

# CAPTURED

LESSONS *from* BEHIND the LENS *of a* LEGENDARY WILDLIFE PHOTOGRAPHER



MOOSE PETERSON

ACCLAIMED WILDLIFE PHOTOGRAPHER

# CAPTURED

LESSONS *from* BEHIND *the* LENS *of a* LEGENDARY WILDLIFE PHOTOGRAPHER

MOOSE PETERSON

ACCLAIMED WILDLIFE PHOTOGRAPHER



# CAPTURED

*Lessons from Behind the Lens of a Legendary Wildlife Photographer*

## *Captured*

Book Team

CREATIVE DIRECTOR

**Felix Nelson**

ART DIRECTOR/DESIGNER

**Jessica Maldonado**

TRAFFIC DIRECTOR

**Kim Gabriel**

PRODUCTION MANAGER

**Dave Damstra**

EDITOR

**Cindy Snyder**

COPY EDITOR

**Kim Doty**

PHOTOGRAPHY BY

**Moose Peterson**

PRODUCTION SHOTS BY

**WRP Staff**

GRAPHIC ELEMENTS

COURTESY OF:

**iStockphoto.com**

BACKGROUND TEXTURE

ON PAGES COURTESY OF:

**László/Bleeding-Dragon**

**at DeviantArt**

## *Published by*

New Riders

New Riders is an imprint of Peachpit, a division of Pearson Education

Copyright ©2011 by Kelby Corporate Management, Inc.

FIRST EDITION: October 2010

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written permission from the publisher, except for the inclusion of brief quotations in a review.

Composed in Frutiger, Hypatia Sans, and Zemke Hand by Kelby Media Group.

## *Trademarks*

All terms mentioned in this book that are known to be trademarks or service marks have been appropriately capitalized. Peachpit cannot attest to the accuracy of this information. Use of a term in this book should not be regarded as affecting the validity of any trademark or service mark.

Nikon and Nikkor are registered trademarks of Nikon and/or Nikon Corporation

## *Warning and Disclaimer*

This book is designed to provide information about photography. Every effort has been made to make this book as complete and as accurate as possible, but no warranty of fitness is implied.

The information is provided on an as-is basis. The author and Peachpit shall have neither the liability nor responsibility to any person or entity with respect to any loss or damages arising from the information contained in this book or from the use of the discs or programs that may accompany it.

ISBN 13: 978-0-321-72059-7

ISBN 10: 0-321-72059-8

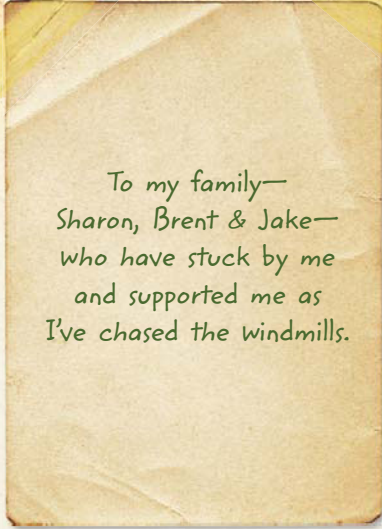
9 8 7 6 5 4 3 2 1

**www.peachpit.com**

**www.kelbytraining.com**







To my family—  
Sharon, Brent & Jake—  
who have stuck by me  
and supported me as  
I've chased the windmills.

*This page intentionally left blank*



## About the Author

Moose's true passion is wildlife photography. He considers himself incredibly fortunate to be able to be amongst North America's critters and to bring back their story with his camera. Along the way, in Moose's 30-year career, he has been recognized for his assion by being named a Nikon Legend Behind the Lens and a Lexar Elite Photographer, receiving the John Muir Conservation Award, and being named a Research Associate with the Endangered Species Recovery Program, just to name a few.

Moose shares his knowledge through his writing—he's been published in more than 131 magazines worldwide, and is author of 24 books—and lectures across the country to thousands upon thousands of photographers. One of the original Nikon shooters to receive the D1 in 1999, Moose embraced this new technology, becoming the only wildlife photographer in the world to shoot strictly digital in the early years.

While acting as a beta tester for all the major hardware and software manufacturers, Moose continues his main goal of photographing the life history of North America's endangered wildlife and wild places. Being a creative innovator of new techniques, both behind the camera and the computer, is the driving force behind his photography and his goals.



*Moose Peterson*



## Acknowledgments & Introduction

The nip in the air that signals fall slips into the open window of the truck. The notebook is open and the click of its keys can't be heard over the sound of the bugling elk. I've been incredibly fortunate and blessed in my photography career. This is a perfect example: I'm on a meadow in Yellowstone, writing, starting this book where it all started for me—in the great outdoors.

Being personally involved, I have a unique vantage point and can look inside to understand something about myself that you should understand in order to make the most of what follows—I am a living oxymoron. I'm at the cutting edge of digital photography, yet my photography is governed by some of the oldest traditions I learned at the beginning of my career. I love my 600mm VR lens with the 1.4x teleconverter attached, yet I'm not an eyeball photographer. I'm an incredible romantic always looking on the bright side of life, working mainly with subjects that end up going extinct—the cruellest reality of life next to the loss of a loved one. I'm fiercely loyal to my dear, dear friends, but breaking down my walls to get to that point scares most away. My priorities are real simple: Sharon, Brent, and Jake come first, photography comes second, and at the very end of the list is money. It's always been that way.

When Scott asked me to write for Guest Blog Wednesday on his blog, it came right at a point where a whole lot had just clicked in my head about life and photography. Sharon, Jake, and I had just returned from an incredibly amazing shoot in Alaska, photographing grizzly bears in three amazingly different locales (which you'll read about shortly). I saw in Jake's photography elements of my influence. More importantly, I saw his own vision emerging, bursting through, taking his wildlife photography on a path that will most definitely surpass mine. And that's how it should be. What I wrote for Scott's blog is what being involved in this glorious profession for 30 years brings to light: great photography is a lifetime in the making!

My good fortune started at birth—literally! I was two weeks old when I first visited the Sierras and where we now call home, Mammoth Lakes. I remember it like it was yesterday—not. But I can't help but think that original introduction to the pines and granite somehow started all of this wandering I still do through the wildernesses of North America. My mom and dad loved the outdoors, and being the last of four kids, many of the adventures were saved for me. We spent many a summer at the cabin on Lake Mamie, with my father and I donning our backpacks and taking off into the backcountry for days. That's where I saw my first mountain lion, alongside the John Muir Trail at Deer Creek. We had just passed a large boulder and made a turn when, behind us, we heard that call of the wild that sends shivers down your spine. We turned to see, just five feet above us, a magnificent cat staring down at us. I said something stupid like, "Think it likes trail biscuits?" My dad gave me that all-too-familiar "Don't be stupid" look, and we continued down the trail enriched by the experience.

My dad opened the doors to experiences that, early on, would truly shape who I have become. Devotion to family, my work ethic, and enjoying the simple things in life are just some of the lessons I learned from him in the short time we had together before his passing. Knowing how to use an axe properly was very important to him. Being able to strike a match and light it, and making the perfect kindling to create the perfect fire to bake pancakes might not seem like real important life lessons to some, but try it! (Funny, I passed those on to my boys, too.) He never gave me the answer to my questions; I had to think. He would help me find the answer, but it was in the finding that I learned. The whole time, it was to the simple mantra: Keep It Simple Stupid.

There are so many to thank who have pushed me up the trail. An old and dear friend Dave Dick, the editor who published my first article after telling me the writing sucked. He's the one who gave me this love affair I have with writing. At the start of this journey



was my good friend, Victor Borod at Nikon, who gave me that original encouragement and support (and loan of his camera) to take my dream and push it to a reality. My first photographic “boss,” Peter Kolina at *Popular Photography*, who gave me the greatest words of advice I have ever received, and which I still work by to this day: “Write from your files.” The crazy New Yorker, Peter Gould, whose faith that I knew everything Nikon way back when, but who wanted Sharon to write the book, because I “couldn’t write.” With that, he published my first book, *Nikon System Handbook*, which was the vehicle in which I made it onto the world stage (yes, I wrote it).

Dr. Dan Williams, one of the world’s most amazing biologists, who took me under his arm and helped me understand, in a scientifically passionate manner, the natural world I’d been exploring with a camera. Dr. Patrick Kelly, who, despite his tireless working to save California’s wild heritage, manages to keep me in mind and in the thick of things, keeping a focus on the little things in life. In fact, the roll call of biologists who have so impacted my life and photography requires a database to keep track of. My deepest thanks to George Sheppard, Dr. Ted Murphy, and Dr. Brian Cypher, who started, and have worked tirelessly to quench, my thirst for one of my favorite subjects (you’re gonna have to read the rest of the book to find out who that is). I thank each and every one of you from the bottom of my heart!

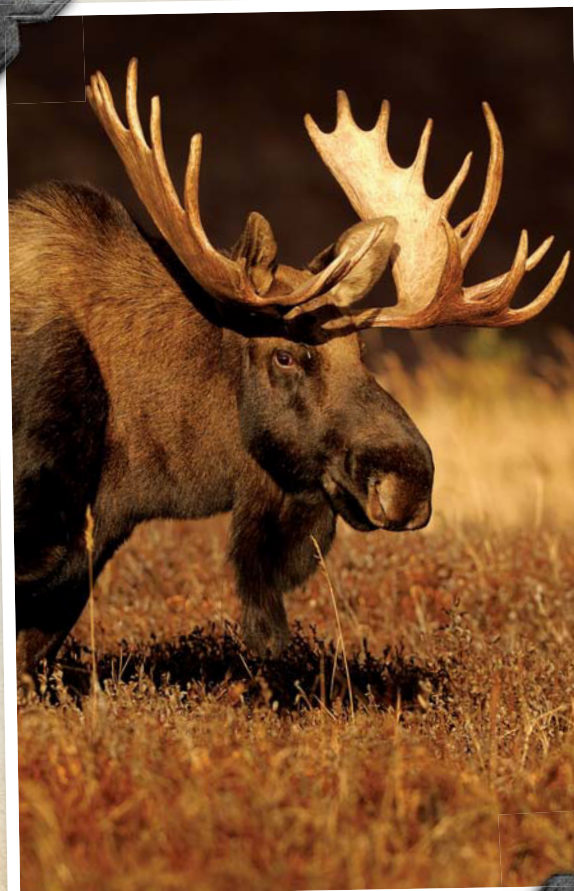
There are so many in the photographic industry who have influenced my photography—I need more paper! Vincent Versace, who, early one morning showed me his vision of where digital was going (this was before the world had heard the word digital) at a PMA show. He later introduced me to Photoshop and folks who have become not just dear friends, but family: Scott Kelby, Dave Moser, Kathy Siler, RC, Margie, and all the rest at Kelby Media Group.

My dear friend Roger, who since high school has helped me into and out of trouble more times than any book could contain. There’s my dear friend Laurie Excell, who has been along for the ride for a long time now. There’s Kevin Dobler, who has gone on more crazy adventures with me, many that fill this book, taking wildlife photography to locales where it hadn’t been taken before. I feel immensely fortunate to call Joe McNally my brother in crime and inspiration. Photography is a collection of more than shutter speeds and apertures—it’s a collection of life experiences. Experiences shared with others who influence the way you see and, more importantly, feel about the world as you explore it. I can’t say it enough, and the mere words “Thank you” don’t quite cover it. I’m incredibly fortunate!

Most of all, I wouldn’t be who I am, nor where I am at, without the unconditional support and love of my family, Sharon, Brent, and Jake! They know how I feel about them and you’ll know by the time you’ve turned the last page.

Okay, no more mush. Down to business!

*Author Note:* My dad was a huge influence on my life, probably no more so than giving me the name Moose. Yeah, it’s on my driver’s license and passport. It’s what I’ve been called by everyone, except my mom, from the very start. How did that come to be? Why Moose? (Better than Sue. Besides, that’s my sister’s name!) I wish I had a straight answer for the question, but my dad passed away before I could get one. Funny how life unfolds, though. It’s hard to forget him or the lessons he instilled in me, since I’m reminded of them every time someone says my name.





*This page intentionally left blank*

## Table of Contents

**Chapter 1**  
**You Gotta Start Somewhere**  
*1*

**Chapter 2**  
**No Illusions, I'm Not in Control**  
*38*

**Chapter 3**  
**Hold onto Your Pants!**  
*70*

**Chapter 4**  
**In All Honesty, This Is Really  
Just a Starting Point**  
*108*

**Chapter 5**  
**And That's How You Do It**  
*152*

**Chapter 6**  
**It's Just That Essential to Success**  
*198*

**Chapter 7**  
**They Set the Stage**  
*238*

**Chapter 8**  
**It's Not Over by Any Stretch  
of the Imagination**  
*292*

**Appendix 1**  
**My Camera Bag & Gear**  
*368*

**Appendix 2**  
**My Cleaning Kit**  
*370*

**Appendix 3**  
**My D3 Settings**  
*372*

**Appendix 4**  
**My Original Teddy Bear Exercise**  
*378*



## CHAPTER 4

In All Honesty, This Is Really  
Just a Starting Point



Brent imitating Dad with his camera squirt gun  
at a black-chinned hummingbird nest.



Jake & gear @ McNeil River, Alaska



Brent in Dad's arm as they head out in the  
Santa Barbara foothills, looking for birds.





*The Arctic plain is a vast place where life finds amazing ways to hold on. I'm down on all fours photographing one of its many miniature flowers, called belly rubbers. Photo by Kevin Dobler.*

## “What the hey? What’s with the Moose history lesson?”

Well, looking at other photography books, and looking at my own from the past, they all have the same basic thread to them: f-stop, shutter speed, Nikon or Canon, this lens or that, blah, blah, blah. There is so much more to photography, and that’s what I want to bring to you. As Sally Field said, “People are meant to grow old, and with that age comes wisdom meant to be passed along.”

There is a history that comes into play with every click, no matter whether you’ve never made a click before or you’ve been doing it for decades. If you don’t understand where I’ve come from, you surely won’t get where I’m at, nor where I’m going. You especially won’t understand where I want to take you.



*Ah....no finer place to greet the day than at 10,000 feet in the Sierra. It also happened to be my 50th birthday—a special treat!*

It’s the logic behind my thought process that I need you to understand (that’s a scary prospect!). To do so, you’ve gotta know the facts on which I base that logic, hence the history lesson. I only have so much space here to share my experiences—ones on which my logic is based. Hopefully I’ve chosen correctly, so they illustrate my points.

Remember, you’ve gotta be true to your own images. The last thing I want to create is a bunch of Moose clones (God forbid). It’s very important that you read what I have to offer, take what works for you, and apply it to your photography. Everything else? Throw it away, fast! I’m not an expert, don’t pretend or want to be, and I certainly do not have all the answers. I do have answers, though, that work for me, and that I’ve learned up to this point. That’s what I’m sharing here with you (it means





*Swainson's hawk fledglings. Photo captured by Nikon D1H & AF-S Zoom-Nikkor 12–24mm f/4 lens on Lexar UDMA.*

I'm constantly learning, which is cool). You shouldn't have to reinvent the wheel in this day and age.

I bring this up because I'm about to delve into camera gear—photographers' favorite conversational topic. I've actually been talking about it from the beginning, but not in specific terms, and certainly no recipes. You have to understand that, from where I sit, I feel the best, most important pieces of equipment lie between your ears and in your chest. The first few chapters were all about

your mind and heart, and making them the best they can be, setting the groundwork for the years to come. Someday, we'll insert a little card behind our ear, pull on our ear, and we'll be able to record what we're seeing and feeling. But for right now, we have to depend on camera gear, so that's where the story heads next.

The lessons I learned from my early years (and learn to this day) prepared me, so when I go out to photograph birds, mammals, landscapes, people, fashion, products, planes—you name it—I do



a good-to-great job. Each and every time I pick up the camera and venture out with it, I have (and still do) learned something new. I don't have all the answers, but without this foundation, I have no way of improving—I have no comparison to see if I improved, how I improved, and what needs improving. And without this foundation, there is no way you'll understand what I'm talking about from here on in. It's one of the most important lessons the biologists taught me, and it's simply called baseline data.

## The Bag of Confidence

I coined this phrase back in '94, when I was the nature columnist for *Popular Photography*. The camera gear you take with you on your adventures, that you labor so hard to buy, is the vehicle for capturing what you see and feel, so you can share your visual journey with the rest of us. This is not to be taken lightly—this is a big responsibility not to be left to some review on the Web (or video on some guy's blog). This is a very personal thing that your photography demands you think through, so you are true to your own visual belief.

"Yeah, yeah," you say. "You've got all that gear, so it's easy for you to say." The reality is that I don't have all that much gear quantity-wise. But, what I do have is the top of the line, so it cost me dearly. When it comes to the number of lenses and bodies I have in my camera bag, I don't have much. That combo of being costly and not having much means that each piece of gear that I do own has to pull its weight and then some. What do I mean by that?

When folks look at my blog, or *BT Journal*, or even this book, it's easy for them to lose sight of the fact that I am a businessman, and that my images provide the income to keep a household running. Like any business, expenses and investments must be scrutinized so the business keeps moving forward. The capital investment in equipment gets the most scrutiny, because of both its expense and its role in producing the images required to keep the business going. If a piece of gear isn't producing, just like an employee, it has to be reviewed and the

decision made to keep it or let it go. This is one of many reasons I envy the "weekend warrior" at times, because he can buy what he wants and have no financial stake if the lens or body isn't pulling its weight.

When I leave the office to shoot, be it around the corner or across the country, I have to have the gear I need to make the images happen. This is obvious. What is not obvious is just what that combo of gear might be. What's also not obvious is that the answer to this question comes over time.

"Whoa," you're saying. "Time? I never saw any camera manufacturer selling that" (I wish someone did). Time, which really means: the compacting of all the experiences you've learned from and can repeat again and again successfully. The size and content of my camera bag has the normal ebbs and flows, like that of any photographer, starting with just one lens, then getting overinflated with way too much, to the size it is now, which is just the right amount (see Appendix 1). Getting a bag of confidence to that size requires that hidden ingredient of success: time.

So when I leave on an adventure or project, I have with me the gear I require for the task at hand (I do have those senior moments when I forget something. But I do have it to forget). That's the place I want to help you get to. Time, and money for that matter, is too precious to be wasted with the silly games of "this piece of gear or that brand" is better than the other. When you move beyond those games and read every review on a piece of gear is when you'll know you are at a good place in your photography and you have in your camera bag what you need. You need to know that what's in your camera bag is *the* gear for you and your photography. It's gotta be your bag of confidence.

▮ *If a piece of gear isn't producing, just like an employee, it has to be reviewed and the decision made to keep it or let it go.* ▮

*"Will your equipment list change after the book is published?" I'm sure it will, if for no other reason than I'm always taking on new projects and the problem solving process often requires new tools.*



## That's So Easy for You to Say

I started with the incredible opportunity to literally try every single piece of Nikon gear made. I not only could hold it in my hands and look through the lens or click the buttons on the body, but more importantly, I could take it out and shoot with it for an extended period—one of the good things about working at a camera store. It's in shooting with a piece of gear that you see if it fits you and your photography—not looking at specs, not looking around through it in a camera store or on a convention floor, but out making images is where you find that perfect fit.

I am still incredibly fortunate that I can shoot with a piece of gear before I buy it. I'm a Nikon boy, and I have been since the day I began

making money from my images. Besides always having the best flash technology, they stood by me and my goals when no one else did, so I am loyal to them. A benefit of being one of their Legends Behind the Lens and a Nikon Professional Services (NPS) member is the ability to try camera gear prior to purchasing it. I never buy anything blindly—I always shoot with it before I buy. You need to do the same thing!

So you're not a Legend Behind the Lens yet, or a member of NPS or Canon Professional Services (CPS). It doesn't mean you can't try before you buy. Renting gear is one of the greatest resources untapped by photographers coming up the ladder. Renting permits you



*Mono Lake, California. Photo captured by Nikon D3 & PC-E Nikkor 24mm f/3.5 lens on Lexar UDMA.*



to have the piece of gear in your hands long enough for the “gear worship” to wane enough to see it for what it’s really worth to your photography. There are tricks, though, to making rentals work.

The key is in the timing (there’s that time thing again). You want to rent that particular piece of gear for at least five days, if not longer. Why? First, to get over the “Oh, I have the \$%^& in my hands—it’s beautiful” phase. Next, so you have a minimum of two shooting days with it—not shooting your big toe as you sit in your favorite chair, but actually going out and spending serious time shooting with it. Personally, I’ll go out with just that piece of gear and nothing else, forcing my mind to think about how it works in my photography. The goal here is spending quality time with what might be your next big purchase.

There are great options for renting gear, no matter where you are on the planet. I highly recommend LensProToGo.com or the folks at Adorama. They have a great locker of gear, and prices that make it advantageous for you to use renting as a vehicle for finding your next piece of gear and buying the right piece the first time.

Another option many don’t think about is workshops. There are a number of workshops sponsored by Nikon (and Canon) where they put loaner gear in the hands of the workshop participants for use during the workshop. This is a great opportunity for you to try something new, with the help of an instructor if need be. If you’re the gregarious type, you might also make friends at the workshop. Your new friend might just have that piece of gear you want to try out. Finding out that piece of gear you were thinking about buying isn’t right for you after all can pay for the price of the workshop.

I’m repeating myself but it’s so true, photography is a problem solving process. Identify your problem and find the solution, and you will be successful. New gear acquisition is a problem we all face and this is the solution I have turned to over and over again. It has put the best gear in my hands for my photography at the least expense. It will do the same for you.



*Santa Cruz kangaroo rat. Photo captured by Nikon D1H & Micro-Nikkor 60mm f/2.8 lens, using a Speedlight SB-800 flash, on Lexar UDMA.*

*Experience is the best teacher, but how do you get more experience? By shooting more and more and more. There is no replacing being out in the field and behind the camera when it comes to improving your photography!*





*San Joaquin kit fox project. Photo captured by Nikon D3 & AF-S Nikkor 14–24mm f/2.8 lens, using a Speedlight SB-800 flash, on Lexar UDMA.*

## Speed Kills

I have a quick note, or rant, if you can spare a second. There is nothin'—nothin'—sexier in the lens world than the 300mm f/2.8 lens. That beautiful 122mm front element reflecting back your giant smile as you stare at it is a heart stopper. The honking front element instantly tapers back into a sleek barrel that just screams expensive. When I started out, it was the lens that made other photographers look at you and say to themselves, “There’s a successful photographer” just because you owned it. It was *the* lens for wildlife photographers for such a long time.

Then there is the lonely 300mm f/4 lens, with its 77mm front element that can barely reflect back its lens cap. It’s small, has a not particularly sexy profile, and hardly anybody knows it exists, let alone owns one. But compare the 300mm f/2.8 image next to the 300mm f/4, and

you’ll see no difference—both are wicked sharp. Compare the lens envy in the eye of a photographer looking at the 300mm f/2.8 or 300mm f/4, and you’d think the 300mm f/4 carried some social disease. Then look at the price of \$5,000 compared to \$900, and all of a sudden that expression changes to one of mass confusion.

What you’re paying for is literally the technology to deliver that one extra stop of light to the film plane. That’s right, \$4,000 for one stop of light! The classic example I like to use is shooting football. To make the linebacker pop visually from the background (a stadium of fans), f/2.8 is a must, because at f/4 you start to see enough detail that the fans aren’t a seamless background, but have

shape and form (a great photographer will move past that obstacle). That extra stop is not for shooting in the pitch dark in a barn, but for depth-of-field control. It’s for controlling the elements that are and are not in focus around your subject. Go back and look at the photograph of Keebler in Chapter 3, and look at how his nose is out of focus. It’s just three inches away from his eyes, the focus point. That’s a narrow band of focus at f/2.8.

There are times when you’ll have the option to buy a fast lens or not-so-fast lens. My advice, especially when you’re starting out, is to spend money on time behind the lens, not the lens itself. You’ll learn more and create better images the more you’re behind the lens, not by paying for that extra stop of light. End of rant (at least this one).



## What's in a Lens?

I count my blessings every day, no more so than when I think about my first exposure to photography in a competitive atmosphere. There probably was no more competitive place than the high school photo darkroom (sadly, a thing of the past). I will never forget a photo our teacher showed us of an old fisherman type in his slicker, taken with a Nikkor 55mm f/3.5 macro (a legendary Nikkor lens). You could count every single dirty whisker on that face! Our teacher held it up and said something like, "This is the very definition of sharp!" Counting hairs, it was a reference, and an image that has always stuck in my mind as the definition not only of sharp, but the very craft of making an image. It was a high benchmark Mr. Traub set for us—what defined sharp and quality—and I'm glad he did.

The final quality of your image, no matter if it's going to the Web or to a billboard, can be made or broken by the lens the image is captured with (although, many times, post production kills lens quality). Is this to say that the lens is everything? Nothing in photography is that absolute, but personally, I think it's real close to that line.

The problem we all face is that we really don't know what the final destination for an image will be. Sure, when we make the click we have a destination in mind. But we don't know when and where someone will see a photo and say, "I really like that photo. I want to wrap buses with it." (Yeah, that has happened to us.) If you shoot thinking your image will never go beyond a blog posting, never requiring better quality than what the Web requires, you could be in a world of hurt if someone comes a knockin', wanting your marvelous image for something much grander (and I hope someone does).

*"I always see you with a GPS unit attached to your camera. Is that a requirement?" Not at all. I have it there for two reasons: to provide information to biologists and so I know where I was in case I need to return. But it is not a requirement for anything or anyone.*



*Moose. Photo captured by Nikon D3 & Zoom-Nikkor 200-400mm f/4 VR lens on Lexar UDMA.*



One of the hardest concepts to learn and teach is sharpness. In the digital age, the sharpness of an image is judged on a computer monitor. Because of that, I always buy ones that have at least 1900-by-1200 resolution. Even with this, it still takes experience to determine the degree of sharpness that is your minimum.

On the flip side, setting up a resolution chart, making sure it's parallel with the film plane, and shooting a whole series of test images to see if a lens is sharp and where its sweet spot falls is really silly, as well (most post-processing slop ruins more resolution than a bad lens to start with). Think it through logically for just one moment: How often do you photograph something that is (1) perfectly flat and (2) where you have the film back perfectly parallel with that flat subject? If your answer is anything like mine—nearly never—then logically, wouldn't the depth of field affect the image in such a way that the test results won't be relevant in the practicalities of day-to-day shooting? (I'm tempted to go into a rant about light and contrast here, but I'm holding back, for now.)

So, what should you look for in your next lens? One consideration has to be price. I'll pass along a piece of advice my brother gave me long ago in these regards: "Buy the best you can afford at the time." It has served me well—thanks bro! Next would be functionality. How practical is it in your system? Nikon produces lenses that are DX and FX. Do you mix and match or stick with the core format? If you want a 500mm lens, you ain't got no choice. If you're going wide angle, you have lots of options, but getting the most from your format size requires a lens made for that format. These are the obvious things photographers rightly think about when making a lens purchase. Let's take it a step further and look at something not so obvious.

Minimum Focusing Distance (MFD) is an incredibly important aspect of a lens that most photographers have never heard of, let alone taken into consideration. I'm going to use my favorite example: the 600mm lens. The AF-S II Nikkor 600mm f/4 focuses down to 18 feet, the 600mm f/4G ED VR focuses down to 16 feet. You're probably saying, "Two feet? Are we talking just two feet?" The image size difference between those two feet when you're that close to a small subject (I tend not to use

*American kestrel. Photo captured by Nikon D3S & AF-S VR Nikkor 600mm f/4 lens with TC-17E II on Lexar UDMA.*





a 600mm with a bear) is a radical difference! In the old days, we'd carry an 11mm extension tube in our pockets to deal with this problem. Both Nikon and Canon have made big strides in reducing their MFD in their big lenses. The AF-S II got handed down instantly when the 600mm VR came out, for this one very important reason. To me, those two feet (and not the VR) were worth the \$10,000 investment—it paid for itself within the first month.

Does MFD apply to other lenses? You bet it does, but sometimes you don't have much of an option. For example, the 200–400mm f/4 VR is the only such animal, so it is what it is. You could compare it to the 200mm f/2 VR and the 400mm f/2.8 VR for discussion's sake. The 200–400mm f/4 VR MFD at 200mm or 400mm (or any focal length in between) is 6.6 feet, where the 400mm f/2.8 VR is 11 feet. How about vs. the 200mm f/2 VR? Again, the 200–400mm f/4 VR MFD is at 6.6 feet, while the 200mm f/2 VR is at 6.2 feet. Wow, now we've got something to really chew over.

The 200–400mm f/4 VR seems to be a killer option when it comes to MFD, price, and size. And you have 200–400mm of focal length to work with. The other option you have is to carry two heavy lenses, and the price...ouch! But (you knew that was coming), the other two lenses, the 200mm f/2 VR and 400mm f/2.8 VR both have speed going for them. You cannot replace the 200mm f/2 VR depth of field with the 200mm end of the 200–400mm f/4 VR, because you're shooting at f/4. There simply is no comparison between them in those regards.

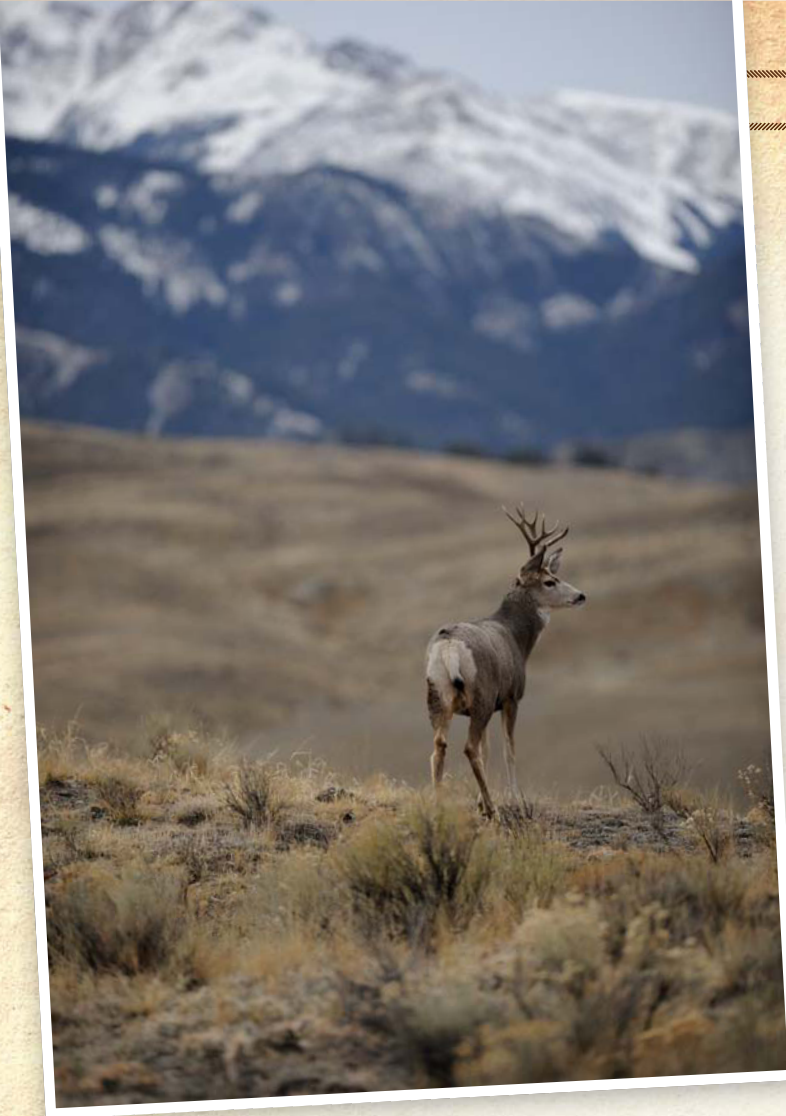


*Violet-green swallow taken at 18 feet. Photo captured by Nikon D3X & Nikkor AF-S VR 600mm f/4 lens on Lexar UDMA.*



*Violet-green swallow taken at 16 feet. Photo captured by Nikon D3X & Nikkor AF-S VR 600mm f/4 lens on Lexar UDMA.*





*Mule deer. Photo captured by Nikon D3  
& AF-S VR Nikkor 200mm f/2 lens on Lexar UDMA.*

*Why do I prefer FX over DX? It's probably no more than that's how I started—shooting 35mm—so that's how my mind works. Don't I wish I had the crop factor to make the image size larger with less glass or being farther away? Nope. What I've got works just fine for my style of photography.*

*I have the AF-S VR Nikkor 200mm f/2G IF-ED and AF-S Nikkor 70–200mm f/2.8G ED VR II. Which do I use the most? It's probably 50/50 where the 200mm f/2 goes when weight is not a worry and the 70–200mm VR II when space is at a premium.*

You should be asking yourself what the hey I'm talking about. I seem to be going in circles. That can be the case when you're talking lenses and looking at the attributes that work best for your photography. The 200mm f/2 VR is a wicked-sharp lens with the depth of field of a hair. The incredibly shallow DOF really isolates a subject, and it's so sharp you can count hairs like no other lens on the planet. Whether that's your style of photography is another topic, but that's what you need to think through when you're considering purchasing a lens (great reason for renting first).

On the other end, there is the 400mm of the 200–400mm f/4 VR and the 400mm f/2.8 VR. Here, the MFD of the two lenses is quite different, while the maximum aperture isn't. The image size with a 400mm at 6.6 feet compared to one at 11 feet, you can quickly see, would be double. By simply being able to get closer and focus closer, you double the image size without using a teleconverter or any other tool. But the 400mm f/2.8 VR has that f/2.8 thing going for it. Both are gorgeous lenses, and you can't go wrong optically with either. But what problems in your photography are you trying to solve, getting close to the minimum DOF?

Are you trying to find one lens that can "do it all," so you can shoot and still have money for coffee afterwards? Are you heading to the bush to photograph big game and need to make that distracting world disappear and be out of focus? Is your shooting environment really dark and you need a fast lens, so the AF system works at its fastest? Or, maybe you need that extra stop of shutter



speed and, like me, don't raise your ISO to get it. Do you need a lens you can handhold or pack easily? Are you traveling to Africa, with its travel restrictions, and are size and weight a real concern? The list of photographic problems that pop into your mind should be like these when looking at your next lens purchase. There's a lot more that goes into a lens than just a brand name!

## What *Is* the Best Lens?

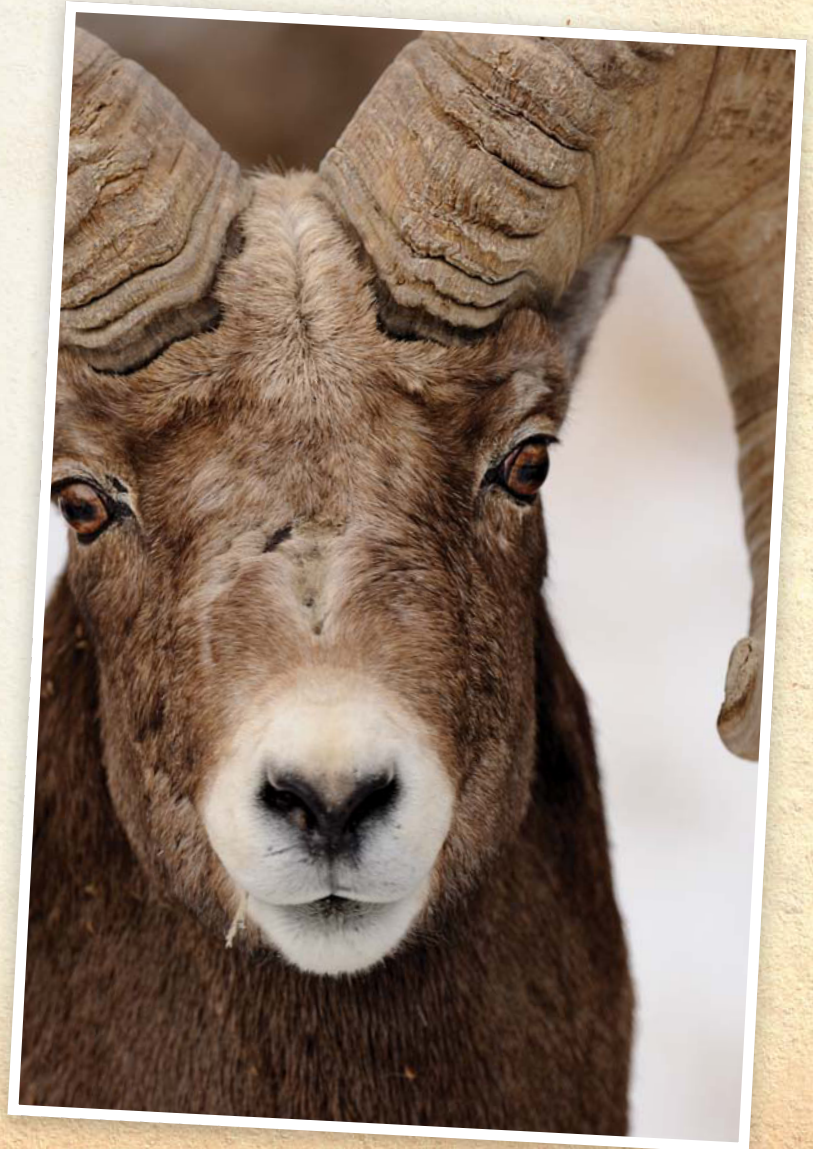
This is the #1 question I get asked by email, and has been since email hit the masses. Along the same lines is the question, "Which is the best lens for me: this one or that one?" My problem with this question (which is a very valid one) is I can't answer it for the majority of the folks who ask it. I have a Quicktext set up with a pat response to this question that's real simple and sincere: "Since I don't know you, your style of photography, or abilities, I don't have an answer for you." This is as honest an answer as I can make, and by breaking its three components down, perhaps you'll find answers for yourself in it.

You—I think that's the *most* important part of this equation. Women often say that they are too "fragile" to carry a 600mm lens in the wilderness. Yet, I know two "little ladies" who keep up with me, and we're all carrying 600mm lenses (their short legs are the only thing slowing them down). I know a lot of older shooters—in their mid- to late 80s—who still get the big glass around just fine, which gives me encouragement for that day for me. So don't let weight scare you off.

There is always the price barrier, for sure. Wildlife photography is not a poor man's sport. The price to play is high, and there's really no way around that, especially when outfitting the camera bag. While I typically have less gear by quantity than folks I go shooting with, the price tag of mine, when all added up, is more. I lay down the pennies for the good stuff. This rambling still brings us back to: What *is* the best lens?

*Rocky Mountain bighorn sheep. Photo captured by Nikon D3s & Zoom-Nikkor 200–400mm f/4 VR lens at 400mm (handheld) on Lexar UDMA.*

As far as I am concerned, it's the one that permits *you* to bring back what you see with your mind and heart, and communicate that wonder to others. We're going to get into the lenses I use soon enough, but I want to make sure that you don't just copy down my list, go buy them, and think you're golden, that there isn't a photo you can't capture now that you have your own Moose's camera bag.





I posted a bunch of aviation photos on my blog. They were from the air races in Reno, Nevada. We're talking planes-traveling-in-excess-of-500-mph-just-100-feet-over-your-head kind of photo ops. The majority of the time, we shot 1/250 of a second or less, so the prop blurred and wasn't frozen, to give the illusion of speed and movement. I received a number of emails asking what lens I was using, because the images were so sharp. I answered that it wasn't the lens capturing the sharp images, it was the panning technique. Most didn't understand that answer. To be successful in this game *you* must understand that.

Stopping the motion of the plane (or a bird in flight) is not an action of the lens, nor of shutter speed. Only when you stop the movement of the plane traveling 500 mph can you get a sharp image. That stopping comes from keeping the film plane perfectly in sync with the travel path of the plane. When you keep the film plane perfectly in sync with the moving subject, whether you're shooting at 1 second or 1/1500 of a second, the subject will be tack sharp no matter the lens. (Of course, keeping the film plane in perfect sync at 1 second just isn't physically possible. I struggled at 1/60 of a second.)



*Mono Lake, California. Photo captured by Nikon D3X & AF-S Nikkor 14–24mm f/2.8 lens on Lexar UDMA.*





*Bald eagles in flight. Photo captured by Nikon D2Xs  
& Zoom-Nikkor 200-400mm f/4 VR lens on Lexar UDMA.*

*A photographic style is not something that comes instantly, nor is it something you should panic about not having. Like everything in photography, all good things come with time. Give yourself time behind the camera, and your style will follow.*

The method we use to keep the film plane in sync with the subject is panning. It's not some special lens, but plain old technique.

There are specialty lenses—like micros or perspective correction—that have a specific purpose in photography. But even those can be used for general photography, as you'll see. In that search for the holy grail of lenses then, there is no one answer and perhaps not even multiple answers to the question. This is something camera manufactures know, which is why they keep coming out with new flavors of the month. So, take a deep breath, realize that the “best” of anything in photography comes from within and is not something you can buy, and you will improve your photography!



## Down to Brass Tacks: The Long of It

What the hell is in my camera bag? This is no secret—it's on our website and is one of the heaviest pounded pages there. I'd really like to not focus on which lenses I have, but why I have a particular lens, for all the reasons I just talked about and much more. I remember all too well a reviewer of my first book on wildlife photography frying me big time because most of the images in the book were taken with an 800mm f/5.6. He stated that the info was useless, since no one else owned, or could afford, an 800mm (he's no longer a name in photography—wonder why?). The point of, and bottom line for, this whole book is that if you enjoy the images here, which is not the same as thinking they are the best in the world (and I've not shot my best work yet), then there has to be something in the gear I use day in and day out to produce these images. The proof is in the pudding (or pixels, whichever you prefer).

*How often do I "chimp" when shooting wildlife?  
Almost never—the exception is when I'm wondering  
if I have a blown-out highlight in the background that  
is distracting. Anytime you take your mind's eye away from  
the subject, you are going to miss "the" photograph.*

I'm constantly asked (as if the answer means diddly squat), "If you could only have one lens, which one would it be?" There is no such magical lens for being a successful wildlife photographer. But, if I had to pick one lens I truly love shooting with all the time (and one that I actually do shoot with a heck of a lot of the time), it would be the AF-S VR 600mm f/4 (it is my baby). It is the only lens parked next to my desk so I can constantly shoot even when, well, when I'm writing this book, for example. When it comes to wildlife photography, there really isn't anything—anything—it can't do by itself or with the addition of a simple accessory or two. To be honest with ya, I don't know how you can get real serious about wildlife photography and get real serious images without this big gun.

I mentioned how, in a previous book, all the images were taken with an 800mm f/5.6 lens. That is truly the focal length I love the most, because of its very narrow angle of view of only 3 degrees. The 600mm has an angle of view of 4 degrees (numbers rounded off). That 1-degree difference in the angle of view is very important to my style of photography. As I've



*Black-tailed prairie dog. Photo captured by Nikon D3X  
& AF-S VR Nikkor 600mm f/4 lens with TC-17E II on Lexar UDMA.*



mentioned, and as you can see in the photographs, I'm not an eyeball photographer. I am, though, a background control freak! These two things are why I rarely shoot with the straight 600mm lens. The majority of the time, the TC-17E II or TC-14E II is attached. These provide a focal length of 1020mm or 840mm, respectively. More importantly, they bring back the angle of view I so want, down to a little more than 2 degrees.

You probably thought I was going to say the 600mm f/4 VR is wicked sharp, and that's why it's my go-to lens for wildlife photography. I thought that was obvious, so I didn't mention it, but as you can see, there's more to it than just that. Focal length is often equated with image size—the bigger the lens, the bigger the image size—and while that is true, real practitioners of the art of wildlife photography take the big lens way beyond this starting point.

The 600mm sings for me when photographing birds. The reasons are many, as you'll read throughout the book, but the main one is its ability to isolate the subject optically as I get close physically. What does that mean? Birds live in a very busy world of branches, twigs, seashells, and grasses, and all too often to make the photograph, we have to eliminate many of the unwanted items, while including those elements important to the photograph. Have someone put a tennis ball out in an uncut lawn, making believe it's a bird you're stalking, and try to make a great photo of it. You'll soon find that getting a clear shot of the eye(s), while telling the story, is pretty dang tough without that 600mm lens. (If you don't own a 600mm, don't feel discouraged, as there are some options, renting being the very least.)

As I said before, the physical size of the 600mm scares a lot of folks—it's heavy, no doubt. That comes from that very important f/4 maximum aperture. Letting all that light in for AF operation and DOF control exacts a price in weight. I know a lot of folks who you wouldn't



*Black-bellied plover. Photo captured by Nikon D3X & AF-S VR Nikkor 600mm f/4 lens with TC-17E II on Lexar UDMA.*

think could get around with it on their shoulder, but you'd be surprised what you can do when taught the most effective way. Getting it in and out of a plane's overhead compartment is a totally different matter!

Before moving on, we need to talk about the teleconverter and the big lens. The TC-14E II and TC-17E II are *always* with me (I go with the TC-17E II most of the time). There is both a plus and a minus to using them that you need to consider. The plus that everyone knows about is the "magnification" they bring to the image. There is no doubt this is a real big plus when you want to get close physically, but can't, so glass is your only option. Another plus has to do with a double whammy when it comes to isolating the subject. The magnification, yeah you get that one. The narrowing the angle of view, you have a hint of that potential now. But what about DOF?



The teleconverter works by magnifying the image and, in the process, that extra glass doing the magnifying is sucking up one or more stops of light ( $1.4\times = 1$  stop of light;  $1.7\times = 1.5$  stops of light). When you attach, for example, the TC-17E II to the 600mm f/4 (my favorite combo, since the 2.01 D3 firmware update, which provided hugely better low-light AF operation), the f/4 in the viewfinder goes to f/6.7 (f/6.7 is the effective f-stop). This is because of the loss of light caused by the glass magnifying the image. Most people assume that this increased f-stop results in an increase in DOF when the viewfinder displays f/6.7. Actually, you have less DOF than f/6.7!

Yeah, here's where we have to get technical for a moment, pull out the ol' calculator, only to forget the info as it really is trivial. Depth of field is a formula, taking into account the size of the aperture, the focal length of the lens, the distance of the subject, and the circle of confusion (probably lost you already in the confusion—it gives me a headache). The bottom line is that the teleconverter doesn't change any part of this formula, other than to alter the focal length. The hole at the back of the lens is the same diameter with or without the teleconverter attached.

When you attach the TC-14E, adding  $1.4\times$  to any f/4 lens, the effective f-stop becomes f/5.6, but renders a DOF of f/4.9. When you attach the TC-17E II, adding  $1.7\times$ , the effective f-stop of f/6.7 renders a DOF of f/5.7. It's called an effective f-stop because of the light loss of the extra glass, effective for the calculation of exposure only. It's actually in the fine print in the little folded instruction manual sheet that comes with the teleconverter, but if you're like me, you don't read them. All you really need to know is that the DOF you're getting is less than the f-stop you're using.

*My bird lens? The Nikkor AF-S 600mm f/4 VR.  
My big game lens? The Nikkor AF-S 200–400mm f/4 VR.*

*"Where's the 2x teleconverter in your camera bag?"  
While I have the TC-20E III, I rarely use it. Why?  
I prefer to get close physically and can rarely sacrifice  
the two stops of light. Why do I have it? There are  
times when I just can't get close physically, like  
when there are alligators in the water.*

This brings us back to the plus and minus of using a teleconverter. The plus, as I see it, is the narrowing of the angle of view, and the slightly narrower band of DOF. This permits you to isolate the subject in the frame, and while it might not fill the frame, the eye can't help but go to it because of the plane of focus. The negative, as I see it, is the narrow band of DOF when you really want or need that extra DOF in limited light situations. Ah, one of the many "compromises" photography is so well known for—the yin and yang of the teleconverter. Personally, the pluses outweigh the minus, but each photographer must make that decision for themselves.

Since a prototype was put in my hands at a Photoshop World precon, I have been a huge fan of the AF-S 200–400mm f/4 VR lens. These days, I see this great lens in the hands of most wildlife photographers and for very good reasons, some of which I've already mentioned. Its small size and price make it easy for many to deal with, both in the field and in the wallet. But here's where I probably diverge from most shooters using it: I use it basically just for big game.

The most common combo in which the 200–400mm VR is used is on a DX body, so the effective focal length is 300–600mm. This is a real sweet focal length range for bird photography. And with the MFD of only 6'6", that produces a much bigger image size than the 600mm lens on an FX body. I would like to encourage you, though, to not be focused on image size, but rather the relationship between the subject and its world contained within your viewfinder.

The 200–400mm on the DX body might give you an effective focal length of 300–600mm, but its perspective—angle of view—



is still that of the 200–400mm. Man, we are really splitting hairs here when we talk about this stuff, but I think this ever-so-slight difference is enough that I own both the 600mm and 200–400mm. I'm putting my money where my mouth is. In the balancing act of the subject and the world around it, splitting hairs is often the difference between good and great images. And to be honest with you, when starting out, you can own the 200–400mm VR and DX body for less than the 600mm lens, so it makes good sense to start there. Just don't stop there!

The question that is probably floating around in your mind is: Why the 600mm for birds and the 200–400mm VR for mammals? That's a darn good question and, really, the answer lies in the mind of a fanatic. Photography, as I see it, is a constant wrangling of subtleties into the viewfinder that, when all added up, produce big-time drama. Little nuances that, when seen and included, set the stage for everything else.

The angle of view, the perspective, of the 400mm compared to 600mm is different enough it can make a subtle difference in how a subject is perceived in a photograph. Never forget that we are working more with perceptions than reality in photography, especially wildlife photography. The Rocky Mountain elk is a very majestic critter. When you say the word "elk" to someone, they think wilderness, wild and wooly, with snow blowing and wolves howling. Deliver less than that in your photograph and you run the risk of not getting that "wow" you might be after. For me, I might not be tugging at those heartstrings. In this case, shooting the elk with the 600mm, you "compact" it, more so the physically closer you are to it. What's this "compacting" I'm talking about?

It is best described using a reference we're all familiar with: the Hollywood car chase scene. Those scenes, when not done in a computer, are filmed using a specially rigged telephoto lens: 600–1200mm. The cars in the final cut appear to be stacked on top of each other, driving so close the audience wonders how they survived the making of the film, let alone the movie.



*Rocky Mountain elk. Photo captured by Nikon D2H & Nikkor AF-S II 600mm f/4 lens at 600mm on Lexar UDMA.*



*Rocky Mountain elk. Photo captured by Nikon D1H & Zoom-Nikkor 200–400mm f/4 VR lens at 400mm on Lexar UDMA.*



In reality, the cars are not nearly as close as they appear—the distance between them is visually compacted by shooting with long glass. This same thing can happen to big game, making them look less wildernessie (I know that's not a word, but it works).

With this all said and done, does it mean I never use a 600mm to photograph big game or the 200–400mm to photograph birds? Hell no, I use the tool required and at hand to make the image. I don't like photographing big game with the 600mm, but I have, and the results have been published. I have photographed birds with the 200–400mm with the same results. But these images don't make it as my own personal all-time favorites (I actually went and checked because I was curious). What it does mean, though, is that I own both lenses, and when I go out to shoot birds or big game, I take either the 600mm or 200–400mm, depending on what I foresee as being the best tool for that particular shooting scenario.

This is where the AF-S 200mm f/2 VR comes into the war chest. It's not your normal wildlife photographer's lens by any stretch of the imagination. I do not recommend it to you as a wildlife photographer (but do as a photographer), and in the interest of complete disclosure, I feel I need to talk about this lens because I freakin' love it!. It's an

essential lens in my arsenal for basically one reason: f/2. Besides being wickedly sharp, its very narrow DOF at f/2 when shooting at 200mm (or with the TC-14E II, at f/2.8) makes any subject its trained on leap out from its surroundings. It's a lens I've had from the beginning—since 1988—from manual focus to the current VR version.

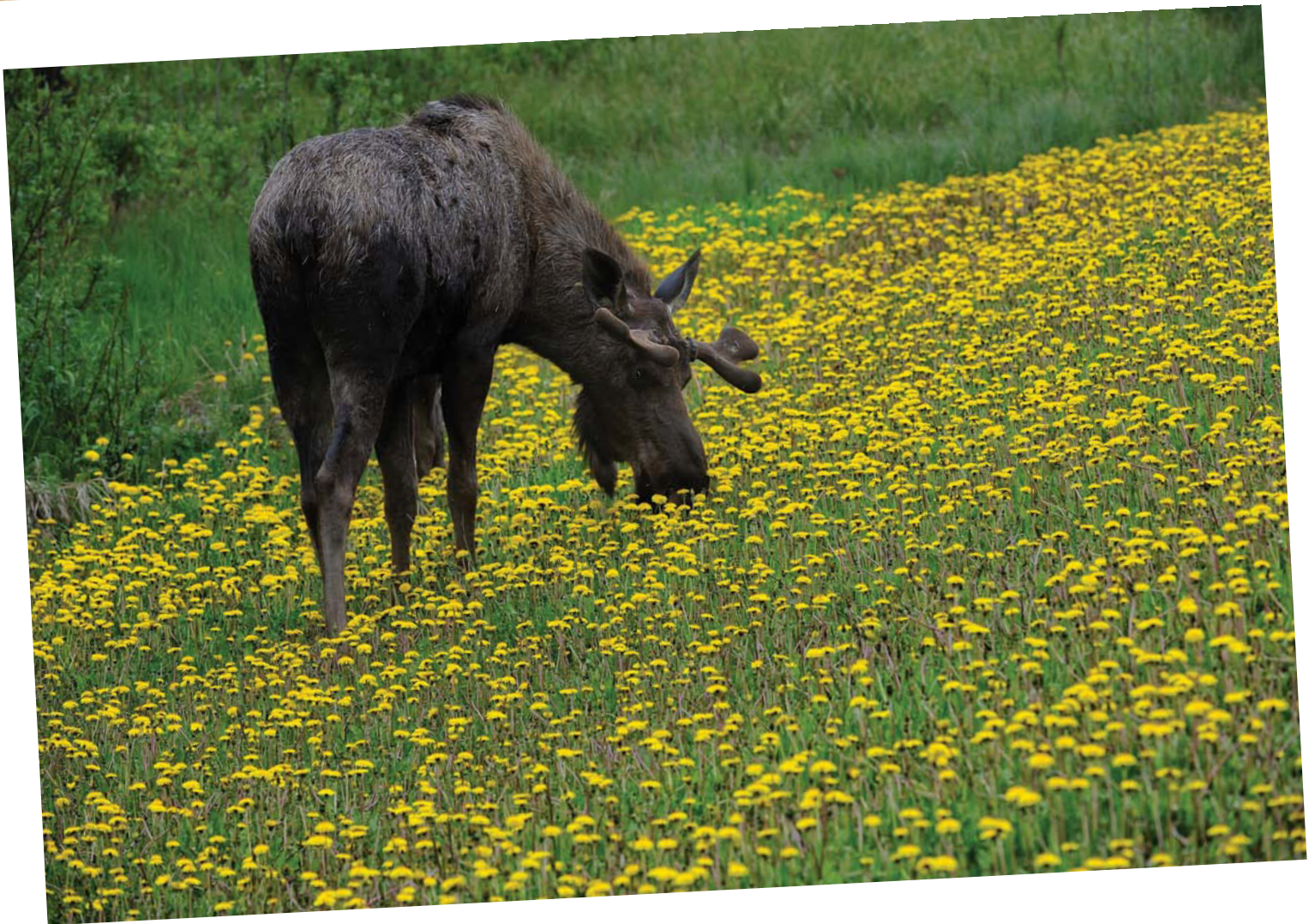
One large advantage of this lens is the f/2, not just for DOF, but for working in minimal light or dark forests. I'm not a "crank up the ISO" kinda shooter. I leave the ISO in the basement. But that's not what I'm referring to when I talk about using f/2 in minimal light. Our AF cameras need light, contrast, and vertical or diagonal lines to operate, to focus. When you start getting in marginal light, you start to have focusing issues shooting with a lens whose maximum aperture is f/4. Working at f/2, you have AF operation, where you otherwise might not. I don't wear glasses, but I do depend on the AF to make the initial focus and, because of that, I have the tools to make it work.

As I mentioned, when I started out, the 300mm f/2.8 was considered the lens for wildlife photographers. I had one for a year back when the first AF-S model came out. Looking back on it, I have no clue why I had that lens. Looking at my files, there are only one or two images taken with that lens that have any meaning to me now. When I look at my files and look at the lenses that have taken the majority of the wildlife images that make me smile, they were taken with the three lenses we've talked about. I mention this because you need to do the same thing. There is so much "This is the lens!" stuff out there, it's hard to find your way sometimes. Heck, I just said I don't see you making it without a 600mm, then I told you a way you could. No sooner is that said, than someone will come down the road with killer images captured with a 500mm VR and teleconverter.

You should have a better idea now about my answer to the question, "What's the best lens?" It really does all depend on you, your style, and your abilities. You might never enter a dark forest to photograph a moose, so why shoot with a 200mm f/2? You might live on the coast and never see a big mammal (whales don't count here), so a 200–400mm VR isn't a smart buy. You could live in the north, where big game rule the land, so a 600mm VR just doesn't make sense. You will need to think through your photography and your

*A great example of little nuances is the very serious video promo we did at Kelby Training for my Yellowstone DVD. The first time through, most don't notice the detail that was put into the promo, and that's how it should be. The trash barrel with the large snow shovel leaning against it (any idea how hard it is to find a snow shovel in Tampa, Florida?) and the large glob of hair on the stylist's brush when she backs away from doing makeup are just some of the subtleties incorporated into the shoot. Yet, those little details, while they blend in, take the viewer down the road, believing what they are seeing is real and not a spoof. Subtle details—you can take that tip to the bank!*





# MOOSE PETERSON GALLERY SERIES

*Moose grazing. Photo captured by Nikon D3  
& Nikkor 200mm f/2 lens on Lexar UDMA.*





Rocky Mountain bighorn sheep. Photo captured by Nikon D1H & Zoom-Nikkor 200-400mm f/4 VR lens at 400mm on Lexar UDMA.



Rocky Mountain bighorn sheep. Photo captured by Nikon D3 & AF-S VR Nikkor 600mm f/4 lens at 600mm on Lexar UDMA.



passions, and use that as a guide in finding the right lens for you and your photography!

## The Short of It

One of the greatest things about wildlife photography is you're outside! When you look at what was on this continent when Europeans first landed on its shores and compare it with what we have today, it can be a little depressing for sure. When you look, though, at all the treasures we still have today to point our lenses at, it's still pretty darn amazing. As my good friend (who lived in Yosemite) used to challenge his audiences at the closing of his shows: "If John Muir didn't have the foresight to fight for the preservation of Yosemite, we wouldn't we have it today to enjoy. The question is: Do we have the foresight to preserve what we have today for future generations?"

We are incredibly fortunate to be able to venture into the wilds with our cameras in pursuit of our passion: wildlife photography. Wildlife has to have a home to live in. Without it, they perish, and with them, our ability to photograph them. If for no other reason than this, we must take with us the lens(es) that permits us to capture not only the critters our hearts pursue, but also their homes—what most simply call landscapes.

Yeah, personally, my style of wildlife photography is to include their world in the photograph with them. I often take that a step further and turn the long lens on the landscape itself, removing the critter and just photographing the home. These can be incredibly dramatic and powerful images when all the elements come together in the narrow perspective of the telephoto. But when it comes to the photographs of the grand sweeping vistas that grab heartstrings and play that romantic ballad, short lenses are the main instruments creating that harmony.

When we venture into the realm of short lenses (less than 200mm), making such distinctions like the 600mm is for birds and 400mm for mammals just doesn't happen. We can talk classes, like short telephotos, wide-angles, and ultra-wides or fisheyes, but the bottom



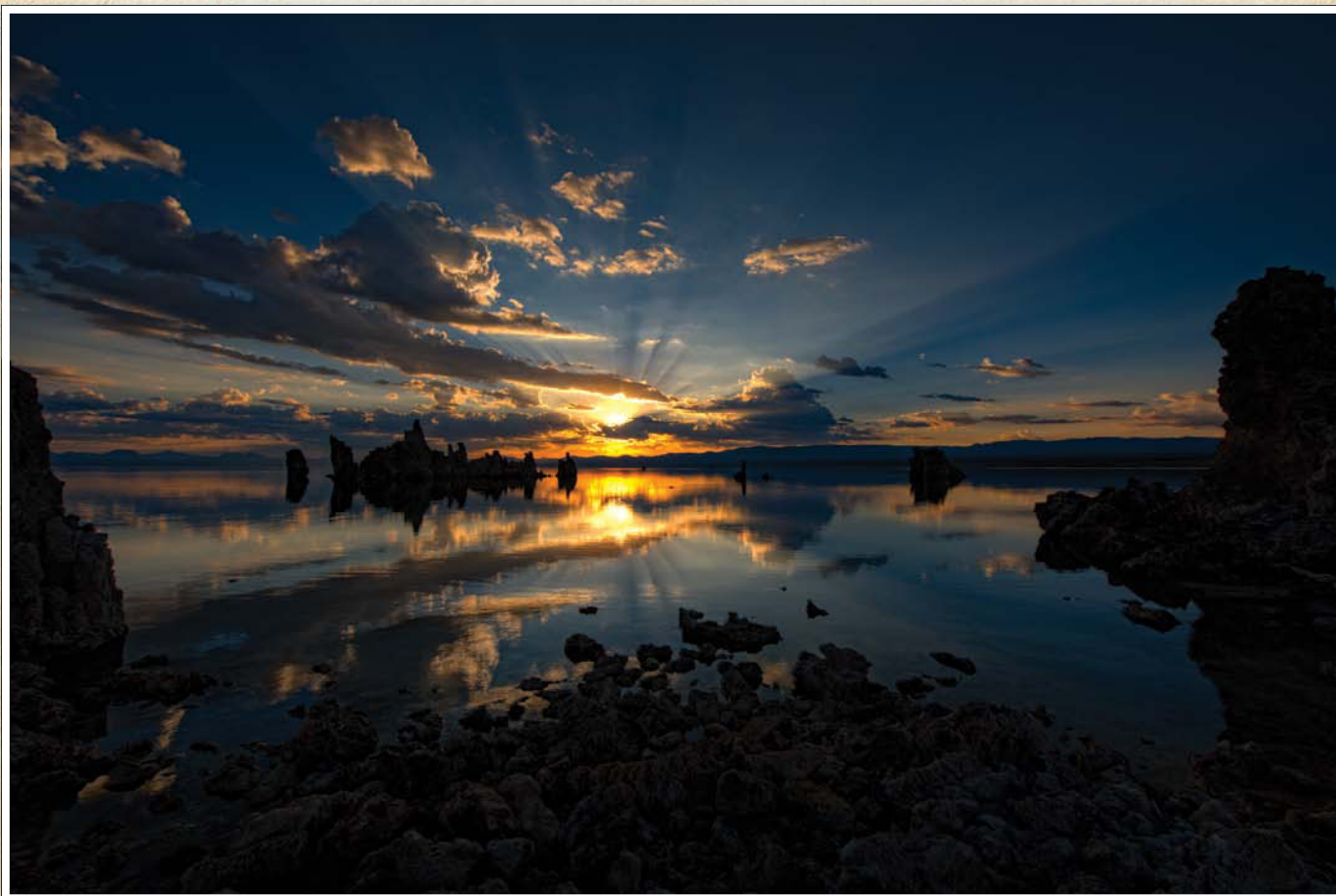
*Moose foraging in woods. Photo captured by Nikon D2Hs & Nikkor 200mm f/2 lens on Lexar UDMA.*



Ever wonder why there is such a huge assortment of lenses at the lower end of the scale and there are only a few in the upper end? It comes down to a statement a shooter once made of my photography: "I can see images in your images, you always shoot everything so wide!" It's a big, grand world and I love squeezing every pixel I can into a landscape photo. This is why I have the short lenses I do.

line doesn't change from any other focal length when it comes to *your* photography. You've gotta find the tool (lens) that brings your passion from your vision to your camera, and then to the viewer of your image.

As you've probably noticed, I have a combination of prime lenses and zooms in my bag. The reasoning for that has been spelled out. That same logic and reasoning carries through in my short lenses, as well. I will more than likely head out with just one of the lenses we'll talk about in this section when I think I'll be shooting with the long glass more than shooting landscapes. So, before I go into these lenses, here's a little bit about what's going on in my head:



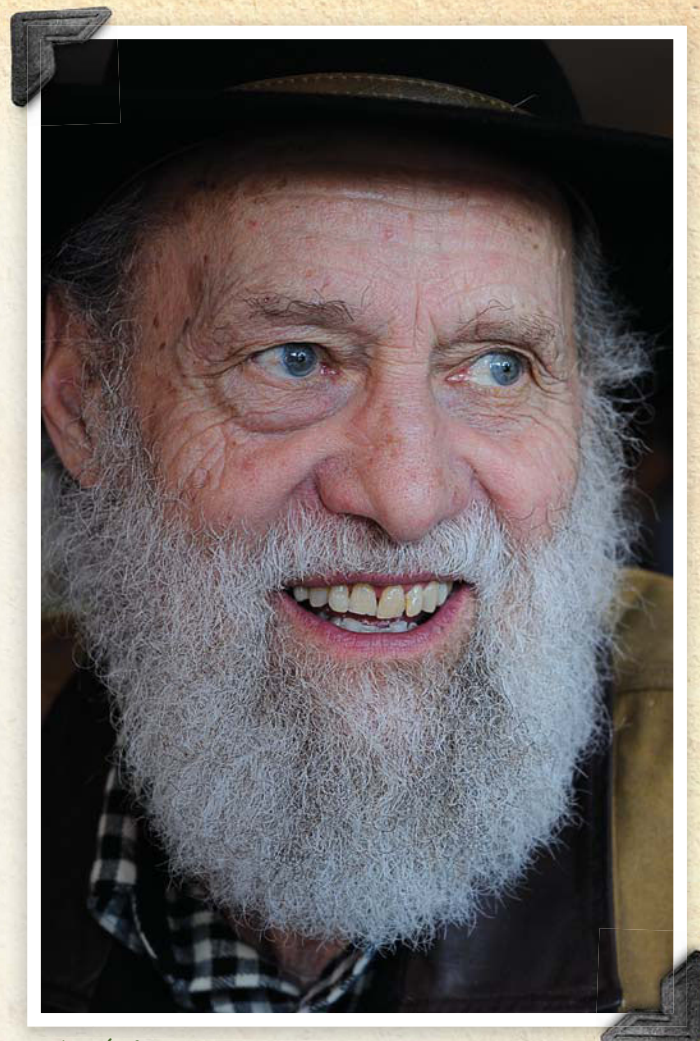
Mono Lake, California. Photo captured by Nikon D3X & AF-S Nikkor 14–24mm f/2.8 lens on Lexar UDMA.



In the very beginning, I wanted to be a landscape photographer and make my living traveling and shooting the land I was so blessed to be shown by my parents. Those long weekend drives, along with all the John Ford movies I inhaled as a kid, I have no doubt affected how I look at the land. Living in a cabin in the Sierra—"The Range of Light," as John Muir so correctly named it—as a kid influenced me, as well. But it was real obvious when I started that there was no way I was going to make it as a landscape photographer, no way to support a family or business. Not that I was settling on wildlife photography instead (or that it is any more secure), it was just that I could focus one way or the other, so I went with wildlife.

The love of landscape photography didn't go away, it just tends to play third or fourth fiddle (photographically, that is). It really wasn't until the early 2000s that I became comfortable with how I tell the visual story of the landscape that I am so fortunate to venture through. And it's only of late that I like my landscape photographs. It was when I started to get comfortable with my landscape work that I reinvested in the really good short lenses and added more lenses to the short end, where I had been eliminating them prior to that time. I still ponder the cause and effect of this on my photography, and I'm just throwing it out there to give you some thought about your own pursuits.

The short lenses in my bag must serve many masters. They are not there just for landscape photography. If I had to say what their main purpose is, it would be photographing people (biologists mostly) as they go about what it is they do. Then they serve as landscape lenses, and lastly micro lenses. The reasons for this are pretty simple: money, weight, and space—all the same reasons really as with the long glass (there are two lenses that don't fit this mold, though, as you'll see). All of this is just to say that I don't see how you can go wrong with basically any lens you love, as long as it brings to life what you feel. Please don't carry on with the myth that a 14mm at f/22 is the perfect landscape setup, though. Photographers spread and carry on with the horrible habit of pigeonholing lenses and focal lengths. That's a guaranteed recipe for killing the growth of your photography. Push past the myths, and your photography will be successful!



Walter (I found him in a Montana diner). Photo captured by Nikon D3X & AF-S Micro-Nikkor 60mm f/2.8 lens on Lexar UDMA.

"If you had your choice between the AF-S VR Zoom-Nikkor 70–300mm f/4.5–5.6G IF-ED or the AF-S Nikkor 300mm f/4D IF-ED, which would you use?" Hands down, the AF-S 300mm f/4.





*Santa Cruz kangaroo rat project. Photo captured by Nikon D1H & Zoom-Nikkor 17–55mm f/2.8 lens, using a Speedlight SB-80DX flash, on Lexar UDMA.*

Shooting the FX format (keeping in mind it's the format in which I was trained) gives me the luxury to use lenses on the wide end to their fullest. I just love wide, really wide, ultra-wide, ultra-pano-wide images, so quite often that's where my vision heads.

That's why, when I head out, I always think of the AF-S 14–24mm first for my second lens. That 14mm end of the lens, the sweetest Nikon has produced, takes in a whole lot of the world with a single click. More than with most lenses, the dance between including and excluding elements is done the most at this focal length. One of the most "unwanted" elements that this lens often includes is bright sky—sky so bright it's a blinkie (that discussion is coming soon). With this being the case, it leads us to how I like to use this lens the most, shooting over the top of a subject. What the heck does that mean?

One of the challenges I think we face as photographers is taking a very three-dimensional world and smashing it down flat onto our film plane and then onto a print, wall, page, attempting to bring it back to life in three-dimensional glory. Bringing visual depth to your images is what you worry about after you're comfortable with the basics, and is one of those big steps in the evolution of your photography. One of the easiest ways to bring visual depth to a photograph is shooting over it. You take the camera and tilt it down so it's about at a 45-degree angle to the earth, then move in physically over the subject with the camera. This is shooting over a subject.

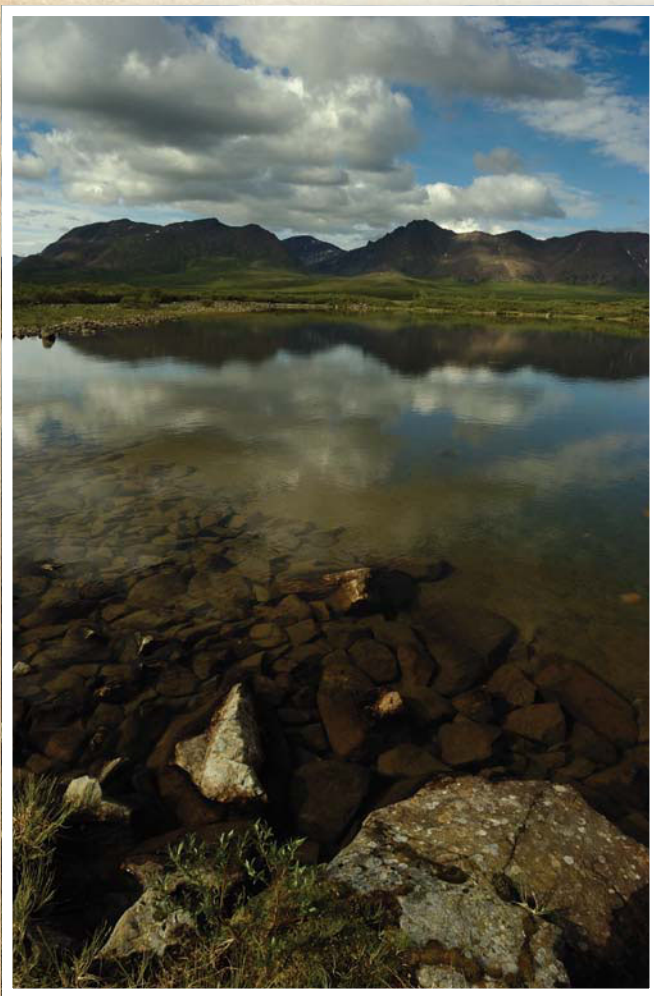
When you do this—tilt the camera and get physically closer—you visually extend the horizon line at the top of the frame, while including more of the foreground. The relationship between

the two is exaggerated and, by doing so, we are truly manipulating the image and the viewer into feeling like they are "falling" into the photograph. This brings visual depth and life to our otherwise paper-flat image. The ultra-wide lens, which is basically any lens between 14mm and 20mm, lends itself naturally to this technique, which is why I, most times, first think of grabbing the 14–24mm.

When grabbing the 14–24mm, I ask myself a couple of questions, the main one being: "Am I going to be shooting people or trees really close, and am I going to want to use filters?" The 14mm end of the 14–24mm can be not-so-kind to people, distorting features, making their nose or belly grow if you are too close to them. Since my style is often to get physically close, this can be a concern. You can zoom to 20–24mm and avoid this problem. When it comes to filters, they

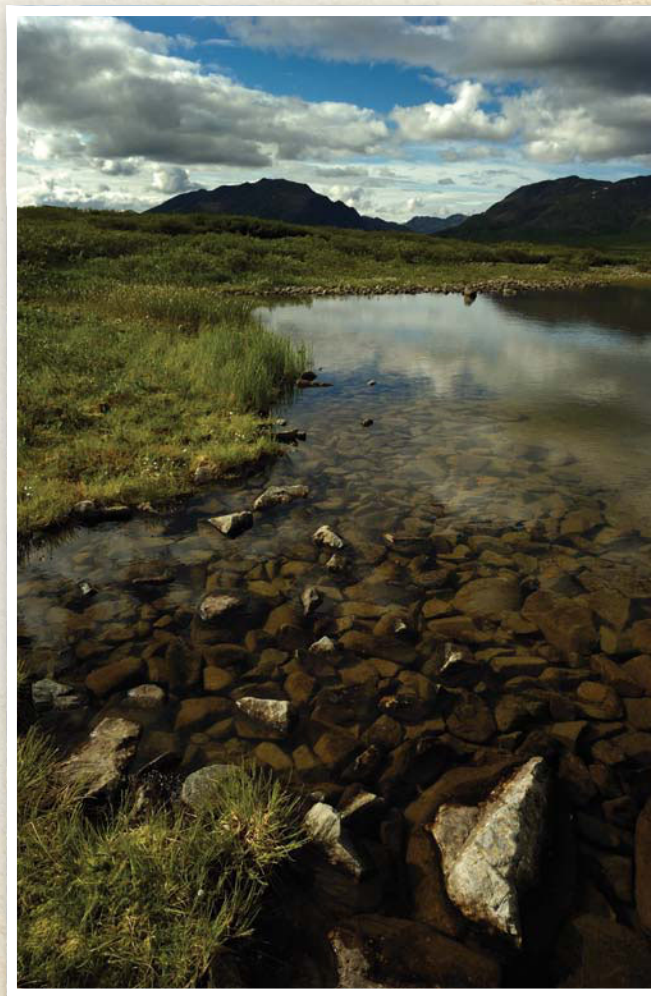


ain't going to happen with the 14–24mm. The lens has a built-in scalloped lens shade. This style shade does not create a 360-degree “seal” between the lens and the filter. The gaps on the side permit light to come into the back of the filter itself. This creates ghosting and contrast issues negating any benefit of the filter. Why not just screw a filter in place, why try to hold it? There are no screw threads to attach a filter!



*Shot with camera straight. Photo captured by Nikon D2Hs & AF-S Nikkor 14–24mm f/2.8 lens on Lexar UDMA.*

If the 14–24mm doesn't work for the situation at hand, the next lens I consider taking is the AF-S 24–70mm f/2.8. This is a beautiful lens in that classic focal length territory we think of as the multi-purpose lens. I've had many different flavors in this general range over my 30 years: 35–70mm f/2.8, 28–85mm, 24–85mm, 17–55mm, and now the 24–70mm, which is my favorite of all. This range encompasses what was once considered the “normal” lens focal

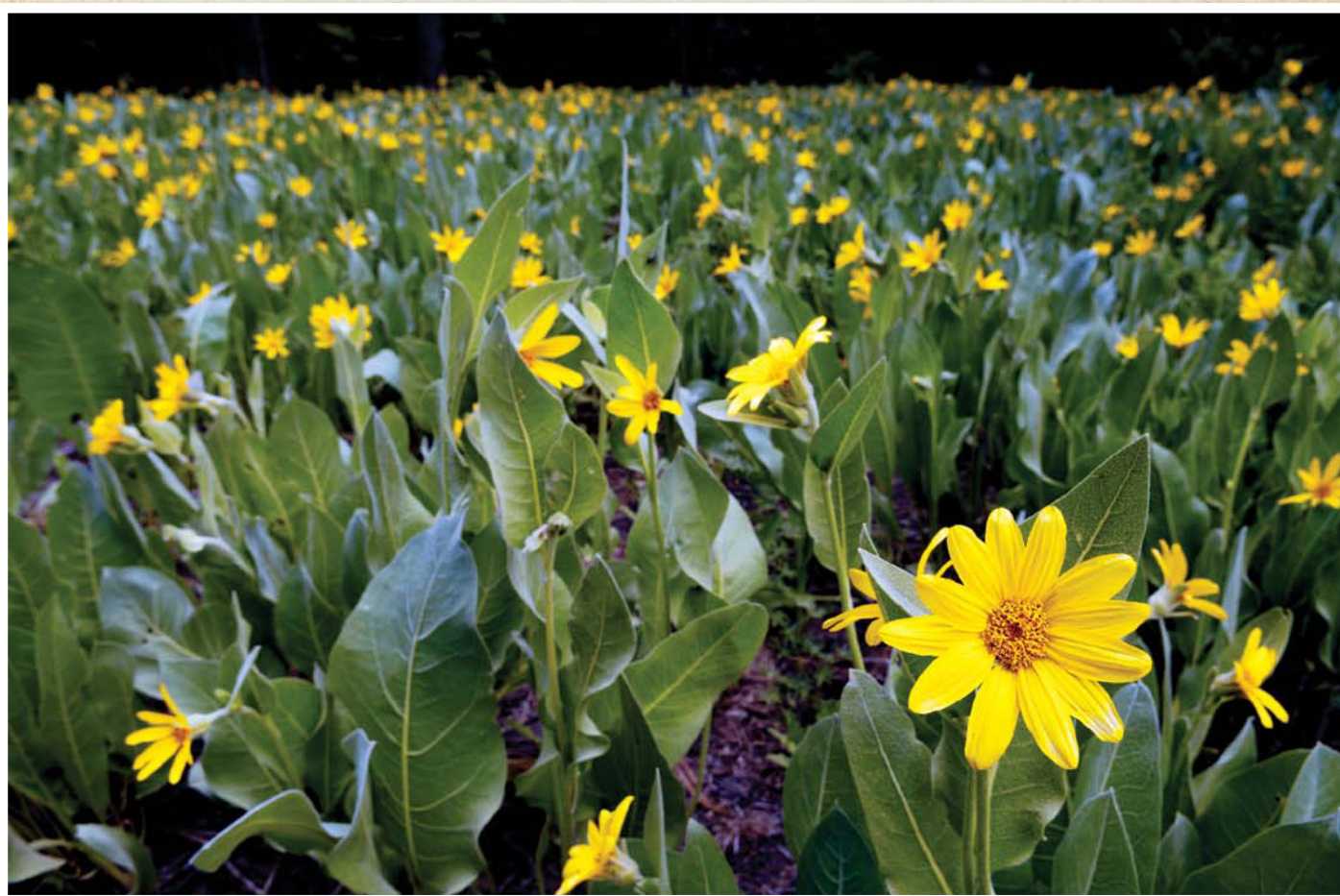


*Shot with camera tilted. Photo captured by Nikon D2Hs & AF-S Nikkor 14–24mm f/2.8 lens on Lexar UDMA.*



length, with a little extra on either side. I work this lens pretty darn hard for lots of reasons. Multi-purpose is describing what this lens can do mildly. There probably isn't anything I've not pointed it at, folks—landscapes, birds, mammals, macro, planes, and trains, just to name a few—and it does them all exceedingly well, in part because the lens quality, zoom range, and f-stop throughout its range all contribute some amazing quality.

The physical size of the lens lends itself to easy transport on a second body hanging from the shoulder. Its filter size is 77mm, which means a polarizer and split neutral density gradient filter (0.6 screw-in) can be slipped into a shirt pocket and carried easily into the field. It has a really, really deep lens shade. Not that this is important when shooting the majority of the time, in fact it's a pain when using a filter, but it provides immense front element protection as the lens bounces



*Tilt the camera & get close to the subject to bring depth to the image. Photo captured by Nikon D2X & AF-S Zoom-Nikkor 12-24mm f/4 lens on Lexar UDMA.*





*Western diamond-backed rattlesnake. Photo captured by Nikon D2Xs & AF-S Nikkor 70–200mm f/2.8 VR II lens with TC-17E II on Lexar UDMA.*

along on a strap hanging from your shoulder when walking through deep brush. All these attributes make the 24–70mm the go-to lens.

Getting close to wildlife is a skill you constantly strive to improve, because once you visually see all the benefits of it, you just can't do it enough. There are times when you get close and, once there, it dawns on you that there are images to be had not so close. That's when the lens on that second body becomes very important and where the 24–70mm really shines. My photography style is to use the perspective

of a given focal length to its fullest by physically moving to get the subject size I desire, what I call “zooming with your feet.” But when you've approached a subject and you're close, moving back and forth isn't always advantageous. That's when the flexible focal length of the 24–70mm once again makes it the go-to lens.

One other lens I take at times is the Nikkor AF-S 70–300mm f/4.5–5.6 VR. I grab this when I'm working birds in flight more than anything else. The AF-S speed of the lens permits quick acquisition





*Santa Cruz kangaroo rat existence shot. Photo captured by Nikon D1H & Micro-Nikkor 60mm f/2.8 lens, using a Speedlight SB-800 flash, on Lexar UDMA.*



*Santa Cruz kangaroo rat camera setup. Photo captured by Nikon D1H & Zoom-Nikkor 17-55mm f/2.8 lens, using a Speedlight SB-80DX flash, on Lexar UDMA.*

of the subject and maintains focus as you pan. The typical scenario is we're out shooting with the big glass and having a merry 'ol time, when all of a sudden a bird—a great subject—comes from the left or right, flying almost right overhead. Like an Old West gunslinger, the second body comes flying up with the 70–300mm attached, and a heartbeat later, that great bird is now pixels on a flash card. While a tad short for a flight lens on the FX frame, getting just a little closer makes up for not being at 400mm, and since the image quality is so sweet from this lens, it just works.

This brings up a common question, which is about shooting approach as much as gear. When I head out to a project, all the gear is in the truck ready to be used (batteries charged, cards wiped off, sensors clean). Once I arrive on-site, I take out of the MP-1 (see Appendix 1) only the gear I'm going to use in the field. For example, if that moment we're off to photograph moose (a close cousin), I will take the D3X with the 200–400mm VR mounted to the Wimberley Head and attached to the Gitzo 5560S GT sticks that will be carried over my shoulder.

Often, a second body, a D3 with either the 12–24mm, the 24–70mm, or the 70–300mm VR attached goes along. It's on a strap riding from my shoulder, turned so the lens goes behind the small of my back. If I feel I need a teleconverter, one is attached to the lens and its cap is in my pocket, so I can remove it if need be and place it in my pocket. Also I'll have a card wallet with six Lexar 32-GB cards. That's it!



The rest of these lenses are really ones that fill in the gap, you could say, for all the other types of photography I do and enjoy. It's hard to keep in mind that WRP (Wildlife Research Photography) is a business, and we have to turn a dime. This means that capital spent has to bring capital in. So the lenses that follow are just as I described: those that fill in holes in my bag, permitting me to bring back those images that make me happy and bring in the bucks.

The Nikkor AF-S 105mm f/2.8 VR and AF-S 60mm f/2.8 are micro lenses that focus from infinity to 1:1 (life-size). The primary difference between the two lenses, besides the focal length, is their minimum focusing distance (MFD) and angle of view. The 105mm VR has an MFD of 1 foot and angle of view of 23 degrees, and the AF-S 60mm has an MFD of 0.6 feet and angle of view of 39 degrees. This is important when you're photographing little dudes, for many, many reasons. One example is when I'm doing what we call "existence" shots of species.



*Two Medicine, Montana. Photo captured by Nikon D3X & PC-E Nikkor 24mm f/3.5 lens on Lexar UDMA.*



We've been called to come and photograph a little mammal because of its rarity. We're there to take a photo documenting its existence. The critter was captured from the wild (and is returned there when we are done), and placed into a special photo tank we've had made. I then photograph it using the 60mm and flash. The MFD of the 60mm is important, because we have the lens basically right next to the tank, so we don't see any reflection of the camera, flash, or us in the photograph. We couldn't do this with the 105mm VR because of its greater MFD.

On the other hand, when photographing a small critter like a butterfly, you want the greater MFD for two reasons: to stay further away from the critter, so as to not scare it, and so it's easier to bring in flash to light the subject. Yeah, you can use the Nikon R1C1 Wireless Close-Up Speedlight System on the 60mm, but I personally don't like that option most of the time. Using the 105mm VR, I can use the Nikon SB-900 Speedlight, which gives more power and therefore permits more DOF. I do not always have one or both of these lenses with me when I go shooting—they quite often stay

back in the office because I'm not really a good macro photographer. It just isn't something I do really well. So, I often don't go out to do macro for the fun of it, but rather, when I get the call and the work needs to be done.

*When in business, the general rule of thumb is you gotta earn five dollars for every one you spend. When you start looking at lenses with price tags of \$1k, \$2k, and \$10k, well, you can do the math.*

The next two lenses are so far out there, I'm including them only because I think they are really cool lenses and not because I think any other wildlife photographer on the planet should include them in their bags. The PC-E Nikkor 24mm f/3.5 and PC-E 45mm f/2.8 lenses are highly specialized, wickedly sharp, manual focus lenses that are truly designed for one thing: architecture photography. So, why then



*Stout Grove at Jedediah Smith Redwoods State Park (2x3 pano). Photo captured by Nikon D3 & PC-E Nikkor 24mm f/3.5 lens on Lexar UDMA.*



do I own these two very expensive lenses? Even more, why do I always have the 24mm PC-E with me (if not both of them)?

PC stands for perspective correction (keeping lines from merging at the top of the frame). The purpose of the PC lens is to permit the film plane to stay parallel with the subject, like a building or a tree. This prevents the lines of the subject from converging at the top of the frame. But at the same time, keeping the camera as such cuts off the top of the subject in the frame. The PC lens has a shifting front barrel. The shifting front barrel permits you to pull the top of the subject back into view without having to have to tilt the lens and converge the lines. While I use these lenses from time to time to photograph trees, their PC ability isn't why I have them.

I have these two lenses specifically for my ultra-wide panos—what appears to be a single photograph is actually six images, two rows of three, combined in Photoshop. To produce a single finished image with the same perspective as if you were standing next to me when I took it, you need to use a nodal plate. This permits you to pan on your ball head and keep the perspective across the 180-degree pan in check, but prevents the camera body from tilting up or down.

That's where the PC lens comes in with its shifting front barrel. You can shift the lens down and then up without moving the camera body and take two separate photos that, when combined in Photoshop, give you an image with the vertical perspective equal to your vertical binocular vision. Take three such panels and combine them, and you have a single image that equals your horizontal and vertical binocular vision. That's an ultra-wide pano, and why I have these two lenses.

*My go-to landscape lens?  
The PC-E Nikkor 24mm f/3.5.*

The other lens that travels with me most of the time is the old Nikkor 28mm f/1.4 AF. There are a few times it goes into the field for your "basic" type of photography, but that's rare. I have this lens for one specific purpose: star trails. Doing star trails with digital is pretty darn simple. After taking a minimum of 40 images, one second apart, with the shutter open for four minutes, you combine all of them in Photoshop to create the classic star trail photograph. I try to take at least one star trail at every place I visit. The 28mm f/1.4, being killer sharp and so fast, makes them a snap to do.



*Blunt-nosed leopard lizard. Photo captured by Nikon D1H  
& AF-S VR Nikkor 600mm f/4 lens with TC-14E II on Lexar UDMA.*



## The One Place You Can't Cheap Out!

I hate tripods. Being stuck on them takes away the freedom that makes photography creative and so much fun. With that said, they are a necessary tool that you simply cannot be without. And they are a tool you can't cheap out on.

Since day one, I've been shooting with Gitzo tripods for a real simple reason: they work. The vast majority of the time, big lenses like the 200–400mm VR and 600mm VR reside on a tripod (though handholding is done with these lenses, as well). The first test in selecting the right tripod is kinda simple: Do the legs open up wide enough, so the distance between the legs where they hit the ground is equal to or greater than the length of your rig (camera and lens)? The next test is: Does the tripod, at its maximum height, come at least up to your nose? The last one is: Does it have a thread on its base, so you can attach the tripod head of your choice? Optional questions are: How many leg segments? Center column? Carbon fiber or metal?

The answer for me is real simple: Gitzo carbon fiber 5560S GT and 3540 XLS. The 5560 is the big bad boy and the 3540 is light duty. Both of these are G-Lock, which in itself makes them more than worth their weight on any project. G-Lock permits you to change the leg length with a simple quarter-turn. You don't have to hold on to any other leg to do this. You don't have to hold a leg to lock the G-Lock back in place. One simple turn and you're good to go. When

*I always giggle to myself when a photographer tells me how they are disappointed in the sharpness of their \$10,000 lens mounted on a \$100 pair of sticks. You want \$10,000 results from that \$10,000 lens—or any lens—you gotta use the best possible tripod. Bite the bullet from the start and you'll never buy another tripod (unless you leave it on the roof of your truck and drive away).*



Setting up the Moose Cam. The Gitzo 5560 has no problem providing a stable platform for the DSLR rig and video at the same time—and that's with it set up in snow!



it comes to making slight adjustments without upsetting a subject, the G-Lock system paid for itself the first time out.

Neither one of these two tripod models has a center column. To get the maximum stability out of your tripod, the tripod head must rest right on top of the tripod base. If you extend a collar, and use that to get height for your tripod head and big lens, you've basically put that big lens on a monopod. Many photographers obtain sharp images doing this, but it takes work and means often the tripod is set up on a steady platform to begin with (column costs you more money and means more weight, as well). When it comes to tripod stability, you have to always plan on placing the tripod on the most unstable surface. Working in sand, mud, snow, gravel, and unlevel ground, etc., is very typical for wildlife photographers. For that \$10,000 lens to do its job, the tripod must be stable.

The 5560's main job is to hold the 600mm VR, and it does it very, very well. The 5560 is called "the Giant," because it can extend as high as 8'5"! For 20 years, I worked with tripods like the 5540 XL, which only extended to 5'. Until I shot with the 5560, I didn't realize what I was missing all those years shooting with the shorter 5540. It wasn't a stability issue, it was a back and neck issue. Bending and stooping over at times to look through the viewfinder got real old. Another issue is working on a slope. The shorter legs of the 5540 made working on a slope not only uncomfortable, but hazardous. I always had to keep a hand on the tripod, so gravity didn't tumble over the rig. The 5560 made those problems disappear. To say I'm hooked on the taller 5560 is an understatement.

*What's the best tripod head for long lenses? Hands down, the Wimberley.*

The 3540 is my general-purpose tripod. You could say it's relegated to landscape chores, but it does more than that. The 3540 XLS extends to 6'4", which permits me to get under it and easily look up through the viewfinder to do star trails. If I didn't do those, I probably wouldn't have the XLS version of the 3540. It can easily support the 200–400mm VR or 200mm VR, so it does get a bit of slope duty, which makes that extra leg length a real benefit.



*Jake & I on the banks of McNeil River, Alaska, with our 600mm lenses resting securely on our Gitzos, which have all-day lens duty on the river.*





Harris's hawk. Photo captured by Nikon D3X  
& AF-S VR Nikkor 600mm f/4 lens with TC-17E II on Lexar UDMA.

These sticks are the stable platform holding the tripod head, and then the lens, that permits shooting in critically low light possible. The head you attach to your tripod is just as important as the sticks themselves. The 5560 is married to a Wimberley Head II and the 3540 to the Really Right Stuff BH-55. Both are fitted with the Arca Swiss-style clamping system, whose channel groove locks into the plates attached to bodies and lenses. The 600mm VR and 200–400mm VR have had their factory tripod foot replaced with the Really Right Stuff tripod foot, which not only has a lower profile than the factory model, but has an Arca Swiss groove built into it. This system permits quick and assured mounting of the lens onto the heads. (I always double-check security when I mount a lens and/or body to a head.)

Why the two different heads? The Wimberley Head is a gimbal-style head. The gimbal permits solid support without the controls being locked down tight. One thing you want to make sure you do when you work with your tripod head is to not lock it down tight. All movement—horizontal and vertical pan, as well as rotating the lens from horizontal to vertical (via lens control)—must be loose, so you can easily follow any action. At the same time, this looseness keeps any movement from being transmitted through the head and to the lens. How loose is loose? I personally set up the tension so it takes a little force to move the lens in either horizontal or vertical motion, but not so tight there is any chattering while the lens moves. The 600mm VR with body and/or teleconverter attached is also set so it's balanced out. The goal is to be able to move the rig left, right, up, or down and then



let go, and it will stay where you left it. This gives the speed and stability you need to function as a photographer while photographing a moving subject.

The pan action is oh so important. When shooting a moving subject, the smoothness of that panning action directly translates to the sharpness of your images. Any chatter because it's over-tightened or because the action has been damaged from abuse or neglect, and you can kiss sharp images goodbye. For that reason, the Wimberley wears a LensCoat Wimberley WH-200 cover. And when it's transported across the country—or just going in the truck to the next site—when no lens is attached, it's covered by the LensCoat Gimbal Pouch. It's real simple: you want the best out of that \$10,000 glass, so you'd better make sure everything it's attached to—that includes you—works its best.

The BH-55 is a true ball head. That means it has nearly 360 degrees of movement. When it comes to everything photography, this head just rocks. It is not an inexpensive head for a very good reason: it is a precision tool manufactured with standards that have their beginnings in the Skunk Works (the division of Lockheed Aircraft Corp. formed to rapidly develop a jet fighter during WWII). I rely on this head for doing basic landscape work, studio work, ultra-wide panos (the action is just that smooth), and at times, to hold the 200–400mm VR.

Why the exception there? Since it is a true ball head, with the main control slightly loose like I described for the Wimberley, if the 200–400mm VR is attached to the BH-55 and is not perfectly balanced, gravity will take over. The results aren't pretty when that happens. Since I can't walk and chew gum at the same time, remembering to lock down the main control when the 200–400mm VR is attached is difficult. More than once, I have forgotten, only to have the head come down on my finger and pinch me—the wildlife soon knows all the foul words in my repertoire.

Being a precision piece of equipment, anything that gets into its movements destroys that precision. Not that you have to be paranoid about it, but simple things like keeping the head covered when not in use (it comes with a cover), keeping sand out of its mechanisms, and other obvious precautions will guarantee years of service. While the



*Yellow-bellied racer. Photo captured by Nikon D2Hs & Nikkor 200mm f/2 VR lens on Lexar UDMA.*

BH-55 is married to the 3540, there are times (for the sake of weight conservation) it will go on a project and be used atop the 5560. While that is overkill, it works great and is solid as a rock.

The main goal is maximum stability. This means keeping the head on top of the tripod platform. At the same time, it means keeping





*Coyotes in Yellowstone National Park. Photo captured by Nikon D3X & Nikkor 200–400mm f/4 VR lens with TC-17E II on Lexar UDMA.*

the mass of the lens and/or body over that same point. It's all very physical (as in physics). Using the Really Right Stuff Arca Swiss-style plates makes this all very simple. Keeping with that, the bodies are fitted with the appropriate Really Right Stuff L-plates (only when needed, otherwise they are in a kit, ready to be attached). The L-plate keeps the camera body, when attached in either horizontal or vertical format, and its mass centered over the main base of the tripod. This brings maximum stability to your shooting.

## Making 'em Work for You

The tripod is this silent miracle tool to wildlife photographers when used to its fullest. There is actually more to getting stability than simply shelling out the bucks. Let's start with setup.

When you extend the legs of your tripod, I highly recommend you extend the last leg—the leg that hits the ground—to its fullest, so it takes all the abuse of the terrain. Mud, snow, sand, and everything





*Greater sandhill crane in Bosque del Apache National Wildlife Refuge. Photo captured by Nikon D3S & AF-S VR Nikkor 600mm f/4 lens with TC-17E II on Lexar UDMA.*

else we set our tripod in, can take a toll on the leg joints. Contrary to logic, you're not forsaking the stability of the tripod by putting the skinniest leg to its fullest. You are guaranteeing that when you need it, the tripod is working.

Setting the length of the rest of the tripod legs can be done many different ways based on your height, the height of the tripod head, and the number of leg sections on the tripod. I would suggest that

*Having a leg length routine makes good sense to make setting up and shooting faster. At the same time, shooting the same tripod height all the time is not always the best idea. Always shooting at the same tripod height will bring a look to your images that is "routine." So while you might always start with the same tripod height, be very flexible, and constantly change its height when shooting to make the most of the photographic opportunity.*



you get a tripod that is 6–8" taller than you are, so the uppermost leg section doesn't have to be extended for general shooting. Setting up the tripod in this way, when you need a longer leg(s) for working on a slope or uneven surface, you can quickly and easily extend this leg(s). Being the beefiest, you have the greatest amount of stability as you reach the tripod's limit, and at the same time, limit your movement extending the leg, which might scare the subject.

When you set the tripod down, make sure it has as stable a platform as possible. If there are any little rocks around, wiggle the tripod so it settles onto solid ground and not on the little rocks. This needs to be done every time you put the tripod down, no matter the size of the tripod or the ground you're setting up on. Shaking the tripod leg is a good habit you need to establish.

Again, we often find ourselves shooting in mud, snow, and the stuff you find in marshes. These surfaces have an inherent surface tension, enough of one that despite the weight of our gear, it rides on top of this stuff. This is not a stable platform the majority of the

*"How do you have so much to write about?"*

*This excellent question is a common one. My material comes from one of two places: those things I learn while I'm shooting, or questions asked by folks. Since I shoot all the time, that's where most of the material is generated.*

time. So, every time you set up your tripod, along with giving it a wiggle, you'll want to push the leading leg down into the muck. The leading tripod leg is the one that normally is directly under the front of the lens barrel. By doing this, you break the surface tension and provide the tripod with a maximum stable platform.

The last thing to think about when putting your tripod down is to put it down so you're shooting between two of the tripod legs. You don't want to be straddling a tripod leg when you're shooting.

Set up everything so you're ready for action, even if you're photographing a rock (you never know what might pop up from behind it), and so you can move left and right as you pan. Personally, I take this to the extreme and, when a subject moves from its original position, I will pick up the tripod and reset it, so I am basically standing in the middle of two legs all the time. There is nothing worse than having a killer subject move in such a way that you get all twisted up in a tripod leg, either kicking the tripod or doing a dance, causing the loss of a sweet image.

Walking with the tripod in the field is just something that doesn't come naturally. There are many ways you can do it, but I can only relate the style I use. The vast majority of the time, when the 600mm VR is attached to the



*Jake, carrying his camera and lens on his tripod, at the back of the pack at McNeil River, Alaska (he was making sure Dad, with his bum leg, made it along the trail).*



5560 and I'm off for a walk, it rides over my left shoulder. Prior to hoisting it up, I make sure everything is secure. That's because once I didn't, and I saw out of the corner of my eye the 800mm f/5.6 and brand new Nikon F4 come off the tripod and hit the ground. So, when I first connect the 600mm VR to the Wimberley, I shake the lens to double-check it is locked into the clamp of the Wimberley. Then, when I go to carry the whole rig over my shoulder, I lock down tight the horizontal and vertical pan of the Wimberley. This is so the 600mm VR doesn't swing and smack me in the back of the head (a gentle reminder to lock down the knobs). With the front element pointing toward the ground and the body up in the air, the rig is balanced, so it can ride on one leg on my left shoulder. Now my shoulder has a permanent dent in it from all the years of doing this, which helps. But at least that is how I can walk for miles with this rig ready to shoot (I've done that on more than one occasion).

I don't walk with all my gear in a photopack on my back and my tripod in hand, because if I come upon wildlife, getting it all set up and not scaring off the subject just isn't possible the majority of the time. It's all set up as described, which makes it a rather large "thing" walking toward a subject. So, when it comes time to put the tripod down to shoot the subject in front of you, you want to lower it slowly and deliberately. I tend to bend at the knees until one tripod leg is on the ground and then lift the rest of the tripod off the shoulder and set it up. We want to approach every subject as if they are shy until we know otherwise. This method, I have found, keeps our profile to a minimum while working with these tools.

*Keeping the CCD clean is important. I use the VisibleDust system and, if you head to Adorama, you will find the Moose Kit containing those tools I think are important. Then head to <http://moosepeterson.com/blog> and look under Videos for my four videos on how to use it.*

## Gear Maintenance

I've been incredibly fortunate that, in all my years, I've never had my gear go down so I couldn't shoot. I'm pretty much a zealot about keeping my gear clean, charged, and tucked in at night. I want to encourage you to take the same care of your gear. When I travel, I have along a camera care kit that has just about everything in it for taking care of the gear. You'll find its contents in Appendix 2.

Working with electronics, as we do with digital, moisture, grease, and dust can be our biggest enemies. Simple daily care makes any gear going down on us a non-issue, though. The key is a clean, white T-shirt that you use to wipe all your gear down. It is amazing how this simple tool and technique keeps the vast majority of the daily grime from killing the camera. The basic regime I go through every night is best learned and observed on the four Camera Care videos posted on the Moose Library page of our website. So, rather than taking precious page space to cover that here, I'll simply say: You've gotta do it, there's no way around it, and it pays big dividends.

Working in the rain is very, very common for wildlife photographers. I tend to dive right in and not shy away from the moisture and, as long as I can handle it, I know my gear can, as well. I've tried all the covers and, while they work, they are a pain in the ass to work with. What I've been using for the last two years is not truly a rain cover, but works really well for that and just general protection of the lens (like when shooting out a truck window).

The LensCoat is a neoprene wrap that protects most of the lens barrel. It's not a complete cover, but I've found it does a great job. In conjunction with it, I use a clean, white, hand towel that I swear fell into my luggage at that hotel. This is used to *blot* the gear dry—not wipe it dry. Blotting prevents moisture from being forced into cracks and crevices of the gear, where moisture shouldn't go. So the clean, white towel is used by just pressing it against the wet gear and letting its natural absorbency do the job of drying the gear. One of these towels is in every one of my photopacks, so I always have one with me.



Working in inclement weather is really a hallmark of the diehard photographer. This includes cold—true cold, where your breath fogs up your eyepiece (which quickly teaches you not to breathe on it). Often, when this is the case, you and your gear are going in and out of the cold, which can cause, at the least, fogging, and at the most, condensation on your gear, in particular the glass. I'm suggesting you don't need to fret about all of this.



*It's -40°, the Arctic wind is blasting, and while I took care to avoid condensation, this was the only time I'd had snow blown inside the front protective filter of any lens.*

The key is to keep condensation from forming on your gear. The problem normally starts when you come in from the first day of shooting in such weather. The goal is to get your gear into the warmth and up to room temp as quickly as possible, so you can upload cards, clean it, and charge batteries. So, when you get to your room, take your gear out, lay it on the bed, grab a clean, white, bath towel, and instantly cover the gear. The condensation will form on the towel and not the gear. Once the gear is room temp, take care of it as normal.

Once the gear is all clean, place it back into its bag and place it in the coldest part of your room for the night. The next day, once out shooting, if possible, have the gear out and keep out what you're going to use from its bag, but under the cover of a white towel. Again, the towel will help with the fogging. The goal is maintaining an even temp for the gear as much as possible and keeping all moisture out of your bag. Take care of your gear, and it will take care of you.

## Camera Bodies

I need to put this as succinctly as possible: It's the person behind the camera that counts. Just as much as lens selection determines a photographer's style, camera bodies must mold to the photographer's logic, abilities, and passion to be great. There simply is no right or wrong answer in body selection. It doesn't mean, though, for a moment that I don't know what I prefer. Ever since the D3 hit my office, I've thought it was the best wildlife photography camera body for me. For the last year, I've been shooting almost exclusively with the Nikon D3X, which is about as opposite of the camera body I recommend for most photographers. What is the best body then?

A better question is: What are the main attributes you should look for in a camera body? There are three that I feel are very important and I'd like you to consider: The first is frames per second (fps); the next would be full frame; and last is a vertical firing button.

It really doesn't matter how you get there, but you need to have at least 5 fps for photographing action. The mark, 5 fps, permits you to capture action photos without really having to think about it.



Here's the problem: by the time we see the action, tell our finger to depress the shutter release and the camera fires, quite often the action has come and gone. To make up for this lag, we hit the shutter release a tad before the action begins and let the fps take up the slack. To make this whole technique work, we need 5 fps or faster.

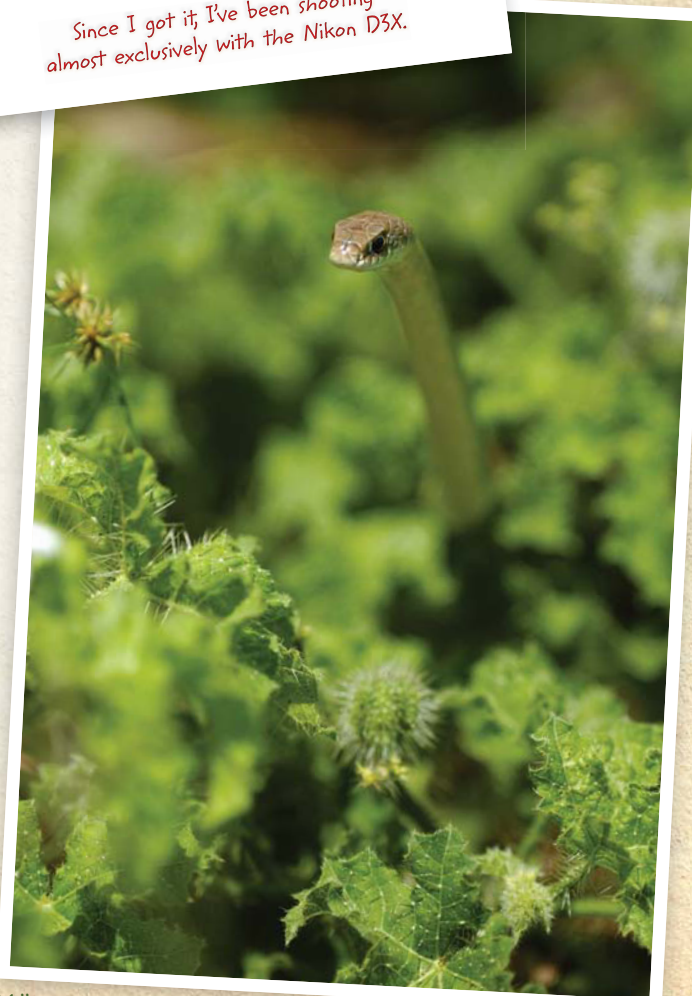
What if you're shooting less than 5 fps, are you screwed? Nah, you just have to be a better photographer. You have to be better at seeing when the action is going to occur. Seeing might not be the right word; predicting might be a better choice. Then, with that ability, you need to know how to use "peak of action" for stopping the action. Peak of action is best described by a dribbling basketball. When you dribble a basketball, it travels down, bounces up, and then just before it travels back down again, it stops, if for just a heartbeat. When it stops, that's peak of action, and at that point, you could photograph it with almost any shutter speed and get a sharp photograph. The thing is that you would have to push the button at just the right moment to make a sharp image of that moving basketball. That's a skill set many photographers simply have not perfected.

Full frame to me is a biggie. Seeing everything in the viewfinder that's going to be part of the final photograph is a must. Why? It's that old-fashioned thing known as photography. Photographers have composed in the viewfinder since the dawn of photography. It's part of the craft. What you see in a photo is what they saw in the viewfinder. To make that work, you've got to see everything at the time of the click. This requires a full-frame or 100% viewfinder. It also means you don't depend on cropping in post to make the magic, but do it in the viewfinder. When you look at one of my wildlife images, what you see is what I saw in the viewfinder, it's that simple.

When you put the camera to your eye, so much is going through your mind before and at the moment you make that click. The goal is to remove as many variables in creating an image as possible, so you concentrate on just one thing: the subject. When looking through the viewfinder, being able to see all the elements we need



Since I got it, I've been shooting almost exclusively with the Nikon D3X.



Yellow-bellied racer. Photo captured by Nikon D2Hs & Nikkor 200mm f/2 VR lens with TC-14E II on Lexar UDMA.





*Snow geese in Bosque del Apache National Wildlife Refuge. Photo captured by Nikon D3X & AF-S VR Nikkor 600mm f/4 lens with TC-17E II on Lexar UDMA.*

to exclude, and at the same time, those we need to include, can only be done with a full-frame viewfinder.

The last one on the list isn't one you probably think of: a vertical firing button. Why is that important? We often work in low-light situations where good, solid handholding technique or long-lens technique is a must to get a sharp image. The vertical firing button makes it possible to do these things, but basically permits us to keep

our right elbow down. Rather than having it flying up in the air, it's tucked down and, while this may seem too trivial to be important, it's on my top three list for a camera body.

What you're not reading here as important is megapixels. It's not important. Any photographer who knows their craft and practices it skillfully at the point of capture will make the most of every pixel, no matter the total. The quality resulting from that skill makes any



megapixel count on today's market more than ample to get the job done in stunning ways. If your skill set isn't up to that standard, more megapixels won't make up for it. Here's the fun thing though: if your skill set is up to that challenge, then the more megapixels, the more you can show off those skills. But don't fool yourself, more megapixels show off your lack of skill just as well.

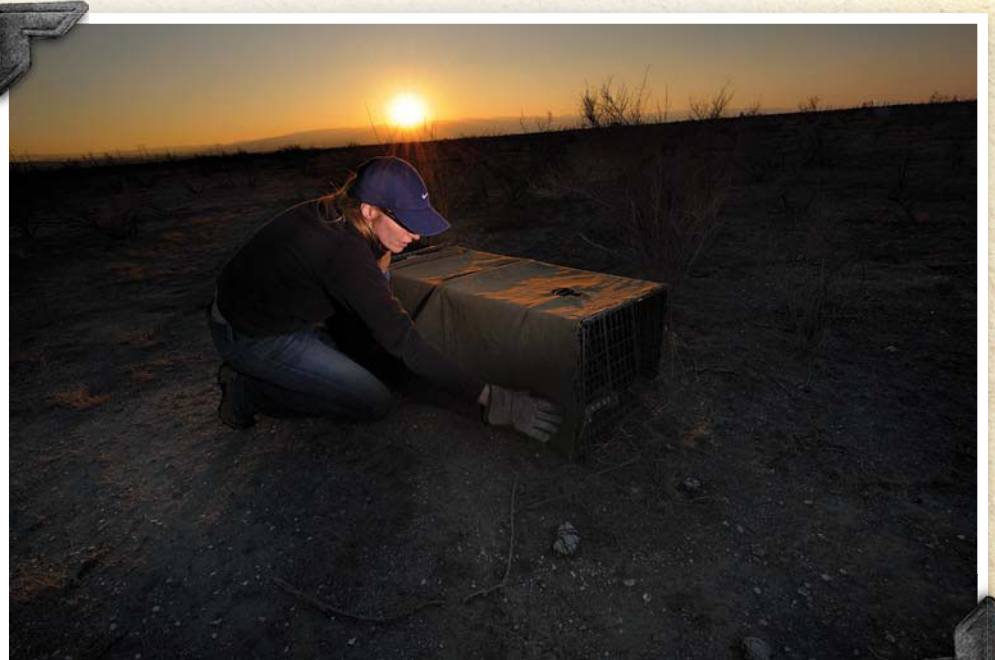
One feature that I personally feel is important for me that I want to mention is GPS. I've been using GPS to make note of where I've been shooting since the days of film. I'm so glad the days of writing down UTMs (Universal Transverse Mercator coordinates) and later recording that info on the appropriate slide are long gone. That data is needed mainly for the projects I work on with biologists. I use it for myself mainly for return visits. Not to go back to the exact same place to shoot, because wildlife doesn't sit in one place waiting for me to come back. Rather, it's for my own trivia base of information, as

I try to better understand how wildlife use a particular area. That information is vital in how I work an area on my return visit. It doesn't make the photo any better or easier to obtain, so it's not a must to your photography.

You might be looking for settings for your body. You'll find the ones I prefer in Appendix 3. They, like everything else here, are just food for thought. While this is the gear that I depend on, and that I used to create the majority of the images in this book, they are not the only ones. Not by any stretch of the imagination. But that's what your gear—your bag of confidence—should permit you to do: stretch your imagination. If it doesn't, then you've got the wrong gear. The good, or bad, part of wildlife photography is there is always something new to explore and possibly buy. What's here just gives you some ideas. You're going to find as you continue on with the book, I really have only scratched the surface here. Because, in all honesty, this is really just a starting point.

*What is always packed in my MP-1 photopack? It changes constantly, but right now it is:*

- A Nikon D3X with a Nikkor 600mm f/4 VR lens attached
- A Nikkor 70–200mm f/2.8 VR II lens
- An AF-S Nikkor 24–70mm f/2.8 lens
- An AF-S Nikkor 14–24mm f/2.8 lens
- A Fisheye-Nikkor 16mm f/2.8 lens
- A TC-14E II & TC-17E II
- Speedlight SB-900 flash with SD-9 battery pack
- A Nikon D3S with an AF-S Nikkor 50mm f/1.4 lens



*San Joaquin kit fox project. Photo captured by Nikon D3 & AF-S Nikkor 24–70mm f/2.8 lens on Lexar UDMA.*



*This page intentionally left blank*



## INDEX:

400mm prime lens, 5  
800mm f/5.6 lens, 71, 122

## A

accessories, 368–369  
action  
    capturing, 62, 148–149, 352  
    fps required for, 148–149  
    lens focal length and, 352  
    panning, 120–121, 327–329  
    peak of, 149  
Adams, Ansel, 25  
Adorama Camera, 113, 147, 370  
AF illuminator, 230  
AF settings, 182, 329  
AF 28mm f/1.4 lens, 139  
AF 300mm f/4 lens, 5  
AF-S 14-24mm f/2.8 lens, 132–133  
AF-S 24-70mm f/2.8 lens, 133–135  
AF-S 60mm f/2.8 lens, 137  
AF-S 70-300mm f/4.5-5.6 VR lens, 135–136  
AF-S 105mm f/2.8 VR lens, 137  
AF-S 200mm f/2 VR lens, 126  
AF-S 200-400mm f/4 VR lens, 124–125, 126  
AF-S 600mm f/4 VR lens, 122–123, 124, 125  
afternoon naps, 349  
air dancing, 340, 341  
Alaska marmots, 268, 332  
Alaska Range, 168  
Alaskan bull moose, 239  
Alaskan photo excursion, 306–308  
Allen's hummingbird, 9, 16–17, 214, 215  
Amargosa vole, 211, 212  
amateur photographer mistakes, 36, 104  
American dipper, 220  
American kestrel, 10, 116  
American oystercatcher, 222  
American pika, 268, 270  
American white pelicans, 356

analogous colors, 186  
Anna's hummingbird, 8  
antelope, pronghorn, 161, 304, 337  
antelope squirrel, 196, 208  
aperture priority mode, 66, 171, 177  
approaching subjects, 339, 343  
Arca Swiss-style clamps, 142, 144  
arctic fox, 188  
arctic ground squirrel, 190  
arctic hare, 15  
Arctic National Wildlife Refuge, 9, 14  
Arctic plain, 109, 148  
Attwater's prairie chicken (APC)  
    biologist-at-work shots, 255, 257, 259  
    bug collection process, 266–267  
    as endangered species, 252–253  
    National Wildlife Refuge, 254–255  
    photos of, 254, 256, 258, 260, 261, 263, 264, 266  
    story of shooting, 254–267  
    trip preparation, 253–254  
Audubon Society, 63  
Aumiller, Larry, 293  
author's blog, 147, 259  
autofocus (AF) settings, 182, 329

## B

Back Bay, California, 93–94  
backgrounds  
    blurring, 33, 35  
    challenges controlling, 343–344  
    flying birds and, 327, 329  
    importance of using, 325–327  
    nocturnal flash and, 231  
backyard photography, 309–313, 330  
Badlands of South Dakota, 193, 341  
bag of confidence, 111, 369  
Baich, Paul, 9  
bald eagle, 180, 206, 327, 328  
banding birds, 40, 41, 42  
baseline data, 111  
batteries, rechargeable, 216



- beach photos
  - gear protection, 317
  - tips for shooting, 316–319
  - See also shorebirds
- BeamerKeeper case, 219
- beams of sunlight, 158
- Bear River Migratory Bird Refuge, 332
- bears
  - black, 207
  - grizzly, 157, 178, 179, 199, 293–305, 308, 324
  - polar, 234–237
- Belding's savannah sparrow, 95
- Bell's vireo. See least Bell's vireo
- belly rubbers, 109
- Bent, Arthur, 9
- Bentsen, Steve, 313
- Better Beamer flash extender, 221, 222
- big game animals
  - approaching, 339, 343
  - flash fill used with, 226, 227–228
  - getting physically close to, 332–335
  - lenses for photographing, 124, 125–126
  - season to photograph, 226
  - See also mammals
- bighorn sheep, 341
  - Nelson's, 59, 61, 62, 63
  - Rocky Mountain, 119, 128, 185, 340, 342, 343, 344
  - story of capturing, 57–63
- binoculars, 53, 346
- biologists
  - asking questions of, 255
  - benefits of working with, 245–246
  - gear for working with, 244–245
  - photographing at work, 77, 131, 244
  - tips for first meeting with, 244
  - working on projects with, 57–61, 242, 243–251, 291
- biology, intimate, 308, 309, 314, 315, 332
- Birder's World* magazine, 67
- BIRDNET resource, 243
- birds
  - approaching, 339
  - backyard photos of, 309–313
  - banding process for, 40, 41, 42
  - fall photos of, 356
  - finding nests for, 21, 49, 347
  - learning about, 9–10, 44–45, 346
  - lenses for shooting, 56, 123, 124, 126
  - locations for shooting, 332
  - nests of, 20–24, 54–57, 347
  - photographing in flight, 65, 327–330
  - season to photograph, 18, 345
  - shooting masses of, 362–363, 366
  - songs or calls of, 44–45, 346
  - spring photos of, 345–348
  - tips on shooting, 345–352
  - See also specific species
- bison, 153, 177, 242, 326, 333, 357
- bittern, least, 81
- Bitterroot Mountains, Montana, 153
- black, color psychology of, 194–195
- black bear, 207
- Black Hills, South Dakota, 153, 160
- black skimmer, 76, 91
- black swifts
  - photos of, 101, 102, 104
  - story of shooting, 97–105
- black turnstone, 40
- black-backed woodpecker, 30
- black-bellied plover, 123, 153, 320, 321
- blackbird, yellow-headed, 224–225
- black-tailed prairie dog, 122, 181, 322
- blinds, 14, 15, 265, 346, 354
- blinkies, 173–175
- blogs
  - author's blog, 147, 259
  - gallery blog, 69
- blue, color psychology of, 191
- blue gels, 233
- blunt-nosed leopard lizard, 85, 139
- blurring backgrounds, 33, 35
- Bolsa Chica, 41, 92–93, 95–97
- Bosque del Apache National Wildlife Refuge, 150, 166, 358–361
- Bradley, Josh, 70



Brooks Falls, Alaska, 199  
 Brooks Institute, 3  
 brown, color psychology of, 194  
*BT Journal*, 253  
 bug collection process, 266–267  
 Bullock's oriole, 311  
 bunting, painted, 315  
 Bureau of Land Management (BLM), 80  
 burrowing owl, 366  
 burst mode, 5

## C

Cable, Jeff, 172, 367  
 cactus wren, 41  
 California clapper rail, 94  
 California condors  
   photos of, 65, 66  
   story of shooting, 63–66  
 California Department of Fish and Game, 67, 105, 282  
 California least tern, 76, 91  
 California spotted owl, 99  
 California towhee, 7  
 CALM (California Living Museum), 82  
 Camera Care videos, 147  
 cameras  
   bodies of, 148–151, 368  
   clock setup, 235  
   handholding, 328  
   maintaining, 147–148  
   protecting, 50, 97, 147–148  
   remote, 100  
   settings for, 151  
   tilting, 132, 133, 134  
   See also gear  
 Canon Professional Services (CPS), 112  
 caracara, crested, 314  
 Carrizo Plain National Monument, 72  
 Cassin's finch, 217  
 caves, shooting in, 97–105  
 CCD sensor cleaning, 74, 147, 370  
 CH (Continuous High) setting, 62  
 chemical hand warmers, 234  
 chicken, prairie  
   Attwater's, 252–267  
   greater, 348–352  
 chimping, 122, 172  
 chipmunk, least, 164  
 clapper rail, 93, 94, 105  
 Class B gear, 3  
 clean water, 362  
 cleaning kit, 370–371  
 cleaning the sensor, 74, 147, 370  
 climate change  
   collared pika and, 274, 282  
   polar bears and, 234  
 clock settings, 235  
 closeness, physical, 332–335  
 cold weather conditions, 167  
 collared pika  
   biologist-at-work shots, 274, 276, 280, 281  
   climate change and, 274, 282  
   general description of, 270–273  
   photos of, 252, 269–273, 277, 278–279  
   research science on, 274  
   story of shooting, 268–269, 275–282  
 color  
   flash used for, 223–226  
   psychology of, 184, 185, 190–196  
   theory of, 186  
 color contrast, 178–179, 184, 185–189  
 color wheel, 186  
 Compact Flash cards, 58  
 compacting images, 125–126  
 complementary colors, 186  
 composition, 165  
 computer monitors, 116  
 Concepcion, RC, 69  
 condensation, 148  
 condors, California, 63–66  
 Continuous High (CH) setting, 62  
 contrast  
   color, 178–179, 184, 185–189  
   exposure, 178, 184



Cooper's hawk, 52  
 cormorant, red-faced, 189  
 cottontail  
   desert, 226  
   eastern, 183  
 coyotes, 26, 144, 195, 197, 227, 331  
 cranes  
   greater sandhill, 72, 145, 166, 293, 363–365  
   lesser sandhill, 171, 363  
 crested caracara, 314  
 Custer State Park, 160, 198, 341

## D

dall sheep, 336, 341  
 DDT pesticide, 28, 30  
 Dead Horse Point, Utah, 205  
 deer, mule, 118, 360  
 Denali Highway, Alaska, 276  
 dens  
   finding, 353–354  
   photographing, 354–355  
 depth of field (DOF)  
   nocturnal photography and, 228, 230  
   sharpness and, 178  
   teleconverters and, 123–124  
   TTL flash and, 12  
 desert cottontail, 226  
 details  
   importance of, 126  
   See *also* sharpness  
 diamond-back rattlesnake, 135  
 digiscoping, 30  
 dipper, American, 220  
 dirt roads, 50  
 Dobler, Kevin, 187  
 Dos Venadas Ranch, 313–314  
 downy woodpecker, 11  
 dusky grouse  
   photos of, 154, 155  
   story of shooting, 153–156  
 DX format lenses, 116, 118

## E

eagle, bald, 180, 206, 327, 328  
 eared grebe, 346  
 eastern cottontail, 183  
 EF 400mm f/5.6L lens, 5  
 egret  
   great, 170, 347  
   reddish, 319  
   snowy, 316  
 El Capitan, Yosemite, 184  
 elegant tern, 75, 92  
 elk, Rocky Mountain, 125, 358  
 endangered species. See threatened & endangered (T&E) species  
 environmental portraits, 332  
 Epson P7000 photo viewer, 319  
 equipment. See gear  
 EXIF reader, 332  
 existence shots, 137–138  
 experience, acquiring, 113  
 exposure  
   camera range and, 167, 169–171, 177  
   color contrast and, 178–179, 184, 185–189  
   color psychology and, 184, 185, 190–196  
   emotion communicated through, 167  
   feeling the light for, 173, 175–176  
   highlight warning for, 173–175  
   manual mode for, 228, 230  
   mechanics of, 171–172  
   metadata info on, 216  
   sharpness and, 177–183  
 exposure compensation  
   aperture priority mode and, 172, 177  
   exercise for finding, 212, 378–379  
   flash fill and, 210, 212  
   “normal” level of, 176  
 exposure contrast, 178, 184  
 eyeglasses, wearing, 100



## F

- face photos, 205
- falcon, peregrine, 28–35
- fall wildlife photos, 356–359
- fear of wildlife, 333
- feathering the light, 225
- Field, Sally, 109
- fighting
  - mating rituals and, 343, 349–350, 352
  - territorial, 349–350
- fill flash. *See* flash fill
- film plane, 120–121
- filters
  - multi-purpose lenses and, 134
  - ultra-short lenses and, 132–133
- finch
  - Cassin's, 217
  - gray-crowned rosy, 13
- firing button, 150
- Fish & Wildlife Service, 253
- Five Fingers shoes, 316
- flash
  - color and, 223–226
  - example of using, 208–210
  - experimenting with, 77–78
  - exposure compensation and, 210, 212
  - face photos and, 205
  - flash fill and, 77, 208, 216–226
  - gels used with, 233
  - high-speed, 214–215
  - holding for nest photos, 57
  - learning to use, 204–205
  - metadata info on, 216
  - Nikon recommended for, 80
  - nocturnal photos and, 228–237
  - red eye caused by, 232, 237
  - shadows and, 216–222
  - shutter speed and, 211–215
  - Speedlight flash units, 11, 138, 204, 214
  - story about controlling, 11–14
  - sync options for, 206
  - teleconverters and, 220
  - timer setup for, 100–101
  - TTL (through-the-lens), 11–12, 206–208
  - when to use, 202–204
- flash brackets, 57
- flash cards, 58
- flash fill, 77, 208, 216–226
  - color and, 222–226
  - mammals and, 226, 227–228
  - shadows and, 216–222
- flesh-eating disease (FED), 294, 298
- flicker
  - northern, 313
  - red-shafted, 218
- float planes, 294
- flocks of birds, 362–363
- flying birds, 65, 327–330
- focal length
  - action photos and, 352
  - long lenses and, 122–129
  - normal lenses and, 133–134
  - short lenses and, 129–139
- fog, flash in, 223
- footware, 86, 316
- foxes
  - arctic fox, 188
  - dens used by, 353–355
  - lesson learned from, 19–20
  - red fox, 19, 353–355
  - San Joaquin kit fox, 79, 80–85, 114, 151, 250, 330, 338
- frames per second (fps), 148–149
- Frisbees, 318
- front-curtain sync, 206, 230
- frozen ponds, 361, 363–364
- f-stops
  - lens quality and, 114
  - range of light and, 167, 169–170
  - teleconverters and, 124
  - wildlife photos and, 66
- full-frame viewfinder, 149–150
- Function (Fn) button, 223
- FX format lenses, 116, 118



## G

gallery blog, 69  
 game animals. *See* big game animals  
 Garmin Oregon 550t, 47  
 gear, 110–151  
   author's, 368–369  
   camera bodies, 148–151  
   confidence in, 111  
   flash, 11, 80, 138, 204, 214  
   go-to list of, 106  
   lenses, 114–139  
   list of essential, 151  
   maintaining, 147–148, 371  
   project-specific, 244–245  
   protecting, 50, 97, 147–148  
   refurbished, 4  
   renting, 112–113  
   robbery of, 95–96, 317  
   tripods, 140–147  
   trying out, 112–113  
   workshops on, 113  
 geese, snow, 150, 362–363  
 gels, blue, 233  
 ghosting, 228  
 giant kangaroo rat  
   photographs of, 89, 230, 231  
   story of shooting, 85–89, 230–231  
 gimbal-style tripod head, 142  
 Gitzo tripods, 14, 15, 140–142  
   Gitzo 3540 model, 140, 141–142  
   Gitzo 5560 model, 140, 141  
 glasses, wearing, 100  
 global warming  
   collared pika and, 274, 282  
   polar bears and, 234  
 G-Lock tripods, 140–141  
 gloves for shooting, 60  
 goats, mountain, 353  
 God beams, 158, 169

Google Scholar, 44, 243  
 GPS units, 47, 115, 151  
 grant proposal, 105–106  
 gray, color psychology of, 194  
 gray-crowned rosy-finch, 13  
 grayscale lithography silhouettes, 2  
 Great Basin pocket mouse, 213, 229  
 great egret, 170, 347  
 greater prairie chicken (GPC)  
   general description of, 348  
   how to photograph, 350–352  
   mating rituals of, 349–350, 352  
   photos of, 348, 349, 350–351, 352  
 greater sage-grouse (GSG)  
   biologist-at-work shots, 245, 284, 286, 287, 288  
   photos of, 243, 283, 285, 289, 290, 291  
   project studying, 283–284  
   story of shooting, 282–289  
 greater sandhill cranes, 72, 145, 166, 293, 363–365  
 greater yellowlegs, 43  
 grebe, eared, 346  
 green, color psychology of, 191–192  
 grizzly bears  
   Alaskan photo excursion and, 306–308  
   bear cubs and, 295, 296, 301  
   biologists' study of, 296  
   dreams of wildlife photography and, 303–305  
   photos of, 157, 178, 179, 199, 295, 297, 300, 302, 303, 305, 308, 324  
   story of shooting, 293–303  
 Grizzly G-20 Pop-Up Blind, 265  
 ground squirrel  
   arctic, 190  
   Mohave, 71, 86  
 ground-level photos, 317–318, 322  
 grouse  
   dusky grouse, 153–156  
   greater sage-grouse, 243, 245, 282–289, 290  
*Guide to the Nests, Eggs, and Nestlings of North American Birds, A* (Baicich and Harrison), 9, 49



## H

hairy woodpecker, 310  
 hand warmers, 234  
 handholding cameras, 328  
 hare, arctic, 15  
 Harrison, Colin, 9  
 Harris's hawk, 142, 359  
 harvest mouse, 107  
 hat blinds, 14, 15  
 hawks  
     Cooper's, 52  
     Harris's, 142, 359  
     red-shouldered, 339  
     red-tailed, 51  
     rough-legged, 64  
     Swainson's, 110  
 heat shimmer, 261  
 heron, tricolored, 209, 210  
 high-eyepoint camera, 100  
 highlights  
     specular, 227–228  
     warning light for, 173–175  
 high-speed flash, 214–215  
 history lessons, 109–110  
 Homer Spit, Alaska, 198  
 homework, 3, 9, 282, 332  
     See *also* research  
 Hoopii Falls, Kauai, 192  
 horned puffin, 200, 201, 202  
 Horsetail Fall, Yosemite, 191  
 hummingbirds  
     Allen's, 9, 16–17, 214, 215  
     Anna's, 8

## I

ibis, white, 175  
 insects  
     collecting for APCs, 266–267  
     repellants used for, 45  
 Internet resources. See Web resources  
 intervalometer, 100, 102

intimate biology, 308, 309, 314, 315, 332  
 Inyo California towhee, 7  
 ISO settings, 166  
 iTTL (intelligent through-the-lens) flash, 207

## J

jays  
     green jays, 182  
     Santa Cruz Island scrub-jays, 74, 77, 78, 79, 96  
 Jedediah Smith Redwoods State Park, 138

## K

kangaroo rats  
     giant, 85–89, 230–231  
     Morro Bay, 80  
     Santa Cruz, 113, 132, 136  
 Kauai, Hawaii, 192  
 Keebler (kit fox), 83, 84–85  
 kelbytraining.com website, 69, 318  
 Kelso Dunes, 152  
 Kenai Moose Research Center, 239–241  
 killdeer nest  
     photos of, 22, 23  
     story of shooting, 20–24  
 killer images, 354  
 king parrots, 221  
 kit fox, San Joaquin, 79, 80–85, 114, 151, 250, 251, 330, 338  
 knowledge, quest for, 242  
 Kongakut River, Alaska, 292

## L

landscape photography, 42, 131, 139  
 Latin, knowledge of, 87  
 least Bell's vireo (LBV)  
     photos of, 47, 52, 54, 55, 56, 67, 68  
     presentation by author on, 71–73  
     published article on, 67–69  
     story of shooting, 44–57  
 least bittern, 81



least chipmunk, 164  
 Lee Metcalf National Wildlife Refuge, 224  
 Legends Behind the Lens, 112  
 leks, 351, 352  
 lens shades, 133  
 LensCoat covers, 143, 147, 219, 334  
 lenses, 114–139
 

- action photos and, 352
- author's collection of, 368
- basic wildlife photography, 5
- big game photography, 124, 125–126
- bird photography, 56, 123, 124, 126, 352
- choosing the best, 119–121
- landscape photography, 131, 139
- long focal length, 122–129
- minimum focusing distance for, 116–118, 137–138
- multi-purpose, 133–134
- perspective correction, 138–139
- sharpness of, 115–116
- short focal length, 129–139
- speed considerations for, 114
- teleconverters used with, 123–124

 LensProToGo.com website, 113  
 leopard lizard, blunt-nosed, 85, 139  
 Lepp macro bracket, 52  
 lesser sandhill cranes, 171  
 lesser yellowlegs, 20  
*Life Histories of North American Cuckoos, Goatsuckers, Hummingbirds, and Their Allies* (Bent), 9  
 light
 

- big game and, 344
- camera range and, 167, 169–170, 177
- color contrast and, 178–179, 184, 185–189
- exposure and, 167–176
- face photos and, 205
- feathering, 225
- feeling approach to, 173, 175–176
- human vision and, 167
- learning about, 160–162
- magical mix of, 163–167
- quality of, 223
- sharpness and, 177–183

temperature of, 223  
     *See also* flash  
 light meters, 172  
 light tables, 17, 18  
 light-footed clapper rail, 93  
 lighting situations exercise, 378–379  
 lizard, blunt-nosed leopard, 85, 139  
 locations for shooting wildlife, 330–332, 367  
 loggerhead shrike, 41  
 long lenses, 122–129
 

- angle of view for, 122–123, 124–125
- compacting created by, 125–126
- teleconverters used with, 123–124

 Long Valley caldera, 286  
 long-tailed weasel, 334  
*Los Angeles Times*, 272  
 low light conditions
 

- flash used for, 228–233
- ISO settings and, 166
- lenses for working in, 126
- See also* nocturnal photography

 Lynch, Wayne, 105

## M

Magic Arm, 57  
 magical mix, 163–167  
 maintaining gear, 147–148, 371  
 Maisel, Jay, 180  
 mammals
 

- approaching, 339, 343
- books for identifying, 243
- dens used by, 353–355
- flash fill used with, 226, 227–228
- getting physically close to, 332–335
- lenses for photographing, 124, 125–126
- season to photograph, 226
- shooting masses of, 366
- See also specific species*

 manual exposure mode, 228, 230  
 marbled godwit, 48  
 marmots, Alaska, 268, 332



masses, shooting, 362–363, 366  
 mating rituals, 343, 349–350, 352  
 McNally, Joe, 97, 156, 201, 218, 245, 281, 333  
 McNeil River, Alaska, 141, 146, 152, 157, 292, 293, 296, 303–305  
 meadowlark, western, 5, 6, 345  
 megapixels, 150–151  
 memory cards, 58  
 menu settings, 372–377  
 metadata info, 216  
 meters, 172  
 micro lenses, 137  
 Mikfik Creek, Alaska, 294–296, 298  
 Minaret Vista, 49  
 mind's eye, 164–165, 167  
 Minimum Focusing Distance (MFD), 116–118, 137–138  
 Minolta SRT202 camera, 1  
 Mohave ground squirrel, 71, 86  
 Mohave National Preserve, 152  
 monitor resolution, 116  
 Mono Basin, California  
     landscape photos of, 44, 46, 50  
     least Bell's vireo shoot in, 44–57  
 Mono County Park, 4  
 Mono Lake, California, 112, 120, 130  
 Montana border photo, 163  
 montane vole, 233  
 moose  
     Kenai Moose Research Center, 239–241  
     photos of, 115, 127, 129, 187, 239–241  
 Moose-Adorama CCD cleaning kit, 147, 370  
 moosepeterson.com website, 147, 259, 318  
 Morris, Artie, 200  
 Morro Bay, California, 18  
 Morro Bay kangaroo rat, 80  
 motor drive noise, 335  
 mountain goats, 353  
 mountain views, 277  
 mouse  
     Great Basin pocket, 213, 229  
     salt marsh harvest, 107  
 MP-1 photopack, 151, 335, 369

Muir, John, 131  
 mule deer, 118, 360  
 multi-purpose lenses, 133–134  
 multitasking, 28  
 musk oxen, 165

## N

*National Geographic*, 36, 90, 230, 251, 253  
 natural history museums, 45  
*Nature* journal, 251  
 nature photography, 42  
 Nelson's bighorn sheep  
     photos of, 59, 61, 62, 63  
     story of capturing, 57–63  
 nesting season, 345–352  
 nestlings, 347  
 nests  
     finding, 21, 49  
     photographing, 20–24, 54–57, 347  
 New Mexico sunrises/sunsets, 361  
 Nez Perce trail, 153  
 nighttime photography. *See* nocturnal photography  
 Nikon D3X camera body, 148, 149, 346  
     author's settings on, 372–377  
 Nikon EDG Fieldscope 65mm, 354  
 Nikon GP-1 GPS unit, 47  
 Nikon Premier SE binoculars, 53  
 Nikon Professional Services (NPS), 112  
 Nikon R1C1 Wireless Close-Up Speedlight System, 138  
 Nikon Speedlight  
     SB-12, 11  
     SB-800, 204  
     SB-900, 138, 213  
 nocturnal photography  
     example of shooting, 234–237  
     flash used for, 228–233  
     red eye and, 232, 237  
     replicating with blue gel, 233  
     *See also* low light conditions  
 noise, motor drive, 335  
 NOMAR Mini Cargo Bag, 370



normal lens focal length, 133–134  
 Norris Geyser Basin, 293  
 northern flicker, 313  
 northern harrier, 21  
 northern hawk owl, 325  
 northern pygmy owl, 31, 45, 204  
 northern saw-whet owl, 12  
 northern sea otter, 176  
 note taking, 103

## O

orange, color psychology of, 192  
 oriole, Bullock's, 311  
 osprey in flight, 173, 328  
 otter  
   northern sea, 176  
   southern sea, 19  
*Outdoor California* magazine, 67–68  
 overcast skies, 329  
 owls  
   burrowing, 366  
   northern hawk, 325  
   northern pygmy, 31, 45, 204  
   northern saw-whet, 12  
   snowy, 192  
   spotted, 99, 246–250  
 oxen, musk, 165  
 oystercatcher, American, 222

## P

painted bunting, 315  
 panning  
   birds in flight, 327–329  
   panning plate for, 317–318  
   slow shutter speeds and, 26, 33  
   stopping motion through, 120–121  
   tripods used for, 143  
 panning plate, 317–318  
 panoramas  
   lenses for ultra-wide, 139  
   shooting masses using, 366

paper, waterproof, 103  
 parrots, king, 221  
 patience, 60, 339  
 PC-E Nikkor 24mm f/3.5 lens, 138–139  
 PC-E Nikkor 45mm f/2.8 lens, 138  
 peak of action, 149  
 Pelican 1690 Transport Case, 275  
 pelicans, American white, 356  
 pens, all-weather, 103  
 "People Do" ad campaign, 79, 81  
 people pictures, 88, 131, 245  
 perch, photographic, 309–310  
 peregrine falcons  
   photos of, 29, 32, 33, 34  
   story of shooting, 28–36  
 Peregrine Fund, 28–30, 32, 35  
 permits, 250  
 perspective correction (PC) lenses, 138–139  
 photo vests, 335  
 photographic style, 121  
 photopacks, 74  
 Photoshop, 139, 162, 341, 366  
 physical closeness, 332–335  
 pickets, 322  
 pika  
   American, 268, 270  
   collared, 252, 268–282  
 pine grosbeak, 306  
 pine siskin, 312  
 pink, color psychology of, 192  
 plover, black-bellied, 123, 153, 320, 321  
 pocket mouse, Great Basin, 213, 229  
 polar bears, 234–237  
 polarizers, 160  
 ponds, frozen, 361, 363–364  
*Popular Photography*, 111  
 pop-up blind, 265  
 porcupine, 24  
 portraits  
   environmental, 332  
   people, 88, 245  
   wildlife, 90



prairie chicken  
 Attwater's, 252–267  
 greater, 348–352  
 prairie dog, black-tailed, 122, 181, 322  
 predator control, 343  
 professional photographer mistakes, 36  
 pronghorn antelope, 161, 304, 337  
 ProShow Producer, 73  
 protecting gear, 50, 97, 147–148  
 psychology of color, 184, 185, 190–196  
 puffin, horned, 200, 201, 202  
 purple, color psychology of, 194

## Q

Quake Lake, Montana, 159  
 quality of light, 223  
 questions, asking of, 255

## R

rabbits  
 desert cottontail, 226  
 eastern cottontail, 183  
 riparian brush, 291  
 racoons, 232  
 rain  
 flash used in, 223  
 quality of light in, 179  
 wildlife shots after, 295  
 working with gear in, 147  
 rats  
 giant kangaroo, 85–89, 230–231  
 Morro Bay kangaroo, 80  
 riparian woodrat, 87  
 Santa Cruz kangaroo, 113, 132, 136  
 rattlesnake, Western diamond-back, 135  
 Really Right Stuff BH-55, 142, 143  
 rear-curtain sync, 206  
 rechargeable batteries, 216  
 red, color psychology of, 192  
 red eye, 232, 237  
 red fox, 19, 353–355

red-breasted sapsucker, 219  
 reddish egret, 319  
 red-faced cormorant, 189  
 red-shafted flicker, 218  
 red-shouldered hawk, 339  
 red-tailed hawk, 51  
 refurbished gear, 4  
 remote cameras, 100  
 renting gear, 112–113  
 reputation, 250–251  
 research  
 location, 282, 332  
 subject, 42–44  
 resolution, monitor, 116  
 resources. *See* Web resources  
 riparian brush rabbit, 291  
 riparian woodrat, 87  
 Rite in the Rain products, 103  
 robbery of gear, 95–96, 317  
 Rocky Mountain bighorn sheep, 119, 128, 185, 340, 342, 343, 344  
 Rocky Mountain elk, 125, 358  
 roseate spoonbill, 322–323, 329  
 rosy-finch, gray-crowned, 13  
 rough-legged hawk, 64  
 rut period, 343

## S

sage-grouse. *See* greater sage-grouse  
 salt marsh harvest mouse, 107  
 Salton Sea, 41  
 San Joaquin antelope squirrel, 196, 208  
 San Joaquin kit fox  
 author's interest in, 79, 80–85  
 biologists processing, 82, 114, 151, 250, 251  
 photos of, 83, 330, 338  
 sanderlings, 2  
 sandhill cranes  
 greater, 72, 145, 166, 293, 363–365  
 lesser, 171, 363  
 sandwich tern, 174



Santa Barbara Museum of Natural History, 43, 71  
 Santa Cruz Island project, 73–82  
 Santa Cruz Island scrub-jays, 74, 77, 78, 79, 96  
 Santa Cruz kangaroo rat, 113, 132, 136  
 sapsucker, red-breasted, 219  
 Sartore, Joel, 239, 253  
 savannah sparrow, Belding's, 95  
 SB-12 Speedlight, 11  
 SB-800 Speedlight, 204  
 SB-900 Speedlight, 138, 213  
 SC-12 TTL cord, 12–14  
 scalloped lens shade, 133  
 scrub-jays, Santa Cruz Island, 74, 77, 78, 79, 96  
 sea otter, 19  
 seasonal wildlife photos  
     fall, 356–359  
     spring, 345–348, 353, 355  
 sedge flats, 294–295  
 sensor cleaning, 74, 147, 370  
 settings on Nikon D3, 372–377  
 sex, effects of, 341, 342  
 shadows  
     flash fill for, 216–222  
     nocturnal flash and, 230–231  
 sharpness  
     burst shooting for, 5  
     evaluation of, 257  
     exposure and, 177–183  
     heat shimmer and, 261  
     lens quality and, 115–116  
     monitor resolution and, 116  
     panning and, 120–121  
 sheep  
     dall, 336, 341  
     Nelson's bighorn, 59, 61, 62, 63  
     photographing wild, 340–345  
     Rocky Mountain bighorn, 119, 128, 185, 340, 342, 343, 344  
     story of capturing, 57–63  
     thinhorn vs. bighorn, 341  
 shooting gloves, 60

shorebirds, 315–321  
     basic appearance of, 316  
     story about shooting, 320  
     tips for shooting, 316–319  
 short lenses, 129–139  
     close-up photos and, 135, 136  
     existence photos and, 137–138  
     landscape photos and, 129, 131, 139  
     multi-purpose use of, 133–134  
     perspective correction, 138–139  
     visual depth and, 132, 133, 134  
 shrike, loggerhead, 41  
 shutter speed  
     aperture priority mode and, 66  
     falling snow photos and, 216  
     flash related to, 211–215  
     metadata info on, 216  
 Sibley, David, 44  
*Sibley Guide to Birds, The*, 44  
 siskin, pine, 312  
 slide shows, 73  
 sling bags, 59  
 slow sync, 206  
 Smith, Roger, 271  
 snakes  
     Western diamond-back rattlesnake, 135  
     yellow-bellied racer, 143, 149  
 snow  
     as background, 326  
     shooting falling, 216  
 snow geese, 150, 362–363  
 snowy egret, 316  
 snowy owl, 192  
 Soda Lake, California, 72  
 South Dakota  
     Badlands of, 193, 341  
     Black Hills of, 153, 160  
 southern sea otter, 19  
 sparrow, Belding's savannah, 95  
 species  
     existence shots of, 137–138  
     threatened & endangered, 40, 67, 242, 251, 252–253  
     tip on learning about, 154



specular highlights, 227–228  
 speed of lenses, 114  
 Speedlight, Nikon, 11, 138, 204, 214  
 spoonbill, roseate, 322–323, 329  
 spotlighting technique, 284  
 spotted owl  
     photos of, 99, 247, 248, 249  
     story of shooting, 246–250  
 spotting scopes, 30, 354  
 spring wildlife photos  
     of birds, 345–348  
     of mammals, 353  
 squirrels  
     arctic ground, 190  
     Mohave ground, 71, 86  
     San Joaquin antelope, 196, 208  
 St. Augustine Alligator Farm Zoological Park, 347  
 St. Paul Island, 28, 199  
 star trails, 139  
 Stout Grove, 138  
 stump-and-twigs photos, 159–160  
 style, photographic, 121  
 subjects  
     approaching, 339, 343  
     determining, 156  
     getting close to, 332–335  
 sunblock, 30  
 sunlight  
     beams of, 158, 169  
     exposure and, 167  
 sunrise/sunset photos, 361  
 Swainson's hawk, 110  
 swallow, violet-green, 117  
 swans, trumpeter, 361  
 swifts, black, 97–105

## T

T&E species. See threatened & endangered (T&E) species  
 TC-14E II teleconverter, 5, 123  
 TC-17E II teleconverter, 123  
 TC-20E III teleconverter, 124

teddy bear exercise, 212, 378–379  
 teleconverters, 123–124, 220, 352  
 telephoto lenses. See long lenses  
 temperature of light, 223  
 tercel, 31, 32, 36  
 terns  
     California least, 76, 91  
     elegant, 75, 92  
     sandwich, 174  
 territorial fighting, 349–350  
 thornhorn sheep, 341  
 threatened & endangered (T&E) species, 40, 67, 242, 251, 252–253  
 thunderstorm over Oklahoma, 158  
 tilting the camera, 132, 133, 134  
 time zone setting, 235  
 timer setup, 100–101  
 Tony Knowles Coastal Trail, 37  
 topo maps, 47  
 towhee, California, 7  
 tricolored heron, 209, 210  
 tripods, 140–147  
     beach photos and, 319  
     field etiquette for using, 336–338  
     heads attached to, 141, 142–144  
     panning action of, 143, 328  
     recommended models of, 14, 15, 140–142  
     tests for selecting, 140  
     tips on setting up, 144–146  
     walking with, 146–147  
 trumpeter swans, 361  
 TTL (through-the-lens) flash, 11–12, 206–208  
 turnstone, black, 40  
 Two Medicine, Montana, 137

## U

ultra-wide lenses, 132  
 ultra-wide panoramas, 139  
 U.S. Fish & Wildlife Service, 253  
 Upper Yosemite Falls, 27  
 UTM coordinates, 151



## V

VAL (voice-activated light stand), 281  
 Velcro straps, 55  
 vertical firing button, 150  
 vests, photo, 335  
 video capability, 172  
 video resources, 147, 318  
 viewfinder, full-frame, 149–150  
 violet-green swallow, 117  
 vireo. *See* least Bell's vireo  
 VisibleDust system, 147  
 vision, human, 167  
 visual depth, 132, 133, 134  
 vole  
     Amargosa, 211, 212  
     montane, 233  
 volunteer work, 43, 78, 244

## W

waiting process, 14  
 water  
     definition of clean, 362  
     importance of packing, 45  
     protecting camera from, 97, 147  
 weasel, long-tailed, 334  
 weather conditions  
     extreme cold, 167  
     heat shimmer from, 261  
     importance of predicting, 106  
     protecting cameras from, 147–148  
     rainy, 147, 179, 223, 295  
 Weather Radar app, 160  
 Web resources  
     author's website, 147, 259, 318  
     BIRDNET resource, 243  
     gallery blog setup, 69  
     Google Scholar, 44, 243  
     KelbyTraining.com, 69, 318  
     location research, 332  
     training videos, 147, 318

weekend warrior, 111  
 Western diamond-back rattlesnake, 135  
 western meadowlark, 5, 6, 345  
 white, color psychology of, 195  
 white ibis, 175  
 wide-angle lenses, 132  
 wildlife photography  
     approaching subjects of, 339, 343  
     author's volunteer work in, 43, 78  
     backgrounds for, 325–327, 343–344  
     backyard photos as, 309–313  
     binoculars used in, 53  
     biologists and, 57–61, 242, 243–251  
     camera settings for, 66, 372–377  
     challenges of, 242  
     chimping when shooting, 122  
     common mistakes shooting, 36, 104  
     definition of, 42  
     emotional pursuit of, 100  
     finding locations for, 330–332  
     flash used in, 202–204  
     footware for, 86, 316  
     importance of innovation in, 13  
     keeping a journal of, 17  
     landscapes captured in, 129  
     lens choice for, 119–121  
     light used in, 160–162  
     locations for shooting, 330–332, 367  
     magic mix in, 163–167  
     personal style of, 121  
     physical closeness for, 332–335  
     reason for shooting, 241–243  
     researching subjects of, 9–10, 43–44  
     seasonal considerations, 345–348, 353, 356–359  
     top places for shooting, 367  
     tripod etiquette for, 336–338  
     workshops on, 345  
     zoo photography as, 82  
 Wildlife Research Photography (WRP), 79, 137  
 Williams, Dan, 88  
 willow ptarmigan, 3



Wimberley Head II, 142, 143  
Wind Cave National Park, 322  
Wireless Close-Up Speedlight System, 138  
woodpeckers  
    black-backed, 30  
    downy, 11  
    hairy, 310  
workshops  
    camera gear, 113  
    wildlife photography, 345  
wren, cactus, 41  
writing materials, 103  
WRP (Wildlife Research Photography), 79, 137

## Y

yellow, color psychology of, 191  
yellow-bellied racer, 143, 149  
yellow-headed blackbird, 224–225  
yellowlegs  
    greater, 43  
    lesser, 20  
Yellowstone National Park  
    bison photo, 242  
    coyote photos, 144, 195, 197, 227  
    fall photography at, 356–358  
    Norris Geyser Basin, 293  
Yosemite National Park, 25–27, 203  
    El Capitan, 184  
    Horsetail Fall, 191  
    Upper Yosemite Falls, 27  
Yuma clapper rail chick, 105

## Z

zoo photography, 82  
zooming with your feet, 135