the lenses can be smaller than their full-frame counterparts. When Sony first started making

Above: While the weight savings of a smaller sensor camera wasn't really needed at this roadside pullout, I was amazed at how well the bracketed HDR file from the OM-1 held up as a print. I ran some test strips all the way up to 20x30 inches from this image, and they looked really good, especially once they were upsized using Topaz. Maybe not 45MP full-frame good, but still, the files from this smaller sensor camera blew me away and were totally printable.

Opposite: Only having a single day to visit Petrified Forest National Park this past fall, we were in the park from opening till sunset. I really appreciated how small and light the OM-1 was because I shot for about 12 hours straight without a break. With a storm breaking at sunset (the same time we were required to exit the park), I knew I had to be fast and light. After shooting as many sunset compositions as possible, I literally had to sprint for the car in order to make it out of the park in time.

One of the most important skills I have developed over the years as a wildlife and adventure photographer is how to previsualize and build an image. While it is fun, often we get sucked into following the action and miss the more time-consuming compositions that really tell a story of place. As in the case of this image, after a couple of days of photographing eagles fighting over salmon, my group was ready to start looking for something a bit more composed and less reactionary. So, we previsualized an eagle flying into our carefully composed mountain scene. It took a couple hours of waiting, but eventually a few eagles played their parts, and we all came away with some dramatic mountain/eagle landscapes.

full-frame mirrorless cameras, much of the marketing hype was about how much smaller they were. In reality, even though the bodies were a little smaller than an equivalent full-frame DSLR, the lenses were very similar in size to the DSLR versions. The real size and weight advantage of mirrorless cameras comes from reducing the sensor size and thus the size of the glass needed to cover it. Depending on the imaging chip size, smaller sensor mirrorless camera lenses can weigh as much as 40-50% less than their full-frame counterparts.

But this weight savings does come at a cost. Smaller sensors have less dynamic range and tend to have a bit more noise at high ISOs than their full-frame counterparts. While each camera/sensor has its own unique characteristics, a general rule of thumb is that for each sensor size reduction, i.e., full frame to APS-C, APS-C to Micro Four Thirds, you lose about a stop of high ISO ability and dynamic range. While this may seem like a deal breaker, the newest generation of smaller sensor cameras is really quite good. An easy way to think of it is that they're more similar to a full-frame camera of about five years ago. Aside from pixel peeping, were full-frame cameras five years ago up to the task? Absolutely!

Testing The OM-1

This past fall, after spending the summer carrying my heavy full-frame kit around Alaska leading bear workshops, my arms and back hurt. After years of urging from my good friend and OM System ambassador Eric Rock, I decided it was time to give the new OM-1 camera a spin. I borrowed an OM-1 and a few lenses for a road trip through the Southwest and an eagle workshop in Alaska. I was blown away by the abilities of this Micro Four Thirds-based pro camera and the tiny size and sharpness of the lenses.

While APS-C-sized sensors might seem like the best choice, as they don't give up too much image quality to full frame, they also aren't that much smaller than full frame. To me, the sweet spot in terms of really reducing your camera system weight is Micro Four Thirds. This is especially true for wildlife photographers who typically would carry huge telephoto lenses.

Top: Having photographed eagles in Alaska many times over the years, I really appreciated how light and portable the OM-1 was when paired with the Olympus 150-400mm lens. During my week of shooting, while others lugged around their heavy full-frame prime lenses and tripods, I seemed to always have the right focal length at my fingertips and didn't need a tripod to hold it. In this case, I was able to quickly be ready for the action when the two eagles started fighting.

Bottom: One of my favorite things about photographing wildlife is looking for the more subtle moments that help tell a story. In this case, it was less about the action of two eagles fighting over salmon and more about the intimate details of an eagle's hot breath on a cold morning.

Top: This photo shot with the OM-1 at ISO 4000 blew me away. With a bit of noise reduction and upsizing from Topaz, I was able to do a major crop and then print the file up to 16x20 inches, and it looked stunning. More than anything, combining new software with newer small sensor cameras has opened a new world of photographic possibilities that were only possible with much heavier and more expensive full-frame cameras a few years ago.

Bottom: Nothing is more fun than photographing fast-action wildlife. Years ago, the only way to shoot distant action in low light was with huge and expensive telephoto lenses mounted on a tripod. Well, times have changed, and if I learned anything from my time working with smaller sensor cameras recently, it is how freeing it is to ditch the tripod. Not only can you follow action more effectively handheld, but no tripod means you are more likely to move your feet and thus improve your composition, depending on where the action takes place.

The smaller sensor size of Micro Four Thirds means that lenses have a 2x crop factor and thus are about half the size of their full-frame equivalents for the same reach (sometimes smaller). Imagine a handholdable 600mm f/4 equivalent lens that's the same size as a full-frame 70-200mm f/2.8 lens. It's pretty remarkable.

Zooming In

While not cheap, the real winner for me (and, potentially, for other wildlife photographers) is the Olympus M.Zuiko 150-400mm f/4.5 TC1.25x IS Pro lens ($7,500) that I tested with the OM-1. I used this handholdable and super-sharp zoom during one of my eagle workshops in Alaska this fall and was blown away by the portability and ease of use. Not only is it equivalent to a 300-800mm f/4.5 in full frame, it also includes a built-in 1.25x teleconverter, which makes it a 1000mm f/5.6 lens that I was able to regularly handhold down to 1/125th of a second or slower.

Not only that, the lens and camera are fully sealed and weatherproof. When I borrowed the setup to test, I asked if "all that weather sealing stuff was just marketing hype?" My contact told me the camera could take anything I could throw at it. I shot with it all day in the rain and snow and even had an eagle poop directly on me and the camera. Nothing phased it (though I did clean the lens in the shower after the pooping incident).

For comparison, the OM-1 and 150-400mm f/4.5 were similar in weight to my much-loved Nikon Z 9 paired with the Nikkor 100-400mm f/5.6 lens. But the OM System lens lets in more light, has more than double the reach and seems sharper.

As a workshop leader, I've seen a shift in the lenses carried by my clients over the years. In the past, a big $12,000+ 600mm f/4 lens used to be almost a requirement for serious wildlife photography. Now most photographers are choosing telephoto zooms in the 200-600mm range, which, while slower and not quite as sharp, are far more portable and fun to use than big telephoto primes.

Image Quality Considerations

Let's talk image quality. The real question is, how much is enough? Saying smaller sensors have lower image quality than their full-frame counterparts isn't quite accurate. The image quality coming from today's smaller sensor cameras (APS-C or Micro Four Thirds) is amazing and as good or better than anything the top-level full-frame pro cameras from a few years ago could produce.

So again, the question is, how good is good enough? How often are you making prints beyond 16x20 inches or even 20x30 inches? I found the only real noticeable advantages of full-frame files vs. smaller sensor files were when I was making big crops or huge prints or pushing high contrast files beyond what anyone should really be pushing.

After spending a couple months shooting with the OM-1, I ran a bunch of print tests with my photo lab and found that when showing prints in the 16x20-inch or 20x30-inch range at a normal viewing distance, most non-photographers couldn't tell the difference. What was even more surprising was that even some photographers couldn't tell the difference.

Traveling Light

Spending lots of time with workshop clients in the field, I think the number one thing many of them can do to improve their photography is to reduce the weight and size of their gear in order to be more mobile. Often, I see people missing shots because they are fumbling with a heavy tripod or lens. For most users, I think the tradeoff in terms of slight image quality reduction vs. portability is 100% worth it (maybe even 150%).

Now, having returned the OM camera gear, the real question for me is, what do I plan to do? Do I put my money where my mouth is or keep carrying my heavier full-frame gear?

I loved shooting with the OM-1 this fall and was sad to return it. But the tricky thing for me as a professional is that I have regular print orders in the 30x40-inch range, which pushes the ability of the Micro Fourth Thirds sensor, especially at higher ISOs.

Time will tell, but I can say that either way, I'm done carrying a backbreaking full-frame 600mm *f*/4 lens. I've fallen in love with the portability of smaller and slower lenses. And with the high ISO abilities of modern cameras, I'm willing to give up a stop of light in exchange for portability. As the saying goes, "location, location, location." Lighter camera gear makes being in the right location easier for all of us. **OP**

See more of Josh Miller's work and learn about his workshops, including Bears and Eagles of Alaska, Costa Rica, Lake Tahoe, Yosemite and Patagonia, at joshmillerphotography.com.