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Photographer: Jaymi Heimbuch
Location: Point Reyes National Seashore, California
Equipment: Canon EOS-1D Mark IV, Canon EF 400mm f/2.8L IS USM
Situation: Tule elk are the only elk subspecies unique to California. During and after the Gold Rush of 1849, tule elk were hunted to within a hair’s breadth of extinction. They were thought to be gone completely until a small herd was discovered in 1874 on the agricultural land of a rancher named Henry Miller.

Miller ordered his ranch hands to protect the herd. This one act of conservation started the slow recovery of the species. Fittingly, if controversially, one of the few locations where you’re guaranteed to see tule elk today is Point Reyes National Seashore, land on which there are still working ranches and elk share grazing and water resources with cattle. Most of the elk are located within Tule Elk Preserve at Tomales Point, where this bull elk was photographed.

While walking along the Tomales Point trail at sunrise toward the much-loved panoramic view of the Pacific Ocean, the bull crossed the trail ahead of me with his harem. This was during the rut, and he was busy keeping two other interested males away from his cows. There was plenty of bugling, brush-thrashing and other posturing by the males.

—Jaymi Heimbuch
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The all-in-one superzoom capabilities of Sony’s RX10 IV enable you to capture practically any subject with stunning quality and precision—without a bag full of lenses

Photography By Bob Krist

"UNLESS YOU'RE GOING TO SHOOT a specific type of assignment, like a portrait or an interior," explains award-winning travel photographer and Sony Artisan of Imaging Bob Krist, "when you’re traveling or on the road, you just don’t know what you’re going to encounter. One minute, you can be inside a building, shooting an interesting interior, and the next moment, you’re out trying to get a quick portrait or street scene."

That need for moment-to-moment flexibility is what drew Krist to Sony’s RX10 IV. With its extraordinary 25x zoom, covering a 35mm-equivalent range of 24-600mm, Krist can shoot wide-angle architecture and landscapes, intimate portraits and super-tele wildlife, with a compact, lightweight camera that’s ideal for spontaneous creativity.

"The Sony RX10 IV allows you to be ready for anything, from interiors to wildlife, without having to carry extra lenses or a second body. You can carry it all day and most of the night without getting that camera bag fatigue that sets in after a few hours of lugging even a modest mirrorless or DSLR, multi-body, multi-lens setup," Krist observes.

"That zoom range just opens up so many more photo possibilities," he says. "To have a super telephoto on your shoulder at all times is remarkable." It allows Krist to capture the unexpected, like his image of an egret with wings outstretched, taken in Mexico. "My shots of the egrets in the jacaranda trees are an example of what I mean. They did not happen on a specific birding shoot. It was the end of a day, exploring the city of San Miguel de Allende, and I was sitting in one of the city’s beautiful parks when I noticed a tree full of egret nests—turns out they roost here in the spring for a short period of time."

"Without the RX10 IV, Krist would have missed the shot. "Nobody lugs a 600mm lens around while they’re doing city coverage, but I had that capability at my disposal with the RX10 IV, and I was able to get some nice looks at the birds at the long end of the zoom. Best of all," he says, "I wasn’t lugging a bazooka-sized lens and huge tripod all day in order to capture those shots."

To have that range in a camera that weighs less than 2.5 pounds and is about the size of the smallest DSLRs is impressive by itself, but equally noteworthy is the camera’s incredible speed. The RX10 IV’s autofocus system employs 315 phase-detection AF points that cover approximately 65 percent of the 1.0-inch Exmor R5 CMOS imaging sensor and enables the camera to acquire focus in as little as 0.03 seconds. The camera’s High-density Tracking AF Technology allows it to track moving subjects for continuous sharp focus as it captures up to 24 frames per second for up to 249 frames in a single burst—exceptionally fast and especially useful for sports and wildlife photography.

"The image quality out of the 1-inch sensor is remarkable," Krist confirms. "Previously, these super-zoom ‘bridge’ cameras all featured tiny chips, and the image quality just didn’t cut it, especially in low light. But with this camera, you’re getting the best of both worlds ... the convenience of compact zoom camera design, with the image quality of a larger-chip mirrorless or APS-C camera."

In addition to still photography, the RX10 IV also excels at video. It’s capable of recording ultra-high resolution 4K video with the same Fast Hybrid AF used for still
images, and offers both headphone and microphone accessory jacks for superior sound quality and usability. And when it comes to working with video, for Krist there’s another big advantage of all-in-one camera design over interchangeable lens cameras: protection from dust.

“One aspect of the RX10 IV that I particularly appreciate is the total freedom from worry about sensor dust spots,” says Krist. “I travel in some pretty windy, dusty and dirty environments and no matter what you do with a detachable lens camera, some dust is bound to find a home on your sensor.” It’s especially advantageous, he notes, with video recording. “With stills, removal of a dust spot is just a matter of using a cloning tool and doesn’t take too much time—unless, of course, your sensor is covered with dust spots. But in video, retouching out dust spots is a much more complicated time-intensive procedure. No worries with this camera.”

To learn more about the RX10 IV’s incredible technology and versatility, visit alphauniverse.com/RX10IV.
Few places compare to Alaska’s Katmai National Park, with its breathtaking landscapes and abundance of wildlife. Originally designated as a national monument to “preserve the living laboratory of its cataclysmic 1912 volcanic eruption,” according to the National Park Service, the park today is home to 42 species of mammals, a prime destination for bird sighting and a vital habitat for brown bears and salmon, which draw big crowds each year during the salmon run as the bears fish at Brooks Falls. In “Katmai For Wildlife,” Jaymi Heimbuch depicts the volcanic origins of the park and the photo experience today, 100 years after the park’s creation. As you’ll see in her article, Heimbuch illustrates that “Katmai is so much more than a place to see bears. The rich diversity of wildlife species is especially apparent along the coast, where an abundance of birds, marine mammals and a wide range of habitats will fill hard drive after hard drive with unique images.”

Latin America is another prime destination for wildlife photography. “Nature and wildlife photographers are drawn in flocks to this part of the world to photograph its abundance of species and habitats,” observes Clay Bolt, “but if you’ve never traveled there before, it can be intimidating. However, with the right planning and preparation, traveling to many of its most amazing destinations can be quite easy.” In his article “Te Amo, Latin America,” Bolt shares his insights from numerous trips south of the border, offering advice that will help you navigate the places and people you’ll encounter. Careful planning, cultural awareness and a healthy dose of patience will lead to the best photo opportunities.

Wherever you’re photographing wildlife, your approach to your subject is an essential factor in the quality of the images you’ll make. Understanding a species’ behavior will prepare you to anticipate moments that can elevate your photos beyond mere snapshots to compositions that tell a story about your subject. In “Photographing Shorebirds,” Melyssa St. Michael describes her techniques for creating intimate wildlife portraits, recommending that you “immerse yourself into the experience of your scene—translating and transplanting that very experience into passionate, compelling images that resonate deeply with your viewers.”

This issue also features the final article in Jason Bradley’s series “Keeping Your Photos Safe.” In the previous three parts, Bradley provided an overview of the potential threats to your photo library, and the hardware and software you can employ to defend against them. In Part 4, Bradley brings it all together with a comprehensive strategy and the specific steps to take to help ensure that your photo archive endures. Redundancy is the key. “Always practice safe backups,” Bradley advises. “Your photos deserve it!”

-Wes Pitts, Editor

**contributors**

**Jaymi Heimbuch**

is a professional wildlife conservation photographer and writer. Based on the Oregon coast, she leads tours to the area’s most photogenic and wildlife-rich locations, teaches workshops and offers project consultation to photographers. She is the founder of Urban Coyote Initiative, which uses the power of photography to advance science-based awareness of urban coyotes. See more of her work at jaymiheimbuch.com.

**Clay Bolt**

specializes in macro and close-up photography, with an emphasis on invertebrates, reptiles and amphibians. The current president of the North American Nature Photography Association, Bolt is also the co-founder of the international nature photography project “Meet Your Neighbours,” with a mission to introduce communities to the wildlife around them. See more of his work at claybolt.photoshelter.com.

**Melyssa St. Michael**

Passionately dedicated to helping conserve, preserve and protect our wild places and wild things, Melyssa St. Michael believes that all actions, no matter how small, add up to impactful change. Her work connects local communities to important environmental initiatives through images that touch people’s hearts and minds, bringing awareness and promoting action. See more of her work at melyssastmichael.com.
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Flamingos In Celestún, Mexico
By Jonathan Ross

“This photo was taken on a recent vacation to Celestún, Mexico. Located on the Yucatán Peninsula along the Gulf of Mexico, Celestún is a quiet fishing town with a sprawling wetland reserve that’s the winter home to vast flocks of flamingos. I hired a boat guide to take me into the reserve at sunrise to capture these amazing birds.”

► Canon EOS 5D Mark IV, Sigma 150-600mm f/5.6-6.3 DG OS HSM | C at 562mm. Exposure: 1/1000 sec., f/6.3, ISO 1000.

See more of Jonathan Ross’s work at jonathandross.com.
Break Time
By Gene Putney

“American pikas are one of my favorite animals to photograph during the summer months. They’re always entertaining as they endlessly gather alpine tundra vegetation in preparation for their winter survival. On a late July afternoon, I observed this one venturing out from its den several times gathering a mouthful and speedily returning it to stockpile, making it a challenge to photograph. In time, it finally gave me a lucky break, ending up in this patch of colorful flowers taking a break to eat.”


See more of Gene Putney’s work at putneynatureimages.com.
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Black-Crowned Night Heron

By Lorenzo Cassina

“I love to get personal with wildlife, having the opportunity to be close and admire their beauty. This juvenile heron perched in a tree is one of the hundreds of birds released to the wild year-round at Flamingo Gardens in Davie, Florida, a nonprofit organization caring for animals in distress. The heron was born to injured parents at the Everglades Wildlife Sanctuary at Flamingo Gardens. I’m a volunteer photographer for this institution, supporting such a good cause through my photography.”

► Nikon D80, Sigma 70-300mm F4-5.6 APO DG Macro at 150mm. Exposure: 1/125 sec., f/5, ISO 200.

See more of Lorenzo Cassina’s work at lorenzo-cassina.pixels.com.
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NEW TELEPHOTO FOR FUJIFILM MEDIUM FORMAT

The expanding lens selection for Fujifilm’s medium-format mirrorless GFX system now includes the FUJINON GF250mmF4 R LM OIS WR, the longest focal length in the lineup to date, equivalent to 198mm on a 35mm camera. The lens has five-stop optical image stabilization built in for handheld shooting and features a new focus preset function, which will instantly activate the AF system based on previously configured settings. The lens is constructed to withstand typical outdoor conditions, with a magnesium alloy design that’s sealed to protect against dust and moisture and can operate in temperatures as low as 14 degrees Fahrenheit.

Also introduced with the lens is a new teleconverter, as well as two extension tubes for macro work. The new FUJINON Teleconverter GF1.4X TC WR is designed for use with the GF250mmF4 R LM OIS WR and extends the focal length of that lens to a 35mm-equivalent of 277mm. Limited information about the MCEX-18G WR and MCEX-45G WR Macro Extension Tubes was available at press time, except that they’re compatible with all existing GF lenses. List prices: $3,299 (GF250mmF4 R LM OIS WR); $849 (Teleconverter GF1.4X TC WR); $329 (MCEX-18G WR and MCEX-45G WR, each). Contact: Fujifilm, fujifilmusa.com.

SKYLUM UPDATES LUMINAR

In case you missed it, earlier this year software maker MacPhun rebranded itself as Skylum. After many years as a successful Mac-only developer, last fall the company introduced a Windows version of Luminar, and it only made sense to give the company a new name that wasn’t so Mac-centric.

The “Jupiter” updates to Luminar 2018 for both Mac and Windows include speed enhancements on both platforms: it’s up to 12x faster on Mac and 5x faster on Windows. Both versions also received upgraded RAW conversion engines and automatic lens correction features, but most of the improvements in this release were focused on the Windows app. Those include batch processing, enhanced clone and masking capabilities, and transform tools.

Existing Luminar 2018 users will receive the update for free. Luminar 2017 users can upgrade for $49, and new users can get the latest version for $69. Contact: Skylum, skylum.com.
PREMIUM GRAD ND FILTERS

Constructed from tempered mineral glass for superior durability, Cokin’s Nuances Extreme Series ND and graduated ND filters are available in four styles and three sizes to handle just about any lens and situation. The Center Grad ND is offered in 2- and 3-stop versions (ND4 and ND8), and the Reverse Grad ND is available in 2-, 3- and 4-stop densities (ND4, ND8 and ND16). The Solid ND provides 10-stop light reduction. All are 2mm thick and have rounded corners to make them easier to insert into the filter holder. They also share a new coating process, which Cokin states ensures uniform neutrality and color consistency throughout the range, so switching between styles or densities won’t affect color. The Medium size is 84mm wide, Large is 101mm wide and XL is 130mm wide. Estimated street price: From $169 to $249 (varies by size and type). Contact: Cokin USA, cokinfilter.com.
WIDE-ANGLE AF PRIME FOR SONY

In late 2016, Tokina introduced its first lens for Sony E-mount mirrorless cameras, the FiRIN 20mm F2 FE MF. The main limitation of the lens was that it was manual focus only. Now Tokina is introducing an autofocus version of this lens, the FiRIN 20mm F2 FE AF. It features the same optical design as the original lens, and it can be used with both full-frame and APS-C cameras, equivalent to a 30mm lens when attached to the latter. It’s fully compatible with Sony’s Fast Hybrid AF and provides a minimum focusing distance of approximately 11 inches, plus manual focus override for fine-tuning with Sony’s MF Assist. Estimated street price: $949. Contact: Tokina, tokinausa.com.

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REFLEX SIGHT FOR WILDLIFE

Similar to the optical reflex sights used in firearms, the Photo Gear Designs PGD Tracker attaches to your camera’s hot shoe to relieve you of squinting through the viewfinder and make it much easier to track moving subjects when shooting with long telephoto lenses. Constructed from aircraft-grade aluminum and UV-resistant plastic, the Tracker’s reticle target can be displayed in red or green, one of four reticle styles (cross hair, single dot, etc.) and five brightness levels to customize the display for maximum visibility. A standard CR2032 watch-style battery powers the device between 60 to 80 hours, depending on use. List price: $175. Contact: Photo Gear Designs, photogeardesigns.com.
ALL-WEATHER MESSENGER

MindShift Gear’s Exposure 13 and Exposure 15 messenger-style shoulder bags feature integrated waterproof sailcloth panels, DWR fabric, a Tarpaulin bottom and “strategically placed” storm flaps all working in concert to protect your camera, lenses and laptop through stormy conditions. There’s also an included raincover if the downpour gets intense. The main compartment has room for one camera body (without a vertical grip) with a 70-200mm attached, plus a few additional lenses (depending on size) and accessories. The Exposure 13 can accommodate a 13-inch laptop, or choose the Exposure 15 for a 15-inch laptop. Both have an additional zippered pocket for a 10-inch tablet and a YKK AquaGuard weather-resistant zippered front pocket for your smartphone. List price: $169 (Exposure 15); $159 (Exposure 13). Contact: MindShift Gear, mindshiftgear.com.

DRYBAG DUFFLE

Available in orange, blue, tan ("coyote"), black and Multicam camo, the Watershed GoForth drybag can be carried as a duffle or strapped to your waist while wading. When fully sealed, the bag provides submersible waterproof protection for up to 900 cubic inches of gear (15L) with Watershed’s proprietary ZipDry enclosure. List price: From $120. Contact: Watershed, drybags.com.

CAPTURE THE DAY

SKB’s revolutionary new Flyer Series hard cases are watertight, dustproof, made in the USA, and include adjustable dividers and lid organizers designed by Think Tank Photo. They’re the perfect combination of superior protection and organization in one travel-ready case. Now in 22 case sizes and 42 configurations to meet ALL your photo, video, and lighting needs!

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Spring Into Summer
Seasonal projects for outdoor photographers
By George D. Lepp and Kathryn Vincent Lepp

By the time you receive this issue of OP, winter will be a distant memory; longer days and the renewal of spring will offer optimal photographic opportunity.

How do you make the most of a season of photography? The pro’s approach is to make it intentional, to construct a creative project that will result, hopefully, in a stand-alone, complete story of a simple or complex subject. For me, a project usually involves substantial immersion in a subject that intrigues me, along with mastering and applying new techniques and/or equipment, and sometimes even revisiting previous endeavors to capture them again, even better.

Find a subject that fascinates you, explore it nine ways to Sunday, learn some new skills, and in the end draw it all together in a format that tells the story. As an example, we’ll take on flower photography, with all its varying locations and subjects, and a wide variety of photographic approaches and creative interpretations.

Location, Location, Location
In the Northern Hemisphere, the months of April through September are great for capturing the color and design of both wildflowers and garden flowers. With a little research, you can keep yourself knee-deep in blossoms for six months!

Growers. Do some research to identify growers in your area who welcome photographers in their display and research gardens. In the Northwest, from April through August, we progress across growers’ festivals of tulips, irises, roses, lavender and dahlias, growing in such abundance, density and variation that a photographer can spend days on site. These are great locations to experiment with handheld macro techniques, focus stacking in macro and landscape modes, panoramas, time-lapse and video.

Some growers’ festivals go all out to provide a variety of perspectives on the flowers and the fields, with viewing platforms, tram rides and even hot-air balloons. Once I spent a day in the tulip fields covering all the nontraditional options, using time-lapse and video (captured from a tiny child’s tram car shaped like a wooden shoe) to depict the lively action. You can view my video programs from the tulip fields at vimeo.com/63792001 and vimeo.com/91577169.

Botanical Gardens. Some of our favorite botanical gardens are Butchart Gardens near Victoria, British Columbia; the University of Washington Botanic Gardens in Seattle; the Chicago Botanic Garden; Brookside Gardens near Washington, D.C.; Longwood Gardens in Pennsylvania; and the Callaway Gardens in Georgia. These are organized to offer a variety of blooms, from early-spring bulbs, rhododendron and azaleas through summer roses, sunflowers and dahlias and brilliant fall foliage.

It’s important to support botanical gardens for their research, education and public service functions. You’ll find that most are amenable to the needs of photographers if you discuss your plans with the staff before, or at the beginning of, your visit. In some cases, tripods aren’t permitted for safety reasons, so be sure to check out the rules of each venue before you go. Occasionally, we’ve been able to arrange to enter the gardens before the gates are opened to the general public, which is certainly a wonderful privilege.

On one trip to Butchart Gardens, I had the incredible luxury of doing whatever photography I wanted for four full days. I decided to create a video of the entire trip, from the ferry crossing to the fountains, as a tribute to our mothers, who loved gardens. Even the inevitable rainy intervals fueled creativity: When it starts to rain at Butchart, the staff wheels out carts of transparent plastic umbrellas, and then you have a garden of blooming visitors. I photographed them—and the flowers and the fountains—in infrared just to emphasize the design element unfettered by color. You can see the video at vimeo.com/97179814.

Wildflowers. Wildflower displays are unpredictable, to say the least. Timing and abundance depend on latitude, altitude and other vicissitudes of nature such as temperature, rainfall, pollinators and even wildfire.

One of the most magnificent displays of lupine I’ve ever photographed in Yosemite occurred the spring following a ferocious forest fire; the profuse lavender flowers created a dramatic base to the blackened pines that covered the once-green mountainsides. We’ve seen similar displays of bear grass several years following a disastrous fire in the Oregon Cascades.

My faithful readers know that the California poppy is very special to me. These wildflowers are highly dependent upon timing and quantity of rainfall, but a number of organizations, such as the Antelope Valley California Poppy Preserve, post predictions and updates. The wildflowers on the eastern slopes of the Sierra Nevada in California bloom in June and even later as you go higher up into the mountains.

July is our favorite time to photograph wildflowers in the high basins of the Rocky Mountains above Telluride and Ouray, Colorado (sturdy four-wheel-drive vehicle required). Always be careful to avoid stepping on or creating new paths through wildflower environments, as the flowers must complete their cycle to generate seed for following years. And be aware, too, of the wildlife, such as
Clockwise from top left: **Isolation Technique.** A single cosmos blossom emerges from the field when photographed with a 500mm lens. **Wide-Angle Macro Technique.** A unique perspective of a California poppy blossom is achieved with a 7-40mm wide-angle zoom at 17mm with 12mm extension tube. **High Magnification.** Intimate rendition of a field dahlia captured with a 180mm macro lens at 1x. **Double Exposure.** A bird of paradise glows when photographed both in and out of focus on the same frame with a 100-400mm telephoto zoom @ 400mm. **Multiple Exposure.** A nine-shot multiple exposure captured while rotating the camera/180mm macro lens on the lens collar offers a unique rendition of this colorful dahlia field. **Focus Stacking.** Incredible detail and sharpness reveal the intricacy of a delphinium blossom at 1.75x. Forty-six focus-stacked images captured with an MPE-E 65mm 1-5x macro lens.
birds, insects and even mammals including marmots and pikas, who both enrich and depend upon the wildflower habitat. They’ll expand your photographic opportunities in wildflower settings as well. Of course, that means you’ll need a full array of photographic equipment to capture macro studies, landscapes and hummingbirds.

**Techniques For Flower Photos**

Following is a discussion about a variety of creative techniques that can be applied to still photography of garden and wildflowers. You can see examples of these methods applied to dahlias in my video at vimeo.com/74893543.

**Isolation.** This is a technique that draws a single flower or cluster into sharp focus while rendering surrounding plants soft and unobtrusive. Telephoto lenses at wider apertures are the tool of choice; zoom lenses such as an 80-200mm, 100-300mm and 100-400mm are ideal. It may be necessary to use an extension tube to enable closer focus to fill the frame with the subject. A telephoto macro lens, such as a 180mm or 200mm, won’t have the close-focus issue. I’ve actually used a 500mm telephoto and 25mm extension tube to achieve this effect; it throws the background into a soft mix of out-of-focus color.

**Wide-Angle Macro.** Placing a short extension tube behind a wide-angle lens enables it to focus very close to the subject, and this unique perspective places the viewer right on the petal of a flower. This is a creative technique and not useful if maximum sharpness is the goal. A wide-angle lens or zoom already in the bag will work; 24mm or wider will give the best results. I’ve even used a 15mm full-frame fisheye lens for this technique. The extension tube must be shorter (usually 10-12mm) than the focal length of the lens. For example, a 20mm lens/25mm extension tube combination won’t work because the focus point is inside the lens. Keep in mind that the subject will be very close to the front element, so you may need to add a flash or ring light to the setup. Use a very small aperture (f/16 to f/22) to maximize depth of field.

**High Magnification.** The idea is to take the viewer inside the flower, revealing complex detail and color rarely seen. This is macro photography from 1x (life-size) and up. Equipment will be the limiting factor. There are many lenses that will take you to 1x, but greater magnification will require a specialty lens or accessories. The premier lens is the Canon MP-E 65mm f/2.8 1-5x Macro Photo.

Extension tubes, typically 12mm, 25mm and 36mm, move the lens away from the sensor or film, increasing magnification at the cost of light loss. A 1x loses two stops of light and 2x loses three stops, so flash is pretty much mandatory. My Canon system, combining the 65mm 1-5x with one of the Canon macro flashes, offers a point-and-shoot macro system where the exposure will be spot-on each time. Keep in mind the depth
of field at these magnifications is almost nonexistent—read on for the solution to that problem.

**Focus Stacking.** This technique is about sharpness and depth of field, especially valuable in macro subjects where depth of field is very shallow, but also in landscape images where it enables the photographer to portray the foreground, middle ground and background all in full sharpness.

Focus stacking is achieved by capturing overlapping, in-focus slices of the subject within a constant frame, either by refocusing a tripod-mounted camera and lens or by moving the camera and lens toward and away from the subject. The series of images is processed in software that eliminates all out-of-focus areas while seamlessly combining the in-focus slices to produce an extended area of sharp focus.

I use this technique often on subjects as diverse as snowflakes, insects, flowers and vast landscapes, sometimes using sophisticated capture equipment and a focusing rail (the StackShot) to control the capture. But for flower photography in the field, a tripod may be all that’s needed. The most important part of this technique is stacking software on your computer.

Three popular software programs that easily assemble focus-stacked images are ZereneStacker, HeliconFocus and Adobe Photoshop.

**Double Exposure Glow.** A sharply rendered subject surrounded by an out-of-focus glow can be a very artistic interpretation for complex and colorful flowers. This technique can be accomplished in the computer or achieved in the camera; to my eye, the in-camera captures almost always look best. A camera that allows multiple exposures makes this an easy procedure. Just set the camera software to allow two exposures on the same capture. A tripod is necessary to maintain position, as the first exposure is taken with the subject in focus and a second exposure is taken out of focus. You can view the results on the camera’s LCD and make adjustments to the focus to achieve a variety of results. Alternatively, take two individual images (one sharp and one out of focus) and combine them in the computer.

**Multiple Exposures.** Let your creative juices flow. Many digital cameras allow multiple exposures on a single frame, and they automatically calculate the exposure. Vary the composition by handholding the camera and taking a number of completely different overlapping compositions. From a tripod, you can rotate the camera, capturing a number of exposures around a central subject. You get the idea: Experiment and check out the LCD to see if the result is worth keeping.

Finally, don’t forget to rescue your spring and summer images from the “dusty back room” of your hard drive. Put them together to tell a story. That will keep you busy and creative through the winter!

Learn about George Lepp’s upcoming workshops and seminar opportunities on his website at GeorgeLepp.com.
How To Choose A Wildlife Photography Workshop

Finding the right match for your goals and expectations is the key to a great experience

Text & Photography By Melissa Groo

Over the last decade, the ever-expanding popularity of nature photography and the growing ease and affordability of high-quality digital camera bodies and lenses have created an unprecedented demand for wildlife photography workshops. At the same time, with the collapse of stock photography and print publications, many pro photographers are finding leading workshops to be the only real way to carve out a living in this field. Hence, photography workshops proliferate, offering opportunities to travel to just about any corner of the world you can imagine.

Given the abundance of choices out there, how do you select a wildlife photography workshop? Workshops can cost a considerable amount of money, and attending one that turns out to be a bad fit for you can be a huge disappointment. In this column, I’ll address the features to consider in the hopes that you can make the right choice for you.

Tours Versus Workshops

First, be aware that workshop leaders generally use the words “tour” and “workshop” very differently. In most cases, a “tour” or “safari” basically means the leader is acting as a guide who has determined the best locations and opportunities for you in a particular destination. They’ll be there to assist you in the field, but most likely there won’t be intensive teaching or classroom time to help with post-processing, refinement of technical skills, etc. For this reason, tours are usually designed for more advanced wildlife photographers who don’t require a lot of instruction.

“Workshops” usually offer more of a learning component, with time set aside to review photos as a group or one-on-one, and direct instruction on enhancing your technical and processing skills.

Leader

Spend a good chunk of time on the leader’s website. Get to know her style, her approach, her ethics. How does she describe herself and her mission? Social media is, of course, also a great way to assess the personality and style of photographers. Look at their work on Instagram and Facebook. Check out how they interact with people. Are they friendly and respectful to others? Do they seem to hold the same values as you? Ascertaining these things can help you judge whether you’ll be a good fit in person.

Also determine whether the workshop is sponsored solely by the leader or under the aegis of a workshop company. If it’s a company, make sure you take the time to read the company policies, familiarizing yourself with their approach and ethos.

Other Clients

What’s the maximum size limit of the group? In general, a ratio of one instructor to no more than five or six students is recommended. You want to make sure you have a chance to receive individual attention from time to time and aren’t jostling with a crowd to get noticed.

Also, see if you can find out whom the workshop is geared toward, in terms of both skill level and interest. It’s tough to be more on the amateur end of the scale if everyone else attending has advanced photography skills. It’s also advisable to be cautious of wildlife tours that may be aimed at wildlife watching in general rather than strictly photography. For instance, a birder has a very different set of criteria than a bird photographer, and these criteria don’t necessarily mix well in the field; some birders simply need to see the bird and they’re ready to move on, while bird photographers need time to get the shot.

Make sure you’re clear on whether the workshop will run if it doesn’t fill up entirely. Some leaders will cancel a workshop by a certain date if they aren’t able to reach a certain number of participants.

Experience

Has the leader been to this particular destination a number of times before? Repeated experience with a location usually increases the likelihood of a successful experience for workshop attendees.

Are local tour guides employed in the destination country? Workshops where leaders have returned to one place time and again, consistently relying on the same local guides, can provide the very best experience of all. The local guides will have had their ear to the ground for wildlife sightings, knowing, for instance, where a leopard is denning with her new cubs or a spirit bear has been regularly fishing for salmon. Their longtime relationship with the workshop yields a degree of loyalty and trust that benefits everyone and helps to support the local economy.
References
Don’t be afraid to ask the leader for the names and contact info of people who have attended that particular workshop or tour in the past. Requesting such references is a common practice. Make up a list of questions that you’d like to ask the attendee(s). Some crucial questions to ask: Did the leader care more about “getting the shot” for himself or more about whether his clients succeeded in “getting the shot?” Is there something you wish you had brought that you didn’t? What did and didn’t you like about the trip?

Ethics
As nature photographers, most of us care about the welfare of our subjects. When we’re in the field, we certainly don’t want to put the life of an animal at risk. Each of us has an impact when we’re out there, whether we’re aware of it or not. The least we can do is try to minimize our impact, adopting the “leave no trace” principle as best we can.

I can’t emphasize enough the importance of doing your due diligence on the ethical approach of a workshop leader. By that I mean, are they interacting with the wildlife to ensure you get your shot? If so, to what degree and in what way? You have to decide what you are comfortable with. And you have to be prepared so that you aren’t surprised once you’re in the field. Several photographers have shared with me how they attended owl workshops in the United States or Canada and were horrified to find that live pet store mice were offered to owls to get dramatic fly-in shots. The problem comes when workshop leaders persistently induce wildlife to perform for them so that clients can get “the money shot”—particularly with predatory birds and mammals. Providing easy meals, for example, isn’t doing a favor to these animals, as the instructors often claim; it can change the animals’ behavior in ways that are harmful to them, taming them and drawing them closer to roads.

Care must also be shown to the homes of wildlife. How does the leader approach photography at nests, dens or roosting spots? Do they respect the habitat as it is or try to modify it to create a more visually pleasing stage, e.g., cutting away sheltering branches from around nests? This can be disastrous to the survival of the young.

In short, is the photographer more of a “stylist,” caring only about a perfect-looking photo and not for the well-being of the birds or other animals? Or is he a person who cares deeply about the welfare of his subjects and is interested in teaching appropriate fieldcraft? As instructors, we have the opportunity and responsibility (and, I feel, the gift) to model ethical practices in the field. As a participant who cares about wildlife too, you have both the right to expect this and the responsibility to ensure it.
In early-morning mist, workshop participants photograph birds on a lake in northwestern New York.

Permits And Certifications
All tour and workshop leaders should have the required permits, insurance and medical certifications. This is something you may need to inquire about, especially in regards to the permits, which are particular to locations. National and state parks require commercial permits for photography workshops. They also require that the instructor be certified in CPR and first aid.

Fitness Level
What kind of fitness level is required? Will you be expected to hike a good distance carrying all your heavy camera gear or to disembark small boats onto slippery rocks while carrying gear or trudge through deep snow? These are all considerations that you must know in advance that may not be spelled out in the workshop description. It’s distressing to find out only once you’re there that the physical challenges are too much for you. Moreover, it’s a huge bummer if your inability to keep up with the others limits their enjoyment and experience, too.

In addition, if you’re the sort of person who, like me, needs a little rest and downtime in some part of the day, make sure in advance that’s an option that’s available. Ask to see a sample itinerary to examine the pace at which the workshop is led.

Cancellation And Refund Policy
Carefully read over the cancellation and refund policies of any prospective workshop. As we all know, professional or health and other personal issues can arise that make something planned well in advance suddenly not possible. Make sure policies are clear, reasonable and acceptable to you. And seriously consider purchasing trip insurance, which can greatly lessen the financial pain of any last-minute cancellation penalties.

Finally, don’t be afraid to pick up the phone and give the instructor a call. You can ask a lot of these questions in person and also see whether you feel a sense of compatibility or not.

I hope these tips prove helpful to you and that your next wildlife photography workshop or tour gives you the time of your life!

To see more of Melissa Groo’s photography and learn about workshop opportunities, visit melissagroo.com.
Best Times
The Mount Evans Scenic Byway is typically open from the Friday of Memorial Day weekend through the first weekend in October. Late June is among the best times to visit because mountain goat nannies have newborn kids in tow.
Contact: USDA Forest Service, fs.usda.gov/recarea/arp/recreation/recarea/?recid=28508
Mount Evans, Colorado
Spectacular views and wildlife abound atop the Mount Evans Scenic Byway
Text & Photography By Bryan Malais

Location
Mount Evans is located in central Colorado at the top of the Mount Evans Scenic Byway. The byway is about 32 miles west of Denver off Interstate 70 at exit 240. At the exit, turn left (south) on Colorado Highway 103, then drive about 14 miles to the fee station. After that, pass Echo Lake and turn right on Colorado Highway 5 (Mt. Evans Road).

Driving to Mount Evans entails narrow, winding shelf roads with sheer vertical drops to one side. There are also sections of road that are deeply buckled by freezing and thawing. Though you don’t need a rugged vehicle to drive here, it’s advisable to drive slow, let other vehicles pass at pinch points and check the weather before going to avoid freezing precipitation.

Weather
With the mountain over 14,000 feet, you should dress for the worst. Summer afternoons commonly bring brilliant sunny skies one moment, followed by snow or frigid downpours the next. It often drops below freezing at dusk. Wind is usually present and strong. At this altitude, be prepared for lightheadedness, difficulty breathing with even light walking and symptoms of altitude sickness.

Photo Experience
The drive up to Mount Evans is a continuous spectacle, with opportunities for both landscape and wildlife photography. Along the way, you’re likely to encounter bighorn sheep, marmot, coyote and wildflower meadows. A super-telephoto lens is handy for the flying coyote or golden eagle soaring overhead, but many animals are accustomed to vehicles and can be photographed up close. At the top of Mount Evans, herds of mountain goats that are habituated to humans roam the crags. They often come close enough to capture “animal in its environment” shots without the need for a telephoto lens. Because of the vast range of changing subjects, I often use a 28-300mm lens. The mountain goats are constantly on the move, so instead of using a tripod, I handhold my camera with image stabilization turned on, a wide aperture and an ISO around 400.

At the top of Mount Evans, you’ll be peering down over rows of jagged mountains. Fantastic for landscape photography, I also love to shoot time-lapse sequences here. At this level, you’re close to the clouds where their movement is fast and volatile. Even a short time-lapse can capture clouds smashing against the mountains and heaving like a stormy sea. Make sure to know how your camera’s intervalometer settings work before “go time,” and bring your heaviest tripod to contend with the violent wind. Also, bring a polarizer and a (variable) neutral-density filter to capture cloud movement in still shots. As for lens selection, you’ll want the option to take wide-angle shots, but in this environment you’ll more often need to zoom in to individual peaks across valleys, so bring a tele zoom as well.

The Mount Evans area can be photographed at any time of day. There are east- and west-facing subjects for golden-hour photography and low-hanging clouds for dramatic mid-day shooting, and wildlife is usually present along the road all day.

See more of Bryan Malais’ photography at WildernessShots.com.
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KATMAI FOR WILDLIFE

The dramatic landscapes of Katmai National Park in southern Alaska are home to an abundance of wildlife photo opportunities

Text & Photography By Jaymi Heimbuch
Horned puffins are one of the many bird species that nest along Katmai’s coast. Nesting birds can be easily photographed from a boat.
EXPLOSIONS OF EARTH. Skies darkened with ash. Blasts heard over 750 miles away. Who would think that a massive volcanic event would mark the creation of one of Alaska’s greatest wildlife treasures? The biggest eruption of the 20th century turned a mountaintop into a caldera and a remote wilderness into a national park.
Perhaps the most iconic species of Katmai National Park is the coastal brown bear, which draws visitors from around the world who want to see bears hunt for salmon or laze along the river banks.

Savonoski, Kaguayak (Douglas), Kukak and Katmai were coated in ash. When the volcano finally settled down, a 40-square-mile area was covered in a 100- to 700-foot deep blanket of ash, rock fragments and other debris.

The ash flow covered rivers and streams, which sent plumes of steam issuing through the hardening ash. The sight of countless fumaroles at the eruption site astounded Robert F. Griggs, who went to explore the area under the National Geographic Society in the years immediately following the eruption, and he gave this new place a name: Valley of Ten Thousand Smokes.

In 1918, six years after this historic event, President Woodrow Wilson dubbed the area a national monument in an effort to protect both the strange valley and the area around it. Over time, with expanded boundaries and increased protections, that monument became a national park, one of the most spectacular in our parks system.

KATMAI NATIONAL PARK
100 YEARS LATER

Thanks to decades of stewardship, Katmai National Park is a 4-million-acre protected home for a rich diversity of wildlife, from sea birds to marine mammals to that icon of the Alaskan coast, brown bears. And thanks to decades of growing tourism, centered in no small part around bear viewing, the park’s treasures are on the radar of wildlife enthusiasts and, of course, photographers.

My first sight of Katmai was two months after the 100th anniversary of the Novarupta eruption, as I looked down at the coastline of the park from a four-passenger floatplane. The coastal bays lead up toward snow-covered mountains that positively sing with wild beauty. It was late summer, and my small group of friends was there to photograph coastal brown bears fishing the streams for salmon. Yet in our week of exploring our tiny piece of Katmai, the bears would be just one of many species on which we trained our cameras. Everywhere we turned our gaze, there was something beautiful to photograph.

This year being Katmai’s centennial year as part of the parks system, we celebrate the sheer wonder that’s Katmai National Park.

BRING ON THE BEARS

The coastal brown bears are the largest of the brown bears. Males weigh an average of 900 pounds, and some of the larger males can hit a hefty 1,200 pounds. For comparison, the brown bears found farther inland, such as the popular grizzlies of Yellowstone, weigh 200 to 700 pounds. The only brown bears in the world that are larger than those found in Katmai are the giants of Kodiak Island, just south of Katmai.

Between their awe-inspiring size and their famed fishing techniques, the bears are a major draw for visitors hoping to see them charge down a river, slam into the water with a splash and come up with a salmon clenched between their jaws. And there’s plenty of opportunity for such a sight. An estimated 2,200 coastal brown bears call Katmai home. It’s the largest protected brown bear population in the world.

Brooks Falls, located near Brooks Camp within the park, is the most well-known location for bear viewing. In 1988, Thomas Mangelsen captured the iconic photo of a bear standing at the falls about to bite down on an airborne salmon. In the years since “Catch of the Day” was published, the popularity of the camp has grown, and bear activity hasn’t disappointed. As many as 50 bears at a time can be spotted at the falls during the height of salmon runs. The bear-viewing platforms overlooking the falls and river are hot-ticket locations, drawing thousands upon thousands of tourists each year.

Indeed, the bears have been a primary draw for many over the park’s existence, including two unlucky (or unwise) souls. The only deaths by bear attack in the park’s history are that of Timothy Treadwell and his girlfriend, Amie Huguenard, who were mauled to death in 2003 at their camp on Katlian Bay. Their story was made famous in 2005 by the documentary “Grizzly Man.” The area where they camped is called the Grizzly Maze because the shrubs lining the hillside...
make it difficult, if not impossible, for bears and people to see each other coming down a path. The decision to camp here, combined with more than a decade of highly risky and law-defying behavior, lead to Treadwell’s ultimate demise.

These two extremes—crowded or dangerous—aren’t the only options for seeing bears, of course. Those wanting a quieter and less-populated viewing experience can find other lodges or tour groups, or even book a bear guide for a small group or private trip through the park. As long as a visitor maintains bear-savvy behavior, there’s far less danger in exploring Katmai’s rugged reaches than Treadwell’s story (or the sheer number of brown bears living in the area) might imply.

Katmai is so much more than a place to see bears. The rich diversity of wildlife species is especially apparent along the coast, where an abundance of birds, marine mammals and a wide range of habitats will fill hard drive after hard drive with unique images.

WONDERFUL WILDLIFE OF KATMAI
When taking a break from bear-watching, photographers can turn their cameras toward the water for shots of the undeniably cute and charismatic northern sea otter, a subspecies of sea otter unique to the northern latitudes.

Sea otters have bounced back after being hunted to near extinction during the fur-trade era, and the shores off Katmai National Park are a perfect place to view them. Watching them feed and groom is a delight, especially when it’s a mother caring for her pup. While somewhat skittish, they may pop up near boats and stick around at the surface for photographs.

Other marine mammals spotted off the park’s shores include harbor seals, sea lions and porpoises. Humpback whales can be spotted in the Shelikof Strait.

Birders are sure to check dozens of species off their list during a visit to the park, especially during the spring migration and summer breeding seasons. Horned and tufted puffins raise their chicks on the rocky cliffs of the coast, as do black-legged kittiwakes, common murres and other seabird species. Harlequin ducks can be found nesting alongside swiftly moving streams and rivers, while loons and grebes nest around the lakes and ponds of the park. Birders can spot everything from great horned owls and boreal owls to redpolls and snow buntings.

And, of course, there’s the ever-spectacular bald eagle. Once listed as an endangered species in the United States due to the impacts of habitat destruction and DDT poisoning, the species has become not only a symbol of our nation but also a symbol of environmentalism and species recovery. Bald eagles can be photographed year-round, raising chicks in nests situated in trees and on rock stacks, catching salmon or scavenging along beaches.

Another iconic Alaskan species that all visitors hope to glimpse is the wolf. During my trip to Katmai, we spotted fresh wolf tracks in the sand as we walked the shoreline of Hallo Bay, though not the wolves themselves. The following year,
Above: While wolves may be on the “want” list of every visitor, other photogenic canids can be found in Katmai, including red foxes.

Left: The iconic bald eagle is a common but always enjoyable sight. Photographers have a chance to photograph them while fishing, nesting and exhibiting other behaviors.

PLANNING YOUR VISIT TO KATMAI NATIONAL PARK

Brooks Camp is by far the biggest tourist draw, and staying here is certainly an option, especially for photographers who want to try their luck and timing to get a photo of a bear catching a salmon jumping the falls. However, for photographers who would like more elbow room, there are many other options.

Trips with bear guides and photography instructors are available, and booking with them will likely lead to the trip one is truly seeking, including a sense of remoteness and a chance to bask in the vast wild that the park holds.

Many trips by boat alongside photography instructors are available, which allows visitors to see more of the coast, hike on land during the day and sleep with a sense of bear-free security at night. My small group opted for staying at a lodge that allows a maximum of 12 guests at a time and provides a bear guide for our outings.

Your experience is your choice in Katmai, but remember that this is indeed a very wild and remote place, so either wilderness experience or a guide are considered a minimum requirement if you’re crafting a custom trip to the park.

The best time of year for your trip to Katmai depends on what you’d like to see. The park is open all year; however, the height of wildlife activity occurs from late spring to early fall.

For bear watching, coastal brown bears feed on sedges and dig for clams in mudflats during the spring and early summer. In late summer and fall, the salmon are running, and bears can be photographed fishing along streams and rivers.

Landscape photographers will find the park thrilling at any time of year. Summers offer longer days to explore the park’s many habitats, from rugged coasts to forests, to tundra, to the incomparable moonscape of Valley of Ten Thousand Smokes. Summer also displays an abundance of color and plenty of water flow for shots of waterfalls. Winter, however, offers the chance to photograph the park in a snow-covered season that very few people see with their own eyes.

Plan on encountering rain at any time from spring to fall and bone-chilling cold during winter. Temperatures can vary wildly during any season, thanks to the stormy temperament of the Pacific Ocean and Bering Sea. Summers can range from 30 to 80 degrees Fahrenheit, and winters can range from a balmy 50 degrees to a painful 35 degrees below zero. Because of these varying weather conditions, bring plenty of layers and rain gear for both you and your cameras.

Whatever time of year you visit, and however you choose to adventure, Katmai National Park will take your breath away with its remote beauty and abundance of wildlife. There’s no other park like it and certainly no other park with such an explosive beginning. Any photographer is sure to come home with a broad portfolio of images and a smile-inducing story to go with every single one of them.

See more of Jaymi Heimbuch's work at jaymiheimbuch.com.
Helmeted iguana, Cocobolo Nature Reserve, Panama. Wide-angle close-ups help make sense of the busyness of a forested Latin American landscape, especially when you have an interesting animal such as this helmeted iguana. However, I highly encourage photographers to avoid bagging and moving subjects far from their territories simply to make portraits. This can be very stressful on the animal. Admittedly, I have done this in the past but have begun to try to avoid this as often as possible, and if I do take that approach, I work with biologists who can monitor the health of the animal and always take care to return the animal to the spot where it was found. This iguana was photographed only a few feet from where our team found it and was only photographed for a few minutes.
TE AMO,
Latin America

An incredible array of wildlife awaits in Central and South America. Plan your trip carefully for an unforgettable photography experience.

Text & Photography By Clay Bolt
As I hung my hammock near the muddy banks of the Rupununi River, I thought back across the many months of preparation that had led to this moment. For nearly two years, biologist Andrew Snyder and I had been dreaming about this expedition to search for and photograph rarely seen amphibians within the Kanuku Mountains, one of the world’s oldest mountain ranges, located deep within the South American country of Guyana.

I paused after stowing away the last of my gear and peered up into the low roof of the abandoned hut in which we had slung our hammocks. Within the thatch, I was able to just make out the outline of an arrow and a worn macaw feather that had been anchored there by the previous tenant. It was a surreal sensation, and in that moment the long days of travel by
Brown-throated sloth, Panama. Creatures in the rainforest are in a constant battle between predator and prey, and as a result tend to move quietly and carefully. When you find yourself in a lush rainforest environment, the tendency is to expect to see wildlife everywhere. However, many species are inactive until they can move about more freely under the cover of darkness. It is important to learn about the behavior of certain species like sloths that prefer to feed upon the leaves of the Cecropia tree. Take your time and carefully observe the canopy of any of these trees that feature hand-like foliage, and maybe you'll be fortunate enough to find a sloth of your own.

plane, truck and boat began to fade away along with the last rays of the setting sun. I stood still, taking in the roars of the howler monkeys and the realization that I had finally reached the Amazon.

Since this experience several years ago, I've traveled to other countries in Latin America and have learned a lot along the way. I've seen breathtaking beauty, experienced amazing culture and mostly avoided food-borne illnesses. Nature and wildlife photographers are drawn in flocks to this part of the world to photograph its abundance of species and habitats, but if you've never traveled there before, it can be intimidating. However, with the right planning and preparation, traveling to many of its most amazing destinations can be quite easy.

I'd like to share several of my favorite pointers for improving your opportunities for a successful trip to Latin America. While it's important to remember that every one of its countries is unique, here are a few guidelines that have made my own experiences easier and more enjoyable.

GOOD GUIDES GIVE GOOD GUIDANCE

Visitors to exotic locations generally seem to be divided into two categories: those who want the luxury vacation and those who fantasize about really roughing it. However, more and more, travelers such as nature photographers and birders seek something in between. They want to experience beautiful nature coupled with the comfort of falling asleep each night in a cozy bed after a delicious dinner and a couple of mojitos. I'll be the first to admit that, while I really enjoy physically putting myself to the test in places that are well off the beaten path, there's something really wonderful about visiting an eco-lodge that offers the total package with premium wildlife experiences.

Many first-time travelers to the tropics are under the false impression that an abundance of wildlife means an abundance of wildlife sightings. Unfortunately, in a rainforest habitat this is rarely the case. Wildlife often doesn't want to be seen or can't be seen due to dense vegetation. Many species
are nocturnal, which means that you’ll need to set out on a night hike if you’d like to see them. This can put inexperienced tropical explorers at the risk of run-ins with dicey terrain and venomous snakes.

I highly recommend that you check out wonderful eco-lodges, such as Bosque del Cabo Rainforest Lodge in Costa Rica’s Osa Peninsula or Ecuador’s Mashpi Lodge. Both locations feature incredible forests, great staff and amazing accommodations. In addition, lodges such as these also have their own guides who can take you out on hikes and point out wildlife that you might not see otherwise. For travelers on a very slim budget, this might not be an affordable option. If this sounds like you, look for working vacations where you can volunteer to help with conservation projects for room and board. No matter where you choose to go, be sure to read as many customer or participant reviews as possible. It’s easy to be lured in by a flashy website, but traveling to these locations isn’t always easy, and there’s nothing more disappointing than being stuck in a place that doesn’t deliver.

Other options that I highly recommend are wildlife photography tours and workshops with experienced guides. Photographers such as Roy Toft and Suzi Eszterhas offer amazing tours to locations where you’re nearly guaranteed to see a stunning array of species. In addition, I specifically mention these photographers because I know that they care deeply about the well-being of the species that you’ll be photographing. There are a lot of guides who try to cut corners and treat the wildlife only as props, so choose carefully. You’ll feel better about your photos, and you’ll come home knowing that you haven’t harmed these precious places or their inhabitants.

A LITTLE “HOLA” GOES A LONG WAY
I’m just going to say it: One of my pet peeves is to hear Americans and other foreigners in Latin American countries treating locals like second-class citizens. I’ve been amazed by how many travelers don’t even attempt to speak even simple greetings or polite responses, such as please and thank you. As a result, I have learned that travelers who make an attempt at speaking the native language are often treated with extra kindness. In my experience, native Spanish speakers are particularly patient with those who try to speak their language, and if you do so, you may find that you’ll not only have the opportunity to meet new friends but also witness some extra-special things. Many times, I’ve been at places where a guide or kitchen hand who I’ve gotten to know will run up and say “perezoso” (sloth) or “culebra” (snake). A little effort goes a very long way. Your new friends won’t expect you to be fluent, but demonstrating that you’ve taken the time to learn a few words can help so
White-faced capuchin and baby, Bosque del Cabo Rainforest Lodge, Costa Rica. Visitors to countries such as Costa Rica are often wowed by the incredible array of primates, such as these white-faced capuchins. Always keep in mind that no matter how tame primates may seem, it’s best to photograph them from a safe distance. It’s a good idea to travel with a long lens (300mm or longer) so you can make beautiful portraits without the risk of being bitten or stressing the animals. Fill-flash can also be useful as long as you don’t shine the flash directly into the animal’s eyes, which can result in a garish eye-shine.

much, especially if you find yourself in a situation where you’re in desperate need of the kindness of strangers.

If you’re interested in learning a little Spanish, Portuguese or French before a trip to Latin America, YouTube has a tremendous amount of free online resources. If you’re more serious about your studies, many excellent teachers offer courses via Skype and other online platforms. My personal favorite is Spanishland School, which can be found on YouTube, Facebook or via their website. They also offer two great podcasts.

Another useful option for brushing up on speaking with native Spanish speakers prior to your trip is the free website conversationexchange.com. This site connects you with people learning your native language. I’ve met some wonderful friends via this site with whom I practice Spanish on a regular basis, and it has made a tremendous difference in my own learning experience. You don’t have to speak perfectly; you just have to do your best. And hey, it will be cute when you say things like, “I’ll have the soap sandwich, please.”

TECHNOLINGUAL

While we’re on the subject of speaking, there are several apps that can really help you out while you’re traveling in Latin America. WhatsApp is a free app that is extremely popular in many countries outside of the U.S. It functions very much like Facebook Messenger. Many areas in Latin America don’t have great cell signal, so WiFi in cafes and other public spaces allows people to send messages and make calls for free.

Another great tool is Google Translate, which makes it easier to communicate in many different languages. It also has the ability to use your phone’s camera to translate printed words in the language of your choice. Although it isn’t always 100 percent accurate, it usually translates things well enough for you to understand.

NOT-ON-TIME TRAVELER

One thing that I adore about Latin America is the relaxed pace of life. Also, one of the things that sometimes really frustrates me about Latin America is the relaxed pace of life. I’d recommend that you accept that promptness isn’t always going to be at the top of everyone’s list. Things often happen in their own time, and this is fine as long as you’ve given yourself plenty of space between flight connections, bus travel and other time-sensitive events. Rather than stressing about it, plan accordingly, drink a cerveza or strong coffee while you wait, practice your Spanish and chill out. The main thing to remember is that eventually
**Top:** Harlequin toad, Cocobolo Nature Reserve, Panama. Life in the rainforest can be found at all levels, including alongside streams and forest pools. Take the time to slowly explore the habitat, and when you find smaller subjects, go low and photograph them on their level. I photographed this highly endangered harlequin toad with a close-wide technique to show it in its habitat and its last known breeding pool; it’s a sad story that will hopefully have a happier ending one day as conservationists work to return it from the brink.

**Middle:** Take time to interact and speak some Spanish, Portuguese or French with non-English speaking locals. Even the simplest words can open up doors for a learning experience. In this photo, a young assistant was helping me to document rainforest creatures in a Central American forest.

**Bottom:** Traveling into the Rupununi. Biologist Andrew Snyder and I traveled deep into the forests of Guyana in search of amphibians and reptiles. It’s always a good idea to have your camera out and ready in case you have opportunities to document the journey. Supporting shots help tell a story.

you’ll get to your destination, so just go with the flow. Pura vida, baby!

**OH, THE HUMIDITY OF IT ALL**
As a native of the Southeastern United States, I love humidity, and now that I live in Montana, it’s one thing that I really miss. Humidity represents biodiversity to me; frogs, salamanders, wildflowers and insects all thrive in humidity.

However, humidity in the tropics is another story all together, and even more so for photographers. Personally, it isn’t the way that it affects my body but the way that it affects my camera gear that’s a challenge. If you’ve ever found yourself traveling within the equatorial regions of the world, you won’t be surprised to hear that during the dry season it can still rain hard every single day. This means fogged lenses, and fogged lenses mean you’re either going to cry when you miss that opportunity to photograph the jaguar taking a nap on your path or you’re going to embrace the fact
Leaf-cutter ants are celebrity insects of tropical rainforests and savannas throughout Latin America. They’re often encountered in rainforests, where they can be very difficult to photograph due to the dense canopy. Always bring along a flash and mini softbox or two if you’re interested in shooting in this challenging habitat. While hiking through a forest in Costa Rica’s Osa Peninsula, I came across a line of leaf cutters crossing a fallen tree in the forest. I held my flash over and just behind the ant and illuminated it from behind, revealing the details in the leaf.

that you’ll be making some very artsy photos until the fogging goes away.

Either way, save yourself some heartache by bringing along two very essential items: a dry bag that can hold your most important gear and a ton of desiccant packs. For the most part, I’ve been very lucky with fogging, but there was one particular trip to Panama that I dropped not one but two cameras and a flash into a river. Talk about depressing. Fortunately, because I had desiccant and dry bags with me, I was able to save all of my gear.

Even when you aren’t a klutz like me, constant exposure to humidity can slowly build moisture in your lenses and cause your electronics to do weird things. These very inexpensive purchases can save you a ton of money in the long run. Oh, and along these lines, be sure to insure your gear before you travel to the tropics, and bring along a portable hard drive to store your photos. I’ve had students in my workshops who have been devastated to discover that their photos, which were all stored on a single memory card, have been deleted.

**DON’T BE SO FLASHY**

In all my years of travel, I’ve been fortunate to have never had any issues with theft. Truth be told, I’ve had many more issues as a result of getting excited about some bug that I’ve seen and running off after it without half of my gear.

However, traveling in any big city or unfamiliar place requires a certain degree of awareness. Central and South America are no different. For example, don’t walk around with a spellbound expression on your face and your expensive camera out for all to see. You’re going to make yourself into an easy target. Also, be careful when taking photos with your expensive iPhone. They’re also easy to grab and are often the targets of thieves in crowded areas, such as markets.

If you use some common sense, you don’t have any more to worry about in unfamiliar places than you do in metropolitan areas around the world. Also, I’d highly recommend that you don’t wear white socks with sandals and shorts. I’m not sure that it increases the chances of theft, but the fashion police might take you away.

**¡VAMOS!**

At the end of the day, traveling in Latin America can be an amazing, life-changing experience. The people are warm, the food is incredible and the nature can’t be beat. Just remember to plan very carefully before you travel and let things flow once you arrive at your destination. Everything may not go exactly as you had expected, but that can lead to some of those wonderful unplanned opportunities that make traveling such a joy.

See more of Clay Bolt’s photography at claybolt.photoshelter.com.
After a vigorous bathing and preening session, this juvenile ring-billed gull shakes the rest of the water off its wings. I was anticipating this moment, having watched a dozen or so bathing sessions of other gulls earlier in the morning. By pre-focusing at a spot just behind its head, I was able to get most of the wings and eye in focus, as well as the droplets of water coming off its feathers, which was the goal of this image.
Elevate your portraits of birds with patience in your approach, and gain a more intimate understanding of their behavioral patterns

Text & Photography By Melyssa St. Michael
THE BEACH IS AN AMAZING PLACE TO TAKE PHOTOGRAPHS.

No matter the time of day, the beautiful and ever-changing scene is full of life, energy and motion. For those of us who have fallen in love with the winged beings who live the greater portion of their lives along the shore, it’s easy to understand why the allure of capturing wings in motion and multitudes of bodies dressed in beautifully unique shapes, colors and sizes is such a strong call, set against the backdrop of dramatic skies and seascapes.
An adult herring gull moments after successfully catching a crab at dusk. I had been lying down in a receding tidal pool, watching this particular gull for 20 minutes or so, amazed at how it would deftly use its bill to pry loose seaweed and crustaceans from in between the jetty rocks. When it captured this large crab, it dropped it at first and had to scramble to get it back, providing me enough time to grab focus and follow the triumphant strut across the sand bar.

Let you get closer? Many shorebird and wader species tend to be flighty and, depending on your location, may or may not be comfortable with human presence. I’ve found that location greatly determines the tolerance of local residents. For instance, it’s far easier to approach shorebirds in places such as the beaches of Florida and New York, where they’re quite conditioned to human activity, than in less-populated places such as Maine or Nova Scotia. Bearing this in mind, I’ve found a few methods of approaching your soon-to-be subjects helpful.

Spend a few moments observing before approaching. Hang back a bit and take notice of the activity in which your subject is currently engaged. Are they foraging, hunting or preening? If your subject is active, watch how they’re going about it—every bird has unique behavioral patterns that they’ll repeat, based on their current task at hand. By watching, you’ll be able to see and understand their pattern, identifying opportunities to approach that will be least disruptive to your subject as well as provide you with a greater understanding of moments to look for when you’re behind your camera.

Take the long, slow way around. A head-on, direct-approach path, more often than not, will put your subject on alert. Birds have exceptional vision and a radar-like sense that allows them to evaluate whether oncoming beings are a danger to them or not. Taking a slow, wide arc or an indirect path to put yourself in position gives both you and your subject time to get used to the presence of one another, signaling to your subject that you’re not a danger to them.

So how does one go about creating and capturing strong shore and wading bird portraits, beyond the rote headshot? In the following, I hope to share with you not the technical details of what camera settings you should be using but, rather, an ethos on how to approach your environment, become a part of it and immerse yourself into the experience of your scene—translating and transplanting that very experience into passionate, compelling images that resonate deeply with your viewers.

GO SLOW
Approaching any creature with wings is always an unknown—will they spook and fly off immediately or will they
Oftentimes as I approach, I’ll stop every 10 feet or so, slowly drop to my knees and fire a few shots of my subject that I want to get closer to. If my subject looks distressed or changes what they’re doing, I’ll stay where I am and give my subject time to get used to me and the sound of my shutter. As they get more comfortable, I gently make my way to where I want to position myself, repeating the process of stopping, dropping to my knees and shooting every 10 feet or so until I’m about 90 percent of the way there. If my subject hasn’t flushed by this time, I’ll carefully get prone and very methodically inch my way to my final shooting position.
Skimmers and terns take flight, roused from their rest as early-morning joggers running the shoreline break the serenity of the flock. The adults alight together, scrambling, then scattering, headed toward the sea as a loose body of energy set in motion.

DON'T BE AFRAID TO GET LOW, SANDY OR WET
When it comes to photographing birds of any kind, putting yourself in a position where you can shoot at eye level with your subject is paramount to being able to draw your viewer into your photograph. While this is much easier to do in places where you don’t have to combat the difficult combination of salt, sand, wind and water, the extra effort to get down to ground level in these not-always-optimal conditions will pay off in spades for your final result. It’s not just about being eye level though; shooting low has other impactful benefits.

Shooting low helps you to be less threatening to your subject. As we discussed previously, being able to capture next-level portraits means being able to approach and be close to your subjects. Shooting from a prone position reduces your towering stature down to a much-less threatening shore creature that’s 12-inches tall or less (albeit very long).

Shooting low creates intimacy. Shooting from the ground creates an intimate perspective, allowing you the opportunity to capture subtle behaviors not captured when shooting from above, providing a unique point of view within your frame.

Shooting low allows you to include, or exclude, elements that can alter the tone and feel of your image. Due to the camera position and the angle of the sensor in relationship to your subject, shooting from the ground gives you a greater berth to utilize foreground and background elements in a way that you simply can’t if you’re shooting at 10 inches or higher above the ground.

Shooting low enables you to harness light in ways that a higher perspective won’t allow. When shooting low on the shore, water and sand will reflect light back onto your subjects, providing...

This works for me about 70 percent of the time. If I do happen to flush my subject, I’ll casually (and, again, slowly) approach the area that I had wanted to be originally, assume my shooting position and wait for the birds to get used to me being there. It usually takes a flushed bird about 20 minutes or so to come back to where they were. I’ll lay low and be very still, as it helps to not scare them off once they come back.
beautiful, under-lit images that you’re only able leverage if you’re in a low position to take advantage of the ground-up light bounce.

**RESIST THE URGE TO CHASE SHOTS**
Photographing shorebirds and waders was such a learning curve for me. It was so radically different than photographing other bird species. I learned early on that while there seems to be an overabundance of activity engulfing you when you are at shore’s edge, it’s best to remain in situ. You have worked so hard to get to this spot, gain acceptance from your subject and get yourself into a position that will guarantee you produce outstanding images; to get up and start the process all over again takes a fair amount of time, and often by the time you get there, the action will be over, and you’ll have disrupted your former subject.

I’ve found that by staying in my original spot and letting the birds acclimate to me, they’ll soon go about their normal, everyday business, and that’s when I’m able to capture the best images of my time with them. Granted, this most often takes up to an hour to occur but is well worth the time in terms of the quality and context of the images I’m able to capture.

**EMBRACE YOUR SUBJECT’S BEHAVIOR**
To go beyond the traditional portrait-style image, learning what to look for in the species you’re photographing prior to arriving on scene will give you a greater ability to predict the decisive moments you’ll want to capture. As you research prior to getting to your destination, take into consideration the time of year. Is it breeding season? Spring or fall migration? Also consider the time of day to understand what “mode” your subjects will be in, based on your location.

When researching, look for online videos of your intended subject. Watching how they move ahead of time helps me to adapt very quickly when they’re in front of my lens. The Cornell Lab of Ornithology’s channel on YouTube is an incredible reference for just about any bird species.

Whenever on the shore, I map my time in front of the computer back to the scene in front of me, always watching for interesting, repetitive behavior that allows me to identify the pattern of my subject’s particular activity, such as preening, foraging, hunting or feeding. Each of these activities are repeated frequently over a long period of time, and most often over the same range, allowing for multiple attempts at composition and motion capture.

I find that the more I shoot a behavior, the stronger my hand-eye coordination and reflexes become at recognizing the behavioral signals that happen seconds before the moment I want to portray. Over time and with awareness of your subject’s behavioral patterns, you’ll be able to anticipate specific movements, focusing ahead of that preemptive hunting strike or wing flap, and thereby greatly increasing the number of dynamic moments you’re able to capture.

**EMBRACE YOUR ENVIRONMENTAL ELEMENTS**
How lucky are we that the shore provides such a plethora of background and foreground opportunities? From leading
Left: A sanderling pauses for the briefest of moments as sea-foam gently swirls around it. Here, I was lying in a shallow depression where the water was pooling from the oncoming surf, on my stomach, using a Skimmer Pod to keep my lens above the water, working to capture the earnest foraging behavior of this well-known energetic species.

Above: Returning from the first round of many more trips out to the ocean, this male black skimmer flies low over a still-resting flock of juveniles and adults who haven't risen yet, bringing breakfast to his chick protectively hidden in the dune grass. As I watched him hunt, I was able to pre-focus on the specific area he flew into, successfully capturing the backlit fish in his beak.

lines in ocean waves, to abstract patterns formed by sea-foam, to softly colored wet sand at first light, there are no limits to how we can utilize the shore's environmental elements to create captivating images. A few details to consider including in your compositions:

The surf. The shore’s edge provides a dynamic and transformative property to images. Rolling waves create abstract background patterns when your subject is in front of them and shot with shallow depth of field. When shooting perpendicular to the water’s edge, gently receding waves provide leading lines to and from your subject. At first light, last light, golden hour and blue hour, the wet sand saturated with the last of the tide mirrors the sky, creating intense pink, purple and blue hues you’re not able to capture at other hours of the day. Pair the incredible reflectivity of the water with low-angle shooting, and you have a painterly like backdrop against which to frame up your subjects.

The sand. Though the sand is everywhere, utilizing its unique properties can provide a fresh perspective with new compositions. Leveraging the hard lines of the sand near the edge of the shore can provide different and interesting horizons for your background. Getting lower on the sand shooting up can provide uniquely angled shots. Using sand as a foreground compositional element when shooting shallow will create a very soft, out-of-focus foreground that can distinctly help your subject stand out.

The flocks. A wonderful opportunity to practice motion blurrs and abstracts, flock photography may seem intimidating at first, until you realize that you don’t have to capture the whole flock in one image. Look for frame-filling opportunities as flocks move en masse, either alighting or landing together. Oftentimes, the flock will disperse as one unit, lifting off, then circling wide to come back to where they just took off from. They’ll do this at periodic intervals, allowing you to practice your shot repeatedly.

No matter whether you’re at the shoreline of the ocean, water’s edge of a tidal pool or along a lake line, by practicing these tips, you’ll start developing not only a keen eye for intimate bird behaviors but also a keen sense of when these behaviors will happen.

See more of Melyssa St. Michael’s work at melyssastmichael.com.
Brown bears are grizzly bears that live along the coast. In the United States, there are roughly 32,000 brown bears, with 95 percent of those in Alaska. The brown bears of Cook Inlet are larger than the average grizzly due to their rich diet and weigh between 800 and 1,200 pounds. Food is plentiful in Cook Inlet from early spring until fall, including clams that are available all year along the beach, but the real action starts with the salmon run in mid to late July. From this point on, brown bears need to eat around 90 pounds of salmon a day to build up fat reserves for winter hibernation.

I was lucky enough to join Summit Workshops in Lake Clark National Park and Preserve, Alaska, to view and photograph brown bears in their natural environment during the annual salmon run in Cook Inlet, an experience that may never be topped—where else can you see a family of brown bears meander through your camp one minute and hunt down a salmon to feast upon at the beach in the next?

Bear viewing at Lake Clark National Park and Preserve is exceptional. These bears are protected, having never been hunted, and have become accustomed to people during the high season. With a knowledgeable guide, we headed to the beach on ATVs each morning to look for bears that might be fishing. The fishing behavior of a brown bear is an unforgettable sight. In ankle-deep water, they rely on sight, scent and sound to outrun the salmon. Generally, they catch a scent, stand up on their rear legs to see if the salmon will expose itself and, once spotted, take off for a quick chase that hopefully results in a catch. There’s no way to fully plan for a photo like this; we could only prepare by having our cameras ready on tripods and a fast shutter speed set for when the action started.

The mother of the cub in this photo was on a catching spree that morning, and her cubs stood by waiting for the moment when they could grab a piece of the action. When this cub was allowed, she excitedly grabbed the fish and took off running. She ran around the beach as if she was showing off a prize when suddenly a flock of seagulls swooped in and attempted to grab a scrap or two. This interaction resulted in roughly 300 images because once the excitement started, I couldn’t stop clicking the shutter. It wasn’t until I was on the airplane headed back to reality that I found this keeper. This shot was a combination of patience, precise timing and a fast shutter.
In the previous articles in this series, we’ve clarified what dangers threaten our data and discussed the commonly overlooked details of a photographer’s backup workflow. We looked at how DNGs can protect against data decay or bit-rot, backing up your catalogs, creating redundancy for your catalog’s metadata, and what RAID drives and Drobos are, along with other hardware.

In this fourth and final article of the series, we’ll talk about a framework that brings all of these elements together. What do we do day to day, and how do we practice a sound backup workflow? Even though I can split these ideas into another four-article series, let me attempt to distill them for you. My main challenge in doing so arises as I try and predict who you are. I know some of you have image archives of modest size, and some of you have large archives of well over 10 terabytes, but most of you likely have something in between. Usually, it works out that the more data one has, the deeper down the technical rabbit hole one goes.

And so, without getting too technical, allow me to generalize, providing an overarching framework. Meaning, there are certain principles and steps I think all photographers should follow regardless of the size of...
their archives, while other aspects of your workflow should be fine-tuned to fit your lifestyle and needs. I’ll do my best to make suggestions for each kind of photographer along the way.

THE 3-2-1 RULE

In the first article of this series, I covered a couple crucially important things. First, everything can, and at some point will, go wrong. Secondly, the best hardware in the world isn’t going to save you, so you have to start thinking in terms of redundancy. And so, in the spirit of redundancy, I’m talking once again about what I previously referred to as triple redundancy because, well, the safety of the fruit of all of our labors depends on it.

The generally recommended practice for redundancy is the 3-2-1 Rule. This rule tells us that we should, at all times, have our work stored on a primary drive, then backed up to a second drive and then to a third drive, at a minimum. Of course, this third drive is to protect you against a catastrophic failure triggered by things beyond our control and imagination and acts of god. To do so, we need to keep that third copy off site and safely away from your first two copies.

Here’s an example of why offsite backups are so important: Type “How Toy Story 2 almost got deleted” into Google and check out the cute, but also scary, YouTube video of how the entire “Toy Story” sequel, with a budget of nearly $100 million, was almost totally lost. In short, the primary copy of the film was accidentally deleted, and because of some technical glitches in creating backups that were never properly checked, the film was believed to be all but lost. But out of pure luck, the film’s technical director had recently had a baby and took a copy of the film home so she could work from home. Can you say “close call”?

Most of us aren’t working with a $100 million budget, nor are we working with the technology, storage servers or a team of people managing our libraries like Pixar. However, the 3-2-1 Rule applies to Pixar as much as it does to us. The story illustrates that things happen, without warning and beyond our imagination, not to mention that floods, earthquakes, fires, robberies, tornadoes, hurricanes, wild animals, UFO abductions and supernatural events all happen. It’s all possible. Henceforth, store your data on one kind of external drive system, back it up to a second and then back it up, at a minimum, to a third that’s kept off-site. And unlike that story from our friends at Pixar, don’t just trust that your backups are happening. Test them as you go.

FOLDER ORGANIZATION AND ARCHIVING

For my first tip in this department, keep everything—and I mean everything—in one folder. You can label this folder “Images” or “Archive” or whatever, and put all the images in your library in that folder. I’ve seen too many photographers with crazy folder systems, where some folders reside on their desktop, some on external devices and others on different computers altogether. In short, don’t do that. I mean, don’t do that! Trying to find everything that needs to be backed up if it’s scattered all over is challenging even for the heartiest of brains. And of course, the larger one’s library grows over time, the more challenging this all becomes.

Of course, folder organization can go beyond the simple “Images” folder on your backup drives. Think again about Pixar and how their initial copy of the film was accidentally deleted. Well, I’ve actually done this and then made a backup that then also reflected the accidental deletions of those files. Like Pixar I got lucky, but it was scary. Nowadays I archive everything that I delete. Or everything I delete gets put into a special folder called “Archive.” Pro tip: Get backup drives that are twice the size of your primary drive. This provides a buffer so you can archive deleted files in addition to your main image folder(s) without the worry of deleting work accidentally.

In article two of this series, I highlighted the use of synchronization software, such as ChronoSync for Apple computers and Beyond Compare for Windows. Another program for Windows I forgot to mention is GoodSync. One of the key features to these programs is they have the ability to archive as you go, and it’s easy to do.
ChronoSync as an example, by choosing the option to “Move To Archive” as shown in Figure 2, ChronoSync will move your deleted files to a separate folder that archives your deletions. Nothing is deleted, so you won’t lose a thing, even if you do something goofy like Pixar or me.

If you don’t want to learn a synchronization program and want to just drag-and-drop your folders to create a backup, you’ll have to find another hard drive to archive all of your images to protect against accidents. The pitfall for losing stuff lies in the method by which you drag and drop. Meaning, if you drag your “Images” folder from your primary drive to your backup drive and you overwrite the “Images” folder on your backup, then you populate your backup with any changes you’ve made—accidental or intentional. You might simply choose to not overwrite your folder and create a new backup “Images” folder each time you do a backup. But for anyone who doesn’t have a small data set to work with, that’s not a sustainable solution over the long term.

Alternatively, you can have another backup drive where you’ve copied all of your image downloads. You can organize them by date, so it’s easy to track things down in the future if needed, but that ensures that, again, nothing is lost.

Of course, another layer of redundancy and automation can add to the workflow is using cloud services. Like learning to use synchronization software, working a cloud option into your workflow is yet another thing to learn. But cloud services today are very easy to use, very secure and quite affordable. And if you have large image archives, some companies have solutions for you to transfer your data without relying on slow internet bandwidth.

## CLOUD STORAGE

For whatever reason, the idea of the cloud still scares people. I’m not sure why, but there’s little to nothing to fear nowadays. Encryption technology is impenetrable if you’re using a halfway reputable company, and although we’re talking about a three-layer redundancy approach in this article, most cloud services back up their data servers much more than that while using different geographic regions on completely separate power grids. Understand that the entire business of a cloud service is structured around not just storing your data but keeping it safe and accessible.

Google, Amazon, Carbonite, Microsoft and Backblaze are some of the more popular companies offering easy-to-integrate and affordable cloud options. But out of all of them, I must say that Backblaze and Carbonite offer the best bang for one’s buck. That said, I believe they’re for two different kinds of users. Carbonite seems to be best for the user with modest-size archives of about 1 TB or less, for the user who’s less adept at working with computers or learning new systems. I say this because Carbonite, which is comparable in price to Backblaze for personal home use, has a customer service department that you can actually get on the phone during normal business hours. I find that extremely valuable. Backblaze relies on email support or live chat only during business hours. They do offer an upgrade service for those who want and need 24/7, on-the-phone customer support. But the fee for that is prohibitive and not for the average user.

Also, I say Carbonite is for users with “modest”-size libraries because you can only add to your cloud archive through the internet. Meaning, if you’re a photographer starting out with a 5 TB chunk of data, you are forced to transfer all of that over the internet. Even if you have good internet upload speeds in your home, that can take a month to upload. Alternatively, Backblaze’s B2 service offers the ability to import large chunks of data that are too big for a reasonable internet transfer. It’s not free, but they can send you a 110 GB drive for $99, a 3.5 TB USB hard drive for $189 or its Fireball service, where it sends you a 40 TB drive array for $550 (each requires a refundable deposit as well). Backblaze is also the most affordable of all the cloud service options I’ve found and one of the easiest to use. Carbonite is $6 per month for personal use, Backblaze is $5 per month, and each offers unlimited backup capacity. Backblaze’s B2 service is charged by the gigabyte. Storage is $0.005 per GB per month and $0.01 for

![Figure 3. Backblaze's B2 service offers an affordable way to backup large sets of data on the cloud. Here's a breakdown of what storing 5 TB of data would run, with average downloading and usage, compared to its prime competitors.](image-url)
Bring your vision. Come back with truth.

Hiking up mountains, riding cross-country on motorcycles and treking for days might sound like the most amazing life experience. For SanDisk Extreme Team member Scott A. Woodward, this is life as an adventure photographer.

Selected by Nikon as “One of Asia’s Finest Photographers” and honored twice by Luerzer’s Archive as one of the “200 Best Advertising Photographers Worldwide”, Woodward is still fascinated and enchanted by Asia’s cultural bounty—even after 22 years.

Woodward was raised in a small town called Fonthill in Ontario, Canada. His father, an accomplished amateur photographer, taught him how to operate a manual camera, skillfully interpret light and imaginatively compose an image. But with not much inspiration found in his surroundings, his manual Pentax camera was resigned to the ‘stuff’ drawer.

That was, until, he met his roommate from Hong Kong at university in Ontario. This fateful meeting changed everything.

When Woodward visited his friend in Hong Kong he was overwhelmed by the teeming metropolis of sights, sounds and smells. After graduating in 1996 he came back to Asia to travel. The photographer in him truly awakened and a few months in Asia turned into 22 years.

Over the past two decades Woodward has shot in nearly two dozen countries across Asia: from the remote and enigmatic Kingdom of Bhutan (five times) to trekking 90km to the Kumano Kodo in Japan, one of only two pilgrimages preserved as a UNESCO World Heritage Site. On an editorial shoot for Singapore Airlines, he spent four days driving across Mongolia — across the Great Steppe and Gobi Desert, nearly to the border with Kazakhstan — to document the Golden Eagle Hunters. Then he spent a week staying with a nomadic herding family while tracking snow leopards in the Altai Mountains. Epic.

When shooting in Asia’s extreme wet and dry conditions, Woodward has to trust his gear 100%. From Mount Everest to Bhutan to Mongolia, and everywhere in between, he says “I’ve never had a SanDisk card fail on me, ever.” He does, however, recall one experience that came down to “user error”.

After an advertising shoot in Mongolia, Woodward went back to download all his photographs and realized an entire day was missing. “I had all these cards because I was running multiple cameras. I backed up everything twice as always but somehow managed to miss one card.” Panic ensued, followed by sweet relief when he went online, downloaded SanDisk RescuePRO, and was able to retrieve most of the photographs.

In December last year Woodward hosted a 7-day photography workshop in majestic Bhutan, co-sponsored by SanDisk, where he imparted a few top tips, techniques and life lessons to eight aspiring photographers. His number one tip? “Take every opportunity you ever have and never turn down an invitation. As my father always says, ‘you never know if you never go’.”

Check out more of Scott A. Woodward’s work and the memory cards he trusts at www.sandisk.com
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each gigabyte downloaded. Figure 3 shows a breakdown of what that may look like for a user with a 5 TB photo archive who’s working a lot with their library.

In any instance, I highly recommend considering jumping in and using a cloud service in addition to, or in replacement of, your third copy of your data, which I recommend you keep offsite anyway. I’ve been using cloud services for data storage for many years.

**STEP BY STEP**

We’ve covered a lot of information during this article series, and we need to try to make some sense of it all. Allow me to therefore attempt to line things up. Know that the goal in doing this isn’t to tell you that it’s my way or the highway. On the contrary—workflows are supposed to be tailored to accommodate each photographer’s lifestyle and needs. Thus, my goal is to show you the steps of a typical workflow, the workflow that I use, and provide you with the tools that you need to customize a workflow for you.

But to be clear, I’m not suggesting you skip crucial steps that keep your data safe. I’m just not concerned with whether or not you use portable drives versus drive arrays, cloud services, synchronization programs or whatever. The numbers for each step illustrated in Figure 1 at the beginning of this article correspond to the numbers and steps laid out in the next section. Note that these steps refer to topics covered in earlier articles in this series and aren’t necessarily covered in this article—be sure to read the previous articles for a complete understanding.

**BACKUP STEPS FOR INITIAL IMAGE INGESTION**

1. Backups can begin while shooting and in-camera. If your camera accommodates two memory cards, set up your second card slot to be a backup for slot 1. Remember to have your cards’ capacities and speeds match.

2. After your shoot, move images off of your memory card and onto your primary hard drive.

   For extra storage capacity needs and redundancy and safety, use a drive array like a RAID with two or more drives or a Drobo for your primary drive and your backup drives.

   Transfer your images into one folder, where all of your photos are kept. Don’t reformat your cards until after all data has been backed up and then backed up again.

3. Lightroom users should “Copy as DNG” during import. Creating DNGs embeds the ability to later “validate” files that have been backed up or transferred to secondary drives or that have been stored for extensive periods of time.

4. To make sure all your images transferred from your memory card are not corrupt, Lightroom users should build previews upon import and perform a visual inspection to make sure all files look good.

5. Back up your data onto a second hard drive or drive array.

   Use software to synchronize your data from your primary to your backup drive, such as ChronoSync for Macs or Beyond Compare for Windows.

6. Use a cloud service to create a third copy of all of your data. Be sure to synchronize your data from your primary drive, not your secondary drive, with your cloud service.

   If you prefer to use another hard drive or hard drive array for your third copy, make sure you’re uploading data to this third copy after each shoot, trip or an extensive amount of developing, keywording or labeling work is done to your archive. You don’t want to merely protect your images. You want to protect all the work you’ve done to those images.

7. Once your data has been successfully copied three times, it’s safe to reformat your memory cards in your camera.

**MAINTENANCE STEPS**

1. After performing a chunk of work in Lightroom Classic, make sure your metadata is saved not only to the catalog but to your files as well. This step protects all of the work you’ve done in Lightroom in the event of a catalog corruption or failure.

2. Catalog backups: Make sure you back up your Lightroom catalog after each work session where you’re adding a substantial amount of either organizational or developmental metadata.

3. Make sure you’re backing up your Lightroom catalog in a separate location from your original catalog. You can certainly use one of your backup drives.

4. When using synchronization software, have your software archive your deletions. At the risk of being redundant: Your choices of hardware, cloud services or synchronization software are important but not the most important factor in keeping your photos safe. Nothing can truly protect all of the work that you’ve invested so much time, money and emotion to create, other than redundancy coupled with throwing little to nothing away. Always practice safe backups. Your photos deserve it!
Heads Up!

Nineteen-year-old Colorado State University student Zach Rockvam is fortunate to live within an hour’s drive of Rocky Mountain National Park, where he often travels for nature and wildlife photography. “This picture was taken during the winter months, so several of the bull elk were congregating in the west Horseshoe Park area,” Rockvam explains. “I pulled off to the side of the road to observe and photograph the herd. After a couple hours and taking several hundred pictures, two of the bull elk started sparring near my vehicle. Luckily, I was in the right place at the right time when they both turned their heads in my direction, and I captured this perfect shot.”

Canon EOS 5D Mark III, Canon EF 400mm f/5.6L USM with 1.4x extender. Exposure: 1/200 sec., f/8, ISO 2500.

See more of Zach Rockvam’s photography at nationalparknerd.com.
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