



Topic  
Better Living

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Arts & Leisure

# The Guide to Landscape and Wildlife Photography

Course Guidebook

**Tim Laman & Michael Melford**  
National Geographic Photographers



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# National Geographic Photographers



## Tim Laman

In addition to his work as a contributing photographer for *National Geographic* magazine, Tim Laman is a research associate in ornithology at Harvard University's Museum of Comparative Zoology and a fellow with the International League of Conservation Photographers. Dr. Laman first went to the rain forests of Borneo in 1987, and the Asia-Pacific region has been the major focus for both his scientific research and photography ever since. His pioneering research in the rain forest canopy in Borneo led to a Ph.D. from Harvard University and his first *National Geographic* article in 1997. Since then, Dr. Laman has pursued his passion for exploring wild places and documenting little-known and endangered wildlife by becoming a regular contributor to

*National Geographic*. He has 21 articles to his credit to date, all of which have had a conservation message. Some have focused on endangered species, such as orangutans, proboscis monkeys, and hornbills, while others, such as a series of articles on Conservation International's biodiversity hotspots, have highlighted regions under intense pressure. Dr. Laman also has published more than a dozen scientific articles related to rain forest ecology and birdlife. He has developed a reputation for being able to capture photographs of nearly impossible subjects, such as gliding animals in Borneo; displaying birds of paradise; and some of the most critically endangered birds in the world, such as the Nuku Hiva pigeon and the Visayan wrinkled hornbill of the Philippines. Dr. Laman continues to relish such challenges and firmly believes that promoting awareness through photography can make a difference for conservation. Learn more about his work at <http://www.timlaman.com/>. ■



## Michael Melford

Michael Melford is an internationally recognized photographer who has worked with National Geographic for more than 30 years. He has produced 19 feature stories for *National Geographic* magazine and more than 30 stories for *National Geographic Traveler*. His work also has been featured on the covers of *Newsweek*, *TIME*, *LIFE*, *Fortune*, *Smithsonian*, *GEO*, *Travel + Leisure*, *Travel Holiday*, and *Coastal Living*. Mr. Melford has won recognition from World Press Photo, the International Center of Photography, the Art Director's Club, and numerous other arts organizations and publications. He also has produced photography for eight National Geographic books, including *National Geographic Treasures of Alaska: The Last Great American Wilderness* and *Hidden Alaska: Bristol Bay and Beyond*. Mr. Melford teaches photography

primarily through National Geographic; he leads one-day seminars around the country through *National Geographic Traveler's* photo seminar series and travels with National Geographic Expeditions aboard the small ship fleet and on other trips around the world. Mr. Melford is one of 12 renowned National Geographic photographers whose work is featured in the Great Course *National Geographic Masters of Photography*. Learn more about his work at <http://www.michaelmelford.com/>. ■

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# The National Geographic Guide to Landscape and Wildlife Photography

## Scope:

Whether you travel the world or just spend time in your backyard, there are probably landscapes and wildlife that add beauty to your life and connect you to nature. This course, which aims to bring you to the next level of your landscape and wildlife photography, is taught by two National Geographic photographers, Michael Melford (lessons 1–12) and Tim Laman (lessons 13–24), who share tips and techniques they have acquired from years in the field for capturing compelling photographs of nature.

For Michael Melford, the secret to great landscape photography is in seeing well enough to capture both a beautiful image and the emotion you felt at that place and at that point in time. With Mr. Melford's guidance, and a rich array of examples from his own photography and some of his favorite paintings, you will learn how to master the basics—shutter speed, aperture, and ISO—and put them to creative new use in your own photography. You will learn by experimenting, through trial and error, and even by breaking some of the rules. Mr. Melford's lessons take you on National Geographic expeditions to photograph stunning landscapes in New Zealand, Brazil, Alaska, Asia, and others. You may never travel to these exotic locations, but with the knowledge you gain from these lessons, you will learn to see the special and unique beauty of the landscapes you do visit and how to capture that beauty with your camera.

In the second half of the course, Tim Laman takes you on a variety of expeditions. Using a case-study approach, he shows you how he copes with all sorts of conditions—such as snow, rain, and mud—to capture award-winning images of cranes, fish, orangutans, tigers, frogs, and the stunningly beautiful and elusive birds of paradise for National Geographic. Dr. Laman has covered stories from the top of the rain forest canopy to the depths of the coral reefs. He has photographed everything from ants to whales and has worked in

locations as diverse as Antarctica, the Amazon, and New Guinea. You will learn his tricks for shooting at night, underwater, and in the rainforest canopy. In the process, you will discover the practical, technical, and artistic aspects that have to come together for successful wildlife photography.

Whatever your level of experience or interest in photography, and whatever equipment you use, Michael Melford and Tim Laman will show you how satisfying and enjoyable it is to capture a bit of this beautiful world in photos of your own.

The lessons will cover the following subjects:

1. The first lesson is an introduction to the art of landscapes—and photography. You will be introduced to some of the artists who have paved the way for the rest of us and how we might learn from them.
2. This lesson is the most technically focused one, in which you learn everything you need to know about the craft of photography. You will then take that knowledge and push the envelope as a starting point to experimentation.
3. You will learn that keeping it simple frees you to capture good images without your gear getting in the way. You will be introduced to some necessary gear and how it can be used to create what you want to say with your landscapes.
4. Every good photograph has three basic elements: composition, light, and moment (or content). This lesson concentrates on the first two: composition and light. You will learn tips of composition and understand the key types of light to look for.
5. You will examine color and how it affects the way we see and feel. Different colors in combination have different aesthetics. You will look at color found both in and out of landscapes to understand it better.
6. The sky is such an important part of your landscapes. It not only is part of many of your frames, but it also affects the quality and color of the light. You will take a thorough look at different skies and see how to make them work for your landscapes.
7. In this lesson, landscapes are expanded to include waterscapes. Lakes, streams, rivers, and oceans make up so much of the earth that this

entire lesson is devoted to teaching you different ways to see and shoot waterscapes.

8. This lesson takes you on assignment in Death Valley and allows you to discover how research shows you where the best images may be and when to be there.
9. Have you ever been on a trip with family or friends or a group and you have no control over when to go out and shoot or how long you can stay and wait for the light? You will learn some tips on how to come home with some memorable images in such difficult situations.
10. You have had a good time shooting and now have hundreds or thousands of images to look at. How do you choose the few that really stand out, and how do you manage your images once you get home? You will learn the main tool that is used by photographers and how to use it to make this difficult task easy.
11. Taking the image, or capturing the file, is half the process. How do you make the image look the way you saw it? You will learn the simple, basic steps to development with your digital darkroom.
12. This final lesson about landscape photography will leave you inspired to get out in nature and share the beauty of landscapes that surround you.
13. The first wildlife photography lesson will feature hornbills and other wildlife of the rain forest canopy in Borneo. You will learn how to develop your photographic and storytelling skills.
14. You will discover how to find the perfect blend of technical skill and artistic mastery of your subjects as you are introduced to the wildlife in the beautiful winter landscape of northern Japan. You will learn techniques for flight and action photography as well as various ways to use light.
15. You will discover how to be ready to shoot a variety of subjects while on an expedition by traveling to the wildlife mecca of the Galapagos Islands. You will explore how to use shutter speeds for different effects and how to create visual variety with your images for better storytelling.
16. In this lesson, you head into the rain forest at night, when a whole different cast of characters emerges. You will explore the challenges of night and macrophotography and discover how to work with both flash and continuous lighting to dramatically illuminate your subject for beautiful images.

17. Next, you will travel to the Amazon rain forest, where monkeys and birds are the main subject. You will discover tips and techniques for successful telephoto shots.
18. With a range of waterproof camera options available, underwater photography is now accessible to everyone, so in this lesson, you will travel beneath the waves to learn how to tackle the issue of light under the water and how to approach underwater photography as just another type of wildlife photography.
19. The mangrove forests are a rich habitat at the juncture of land and sea, with many photographic opportunities, including rich birdlife, but this muddy, intertidal zone poses many challenges to the photographer. In this lesson, you will learn tips for working from boats and in and around water.
20. Antarctica and South Georgia are a wildlife photographer's paradise, and they are the destinations in this lesson. You will learn techniques for bird flight and action photography, ranging from finding portraits and details in the chaos of wildlife to shooting animals as elements of landscape shots.
21. A vehicle-based expedition is a common way to experience wildlife photography. In this lesson, you will embark on a trip to the Australian wilderness to document its unique wildlife. You will learn about different types of portable blinds, as well as how to shoot in this situation, both by day and by night.
22. Back to the rain forest of Borneo, you encounter the amazing wild orangutans. Documenting these roaming apes through the obstacle course of the rain forest is a challenge, and you will learn about going light, knowing your subject, anticipating the action, and other tips for getting the shot.
23. In the final two lessons, you will learn about the photography project to document all of the species of birds of paradise in the New Guinea region. You will discover the efforts and methods that went into capturing images of these extraordinary birds on dozens of expeditions. In this lesson, you will learn about using blinds and telephotos to capture images of the birds and their behaviors.
24. In this final lesson, you will explore new perspectives by learning how remote cameras can be used to get more intimate, unique views of the birds of paradise. In the end, you will discover how photographic ideas

can be turned into reality with creative vision, technical mastery, and perseverance.

NOTE: Color images can be found in the digital guidebook.

## Lesson 1

# Landscape Photographer, Landscape Artist

**H**ave you ever gone out and taken a picture, but when you came back, the photograph does not really represent what you saw? The goal of this course is to take you from the disappointment of not getting what you saw, or felt, to capturing the feeling that you had when you were seeing something that took your breath away. In this lesson, you will be introduced to landscape photography as well as some influential landscape photography artists.

---

### Landscape Photography

Landscape photography is similar to fly-fishing. You go out to beautiful places in pursuit of the elusive, and if you are at the right place, at the right time, you are rewarded with a nice fish. But, really, the journey is the reward—the experience of being out in nature and having all other thoughts and worries of your life left behind.

Landscape photographers are on a quest for the perfect image. When we get it, it is so special, but it is a learning process, just like fly-fishing. We don't always get the big fish, or the perfect photograph, but what is important is to enjoy yourself as you progress. The point is to enjoy the journey. Having a great time is the key; coming home with an image you're proud of is the bonus.



As a landscape photographer, you must know your craft, your instrument. A violin doesn't make its own music. First, you have to learn the notes and the scales, and you have to practice, practice, practice. You have to develop an ear and have the instrument become an extension of you—just like the camera. It doesn't matter how many violins, or cameras, you have. If they're not an extension of you, you will not make music.



There are three kinds of photographers. There are photographers who know the craft. They know everything about it. They can count pixels. They're really good technically. Then, there are photographers who don't know the technical stuff but can just set up the camera and shoot—they can see. The third kind of photographer—and this is what your goal should be—is the one who understands the craft and can control the camera, but can also see. This course will allow you to practice the art of seeing more than the craft of photography.

Landscape photography is a vehicle to get you out into nature. The process of photographing landscapes can be a slow, thoughtful process. It can even be a form of meditation, in which all thoughts leave you other than what is in front of you.

---

## Digital versus Film

Digital makes landscape photography much easier, as it is more forgiving than film. With film, you have to know the craft so well, but with digital, you can see your mistakes before messing up.

It can also be more difficult to express yourself, because the digital camera is so perfect and takes control of you. It can almost be too sterile and too perfect. You have to take some control from the camera.

Before digital, photographers shot film. They went out, shot, came home, and sent the film off. Two weeks later, they got the film back and held it up to the light. There was no manipulating it after that, and there was no instant gratification.

With digital, you now have controls to manipulate the image—or tweak it and massage it—to make it look not how the raw file captured it (because, as a function of the technology, it appears flat) but how it looked when you saw it.

---

## Influential Photographers

Ansel Adams photographed the American West. He said, “A great photo is one that fully expresses what one feels about what is being photographed.” Ansel shot big. He shot black and white.





Ernst Haas didn't have a camera until he was 28 years old. He came to the United States from the repressed country of Czechoslovakia. He was the first man who shot color with a 35-millimeter camera. He said, "You can put this feeling into a picture. A painter can do

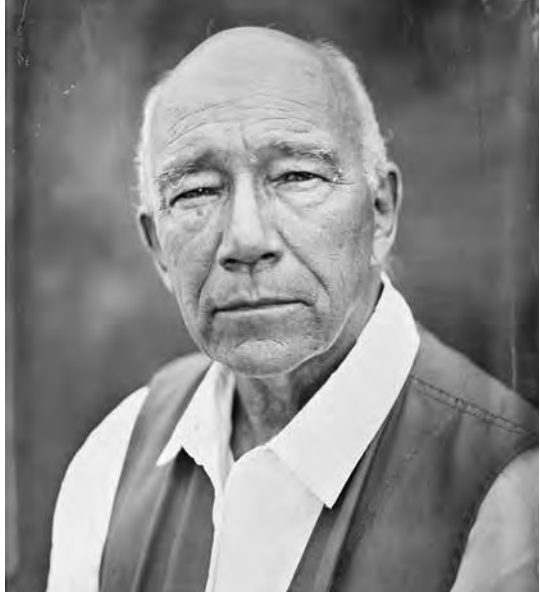
it, and a musician can do it, and I think a photographer can do that too. That I would call dreaming with open eyes."



David Muench, along with his son, does photography workshops. He shot color in the Sierra Nevada mountain range with a large 8×10 camera. He understands light and composition; he understands the craft.



Sam Abell was a National Geographic photographer who grew up in Ohio, where there aren't a lot of mountains, but there is a lot of horizon line, which is important to Sam, and he uses it a lot.



You can look at artwork to help you learn how to see composition.

### Activity

Go outside one day when you have several hours to yourself. Find a view you particularly enjoy. Stay and watch what happens: Is there a breeze? Insects? Critters? How do the clouds look? How does the light change from one hour to the next? Watch and study the landscape. Walk around and see it from different angles. Climb a tree, or a hill. Lie down. Take your time and consider this landscape from as many different aspects as you can think of.

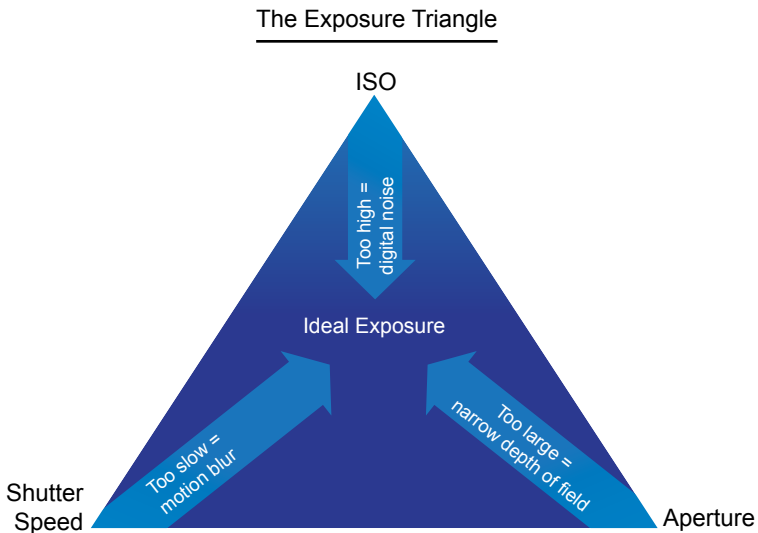
## Lesson 2

# Seeing the Way the Camera Sees

**I**t's important to know your craft—to be able to make the camera an extension of you. You can't produce good landscape images if you don't know the basics. On the technical side, there are only three things that you need to know: shutter speed, aperture, and ISO. In this lesson, you will learn about each of these elements in depth. The goal is to capture with your camera what you see with your eyes.

## The Exposure Triangle

There are three tools that will lead you to ideal exposure: shutter speed, aperture, and ISO.

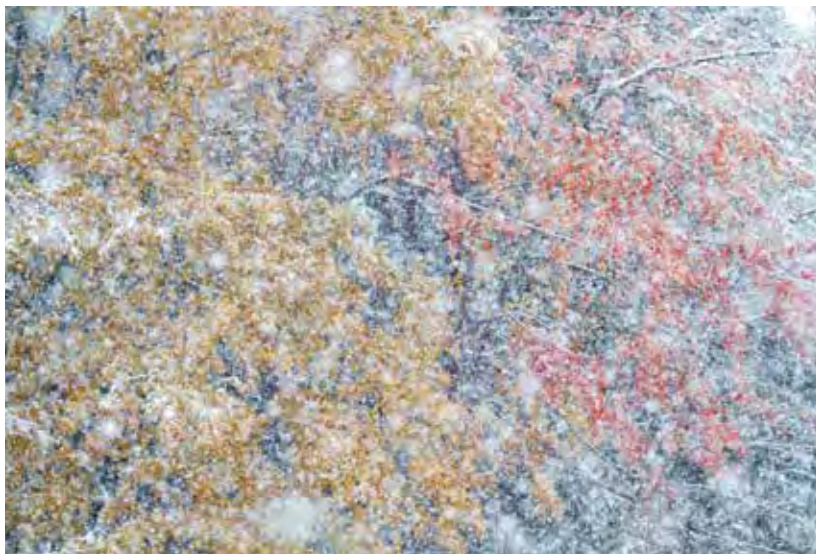




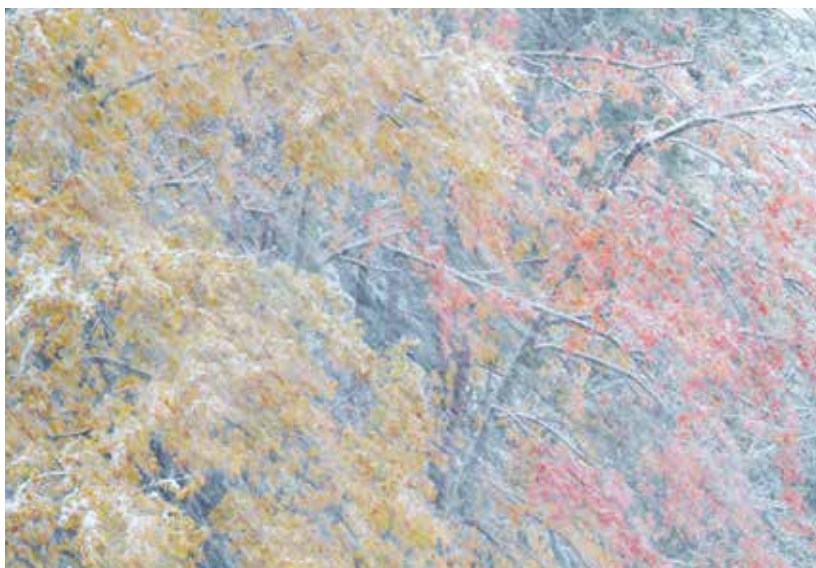
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## Shutter Speed

You can use a fast shutter speed to freeze motion.



Slow down the shutter speed to get motion.



The next series of pictures was taken in Glacier National Park. The wind was blowing strongly. At 1/15<sup>th</sup> of a second, the scene looks like this:



But to capture the leaves moving, try different shutter speeds. See what the image looks like on the back of your camera. At half of a second, it's looking good:





Then, slow it down to two seconds. That's too far. The beautiful thing about a digital camera is you get to see your results.



You can also pan with objects while you're shooting. You can pan landscapes, animals, vehicles, people, and even leaves. At  $1/10^{\text{th}}$  of a second:



At 1/4 of a second:



You'll have a lot of fun doing this once you understand it. Then, when you get used to it, try something different. Try moving your camera as you expose. Pan a subject that is stationary. The next few images are of Cape Cod at low tide. This first one is not very interesting.



But slowing down the shutter speed to  $1/15^{\text{th}}$  of a second and panning it a little bit, you get a little motion in the image as a whole.



Slow it down even more, to one second, and it's completely abstract.



## Aperture

Most photographers will lead with aperture priority, which allows you to control the aperture, or depth of field—how much is in focus, both in front of and behind your subject. The higher the aperture number, or f-stop, the more is in focus; the smaller the number, the less is in focus.

With the next image, the camera was set to an f-stop of  $f/11$ . But the trees in the background are distracting; you want to focus on the mushroom.

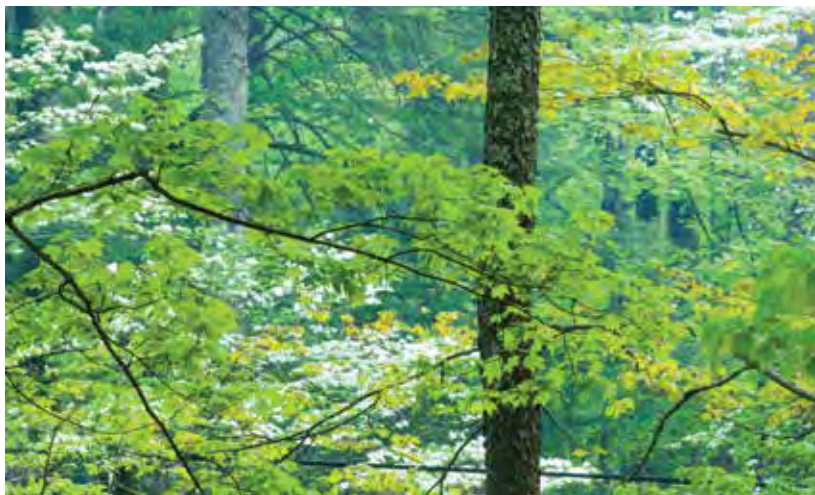


Go to a smaller f-stop number, which makes the hole bigger and therefore lets more light in, and less comes into focus. In the next image, the trees no longer take the attention away from the mushroom.

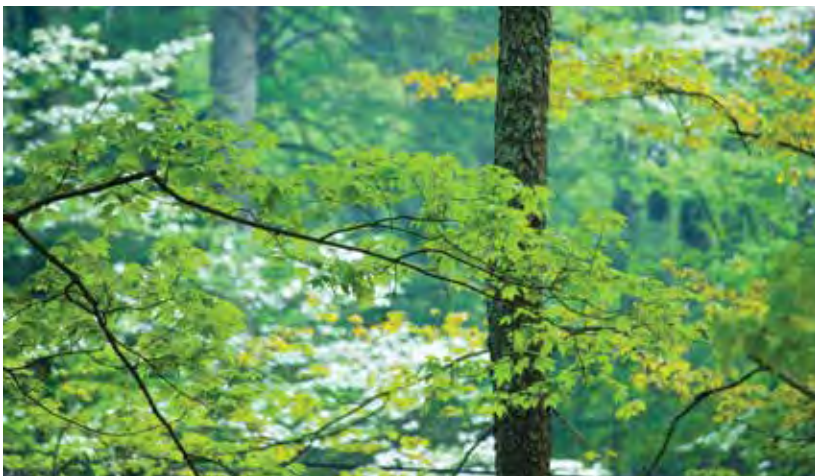


Whichever one you like more is up to you. Shoot it both ways so that you have both options.

The next image was shot at  $f/22$ . Everything is in focus. Looking at the picture, you don't really have anything to focus on. You might even notice telephone wire running along the bottom of the picture.



If you shoot the same image at  $f/5.6$ , you don't notice the telephone wires anymore, which is good. What you want to focus on is that single branch.





You sometimes want everything in focus—for example, when you're shooting a landscape that pretty much stretches out to infinity. You don't really need to shoot with a deep depth of field, with a small hole, if everything is at infinity already. Go with the sharpest picture you can. The sharpest that every lens is, in general, is three f-stops closed down from wide open.



By going with a shallow depth of field, or low f-stop number, you can use color as background. In this case, it's the setting sun, which is coming through the leaves.



You can add color in the foreground, too, by shooting through leaves. With a low aperture number, anything that's really close to the lens ends up as color surrounding the main focus.



In general, it's good to shoot macrophotography wide open.

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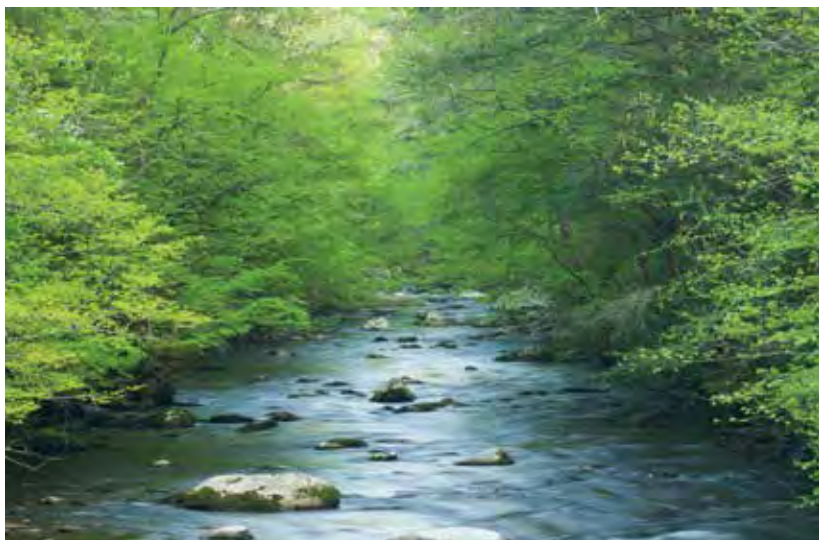
## ISO

ISO (International Standard Organization) is how sensitive the camera, or sensor, is to light. The higher the ISO, the more sensitive your camera is to light. ISO helps you achieve what you want, but you don't usually lead with it. Instead, you lead with aperture or shutter speed. In general, for the highest quality, you want the lowest ISO possible.

The following photograph was taken with a handheld camera. You're leading with aperture, but you're wide open, because you want to let in as much light as you can. There's not much light in the image. The camera chooses a slow shutter speed, resulting in a blurry image.



The solution is you increase the ISO and make the camera more sensitive to the light, and the result is a faster shutter speed and a picture you get to go home with.





You increase the ISO when you don't have a tripod and you have a blurry picture.

### Activity

To learn about the relationship between aperture, shutter speed, and ISO, experiment. Take a lot of shots. Don't take just one or two or even five or six. Spend a full day taking pictures of your landscape with aperture priority, and then spend another day taking photos with shutter speed priority. Some shots will be okay, some good, and others pretty awful. Go through them all and evaluate. What do *you* like?

## Lesson 3

# What's in My Bag?

**I**n this lesson, you will learn what you should carry in your backpack when out shooting landscapes. You will discover how simple it is to set up your equipment and how to use some of the tools you should carry around with you. Remember to keep it simple. It's fine to have only one camera and one lens that covers almost the same range of everything you'll be introduced to.

---

### In Your Backpack

Let's say that you're hiking somewhere. You can put all of your photography gear into a backpack so that you have everything with you. You can simply take the backpack off your back and put it on the ground, and then you don't have anything on you—no stress on your body. If you bring a tripod, you don't even have any cameras hanging around your neck.

You don't always get to use a tripod, because sometimes you're handholding, but it's nice to use a tripod if you can. Pack a lighter tripod for backpacking. If you're working car side, you can have a tripod that is a little heavier, especially for use with a longer lens.

In your backpack, carry your camera's manual, just in case you forget something or want to do something special. But you probably won't need it.

Any time you don't want to be touching the camera, you can use a cable release.

If you like to work on the edge of darkness, a headlamp might be of use.

Extra memory cards are necessary. Keep the unexposed and exposed memory cards in separate pockets so you don't have to guess which is which.

Extra batteries are always a good idea.

Occasionally, you might want to clean your lens and filters, so pack something to clean them with.

You might need a rain protector that slips onto your camera for when it's rainy. Also bring a raincoat for yourself and for the backpack so that you can hike in the rain.

---

## Types of Lenses

You want to have a variety of lenses. You might have two camera bodies and two lenses, such as a telephoto lens and a wide-angle lens.

The 16–35mm lens is a wide-angle lens that is perfect for landscapes. This lens shows the wide expanse of the landscape. It's wide enough that you can get the foreground, middle ground, and background in the shot.



The following is Horseshoe Bend, outside of Page, Arizona.



With the 16–35mm lens, you can get into very small spaces, such as behind waterfalls, and still see a lot of the landscape. The following was taken in Great Smoky Mountains National Park.



The following is an image that looks West across the Dead Sea, where Jordan is being lit up by some magic light. You can see that the foreground is close, featuring some action in the waves, and you can also see the background. That's what this lens is good for: including the foreground, middle ground, and background.



On another camera body, let's say that you have a lens that is 80–400, which can go all the way from 80mm, which is a good portrait lens, to 400mm, which really brings in the image. The following was taken in the Palouse in eastern Washington.



You can use the 80–400 to help compress the landscape and give it a more of a two-dimensional look, whereas the 16–35 might be more three-dimensional looking. The following is another example of Great Smoky Mountains National Park, where it was early morning and the landscape was compressed using the 80–400 lens.



The telephoto lens, which has a longer focal length than normal, is imperative for wildlife. It's rare to be able to walk up to wildlife and shoot with a wide-angle lens, so you would use the telephoto for wildlife.



The telephoto lens also really helps isolate a subject. You can go to the lowest f-stop, at 2.8 or 4, and then have the very shallow depth of field with the lens that helps throw the background out of focus. For example, you can really focus on and isolate a tree because the lens is so long and the background is so far away.



If you're going to go outside and walk with just one camera and one lens, use the 24–120 lens. It's pretty wide angle, and then it goes pretty telephoto to 120. It's a great portrait lens.



The following leaf picture was taken with the 24–120 lens. It's great for photographing the details of plants and areas, or for more of just a normal midrange look. It's not wide angle, and it's not telephoto; it's a really versatile lens. It doesn't compress like the telephoto, and it doesn't force the perspective.



A 500mm or 600mm lens is really big. It needs a separate case and a separate tripod. It's really more a wildlife lens; it's not really a landscape lens. But you might want to keep it if you are traveling by car, because you never know what you might want to photograph when you're car side.

The following photograph was taken with a 500mm lens at sunrise in Nebraska of the sandhill crane migration, with one rare and endangered whooping crane among them.



Extension tubes convert lenses into macro lenses. They come in three different sizes. You take the lens off and then put one, two, or all three extension tubes on. You can actually climb inside of a flower—that's how close you can get.



You don't have to use the autofocus when you're using the extension tubes. You can put it on manual focus.

You can use a telephoto lens with an extension. By using a 80–400mm lens with macro tubes, you can get close enough to animals—such as monarch butterflies—without spooking them.



---

## Types of Filters

Regardless of which lens you're using, you can use a polarizing filter on the front of every lens. Rain or shine, you can start with a polarizing filter on. If it doesn't do anything, you could choose to take it off. It often does quite a bit to improve a picture.

When you turn the polarizing filter, it takes all of the haze out of the picture. It polarizes the light and basically makes the sky turn blue. It also works great around water, because it emphasizes reflection in the water.

The following was taken in Antarctica, looking south at almost sunset, with the sun at a right angle. The first picture was taken without the polarizing filter.



The sun polarizes best at a right angle, and once you turn the polarizing filter, all of a sudden the picture pops.



Graduated neutral density filters are used to darken just part of the landscape, usually the sky. It's a piece of plastic that is dark at the top and not so much at the bottom, or not at all on the bottom. You put it in your holder, which screws onto your lens, and you slide it up and down until you see what you want.



Once the graduated neutral density filter is added, notice how it darkens the top of the image. You add this filter to give the image some drama.





The neutral density filter is used to darken the whole scene. This is great for shooting skiescapes with clouds moving or moving water. In the following photograph, the density filter darkens the sky and makes the clouds move.



You can also use both the graduated neutral density and the neutral density filters together to enhance the image. The following picture used just the neutral density filter.



Then, the sky was darkened with the addition of the graduated neutral density filter.



## Activity

Do some research and make a list of the gear you may eventually want to buy. Visit a camera store and try out some of the gear there. Find a knowledgeable salesperson and talk to him or her about gear. Bring some of your photos with you (not too many—ones you like, and a few that didn't turn out the way you wanted them to).



## Four Kinds of Light in Landscapes

**E**very photograph has three elements that compose it: composition, light, and moment (content). You should study the rules of composition and think about light, because when you are out in the field, you don't want to be thinking about these elements. Go to an art museum and look at the art; open a book or magazine and look at the pictures. With composition and light, it's a matter of practice.

### Composition

Regarding composition, there are certain rules, or suggestions, that photographers use. Probably the most important one is the rule of thirds: Wherever the tic-tac-toe grid intersects is where you should put the subject of your photograph. As you can see, the walrus skull is located at one of the intersections of that grid.



Whether you have a high-end digital single-lens reflex (SLR) camera or a classic point-and-shoot camera, you can put this grid on the back of the camera so that it's there to guide you.

Initially, it's a good tool to help you if you are having trouble composing your pictures. But eventually, you won't need it. Even though it will be there, you probably won't pay attention to it anymore.

With that being said, you should break the rules. Try it one way; try it another way.

You are not supposed to put the subject right in the middle, but you can do that. You are not supposed to put the horizon line right down the middle of your photograph, but you can do that. As long as you like the photograph, that's really all that matters.

A good photograph is one that you like. If someone else likes it, too, then that's a bonus.

Another element of composition is leading lines. You are using a diagonal to take your eye through the photograph. In the following image, the fence serves as a leading line that takes your eye diagonally from the front to the back of the photograph. Your eye is traveling from left to right, and we are used to seeing that way, because we read left to right, so that movement is natural for us. By using leading lines, the image almost becomes three dimensional.



Another element is the S curve, which takes your eye on a journey through the image.



Another element that you can use is a frame within a frame. This is good for landscapes. For example, if you are indoors but are looking at the landscape outside a window, you can frame the landscape with the window frame. In this case, the image is framed with the entrance to a church in Alaska.



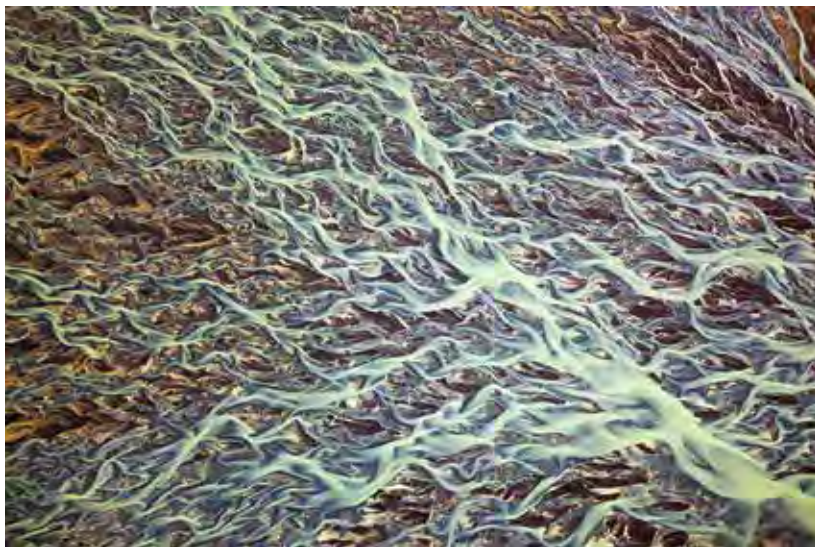
A great compositional element is repeating pattern, where a pattern repeats itself over and over again. That's not really something that you can design. And it might not be until after you've taken the picture that you recognize its pattern.

When walking around outside, be aware of your surroundings so that you can start noticing patterns. Be present.

This image is of glacier runoff as viewed from an airplane.

## Tips

- Place your subject and horizon lines off-center.
- At the same time, break the rules. Put whatever you want, such as the horizon line, dead center.
- When you are taking pictures, move around. Look at a subject from one place and then another to see how it changes.
- Keep it simple.



## Light

The bright, sunny light that exists in the middle of the day is not ideal for photography. But what if you don't have control over what time of day you're shooting and end up with middle-of-the-day light?

Shoot in the shadows to get a soft, even light. Either zoom in or walk closer to your subject so that you're able to shoot it in the shadows.

### Tips

- When you see something that you want to photograph, shoot it from all angles, moving around to capture the image in different light. Utilize sidelight, and then move around and shoot with the sun over your shoulder. Then, move around and shoot into the light.





Another thing you can do in the middle of the day is look for reflections. For example, this is El Capitan in Yosemite National Park that was captured as a reflection in the Merced River. It's a much better image of El Capitan than the one that would have resulted if it had been shot in the bright light of the middle of the day.



There are four kinds of light. Diffused light—also called overcast light or inclement weather light—is really soft light. You can see into the shadows on days that have diffused light.



If this had been photographed when the sun was out, whether it was low or not, the shadows would be pretty harsh, and the camera would have a hard time recording the highlights. You wouldn't be seeing the subtleties of the shadows. On an overcast day, you get the full range, from dark to light, in the image without it being too contrasted. The beautiful thing about diffused light is that you can shoot in it all day long. It's gray overhead, and it gives you that even light.

The second light is sidelight, which is the type of light you get for an hour in the morning at sunrise and an hour in the evening at sunset. At these times of day, you put the sun at a right angle to yourself. You will get shadows, and the details will show up. It's good to move around and see how the light changes depending on where you are standing.



When the sun sets, don't go home. Be patient, and just keep shooting. Many times, the best light is after the sun sets or before a sunrise.



The third type of light is backlight, which is when you shine the camera at the light source—in the following case, the sun.



Backlighting is not just about the sun; it can also be the light source. When the sun is set, it can still light the clouds, causing backlight.

The last of the four kinds of light is magic light, which is when you look at the light and realize it's so perfect that you have to find a photograph.



If you see overcast skies but there is a break in the clouds, watch the light move across the landscape. Sometimes you'll get just a spot of light on the landscape. It's dark except for where the spotlight is.

### Activity

Find a landscape to study. Bring a notebook if you want. Watch your landscape and look for the different types of light discussed in this lesson. Walk around at different times. Find the shadows. Note what time you get some magic light on your landscape. Don't let the weather scare you away. If it's rainy or snowy, put on warm, waterproof clothing and see what the weather is doing to the light in your landscape.

## Lesson 5

# Landscape Color Variation and Combinations

**T**his lesson will teach you about light—color in its purest form. You might have been taught in school that the primary colors are yellow, red (technically magenta), and blue (technically cyan). But that applies to painting. So, forget about what you learned in elementary school and think about light. The primary colors for light are red, green, and blue. All colors are a mix of these colors. If you mix all three together, you get white. If you mix any two together, you get a secondary color, such as yellow.

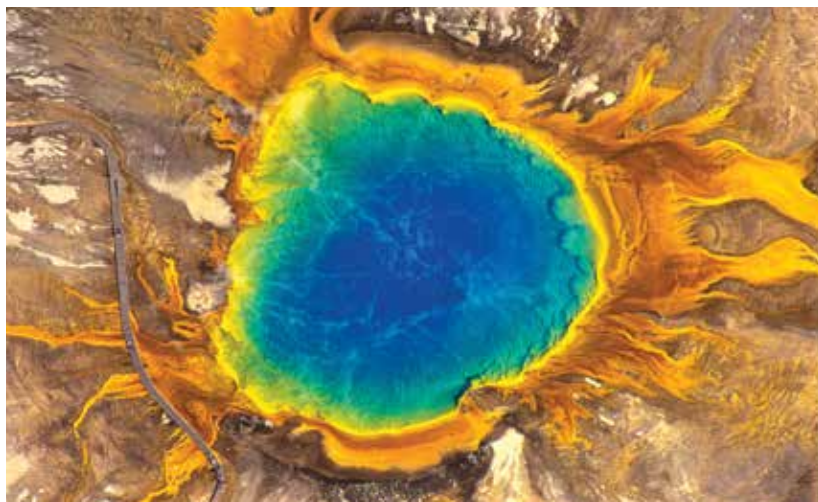
NOTE: Color images can be found in the digital guidebook.

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## Color in Landscapes

We all have a unique color palette that we are drawn to.

The following photograph was shot straight down from an airplane flying over Yellowstone National Park. This photo is all about color.



Here is a landscape that features the colors yellow, green, and blue. Yellow and blue are opposite colors. Blue is a primary color, and yellow is a secondary color.



Yellow and green can be found a lot in combination in nature, especially in the Northeast in the fall or in the West with sunflowers.





A completely different combination—one of yellow, green, and red—is found in the next photograph. How does that make you feel?



The yellow is dancing right through the image above, as opposed to the following image, in which we have magenta and green.



The next image contains a combination of magenta (or purple), red, and green. The image features a very shallow depth of field and focuses on the magenta. The image also has red and green, which always dance well together.



The next image is an example of red and green with blue. The image has a deep depth of field, and everything is in focus. The red is right in the foreground.





Green and red (or pink) is a nice combination. The following image was shot on a diffuse-light day, so there isn't much contrast, and the colors could mix together.



How do you feel about yellow and green? People don't have to have the same reaction or feelings for the same color palette. In the next photograph, your eye moves from the front to the back, giving the image some depth.



Green is a color that occurs a lot in nature, so many nature photos are all green.



Yellow and blue is another combination that might stand out to you. The yellow is ambient light on the boat.



All blue also works, and you might see a lot of all-blue nature photos.



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### Playing with Colors

The next series of photographs was taken in the same location and shows how you can play with different colors found in the same landscape at different times. The images are of reeds from Acadia National Park.

Both the design and composition of the reeds are attractive and intriguing. In the following image, there was no wind, so they were mirrored in the water.





Another time, the long exposure, which involves slowing down the shutter speed, gave it more of an impressionistic look. Note the mix of green and yellow.



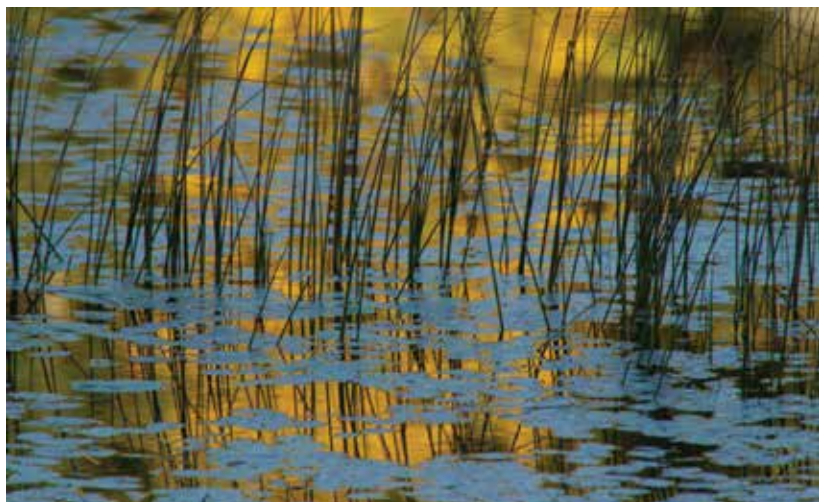
The next time, it was a blue-sky day and the sun was not shining on the reeds, but it was shining on the hillside, resulting in both the yellow of the fall foliage and the blue sky reflected in the water.



Another time, the water lilies were reflecting the blue sky, and the water itself was reflecting the hillside in the back. This results from a shorter exposure and a shallower depth of field.



The next time, it wasn't a blue-sky day, but there was some sun on the hillside. This image features yellow and black, with the black reeds against the light on the foliage turning yellow.



The next image is of a different pond, where there was a sugar maple tree that reflected red.



### Activity

Go to a landscape of your choice. Plan to stay for several hours. Notice how the colors of the landscape change from hour to hour. Find the color combinations discussed in this lesson—not only in the larger features, but close up, too. Look down at your feet and up at the sky. Continue to hunt for new vantage points. Don't begrudge the time. Think of it as a learning vacation.



## Lesson 6

## Nighttime and Daytime Skyscapes

**W**hen photographing skies, it's all about anticipation, perseverance, and patience. The sky can make the image. In this lesson, you will learn how to shoot northern lights and star trails. The goal of this lesson is to instill in you a new appreciation for the sky and the importance of paying attention to the sky and the clouds as they move or block the light of the sun.

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### Milford Sound

This is Milford Sound on the South Island in New Zealand.



You want to go out before sunrise, find your shot, set up your tripod, and wait. Watch as the light changes and as the sky changes. Try different exposures;

try slowing down the exposures. Use very long exposures to capture cloud movement, which can really make the picture.

If you can, work a scene more than once. Just keep shooting. As the sun comes, up it's going to light farther and farther down below, and if you're lucky, it'll light the sky, too.

Keep an eye on the sky not only in front of you but also behind you, because if you see a cloud and you know the sun's going to hit it, you want to know how big that cloud is. It's not only about the sky that you see in your photo, but it's also about the sky behind you that might block your light. It's good to have full awareness of the light as it comes and where it's coming from. Is it going to be bounced light? Is it going to be direct light? Is it going to be over-the-shoulder light? You have to keep your eye on the sky to know what's going on.



## Lake Matheson

The next series of images is of a lake on the South Island called Lake Matheson in Fox Glacier. The following image wouldn't really be that interesting without that illuminated cloud.



This light doesn't last long. The sun comes up, hits the clouds, and moves really quickly. The light changes really quickly. The cloud builds and changes quickly, too.



Now the sun is pretty high. The magic light is gone, and we've lost the color, but it's still a good image. There's no light on the landscape; it's really all about the sky for this series of images.



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## Mount Cook

The next series is of Mount Cook, still in New Zealand, before sunrise, with the moon setting.



Notice how the horizon line changes in the next photo to take in more of the sky, which is more interesting than the foreground. The sky gets even more interesting as the light from the sun comes out.



Now is the time to try some slow shutter speeds to capture the movement in the clouds.



In the next image, the sun is shining on the clouds. The moon has come out. The light is reflecting back down into the landscape, resulting in a magenta glow off the clouds.



Once the sun is up, it's lighting the mountains and the sky. You also get a little reflection in the water at the bottom of the image. You can bring the horizon line back up because now there is reflection in the water, but the sky is still the main focus.





## Exposure

Try different exposures when shooting skies. Find a tree and do a series of images where the clouds are moving. You can get a different feel from different exposures. If you have a tree in your backyard, try photographing it every morning at sunrise. If you live in the city, try this in a place where you can shoot the same thing over and over again. You can do this as a learning tool or as a project.

These photographs were all taken within 15 minutes of each other. This first exposure is one-third of a second. The clouds are moving, but they're not moving fast.



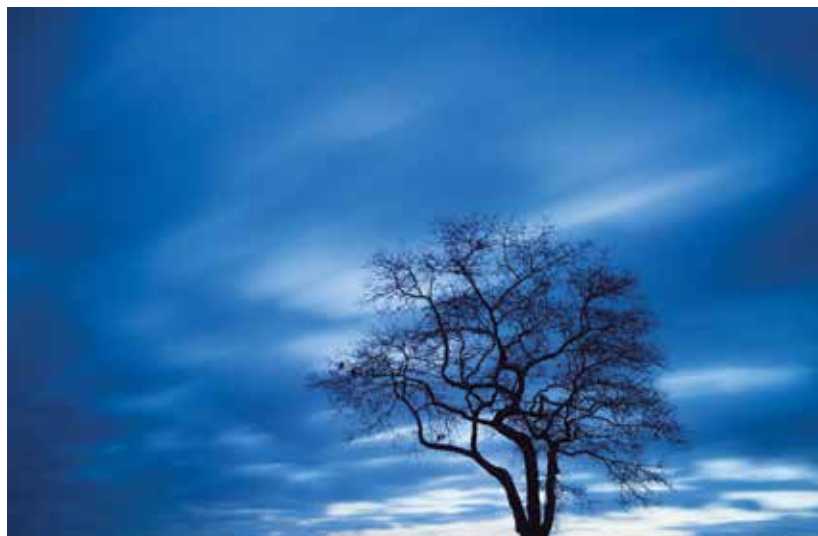
This next one is eight seconds long. Now there is a little movement in the clouds.



The next exposure is 30 seconds. Note how the sky has turned blue even though it's minutes apart from when the previous images were shot. This is a function of the camera. You can correct this in the camera or later in your software.



This next exposure is one minute. Notice how much different it is from the previous one at 30 seconds.



This final exposure is two minutes. It's quite a bit different from the first frame.



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## Northern Lights

Alaska, specifically outside of Fairbanks, is a great place to shoot northern lights. Most people think that wintertime is the time to go shoot northern lights, but any time it's dark—from August or September on—you can enjoy both the daylight and the nighttime in Alaska.

Sometimes the northern lights will happen for only 10 to 20 minutes; sometimes they will go on all night long, dancing across the sky.

On its website, the University of Alaska Fairbanks predicts when the northern lights are going to happen and how strong they're going to be three days in advance. Sunspot activity creates magnetic waves, and it takes three days for the waves to reach the earth. When they reach the atmosphere of the earth, because the earth is a magnet, it pulls the waves both north and south around the earth, resulting in the northern lights.

A good starting point for the northern lights, put your camera on ISO 2000 and shoot wide open, whatever that is for your camera (2.8, 3.5, or 4). Try to start at 20 or 30 seconds. You also want to turn off your noise reduction on the back of your camera and your vibration reduction on your lens and close off the light on the back of the viewfinder. The important thing is to have no light pollution, so no moon is preferable. A full moon will just make the lights pretty invisible.



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## Star Trails

With star trails, you're going to keep the vibration reduction off on the lens, but this time you're going to turn the noise reduction off, too. You're going to keep the viewfinder closed on the back of the camera.

Find your frame and set up and focus before it gets dark, because it's difficult to focus once it gets dark. Put it on manual exposure. Just like with the northern lights, shoot wide open (2.8, 3.5, or 4—whatever you have).

With film, you would have opened up the camera and the exposure would be two to four hours. You would set up the camera and come back two to four hours later to close the shutter.

With digital, one of the drawbacks is that you get digital noise when you have such long exposures. But there's a workaround: You get a cable release that has an intervalometer on it. It's like a little computer. You set it up to do five-minute exposures. Five minutes will give you a little bit of motion in the star, but it won't give you any noise really. You use a low ISO, 400, which is not bad for noise. You make it do a series of 20, 30, or 40 exposures, all five minutes long with one second in between. Then, you stack them and put them all together in Photoshop, and you end up with a star trail shot with no noise.



## Activity

Select a landscape that you like. Check the exact time of sunrise for that location. There are plenty of online sources for this information. Set your alarm and get up early enough to be in position to photograph the sunrise. Don't expect to get a perfect shot from just one morning's outing. Repeat this activity over several days until you have an expert idea of how the sun appears on the horizon, what spots in your landscape the light hits, and where the ideal positions are for you and the camera. It will probably take many return visits to get your favorite photo.

# Above- and Below-Surface Waterscapes

**C**onsidering that most of the earth is covered by water, water is very important to landscape photographers. In this lesson, you will discover some ideas and tips for using water in your landscape photography. Use and practice these techniques, and then come up with your own to expand your horizons.

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## Water as a Foreground Element

Using water as a foreground element is a nice way to lead your eye into an image. It's big, simple, and open-ended. Therefore, it invites you to come into the image.

When the water is still, it's highly reflective. In this image, the water is a foreground element and a reflection.





If you're on a beach, you have water coming at you and going out. You can use that in a photograph to lead the eye into the image. You can slow down the shutter speed to create motion and mystery in the water. You have to shoot lots of images, though, and you have to keep your eye on the results. Sometimes it works best when the wave is rushing at you, but don't rule out when it's pulling back, because you can capture some foam on its way back out.



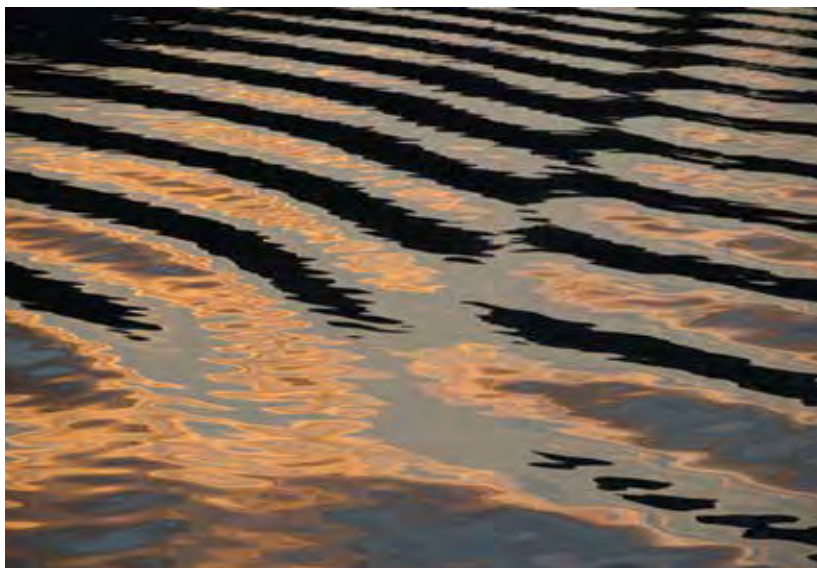
When using water as a foreground element, slowing down the shutter speed smooths out the water. It makes everything smooth in the foreground, thereby letting the other elements that might be in the picture stand out a little bit more. Using a wide-angle lens, you can showcase something prominent in the foreground. It also helps if you have some magic light in the background.



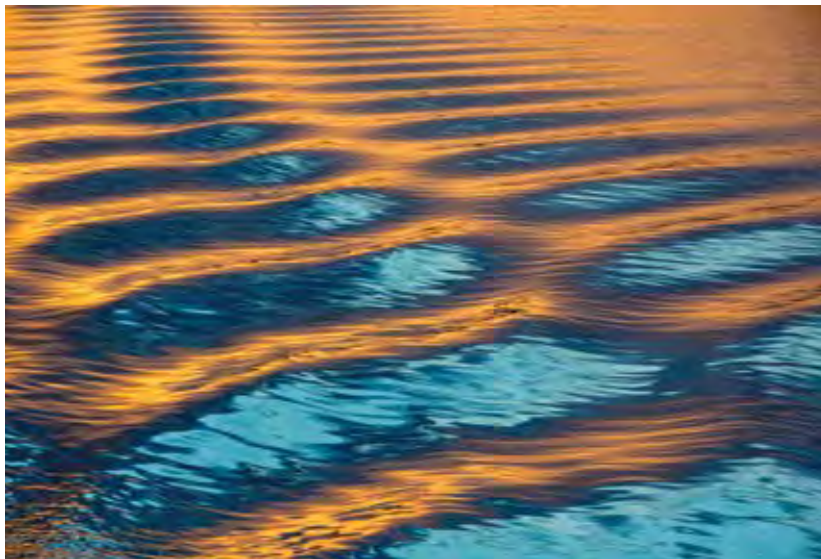
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## Reflections

Another way of seeing water is with reflections, both abstract close-up reflections and reflections of entire landscapes. You can start with a scene, and then you can use a longer lens to move in on the scene.



Sometimes you can use a faster shutter speed to capture the abstract reflection. You can also close down the aperture to have the depth of field go from front to back.



You can also have a shallow depth of field.



You can slow down the shutter speed and have the reflection be part of the water and the abstraction. The next image showcases slowing down the shutter speed. The water is moving, but it's reflecting the golden hillside beyond it.



Or you can zoom way in with a long lens and make it really abstract. You don't know how big this scene is, but there is a tiny plant in the image to give you an idea. The water is reflecting a pink cloud.



## Waterfalls

You can capture moving water in waterfalls. If you find a shot, try going through different shutter speeds, taking a series of pictures, to see what works for you.

The next series of pictures was taken from behind a waterfall. Starting with a 50<sup>th</sup> of a second, you see a little bit of movement.



Then, slow the shutter speed down to one second to get a softer effect.





Return to the same waterfall when there isn't as much water coming down so that you can see through the water to the landscape. Slow down the shutter speed to a 30<sup>th</sup> of a second to get it soft and dreamy looking.



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## Ocean Waves

You can photograph ocean waves when you're on a boat. The boat is moving and the boat is creating its own wave. When you're on a boat, you don't have a tripod. You're using a handheld camera with the vibration reduction on. As you're moving, see what's interesting and create art.





You can also photograph waves from the shore. The next photograph was taken from the beach in New Zealand using a longer lens and a shutter speed of a 15<sup>th</sup> of a second. The sun was out.



Then, the sun goes behind a cloud, and the shutter speed was slowed down to an eighth of a second.



## Streams

In the next image, from Great Smoky Mountains National Park, the open scene in the foreground with the shaft of light leads your eye into the background.



After you get that shot, just stand in the water and watch the leaves float down the stream. Challenge yourself to try something different.

When the sun came out, the leaves created a shadow on the bottom of the stream. By slowing down the shutter speed to a 15<sup>th</sup> of a second, you can blur the background to isolate the leaf and the shadow. If this had been shot at 250<sup>th</sup> of a second and everything had been frozen, you would have seen the bottom, and the leaf would have fought with the rest of the scene.



## Ice

Another form of water is ice. A lot of really interesting things happen in the ice. Leaves get caught in the ice and freeze there. Black ice is great for photography, but whenever you see black ice, the first thing you want to do is to make sure it's safe to go onto it.



Air bubbles get caught in the ice and can be very abstract.



## Under the Water

Another thing you might want to do with water is to get into the water. You can buy an underwater housing. You don't want to use it in the ocean, where there are a lot of waves, because once the water gets in, it's the end of your camera. You could submerge the housing partially in the water and partially above it to see both underwater and the landscape.



Some housings have a flash, and you can use it to light up things underwater.



You don't have to be in the water for every shot; you can just hold the camera under the water with the flash on and aim and shoot.

### Activity

Find a landscape with some water in it. It can be drops of dew on a leaf, a small pond or stream, or something larger. Study the way the light moves on and even through the water. Experiment with aperture, shutter speed, and ISO. Save everything. Resist the impulse to delete anything until you're home and have downloaded the images. Then, review what you see. Compare your images and see what sort of approach you feel best captures your emotions at the time you took the photo.



# Landscape Photography Site Research

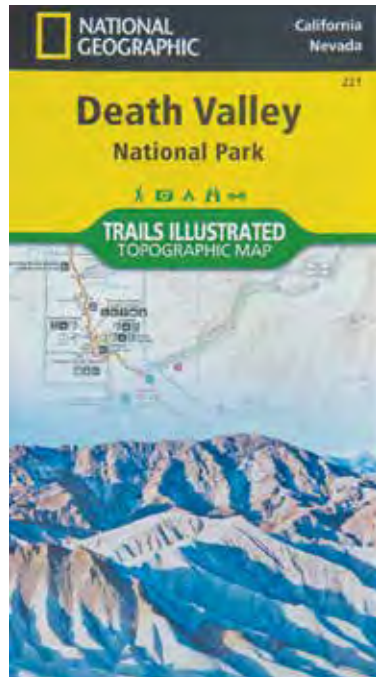
**I**n this lesson, you will travel to Death Valley National Park. By researching the park ahead of time, you can concentrate on where the best potential for images is. You should also wander and explore while you're there, but your research will help you find some great locations and prepare you to actually reach them. This lesson will offer some tips, locations to visit, and details on when to visit the various locations.

## Research before You Go

Before you go anywhere, research it extensively. You can use Google Earth to see many photographs and where they were taken. Use it as a tool for potential locations where good images exist.

One tool that you can use is a physical map. Once you find a location you'd like to visit based on pictures you've seen online, mark the location on the map. National Geographic produces a great waterproof map. The National Park Service also produces maps.

Highlight places where you've seen potential images from your search, as well as places to sleep.





## Zabriskie Point

Research where and when the sun and the moon are going to rise and set. There are apps that will tell you this information. Once you know where the moon will set, you know where it will line up with a certain location, such as Zabriskie Point, featured in the following image. You go to the location before sunrise, knowing that the moon is going to be in the sky, and you're ahead of the game. You wait a little bit, the moon is setting, and you get your shot.



Stay and work the image with different lenses. When you start to lose the light, keep working the image as the moon is going down with a wider angle.



If you want to work a moonrise, or a moonset, you want to time it so that the moon is where you want it. If you're going to shoot a moonrise, for example, you want to go out maybe a day or two before the full moon. The moon will already be up, and you can at least line up your shot. Then, go back the next day, and the moon will be much lower because the moon rises 40 minutes later every day.

Sometimes, light just happens as you are driving to where you wanted to go. You have to stop the car and grab it, because it doesn't last long.



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## Mesquite Dunes

Stovepipe Wells, a motel in Death Valley, California, is a great place to sleep because it's next to the largest sand dunes in America, called the Mesquite Dunes.

You can roll out of bed and go out at sunrise. You might see other people out there photographing.



If you want a pure landscape shot without people in it, you have to wait for the right conditions. In Death Valley, the right conditions are a windstorm. Watching the weather all the time, you have to anticipate what's going to happen and where you want to be to take advantage of that.



It's important to note that you should have your back to the wind, because if you aim your camera into the wind, it would be sandblasted, and your lens would be ruined.

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## Badwater Basin

Death Valley is the largest national park in the lower 48 states. It's known for having the lowest elevation in the United States at Badwater Basin, which is 282 feet below sea level.

Most people go there in the middle of the day, so it's pretty vacant at sunrise and sunset. From the salt flat, you take the following shot. It's cloudy, but it looks like maybe the sun might drop below the clouds. You anticipate what would happen if the sun drops and lights up the clouds. If that happens, you need to be ready.



Put the wide-angle lens on your camera. The sun is starting to set, and it looks like it's going to light up. Light can be fleeting. It can disappear behind a

cloud without you knowing it, so you have to shoot right up to the point of it vanishing. You have to grab a shot, because the next shot may not be good.



Death Valley is one of the best places to see stars in the United States because there's no light pollution. The following star trail shot was captured with the help of a headlamp. The North Star is in the upper-right corner.



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## Artist's Drive

In the middle of the day with the sun shining, Artist's Drive is not that interesting photographically, unless you can find shadows. Early in the morning photographed in the shade, you will see all these colors—including a blue color that is oxidized copper in the soil—that you don't see in the middle of the day in the sun.



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## Joshua Tree

In your research, you might come across images on Google Earth of a Joshua tree forest. Go in the middle of the day to scout for potential photographs. Then, you can come back late in the afternoon, before the light is good, and wait for a nice shot.





When you're out in the desert photographing Joshua trees, another thing you can do is backlight them while you're waiting for the light to get good.



You can also wait for a dust storm to happen and backlight the trees.



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## Eureka Dunes

There is a remote sand dune site, called the Eureka Dunes, that is a two-hour drive from Stovepipe Wells. There is some deep sand, so you need a four-wheel-drive vehicle. You would learn this through your research before you go.



You can stay out there until sunset and work it until the last light.

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## The Racetrack

Perhaps the most unique place in Death Valley is the Racetrack playa, which is an old freshwater lake that has filled up with silt. When it rains there, it gets really slick on top. When it dries up, it gets really hard. Here, you would also need a four-wheel-drive vehicle, and you still might get stuck.

There are some cliffs, and rocks fall off of them. When there is a layer of ice on the surface and the wind blows, it pushes the rocks across the top of the icy

playa, leaving trails. Then, when it dries up, it's so hard that you can walk on it without leaving any footprints.



Go in the middle of the day to check it out, but stay until the last rays of the light.

### Activity

Using the guidance from this lesson, prepare for your next outing with your camera. Get your hands on a map, one on paper that you can mark up. Research a site online and compare locations you learn about with the map. Note places to stay and remember that you will want to be getting up early and going to bed late to take advantage of the day's best light. Stay close to where you think you may get some good shots. Study the photos others have taken for inspiration.

## Drive-By Photography: Travel Photos

**L**et's say that you're going on a trip with a group, so you won't have much control of anything: You won't be able to stop the car or bus, and you won't really be able to work the landscapes the way you want to. In this lesson, you will learn how to turn a difficult situation into a good challenge of your skills for scene and technique. If you come home with images that tell your story, then the trip is worth taking.

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### Brazil

On your way to Brazil, you remember to slow down the shutter speed to capture a nice image from the airplane window.



You wake up at Iguazu Falls. You get up early, before the group, to walk around the falls and scout some shots. After you return to the hotel to have breakfast with the group, then the group goes to the falls together, but it's

really about scouting for you. You find a few spots to come back to in the evening when the light is good.



Next, you go to a bird park with the group. You have to shoot the birds through a screen, which the birds are on the other side of, so you want to put your lens as close as possible to the screen and open up the lens for a very shallow depth of field. The drawback is that one of the birds may be in focus while the other one may not be, but at least you're not getting the mesh of the screen in the foreground.



## Chile

Your next stop is Patagonia. You're on a bus, with no control; you're just driving along. The bus stops for a few minutes. You get out, grab what you can, and then get back on the bus. The light's not ideal, because it's the middle of the day, but you can't wait until later for better light. You shoot three or four different images as you pan the camera and then stitch them together.



Torres del Paine is known for its towers. Look for how light might be playing with the shadows. Look for even just a single ray of light on the mountains and take the picture, even if you're in the middle of walking. As soon as you see the light, drop your camera bag, take out your lens, and grab the shot before the light disappears.





The moai figures are what Easter Island is known for. You find the shot, wait for the light, and wait for the people to be out of the frame. Always look at the sky, because you want to use it in your photograph.



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## Tahiti

On the way to Tahiti, you fly over Ducie Island, one of four volcanic islands that make up the Pitcairn Islands, the most remote islands in the world.



You land in Moorea, a volcanic island in the South Pacific. At the hotel, you notice a pond with koi fish in it that catches your eye. Every time walk past it, you spend time at the pond with the koi, trying to work it. You're shooting wide, then tight; you're shooting with slow shutter speed, then with fast shutter speed. After about 200 frames that you shot, you end up with one that might make a nice print for the living room.



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## New Zealand

Your next flight is to New Zealand. The next morning, you take a helicopter from Queenstown over the mountains to Milford Sound, which is a glacier-formed sound. You're shooting through the window, so make sure that your image is not reflected in the glass, and watch out for any other reflections that are not intended. You're very lucky to have fog below you as you go over the mountains.



Then, you go to an animal park. Isolate the animal, and shoot it wide open. You notice that this owl flew back and forth a few times before you could get a picture of it, so you anticipate that it will fly again and prefocus on the owl. Put it on high speed—continuous shooting at a high shutter—and increase the ISO. There is a little noise in the image, but it still looks good. At least you got a shot. If you were to shoot with a low ISO, the image would be blurry.



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## Australia

Next, you fly to Australia—specifically, the Great Barrier Reef. You take a boat to the reef, and you get in the water, using an underwater housing to keep your camera dry. A beautiful sea turtle swims by slowly, and you swim with it for a few minutes while snapping photos.



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## China

Next, you are off to Guilin, China. There are mountains in Guilin, but there is a lot of fog. Boats go up and down the Li River to take people to look at the mountains. You are on a boat, so you shoot what you can. The mountains are a little hazy, but it's kind of a backlit haze, so you can make it work.



## Japan

Your last stop is Japan. You get up early in the morning before it starts to rain and take advantage of the soft, diffuse light.



At an outdoor museum, you notice some plum blossoms. You have an umbrella and walk around, looking for composition and content.



## Activity

If you know you're going on a trip and may have to do some, most, or all of your vacation picture taking on a schedule, practice some of the techniques suggested in this lesson. Hit the road one day before you leave and take your camera. Pack up the gear you'll take and practice the drive-by tips you've learned. Review all of them to see which turned out well.



## Lesson 10

# Computer Editing: Review and Cataloging

**I**n the modern world of digital photography, half of the work—or fun—is capturing the image. The other half is massaging the picture to make it look the way it looked when you took the picture. Adobe Photoshop Lightroom is both an editing program and a development, or massaging, program. This lesson will introduce you to the editing side of landscape photography, using Lightroom as a helpful tool.

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## Using Lightroom

When you get back to your house or hotel room after a day of shooting landscapes outdoors, don't automatically import all of your memory cards from your shoot into your computer. When you shoot, you're shooting multiple pictures for each image that you see, so you might have 10,000 pictures. If you imported 10,000 pictures into your computer, the hard drive would fill up, and then your computer would run slowly.

Take a hard drive with you out in the field. Every day in the evening, import the pictures into the hard drive. Then, have a second hard drive as a backup. You always want to have two copies because one of your hard drives might get corrupted and you might lose all of the pictures on it.

To start the editing process, open the Lightroom program and create a new catalog, which you can name. There are two menus—one on the left side of the window and one on the right—and there is also a bar running along the bottom.

In the menu on the left, you have the option to import images. It will ask for the source, and you can select the location where your images are stored. Then, select the specific photos you want to import for editing. Scroll to make sure that all of your images have been properly imported into Lightroom.

Every time you create a new catalog, the first thing you should do is go to the Catalog Settings and select “Automatically Write Changes Into XMP.” Anything you do to the file—whether it’s a JPEG or a raw file—including any changes or added keywords, goes into the XMP file, and the raw file and XMP file travel together like a sidecar on a motorcycle. You really want that, especially if you’re transferring images from your hard drive in the field to your computer at home, because then the XMP file reflects all of your changes.

As you get into landscape photography, you will be shooting raw. In the beginning, you might want to start with JPEGs because they’re much easier and faster, and you can see what you’re getting a lot better. When you’re shooting raw, you’re going to have to massage the images a little bit more, so you have a little bit more control, and the quality is better.

The important thing to do when you’re about to import is to enter keywords for your images. If your image was shot in Delaware, then add the word “Delaware” as a keyword. Then, put a comma after “Delaware” and add the next keyword. If you shot in the winter, add the keyword “winter.”



This is important because let's say that five years later, you're looking for the picture that you remember you shot in Delaware. You can go to the Library in Lightroom and type in "Delaware" in the Find field, and all the pictures that you ever took in Delaware will show up (as long as you've labeled them).

Once you've entered your keywords, the next step is to actually import the pictures into your library.

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## Preparing for Editing

You should rename the images in your library. The images are given file names by the camera, but once the camera reaches a certain number, such as 999, it restarts the numbering at one. Eventually, you end up with multiple files with the same number if you don't rename them. Try renaming them with the year, month, and day that the image was shot and then an underscore and a sequential number.

Look at your pictures one at a time. If you can't see the thumbnails and would like to see them better, you can use the Thumbnails slider to make them a little bit bigger as a starting point. Then, if you double-click on an image, it shows up rather large.

Scroll through the first sequence of images. As you scroll, assign a star rating, from one to five stars, to your pictures to help you narrow down which one, out of a possibly large group, to spend time on editing. It's a very subjective process. Sometimes it's a real battle to come up with the winner. You might even want to ask for someone else's opinion if you narrow it down to a few options but can't declare a five-star winner that you will spend time editing.

This image has a nice feel to it. It has large snowflakes that hide what's going on in the background, adding atmosphere. This picture could have been taken 100 years ago or yesterday.



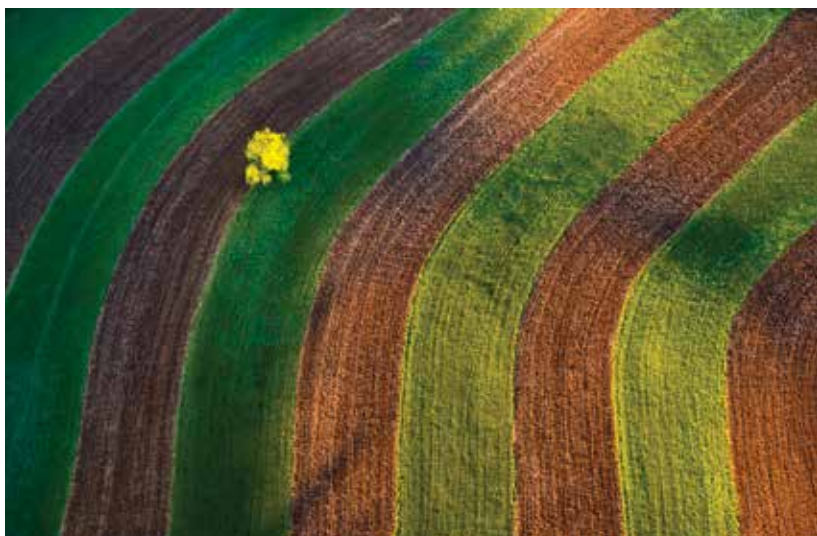
What is nice about this next springtime image is that everything is blurred and moving except for the branch in the upper-right corner, which anchors the whole image.



The following macro image of a flower is sharp, and the colors around it are really nice. There is also some dew on the flower.



This next aerial image contains a single tree in a field with a plowed pattern in the earth that looks like an American flag. It has color, content, and light. The tree is in the upper-left corner, following the rule of thirds.



## Activity

The computer can be a great help in keeping your photos organized. Use your favorite software to organize and label the photos in your library so that years from now you can find the ones you want to access quickly and easily.



## Lesson 11

# Computer Editing: Development

**T**here are two sides to Adobe Photoshop Lightroom: the editing side and the development side. In this lesson, you will learn about the development side. You need to massage your pictures, especially if you're shooting raw, because they don't always look the best they can look when you bring them into the program. You will need to practice developing your pictures, just as you practice with the camera to make it your own.

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### Development

In Lightroom, click on the Develop tab next to the Library tab and pull up your first picture. Sometimes the picture is pretty good as it is and doesn't need a whole lot of editing.

Lightroom gives you some presets, including exposure, contrast, and clarity, that you can use to change the look of your image. You can even create your own preset.

Look at the picture and think about whether it is too light or too dark and adjust the exposure if needed.

Use the histogram as your guide. The histogram measures the number of pixels, from black to white, in the picture. It tells you where the pixels are in position in your image. You also have a histogram on the back of your camera and can use it there when you make an exposure.

If you overexpose the image, or if you drag the exposure slider too far one way, then the image becomes too white. If you move the exposure slider too far the other way, you will have a lot of dark pixels in the picture.

The next step is to go to the presets for clarity, vibrance, and saturation. Use these sparingly. You want to keep the clarity and saturation sliders to between 5 and 10; don't take the vibrance slider past 30.

If you want to give just a little tweak to all of the pictures that are similar to the image you're editing (similar images taken in the same situation), you can save the settings you just created as a user preset. You can use the bottom menu to select all of your pictures and apply your preset settings to all of them. You can also hit the sync button to synchronize your images. You can even use your presets when you import your pictures.

The next thing you want to do is set your black slider and white slider, which basically control your contrast. Instead of using the contrast slider, you can slide the black point and white point up or down to visualize how various parts of the image, such as shadows, become darker or lighter.

You can then apply those settings to all of the other images that are similar to that picture. You can sync the settings for the one picture you tweaked with 100 similar pictures, for example. If you come across an image that you have exposed differently or that you want to make a bit lighter because the shadows are dark, then you can lighten or darken it by playing with the sliders.

For difficult images, you'll have to go through each category of things you can tweak. The first one to tweak is the color temperature. The slider goes from yellow to blue. You can make the image more like a sunrise by sliding it to the yellow side, and you can make it bluer by sliding it to the blue side.

Then, using the tint slider, you can make the picture either more magenta or more green.

You can play with the exposure and contrast, as you learned before. You can also play with the black point and the white point.

### Did You Know?

National Geographic only accepts digital raw files from photographers and does not accept digitally manipulated images for publication.

For National Geographic, only standard color correction and retouching to eliminate dust and scratches are acceptable.

The highlights and shadows sliders adjust the highlights and shadows in your image and affect the contrast.

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## Shortcuts

The dehaze filter is almost like a polarizing filter. It makes the image more contrasting. Play with the dehaze filter, especially if the image contains clouds or the sky.

Another trick is the lens correction. Certain lenses have different characteristics, so if you use the lens correction tool, the program is smart enough to know what lens you took the picture with and corrects the image for that lens.

There are several tools that you will find useful. You can use the crop tool and the angle tool to straighten out pictures that are not perfectly lined up, especially ones that you took without a tripod.

With the clone tool allows you to fill in spaces in the image, such as a small patch of grass that is missing in a landscape, by cloning a different area of the image that is most like the space and placing it in the space that needs to be filled in.

If you've ever taken pictures of your friends or family and the flash on your camera causes people to end up with red eyes, you can click on the red-eye reduction tool and then click on their eyes, and it puts them back to the color that they should be.

Another great tool is the graduated neutral density filter, which applies a graduated neutral density filter to your image, darkening it.

The radial filter is just like the graduated neutral density filter but it's a brush. Instead of darkening a whole area, the radial filter darkens just a small spot. If you want to darken a particular tree within a landscape photo, then you can zoom in on the tree and use the brush to darken just that tree.

The luminance tool allows you to adjust the brightness of individual colors in your image. For example, you can make all of the green that appears in the image darker or lighter.

The saturation tool changes the level of vividness of the color. You can saturate individual colors, such as making all of the green in your image purer.

None of these tools will make a bad photograph a great one. Know your craft and bring home the best file possible. Use your computer to give it that final touch.

### Activity

No computer software can make a great photo from a poor or mediocre one, but there are ways to enhance and strengthen a prized photo you've worked hard to capture. Take a favorite photo and practice using the many different tools in the software you have to edit, crop, adjust, and improve that photo.

## Lesson 12

# Five Ideas for Successful Landscape Photos

**N**ow you know everything that you need to know about landscape photography, and you're ready to go out and shoot some great landscapes. In this lesson, you will be review the main points that you have learned over the course of these lessons, and you will be left with five ideas to take with you as you embark on your journey of landscape photography.

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## Review of Main Points

There are three elements that make up a good image: light, composition, and moment (or content).

Light is king. Put down the camera and pay attention to the light. It's the most important part of landscape photography.

Don't stop when the last ray of light hits. Keep shooting. Stay at a location until it gets dark. You never know what's going to happen.



Try flying. You need only an hour in an airplane at sunrise or sunset to get some great images. While you're in the sky, look down, too—not just out.



Consider color and choice of lens.

Never drive or walk past a shot, thinking that you can come back and get it later. Get it when you see it.

Slow down your shutter to get movement.

Anticipate a good sunset before it happens. Get there and set up the shot so that when the best light happens, you're ready to capture it.

Get out in nature: Climb a mountain, or just shoot car side. Go to a national park—no matter what country you're in. U.S. national parks are amazing, and there are beautiful landscape photographs everywhere.



Research where you might go to get some good images. Put yourself in front of beautiful landscapes, and you'll have a better chance of having beautiful images.



Pay attention to the sky. Always look to the sky to see if there's going to be an image worthy of taking.



Take your camera out to where there is water—whether it’s a stream, a lake, or an ocean. Play in the water; try to capture the feel of the water. Slow down the shutter speed. Don’t just shoot one shot; try different exposures. Play with moving the camera, too. You can move it vertically, horizontally, or in and out. Each has a different effect. Experiment and try things you wouldn’t normally try.



Change your lens. Move your feet. Just moving a little bit will completely change your composition. Try different perspectives: go low, go high, look through. Push the envelope.

Look at other photographers’ work. Look at the photographs in *National Geographic* magazine and study them. Study the composition and the light.

In the mindset of a landscape photographer, you have to anticipate what might happen—with the weather, or even with the light. On a gray day, the sun might suddenly come out and light a glacier in just the right way.



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## Five Ideas to Take with You

1. Nail the technical. Know your camera cold. Be able to operate it with your eyes closed. Know the components of exposure: shutter speed, aperture, and ISO. You can use the techniques you've learned, or you can put your camera on its automatic setting and concentrate on what you see.



2. Find your own style. Don't think about this much; it will happen on its own. You need to just keep shooting and experimenting, and maybe your style will be different all the time. Push the envelope.



3. Surround yourself with art. Go to museums and look at art. Look at photography books and magazines. Study them. Be curious. Surround yourself with beautiful things outside and in.





4. Create a project for yourself. Photograph flowers, the sky, water, trees—anything to get you outdoors and into the world of landscapes. You can have a project that helps preserve some threatened land in your neighborhood or something that just excites you. It might be a project that lasts only one day, or it could be a lifetime project.



5. Most importantly, the journey of landscape photography is a long one. Enjoy the journey.



## Activity

Plan a landscape project for yourself. Set aside a substantial block of time to scope out a location for your landscape project. Do some research, even if it's a landscape you know well. Check out old records, and maybe newspaper accounts. Scope out the best light and interesting color. Walk around the landscape. Come early and stay late. Find some bit of water. Scope out the sky at different times of day. Know the place like the back of your hand and shoot photos with complete abandon. Be a purist and resist the temptation to move or change anything. Take the landscape as it offers itself to you.



## Lesson 13

# Wildlife Photography

**I**n this section of the course, you will embark on a journey exploring a wide range of subjects photographed in different parts of the world. Whatever your experience level with wildlife photography, you will be able to improve your photography with some of the tips and insights that you will be exposed to. In this lesson, you will meet the hornbills, found in both Asia and Africa.

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### Wildlife Photography Skills

Success in wildlife photography requires a varied set of skills. They are the practical aspects that you have to figure out, such as how to get close to your subject, that have nothing to do with actual photography but are very important to success.

Another important aspect to wildlife photography is developing the technical skill to operate your camera. Study and master the camera you choose to use.

Yet another aspect of wildlife photography is the physical component. Using your camera and lens to capture a fast-moving subject requires hand-eye coordination. It's a skill that requires practice to master. The more you practice, the better you'll get at being able to react quickly and capture action with your camera.

Probably the most important area to consider is the artistic aspect: how to create an image that goes beyond pure documentation and is beautiful, conveys emotion, or captures a sense of the place or the moment.

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### Hornbills in the Rain Forest

Successful wildlife photography requires a lot of commitment. It requires passion for your subject—and some might say a bit of an obsession. Often, it

requires a lot of patience, especially when you have to sit in a blind (a place to hide) for hours, or even a whole day, waiting for something to happen.

One thing that will help you be motivated to do something that requires such patience is choosing a subject that you're passionate about.

Consider the rhinoceros hornbill, photographed here in Borneo. Rhinoceros hornbills are the biggest, most colorful, flashiest birds of the Southeast Asian rain forests. The whooshing sound of the air rushing through their wings, their strange nesting habits, and the fact that they're so inaccessible in the canopy are intriguing.



Have a goal or focus when you go out to shoot. You'll typically get better results than if you just wander around looking for things without a target to concentrate on for your photography.

For storytelling, having visual variety is very important. Even if you're not shooting a magazine story, it makes your work much more interesting if you can capture an animal in all different ways. For example, the kind of shot that captures the wildlife in the environment where maybe the bird is rather small in the frame, but it sets the scene, is really important to storytelling. It takes you there to that place.

The following hornbill was shot in Sulawesi, flying up to its nest tree, which has a strangler fig root coming down it, adding a lot of character. This was shot from high enough in a tree that the ocean can be seen in the background, giving a sense of this amazing location—the rain forest by the sea.



Getting close to the subject with a wide-angle lens is another way to capture an animal in the landscape. In this next case, the hornbill is very close, and it is shot wide to show the rain forest canopy behind it. In this kind of shot, you have a challenge of getting that close to your subject to be able to shoot it with a wide lens.



This next image really works. In it, the birds are close enough to really stand out, yet they're in this landscape in which the rain forest goes off into the distance and the mist permeates. It all comes together.



Another category is portraits. There are the opportunistic field portraits, such as the lucky times when you are in a blind and an animal lands very close to you. These kinds of field portraits give you a sense of being out there in the forest with the birds.

A field portrait doesn't have to be a clean, perfect shot. In fact, it can be more interesting if it's not. Some people might think that the following photograph is ruined by all of the sticks and leaves that the camera shot through, but others might think that it enhances the photo and gives you a sense of being up there in the canopy with the bird.



Another category is action and behavior shots. This can include feeding and all kinds of behavior, but for birds, adding flight shots really pumps up the energy of your story.

It is not easy to track a hornbill in the rain forest that is flying through trees and get it in focus. Find a spot where the bird is coming and going, either from a fruiting tree or a nest. Birds are usually creatures of habit, and often



a bird will fly on a similar path repeatedly. Study its path, prefocus your camera, and wait.



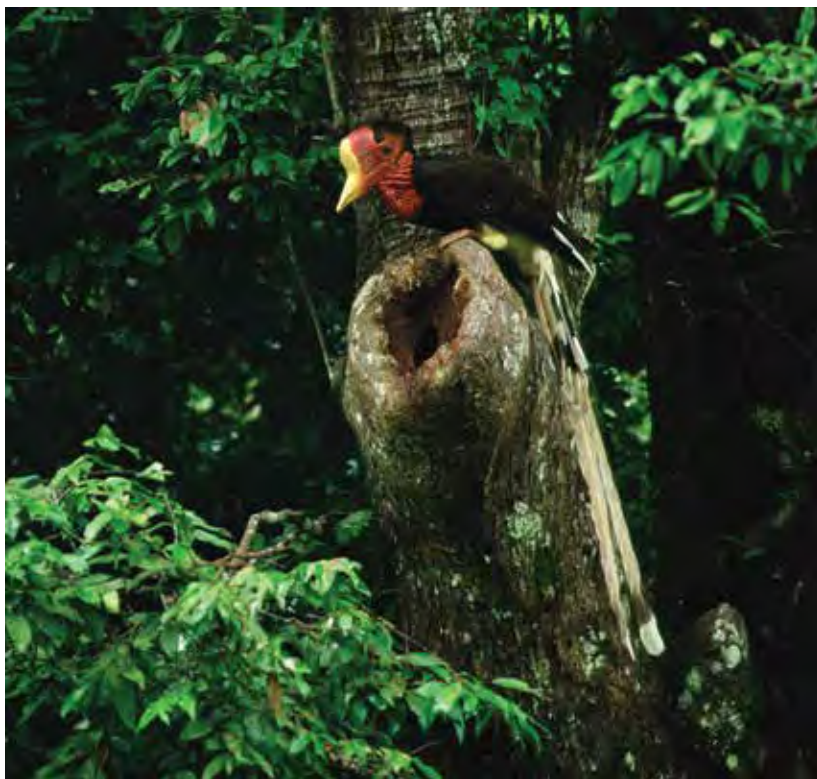
Again, you don't always have to have a perfectly clean shot to get a successful image. For example, the following photograph is not perfect—the wing in the foreground is cut off and the bird is a little out of balance, being in the lower part of the frame—but it has a certain feel to it of being up there in the canopy with the bird.





If you're in a blind for eight hours, you can spend a lot of time practicing. Practice tracking and following the motions that you see the birds taking. If there is an angle that they're traveling on, such as from a perch to the nest, practice focusing. Your autofocus won't be able to track that. Practice focusing as you pan and get it down so that when the bird comes and follows that path, your muscle memory kicks in and you can execute the tracking and get the shot in focus.

Hornbills have interesting breeding biology and nesting habits. The following is a picture of a red-knobbed hornbill at his nest cavity. The opening below him is where the female is. She is inside the tree in a cavity and stays in there for the entire three-month period while she's incubating the egg and raising the chick. The male brings food many times a day for the female and chick inside. All the different species of hornbills do this kind of nesting.



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## Hornbills in Africa

Hornbills are found in Africa as well as Asia. This is the yellow-billed hornbill, one of the smaller hornbills in Africa.



The southern ground hornbill is one of the biggest hornbills. Very different from the Asian hornbills living in the rain forests, these birds live in the savannas of South Africa.



These hornbills in Africa also nest in trees. They nest in giant Baobab trees. Instead of nesting inside of a cavity, these hornbills nest in an open spot.



The following is an intimate portrait of the ground hornbill with nice light. Its amazing eyelashes are modified feathers that protect its eyes from the harsh sun.



## Activity

Select a wildlife subject that is accessible to you and think about the practical, technical, and artistic aspects of photographing that subject. Try to pick a subject where the practical aspects (how to find and get close to your subject) are easy—for example, ducks at a local park or birds at your bird feeder. Select a particular type of shot you want to make and think about the technical aspects you need to master for that shot. Which camera features and settings are critical for that shot? Figure it out and practice those skills on your subject. Then, think about the artistic side of your images. You are making images of your subject, but how can they be artistically improved? Experiment and push yourself artistically.



## Photographing Winter Wildlife

**T**his lesson will cover some of the practical aspects of photographing in the winter and will introduce you to some of the technical things about photographing flight and action. You will learn how to create focused, sharp images by using your camera's autofocus system. You will also learn how to control your camera's shutter speeds to create artistic images that reflect motion.

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### Tips for Photographing in the Winter

If you want to photograph outdoors in the winter, you need to prepare yourself and your gear to survive—and maybe not just survive, but actually enjoy yourself out there.

Shooting in bad weather, such as during snowstorms, adds a dimension to a photograph. When it's snowing, it's just so much more atmospheric than when it's sunny. For example, consider these cranes walking around in the snow on the island of Hokkaido in northern Japan.





To be prepared for working outdoors in cold weather, you have to dress properly, with lots of layers and a warm down jacket. You especially have to pay attention to your hands when photographing, because obviously you need your hands to function, and holding onto a cold camera makes your hands get cold really quickly. Use lots of liner gloves and over mittens. Also, keep hand warmers in your pocket to warm up your hands when they get cold.

The lens itself doesn't need protection from the cold, but if you want to shoot during snowstorms, you would need to protect it from the snow. If it's snowing hard, you're going to want to keep your camera and lens dry and protected. You can improvise with a plastic bag if you have to, but there are special products, such as camera and lens covers, that you can use to protect your camera and work with it in bad weather—rain or snow. These covers go over the whole lens and camera, and they allow you to access the controls and keep shooting in bad weather.



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## Achieving Sharp, Focused Pictures

A photo that freezes a moment has to be sharp. There are exceptions, when for artistic reasons you might want to have a blurry photograph. Most the time, when doing wildlife photography, especially with action, you want a photo to be sharp and focused.



There are two ways that an image doesn't measure up in terms of sharpness. It could be blurry because it's out of focus, meaning that you haven't focused your lens correctly on the subject. Or the image could be blurry because of motion in the subject or the shake of your camera.

Regarding focus, modern cameras allow us to use manual or autofocus. Manual focus has its place, but most of the time, you'll probably use autofocus.

There are many options related to autofocus on cameras that are really important to understand and use properly. If you have two birds in a picture

and you want to focus on the one in the middle of the frame, use the center focus point, like in the following picture.



One of the important things that you have to make a decision about in your autofocus settings is focus point selection. The central autofocus point is the original standard. When autofocus first came out, there was only a center focus point. Now, cameras have many points all over the viewfinder that you can choose. You can turn them all on, or you can select a single focus point and move it around.

Many times, we don't necessarily want a centered subject. There are several options to work with a subject that is slightly off-center: select all of the points, select a single point in the upper frame, or focus on one point and then reframe.

Selecting all of the points is often not good for wildlife photography. Foreground elements, such as branches, grass, and other animals, can get in the way and grab focus.

Selecting a single point in the upper frame is also an option, and it was used to capture the following image, which focuses on the bird's eye. You can use the joystick on the back of the camera to move the focus point up.



Focusing on the bird's eye and then reframing is another good option, but it doesn't work very well if the bird is moving.

When you shoot vertically, you have similar focus point issues. With a vertical subject, you don't want to be focusing in the middle; you almost always want it more toward the top of the frame, your main subject. In the following photo, you might be able to get away with focusing on the wing, but it would be better to move the focus point to the eye by either physically choosing a focus

point up to where the head is or aim your camera there, focus with the center point, and then reframe.



These examples were shot using a long telephoto lens, so the depth of field is very narrow. It's critical that you get the focus correct.

With a wide-angle shot, focus is less critical. You're often using a small aperture (large f-stop) to get a lot of depth of field. For example, with these swans, you don't need to keep refocusing. Once you get in position, get focus on the nearest birds, and make sure that you have enough depth of field, you don't need to touch your focus. In fact, this is a good situation to use manual focus.



What about focus point selection for action? All the main cameras have a feature called the center-surround feature. Instead of just using the center point, the camera prioritizes the center but keeps the surrounding points sort of on standby. If the subject slips off the center point—which happens a



lot with a flying bird—then instead of the center point going to focus on the background, the surrounding points take over.



The second feature of autofocus is the single versus continuous setting. This becomes really important when you are shooting moving subjects. It refers to whether the camera keeps trying to focus while you're holding down the button or whether it stops focusing. If swans are flying toward you, you want the camera to keep focusing as they approach you.



Canon calls this one-shot versus al-servo mode; Nikon calls it single versus continuous. One-shot mode is used for a subject that isn't moving, or isn't moving much. You get focus, and then maybe you want to recompose. The subject stays in focus even when you move the focus point off it.

If you tried that with the swans flying toward you, they would be completely out of focus. Instead, you want to use al-servo mode for these swans. This is a tracking mode. The camera focuses ahead and takes into account the time delay between when you push the button and when the shutter opens, predicting how much the birds are moving.

It's a pain to switch back and forth between the focus modes for stationary and moving subjects. The solution is called thumb focus, and it offers the best of both worlds. All of the modern single-lens reflex (SLR) cameras have a button on the back of the camera where your thumb lies that you can use for focusing.

In your menu settings, you can disable the focus from your shutter button, which is the default on all cameras, so that you can only turn on focus with the thumb button. There is even a thumb button on some cameras called autofocus on (AF-ON), because most professionals shoot this way.

In one-shot mode, push the thumb button to get focus, and then let go. Then, shoot all you with the shutter, and the focus doesn't change. In al-servo mode, just keep holding the thumb button down as you shoot with your finger, and the focus will keep tracking.



Besides having your subject in focus, another aspect that is necessary for sharp pictures is to avoid motion blur from the camera motion or the subject motion. There's a rule of thumb that to handhold a lens of a particular focal length, the shutter speed you need should be about one over the focal length of the lens. For example, for a 600-millimeter lens, you would need a shutter speed of at least  $1/600^{\text{th}}$  of a second to handhold that lens. That's a minimum to prevent you from shaking the camera too much. It doesn't account for how fast the subject is moving. If you have a fast-moving subject, you'll need a higher shutter speed.

Controlling your shutter speed can have a big effect on the artistic aspects of your photos. You can get sharp pictures at slower shutter speeds if you're tracking your subject. By tracking, whether something is sharp or not, it's all about the relative motion. If the animal and your lens are moving at the same speed, you can get a sharp picture, even at a slow shutter speed.

As you slow down your shutter speed, you get more artistic effects, or interesting motion effects. For example, if you're doing a blurred motion effect, some part of the picture should be pretty sharp for it to be satisfying.



## Activity

Are you ready to photograph in bad weather, such as a snowstorm or rain shower? Figure out how to protect your equipment from the elements. Even simple plastic bag systems can work very well. Keep it simple and plan ahead. Avoid having to change lenses in a storm, for example. When the opportunity arises, try photographing wildlife in a blizzard or rain shower. You may record unique behaviors, and you will capture images with much more atmosphere than you would in perfect weather.

## Lesson 15

## Photographing Island Wildlife

**T**he Galapagos Islands are an incredible place for wildlife photography. Many of the animals there have no fear of people; they are completely oblivious to humans and very charismatic. There is a wonderful variety of subjects, including prehistoric-looking marine iguanas, colorful Sally Lightfoot crabs, and waved albatrosses. Wildlife and great landscapes with great light are possible, and the weather brings surprising opportunities to create something original. In this lesson, you will learn how to be prepared for all of this variety.

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### Marine Iguanas

Imagine that you're in the Galapagos Islands, where there are a lot of marine iguanas. The variety of pictures that you can take of just one subject is incredible. On shore, you can use a wide-angle lens, such as the 16–35mm lens, to photograph animals in the landscape.



From a boat, you can use a 70–200mm lens to photograph some iguanas on rocks.



On shore, you want to get a portrait of a colorful iguana. For more power, you can use a teleconverter lens, a lens that you put in between the body of the camera and the other lens. It works only with telephoto lenses, not wide-angle lenses. The 2x converter lens converts the 200mm lens into a lens that is twice as powerful—a 400mm lens. The longer focal length allows you to blur the background and isolate the subject.





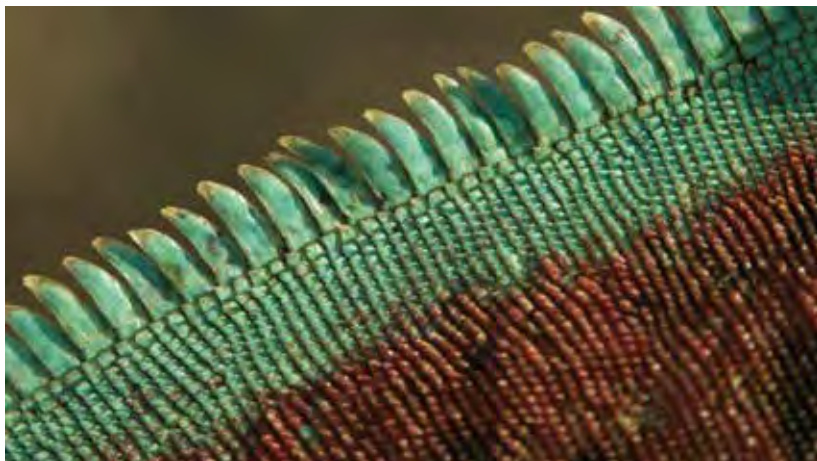
The next shot was taken with a 70–200mm lens without the teleconverter. The background is blurred. The iguanas in the back are blurry shapes to show that there are more there, but the focus is on the one in the front. The biggest aperture possible with the camera,  $f/2.8$ , was used.



The next shot was also taken with a 70–200mm lens, but to get as many of the animals in focus as possible, the camera's smallest aperture,  $f/22$ , was used to give the most depth of field.



Don't forget about close-ups. A macro lens can be good, but often you can't get close to your subject. One of the ways to get a lot of magnification out of the lenses you have is to use an extension tube, which is a tube with no lenses in it that can be put between your camera and your other lens. It pushes the lens out from the camera, so it makes it focus much closer. Using an extension tube, you can get a tight shot of a marine iguana's colorful spines from several feet away.



Look for details. You don't have to include the whole animal in every picture.

If you're only in a particular location for a day, you want to make the most of it. If the light is flat, experiment with black and white.



The contrast of a black-and-white image makes for a much more interesting and prehistoric-looking scene.



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### Sally Lightfoot Crabs

Sally Lightfoot crabs don't move very much, so you can experiment with different shutter speeds to inject motion into your photography. When a wave crashes over a rock that a crab is sitting on, you can use a long shutter speed to create a blurred-water effect. A tripod is essential for this. The following was shot at a one-second exposure.



To get a slow exposure, especially in the middle of the daylight, you need to reduce the amount of light coming in from every other possible way. This means that you need to put your ISO at the lowest-possible setting, down to 100 or 50 on some cameras, and you want to stop down your aperture all the way, to  $f/22$ . You can also add a polarizing filter, which is used to reduce glare.

In full sun, it might still be impossible to get a long shutter speed. For this, there are neutral density filters, which are filters that are basically neutral, or gray, in color. They can be used to darken your image and allow you to get longer exposures.





## Blue-Footed Booby

The following two images of the blue-footed booby were taken from exactly the same spot but different perspectives—standing up (looking down at the bird) versus laying down (on the bird's level), respectively. The second one is much better. It captures the sky in the background.



If you're photographing an animal on the ground, getting down on its level can really help your photography. You are able to capture a much more intimate feeling than if you shoot standing up, looking down at the animal.

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## Lighting

Whenever you find that the light is becoming beautiful, try to make good use of it. Photography is all about light, and using so-called golden-hour, or magic-hour, light—the golden light that occurs around sunrise and sunset—when you have it is wonderful. Light can work at any angle. This sea lion was shot with sidelighting.





A nice afternoon light created direct front lighting on this oyster catcher in the surf.



This image of a masked booby utilizes backlighting.



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## Waved Albatross

One of the amazing species of birds on the Galapagos is the waved albatross. If you're there at the right time of year, you have a chance to witness their courtship behavior.



The key to capturing these moments of behavior are to observe what's going on and to learn quickly—to be a quick student of natural history. To get close enough to these birds displaying to each other, you might use a teleconverter. Understand what your subjects are doing so that you can anticipate that peak moment of behavior and capture it.

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## Swallow-Tailed Gulls

The Galapagos also provides some excellent chances to photograph flying birds. When photographing swallow-tailed gulls in the air, use the center focus point with the surround points activated and try to keep the bird in the frame and track it. Because the birds are moving rapidly, it's difficult to keep them in the frame exactly where you want. In the following image, the bird has too much space behind it, so it's not an ideal composition.



But these days, cameras have such high-resolution sensors that it is no problem to crop your image after you take it. So, for flying birds, a good approach is to shoot for focus and crop later.



If the birds are really difficult to track and you're not able to control where they are in the frame, try to shoot a little wider. Leave a little space for cropping afterward.

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### Shooting in Bad Weather

Interesting weather often makes for the most interesting pictures. Just make sure that you have rain protection for your camera.

In the rain, the following crabs look really bright and saturated in color because they're on the wet rocks.



Be prepared to deal with the weather and you have a chance to get something unique, such as this next prehistoric scene of crabs and iguanas sitting on the rocks during a heavy downpour.



## Activity

Think about your specific wildlife photo interests and priorities and make a list of the ideal gear for an outing where you have to carry everything. What lenses would you choose? Would you carry a tripod? What is the right amount of gear for you to carry so that your photo outing is enjoyable and productive? If you already own a considerable amount of equipment, then as an exercise, narrow your selection down to create your ideal lightweight field kit.



## Lesson 16

## Nighttime Wildlife Photography

**I**n any habitat, there's a completely different set of animals that are active at night to photograph. In this lesson, you will explore nighttime photography techniques, such as how to use flash to light a frog, how to refine your lighting technique to think about the background as well as the subject, and how to create drama with shadows. Action photography at night is possible because you can use the short duration of your flash to freeze your subject. You can also mix ambient light with flash around dawn and dusk for various interesting effects.

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### Rain Forest Nightlife

Rain forests are especially rich in nocturnal animals, such as this displaying praying mantis. This image was shot with a 100mm lens, which is great for macrophotography. It covers a wide range of small- to medium-sized subjects.



This image used a very basic lighting setup, with a single light held above the end of the lens. A flash arm is really handy to have; it allows you to easily maneuver your flash and hold it to the camera. There are two ways to trigger the flash: using a wireless transmitter on the camera that will trigger the flash when you take the picture or using a cable that runs from the camera to the flash. You don't have to have a flash on top of the camera, mounted on the hot shoe of the camera; that does not give you enough flexibility to make interesting lighting in your macrophotographs.

To make your lighting more interesting, put your flash on the side of the object your photographing. In this picture of a snake, the lighting is coming from the right side, creating shadows and much more of a three-dimensional effect.



A soft box can be used to diffuse your light, creating soft shadows. You can use soft boxes of different sizes, depending on the size of your subject. If your subject is tiny, the main flash is much bigger than the subject and is essentially a big soft box for such a small subject, so just having a single flash above that tiny subject is going to create a soft light.

If your subject is much bigger, then you're going to want a bigger light source to get soft lighting. For example, in the following image, the frog on the tree is being photographed using a setup where a second flash arm has been attached, but only the top flash is lit. There is also a small focusing light on top of the camera—a red flashlight mounted on the camera to help with aim. With the help of these two lights, the result is a nice shot of the frog with even lighting and without harsh shadows.



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## Focusing in the Dark

Autofocus doesn't work well when the light is low. If you have a bright focusing light, then you probably can use autofocus somewhat. Instead of continually trying to focus, once you get the focus roughly in the right area, try moving your body in and out until you get the focus right on the eye of the

frog, in this case. Keep in mind that small movements make a huge difference when you're shooting macro.



Be conscious of your angles and your composition. Whether you're looking at a frog, for example, from under the chin or looking down on it from above slightly makes a huge difference in what its expression looks like and also affects the overall feel or mood of the photograph.





Pay attention to your backgrounds. This next frog is lit well, but the line of the leaf in the background is distracting.



In the following image, the shot is tight, and the background is soft.





Your depth of field has a huge effect on what your background looks like. You can alter your f-stop in your macro shots to determine how soft the background will be or how much detail is going to show up in the background.

In the following shot, some really good balance lighting was achieved with two soft boxes. There is some nice composition with the diagonal lines of the tree, and these amazing colors and patterns on this frog's feet lead you up into its face, with a cool expression.



You don't always want to have uniform lighting around your subject. You don't have to even light from the front at all. You can have all of your light coming from the back, like was done with this caterpillar shot feeding on a leaf.



With wireless transmitters, you can hold one light in front of the subject and use your other hand to move a strobe around and have sidelighting or backlighting on the subject. For example, with this tarantula coming out of its web burrow, you want keep the tarantula kind of dark and spooky looking, so you light up the web from the side to get dramatic lighting. Sidelighting can add a lot of depth and drama to your macro shots.



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### Continuous Light

There are some interesting advantages to doing night photography without flashes, but just using continuous light, such as a flashlight, like was done with this sleeping lizard in Borneo.



If your subject is not moving and you can get a tripod positioned close to it, then you can use a bright LED light and attach a soft box onto it. LED lights are great because they have a focusing beam. Then, carry a second one and bring a small tripod or light stand that you can position as your second light, either aiming it at the background or maybe backlighting the subject. That way, you can get some interesting lighting and you can see exactly what your lighting is going to look like before you take the shot, which is quite a nice advantage.



The next shot was taken in Australia at night with continuous lights.



Another advantage of using continuous lights is that you can shoot video and stills at the same time. Your flashes won't be going off and completely disrupting the video.



You can adjust continuous lights very subtly, just by moving them a tiny bit, to perfect your lighting.

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### Flash and Ambient Light

Photographing bats in Thailand at the mouth of a cave when they emerge at dusk is a different kind of situation, where you can use flash and combine it with ambient light. You want the sunset to show up, so you set your background exposure for the sky. Then, to get the bats to show up—because they would have just been black shadows—you use the flash to illuminate

the bats as they come out. The flash is freezing the bats, but you still have a slow exposure, so you can see ghostlike shadows behind the bats.



When combining flash with ambient light, the shutter speed is going to determine how much of that shadowy blur is around your subject, whereas the flash is going to freeze your subject.

### Activity

Find a subject you can photograph in the dark. For practice, it could be any appropriate-sized object, such as a small plastic toy animal or figure. Set it up in a dark place and use whatever light source you want to experiment with, such as a strobe or a bright flashlight (be sure to use a tripod if you are using a flashlight because it will require a longer exposure). Take a series of images with the light at different angles to the subject, such as front light, sidelight, and backlight. Study the results and see what you like. If possible, add a second light and keep experimenting. A small move of the light source can have a huge effect on the final photograph.

## Documenting Biodiversity

**I**n this lesson, you will travel to the Ecuadorian Amazon rain forest—which has the highest biodiversity on earth—to document the monkeys, birds, and other animals that live there, including Poepig’s woolly monkeys and cobalt-winged parakeets. To capture this diversity, you climb towers built on huge trees that go up into the canopy to give a sweeping overlook of the rainforest. The platforms you walk offer the chance to opportunistically photograph whatever birds or primates come close to you, using big lenses to get the closest photos.

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### The Power of Big Lenses

Walking around the rain forest platform, you capture a shot with your 400 handheld.





Then, you spot some macaws in the far distance and know that you need the most powerful lens you have. You use the 600 lens and then add a 2x teleconverter, making it into a 1200. This gives you a lot of reach and allows you to get tight enough that you could see the macaws in the frame.



You notice a russet-backed oropendola building a nest nearby, and you watch as the bird goes back and forth to its nest, carrying nest materials, and track it with a big 800mm lens on a tripod. As the bird flies up toward the nest, you get this shot against a distant background.



You spot a Poeyppig's woolly monkey, with its large prehensile tail, on the edge of a tree crown, looking down below and ready to take a big leap. With your 400mm lens, you use the thumb-focusing method instead of using autofocus as the monkey leaps across the open gap, because it would be difficult to track the monkey while it is accelerating in the air. You focus on the monkey as you see it getting ready to leap, and then you stop focusing and frame it to give the monkey some space to leap into. You catch it as it leaps out into midair without changing your focus. To freeze a shot like this, you shoot at a really high shutter speed—more than  $1/1000^{\text{th}}$  of a second.



You see a female red howler monkey climbing up a tree toward you. You capture it with a 70–200mm zoom.



Then, you spot this male much farther away and use the big 800mm telephoto lens and a tripod to capture him as he looks over toward you.



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### Dealing with Lack of Light in the Rain Forest

Squirrel monkeys live in the lower level of the forest, in a dark understory. In the dark interior of the rainforest, light is always limited. How do you work with a handheld telephoto to make the most of the light that you have?



## Tripods and Lenses

As you're going to towers or walkways in the rain forest, take two big telephoto lenses with you: a 400mm as a lens for handholding and a larger 600mm or 800mm. Work off a tripod with one lens (the larger lens) when you can, but also have another lens (the smaller lens) handy, such as hanging off your shoulder, for handheld shooting.



Increase the ISO as high as you dare to keep the quality reasonable; somewhere in the 2000 or even 3000 range is acceptable. Then, to maximize your light, shoot with the aperture wide open. If you're using an  $f/2.8$  lens, then shoot an  $f/2.8$ . The best way to get the right exposure quickly as the monkeys are moving through different light is to use aperture priority mode. Set it on wide open—aperture priority on  $f/2.8$  if it's a 400 or 2.8 lens—to give you the most light, and then let the camera set the shutter speed as high as possible. That gives the correct exposure.

Ideally, your shutter speed would be more than 500 to guarantee that you get a sharp picture, but even if it's slower than that—even if you're only  $1/60^{\text{th}}$

of a second or lower—you're going to try to hold steady to get the shot. One thing that's quite amazing with modern cameras is the image stabilization functions. Modern lenses have built-in image stabilizers that take out some of the shake from your body and allow you to shoot at amazingly low shutter speeds handheld.

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## Exploring by River

In addition to spending time up on the canopy platforms and following monkeys through the forest, another way to seek out good photo opportunities of wildlife in the Amazon is to explore by river. Spend time traveling on the river by canoe to look for opportunities.

In a place like this, it's key to work with a good local guide who knows the area and can help you find things that you wouldn't see on your own.

Always have a waterproof bag to put your camera in, but always have your gear handy so that when you suddenly spot a monkey or a bird along the river that you want to capture an image of, you are ready to do so. For opportunistic shooting, it's all about being ready and getting the shot quickly. For example, when a capuchin monkey suddenly walks across a branch over the river, you grab your lens and shoot.





While canoeing along the river, you might spot giant otters, a species of large otter that is found only in the Amazon. They live in family groups and are very sociable. Being in the canoe, you are low, so you are able to make it feel like you are on their level in your photography.



As you're traveling, try to work with the light and look for reflections in the ripples on the water. Try to compose shots in a way that you can add an extra element of artistic patterning in the water.





## Time-Lapse Shots

Cobalt-winged parakeets gather to make mass arrivals and feeding frenzies at clay licks, which are caves that have been hollowed out by animals attracted to the salt in the clay. The parakeets gather in the trees above, and when they have enough numbers that they feel safe to do so, they drop down to the ground to the wet, salt-rich liquid that oozes out of the ground.



To photograph some of the spectacular birds that are unique to the Amazon region, you can use a number of different techniques, one of which is setting up your camera in a time-lapse mode. To make a time-lapse video, you take pictures frequently and then stitch them together in a video. To do this, you need to tell your camera to take a one picture per second, for example. Some cameras have this feature built into the menu.

The time-lapse technique also allows you to get several options to choose from in terms of selecting a final shot of a particular subject. For example, many times the birds are overlapping each other. With so much rapid action, you can't really take a single shot at the instant that you want. You have to just fire away and try your luck, and the time-lapse technique is one interesting way to do that.

Shutter speed has a big effect on what your images look like in this type of situation. You are mostly trying to freeze the wings—capture them frozen in position. This shot was taken at  $1/1000^{\text{th}}$  of a second to freeze the motion.



### Activity

Put the longest lens you have on your camera. This activity is about developing your skills for handling and focusing with your telephoto. Find a fast-moving subject that you can practice framing and focusing on. Your subject could be birds (if you know a place where there is repetitive activity, such as gulls at a fishing pier), or it could be simply a view of cars approaching you from a highway overpass or cyclists on a bike path. Practice lifting the camera to your eye while keeping your eye on the subject and aligning the lens with your direction of view. When you look through the camera, the subject should be right in the field of view. You don't want to be looking through your telephoto and hunting around for the subject. Practice activating your autofocus as you do this to acquire focus as quickly as possible and then maintaining the focus point on the subject as it moves.

## Lesson 18

## Photographing Life in the Sea

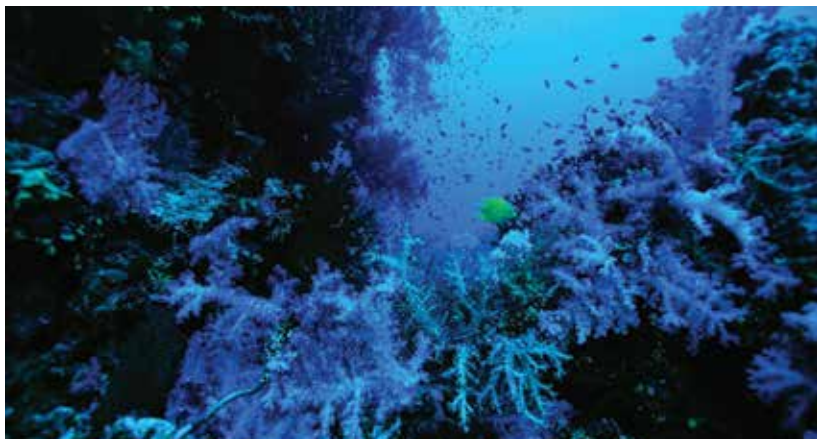
**U**nder the ocean, there lies a whole other world for wildlife photography. As on land, you can shoot wildlife in the landscape. You can also shoot wide close-ups, and there are also incredible macro possibilities underwater. In this lesson, you will go on an expedition to the Raja Ampat Islands, which is a group of uplifted limestone islands in the eastern part of Indonesia that has been recognized as having the greatest biodiversity in the world for any underwater location. Affordable underwater cameras make places like this accessible to all photographers.

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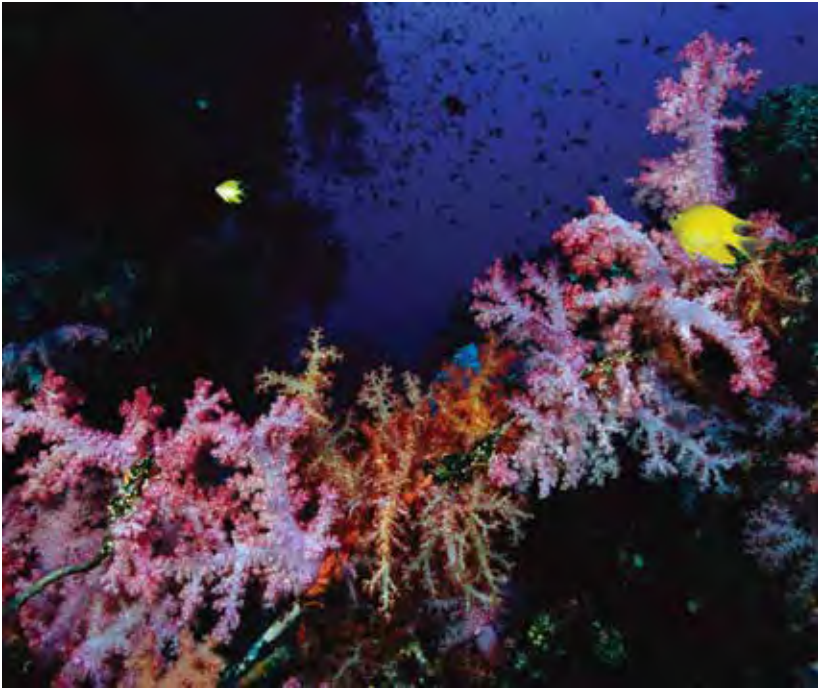
### Underwater Light

All wavelengths of light don't penetrate through the water equally. The red end of the visible spectrum—which spans from red to violet—is made up of longer wavelengths. These wavelengths are lost first because they're blocked more by water.

When you're 60 feet (18 meters) below the surface and take pictures without any added light—with just the ambient light that is down there—it looks very blue. A yellow fish shows up in the following image, but there are no reds that penetrate this far down.



You can use strobe lights to add light to the scene. The following image was taken in the exact same spot as the previous image (the fish, of course, have moved), but the following one was shot with flash. Notice the pink, orange, and red soft corals that you don't see at this depth without light.



The background blue in this shot is a little darker than in the previous one without the flash. That is controlled by your settings for ambient exposure. In underwater photography, if you're using a flash, you want to balance the ambient light with your flash. The ambient exposure is controlled by your ISO setting, aperture, and shutter speed. (Flash is not affected by shutter speed.) The goal is to find a balance between your flash power and your aperture setting to get the foreground lit properly, and then try to control your background by adjusting your shutter speed.

You don't have to use flash for underwater photography, especially if you're near the surface and the sun penetrates the water. If you're snorkeling in

shallow water and it's a sunny day, you can get great photos without flash—for example, this photo of a shallow reef in the Philippines.



If you want to use flash and get a landscape wildlife shot of fish or other creatures in the environment, then you want to think about all the particles in the water. A big difference between photographing underwater and on land is that water is much less clear than air. When you have more particles in the water, it obstructs your visibility and makes your photos less clear and less sharp.

One of the secrets of underwater photography is to get as close as possible to your subject. The following photograph is not successful. The foreground is lit up, but there is no main subject—nothing to catch your eye in the main part of the photograph. It's pretty murky.





The next image was taken from closer to the reef. Your eye is drawn to the bright yellow crinoid, or feather star. You also notice some fish, and there is a better foreground. By getting really close with a wide lens and keeping your ambient exposure, it shows what it's like down there—kind of a green, murky environment.



Wide-angle lenses, such as fish-eye lenses, can be good. On land, you don't use those lenses very much because they make horizons bend and aren't very appealing for most landscape shots. Underwater, there's no horizon, so you don't have to worry about whether you're distorting around the curvature on the edge of the image. The really wide lenses, such as fish-eye lenses, help you get up close and remove the water between you and the subject.





When you're using your flashes to light up a scene, it's important to think about where your flashes are in relation to your lens. If you have your flashes too close to your camera lens, you're going to get a lot of reflection off all the tiny particles, or backscatter, in the water. You can see some of those particles illuminated in the following image.



The farther away from your lens your flashes are, the less backscatter you're going to get. Use long, flexible arms that are attached to your camera housing to push the flashes out to the side. Having your flashes out to the side and paying close attention to your lighting is critical in underwater photography.

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## Angles of View

One of the advantages of underwater photography is that you can move around in three dimensions. Unlike photography on land, you're able to swim around

in three dimensions underwater and position yourself at any angle toward your subject.



You can also play around with a many different angles of view. There's no horizon to worry about, so there are lots of options. Try looking up toward the surface, like was done in the following image of a lionfish.



## Motion in the Ocean

There are also some interesting and challenging fast-action subjects in the ocean, such as the flasher wrasse. This fish has the ability to very rapidly change its color. The following shot was taken in fairly shallow water with a 100mm macro lens.



Then, suddenly, he sees a female in front of him and completely changes color and opens up his fins into a display—but he just does this for a brief second. It's hard to believe that this is the same fish, but it is the exact same fish a few seconds apart.



It's a fun challenge in underwater photography to sit and follow fish around, waiting until they suddenly display and trying to snap a photo at the right time.

Just like on land, another thing you can do underwater is play with motion and shutter speed and pan/blur effects. By using a slow shutter speed, setting your flash exposure for the right distance and as the main light for your subject, and tracking your subject, you can get a blurred effect on the background. For example, for the next shot, a shutter speed of about 1/15<sup>th</sup> of a second was used, and the camera panned with the fish as it came out of the reef. The flash froze the main subject.



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## Portraits and Macro Shots

There are also many good subjects for taking portraits or macro shots underwater, especially the fish species that think they're invisible because they're well camouflaged and therefore don't move a lot. You can get in close and get a detailed portrait of the fish, such as this toadfish. Use your flashes



from the sides to avoid backscatter and to get three-dimensional-looking lighting.



One of the unusual types of fish from this region are pygmy seahorses, which are very small seahorses that are only about a few centimeters long. They tend to hide in sea fans. They come in different colors and match the coral that they're living on. The following macro shot shows how well camouflaged the seahorse is but still allows the viewer of the photograph to find it. The eye of the seahorse is in the rule-of-thirds position so that people can spot it more easily.



To focus on these challengingly small subjects, set the magnification that you want by focusing and then move the whole camera back and forth a tiny bit until the seahorse is in focus. Then, take the shot.

One of the great things about these underwater subjects is they have wonderful patterns that allow you to play with the composition, trying to get the patterns to look attractive.



Just like on land, paying attention to your background, your lighting, your depth of field, and the location of your plane of focus contributes to a successful macro shot underwater.

### Activity

Even if you do not dive or snorkel and don't have an underwater camera, a fun way to practice photographing marine life is to go to an aquarium. Many aquariums have tanks with optical glass and many subjects that can be readily photographed. Some tanks have bright enough lighting, but you may also find a strobe very useful. Just be sure to shoot at an angle to the glass so that you don't get a reflection of your light. Remember that water is much denser than air and has many more particles in it, so you want as little water as possible between your camera and your subject to maximize clarity and sharpness. Wait for opportunities where the subjects are close to you.



## Lesson 19

## Camera Traps for Elusive Wildlife

**I**n this lesson, you will explore the mangroves, which are a rich habitat at the juncture of the land and the sea with plenty of interesting photographic challenges, such as views above and below the water that showcase the incredible richness in both realms. They are a rich habitat for birds, so you will have many opportunities for photographing birds, including scarlet ibises and spoonbills. You might even get a chance to photograph a tiger in the wild with a camera trap.

### Mangroves

Scarlet ibises are beautiful red-colored birds that feed and roost in the mangroves. The following image of them was taken in Trinidad, one of the islands in the southern Caribbean, from a boat about 100 yards away. Because the boat was pretty far from the mangroves, a fill flash, with a focusing lens attached on the front of the flash, was used to extend the range of the flash, capturing the birds as they were landing on the mangrove trees. The flash helps the red color of the birds to pop.



To show the incredible mass of birds roosting on the island, you want to photograph the entire island. Because it doesn't fit in the frame very well, you can use a stitched panorama technique. Three shots can be taken: the left, the middle, and the right.



Then, you can stitch the three shots together into a single large image on the computer.



In Venezuela, these scarlet ibises were flying to the mangroves as they passed a nearly full moon in the late afternoon sky, creating a cool contrast. In the following photograph, three ibises are in the top of the frame, but the beak of the ibis on the bottom was cut off.



By cropping off the bottom of the frame, even though it changes the dimensions of the image itself, you end up with the next image, which is much more pleasing to the eye. Be creative with your cropping.



## Underwater Mangrove Life

To find out what's going on under the water in places such as Belize and Micronesia, where mangroves grow in fairly clear water, you can use underwater gear for your camera to capture interesting underwater photography. Underwater photography requires quite a bit of equipment if you're going to use a single-lens reflex (SLR) camera inside a housing, which gives you some advantages, such as being able to use a big dome port with a wide-angle lens so that you can photograph the life both under and above the water at the same time.



Underneath the mangroves in Belize, the roots are covered in rich invertebrate life. The mangroves serve as both a great nursing ground for fish and a safe haven for fish to hide from predators.



By looking up while photographing from below the surface of the water, you can show the leaves and the canopies of the mangrove trees up above. That works best when the surface of the water is calm.





In the next shot, the surface of the water is incredibly calm, like glass, so you get an amazing juxtaposition of worlds because of the way light bends when it goes between the air-water interface, causing a fish-eye effect that results in a circular view of the above-water world.



Another way to photograph underwater is to create split over/under shots. The trick is to get the lighting balanced so that you have an even exposure above and below water. Because there is more natural light above water, use strobes or flashes under the water. Adjust the power of the strobes to balance the lighting exposure between the top and bottom and use a high depth of field (shoot it at  $f/11$ , for example). Line up the field to keep both



above- and below-water portions in focus. In the following photo, you can see the incredibly colorful life growing on the mangrove roots underneath.



When doing over/under shots, pay careful attention to the surface of the water, making sure that there are no bubbles or other annoying debris against the front of your dome port along the surface line. Also, try to capture a little bit of the surface of the water, which makes the perspective understandable. In other words, look slightly down so that you see the top of the water, and then the picture makes sense to the viewer.

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### Tripod Trick

When working on a boat, if you're trying to shoot landscape or animals and need a tripod, you can put your tripod outside the boat while you're still in the boat. In a place where you can't get the shot you want by getting out of the water and onto the land, such as in the mangroves, this trick is helpful. It

is a little hard on your tripod, but if you take it apart and clean it afterward, it should continue to work fine.



Being in the water allows you to get lower and closer to wildlife, such as the spoonbills in the background of this photo.



The birds will be much less skittish if you're low and a smaller object just slowly moving toward them across the water as compared to if you were in a boat and trying to approach them that way.



Don't worry about getting wet in the mangroves. If it helps you get the shot that you need, just go into the water and get into a good position that way.

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## Camera Traps

An option to capture elusive or dangerous wildlife on camera is to employ remote control photography using camera traps, which are cameras that are set up to be triggered by an infrared beam that detects an animal moving by. A passive infrared detector senses any change in the heat signature in the scene, so if any mammal passes by, it triggers the camera.

In Bangladesh, tigers live in one of the largest mangrove forests in the world, called the Sundarbans. The following image required creating a camera trap that involved a camera and three strobes and monitoring it for a few months.



### Activity

Try experimenting with hiding from your subjects and see how much closer they will come to you. In many wildlife refuges that allow you to drive your car in, your car itself can be an effective blind because animals are accustomed to them. You can also use a simple dark-colored or camouflage-patterned cloth draped over yourself as you sit quietly.

## Lesson 20

# Antarctica: A Photographer's Paradise

**A**ntarctica is a wildlife photographer's paradise. There are many good lessons to learn from the challenges that exist there, and there is tremendous potential for a huge variety of photographic options. In this lesson, you will embark on a journey to Antarctica, where you can see penguins on a giant iceberg and masses of wildlife gathered on the shore. You will learn techniques for capturing images from a boat as well as on shore.

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## Shooting from a Boat

When you're on a boat photographing flying birds and other action subjects, autofocus is important. Set your autofocus onto the center focus point with surrounding points activated. Use the thumb-focus button to activate the focusing.

When you're following a bird that's coming close to the ship, try to keep that focus point on the head area of the bird. As the bird starts to fill the frame, fire away, trying to frame it as nicely as you can.



Sometimes it can be challenging to find the bird in the frame. If the bird is coming at you from a distance, you want to get the camera framed on it and be ready to shoot as it approaches the camera. When you're shooting with a 400mm lens, it's a pretty small area of the view out there that you're trying to find. It takes practice to get used to quickly pulling up the camera and finding the bird in the frame.

Stare at the bird and try to raise the camera into the line of sight from your eye to the bird. As long as the camera is raised perfectly straight, the bird should appear in the frame.



Another trick that can help you find your subject in the frame is if you're using your right eye to look through the viewfinder, you can keep your left eye open and look at the whole scene. Look at the subject that you're aiming for, and then when you raise the camera to your eye, you'll see the rectangle of the frame through your right eye. Move it toward the bird that you're seeing with your other eye. That way, you'll superimpose the frame of the



camera view over the subject, and it will suddenly pop into the frame in your right eye.

Once you've found the bird in the frame, you want to start focusing as it's approaching you. One thing that helps is to make sure that you're focused somewhere at the approximate distance that the bird is before you're even raising your camera. If your camera is completely out of focus when you lift it up, all you're going to see is a big blur. Focus on something so that you'll be able to see at least a blurry version of the subject within the frame when you lift up your camera. Then, get your focus point over the subject. Start focusing as it approaches, and try to track it and shoot as it comes by.

Capture the subject off-center, especially in wider shots to show the scope of the ocean.



When a bird is very close to you, it's going to be moving really fast as it passes the boat. Try to keep tracking it and keep focusing continuously to acquire a sharp focus for the shot. You can always crop it later to get a more pleasing composition.



When the light gets low, just keep shooting at slow shutter speeds. Motion blur is cool. The following is a shot at  $1/90^{\text{th}}$  of a second of an albatross taking off from the water with a blurring effect.



You can get wildlife shots in the landscape from a boat. You might get a chance to go whale watching, or maybe go out on the ocean to shoot dolphins or other wildlife, such as birds and pelicans—wildlife you might see along the coast. It's nice to include an animal in the frame with the landscape to show the sense of place.

In Antarctica, you might capture a whale displaying with its flukes above the water and the mountains in the background. Instead of just the whale's tail and a bunch of water, if you can include part of the land or ice, it really adds something to the photo. And soft light can be beautiful.



If you're photographing marine mammals, such as these orcas, the vapor in their breath can add a lot to their photos, especially if you can catch it backlit. The backlighting works best to show plumes of vapor against the water in the background.



Penguins that are porpoising, sometimes near your boat, are a challenge to photograph. This is similar to the behavior that dolphins do. The challenge is to capture the dolphin or penguin in midair.



If you see it leap out of the water and then try and take a shot, invariably its beak or head will already be in the water. Especially if you're on a larger boat, where you're looking down, try to see them underwater. A polarizing filter on your lens will help you see through the glare. Then, when you think they're going to come up, start firing away and keep tracking them.

Mirrorlike conditions are ideal. You'll get the reflection of the birds in the air.



Amazing scenes of penguins and icebergs are passing by when you're traveling by ship through Antarctica, or any situation when you're on a moving vessel. You need to look ahead and anticipate where you're going to be passing by and how the elements of your picture might line up to create the best photo.

For this kind of situation, a zoom lens is helpful. The following picture of Adélie penguins on top of a huge iceberg was taken from the Weddell Sea using a 100–400mm zoom lens.



The penguins give you a sense of scale of the whole scene.

When you're shooting in all this white landscape in Antarctica, or any snowy scene, pay attention to your histogram and make sure that your whites are not overexposed. You want to keep the detail in the whites in all of your scenes.



## Shooting on Shore

On shore, these amazing king penguin colonies in South Georgia, an island in the South Atlantic Ocean, can offer many possibilities for photographing.



If you have a chance to go ashore on an island such as South Georgia right before sunrise, you might get to see the penguins going in the water. It's still dark and you're shooting toward the sunrise, so expose to get some color in the water and let the penguins turn into silhouettes.



If it's early and the light is still low and flat before the sun comes out, experiment with slow shutter speeds with your camera on a tripod. There are two approaches to working with slow shutter speeds in this situation.

The first one is if you have some of your subjects that are not moving. Capture a shot without moving the camera. With a shutter speed of 1/4 of a second, the water is blurred, along with any of the penguins walking around that are coming in and out of the water. There are some frozen penguins that are sharp, which is a nice contrast with the motion.



The second way to do this is to pan with your subject. Maybe you keep the camera on a tripod but you loosen your tripod head. Then, you pan with

the penguins as they're running into the water. You'll get some pretty sharp penguins if you're tracking them well, but the background is blurred.



When the sun comes out, you have plenty of light, and you can freeze the action. The following was shot at 1/1000<sup>th</sup> of a second to freeze all the spray as the penguin bodysurfs onto the beach.



## Activity

One of the things that makes a huge difference in action wildlife photography is separating the acts of focus and triggering the shutter. By default, on modern single-lens reflex (SLR) cameras, both of these functions are controlled by the shutter release button. But cameras offer the option through a custom function to switch the autofocus control to a button on the back of the camera controlled by your thumb. If you have been shooting the default way for a long time, you may be hesitant to try this—but try it, because you might like it, and it might improve your photography. As an exercise, try switching your camera to thumb focus, and go out and shoot for a morning or afternoon. See what you think. If it doesn't work for you, it is easy to switch back.

## Lesson 21

## Photography on the Road

**W**orking from a vehicle is a great way to experience wildlife photography, and a road trip to natural areas can be a great adventure. Travel by vehicle, seeking out wildlife along the way, such as golden-shouldered parrots and wallabies in Australia. In this lesson, you will be introduced to some ideas for using different types of blinds to capture photos of wildlife in their natural habitat, with the goal of trying not to disturb them.

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### Photographing from Blinds

Australia is home to an unusual and rare bird called the golden-shouldered parrot, a highly endangered species. They nest in the central part of the peninsula in an open savanna with termite mounds—towers that are made by termites.



To capture images of these birds, you can set up a blind in front of one of the termite mounds. Try to set up your blind while it's still dark and the birds aren't around. You might need a headlamp. You can use a tent blind, which pops up and can be set over yourself sitting on a chair with your tripod and lens. When set up, the tent blind is shaped like one of the termite mounds, so it blends into the landscape well.

The view from inside the blind looks like this. The little round hole in the termite mound is the nest cavity, carved by the parrot.



Periodically, the male flies to the nest entrance and goes inside, probably delivering food to the female or chicks inside. The following shot, which was



finally captured after a few mornings of waiting, features the male's colorful breast and sides as he comes in for a landing.



One of the other birds that can be photographed with the same kind of blind setup is the fawn-breasted bowerbird, which makes amazing structures to impress females. To capture the following image of the structure when the bird wasn't there, a technique was used called light painting, in which a long exposure and a flashlight were used to paint parts of the bower so that they stand out. You can experiment with this technique to light up some of the foreground of a landscape.



Then, you can wait in your blind for the bird to come, bringing more decorations and putting them around the bower to impress the females, who watch the males do their display and then decide whether they want to choose the male as their mate.



Another kind of blind can be used at a place like a billabong, which is a seasonal pond in Australia that dries up in the dry season. Set up a chair with a tripod at the edge of the pond and simply throw lightweight camouflaged material over yourself. This material is easy to carry around, and it works well for birds that are not particularly skittish.

With this type of blind, you can have some close encounters with wildlife, such as a jacana, an unusual bird that has really long toes that are designed for walking on lily pads. One of the unusual things about this bird is that the males take care of the young so that the females can devote all of their energy to laying more eggs because there's so much risk to their offspring. In the

following image, you might notice the extra legs hanging down from under the male's wings that are for carrying his young.



In locations that are very flat, you might not have the option of getting level with birds in a tree, for example, so you can set up a blind that allows you to aim your lens up at the birds in the tree. Because the birds probably won't come down to the ground, you don't need a fully enclosed blind. You can simply drape camouflaged cloth over you and your camera so that you can stand up and get as high as possible.



Carefully position your blind to get the best background that you can and shoot up toward the sky. To get this photograph of a rare species of parrots called the eclectus parrot, the blind was positioned so that as much green as possible was in the background.



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### Using Your Car as a Blind

You can also use your car as a blind and shoot from your car. This is something that is easy to do in national parks in the United States or in Africa—places where animals are used to vehicles passing through but might not be used to



people on foot. If you stay in your car and shoot out the window, you can get a lot of great photos.



In Australia, wallabies can be seen along the road. You can place a beanbag, or a sack filled with rice or beans, on the windowsill of the car to rest your camera on. If someone else is driving the vehicle, you can sit in the passenger seat and be ready to shoot if you see something while driving. Constantly scan the environment for wildlife.



Once you spot something, be patient. You might not get a great shot of the animal, but eventually, it might walk in front of you, enabling you to get a nice shot of the animal in the open, such as the following bustard, a rare bird in Australia.





## Nighttime Adventures

When you're on a road trip, it's not time to rest when the sun goes down. Go on night drives to look for nocturnal subjects, such as nightjars. The following nightjar was resting in the road and was shot from low on the ground, using the headlights from the vehicle to illuminate the bird.



You can also take walks at night. This possum was photographed using the spotlight technique, with a bright LED flashlight on a tripod, aimed up, and a fast lens on the camera. This way, you're able to get portraits without using flash, which might spook the animal.



You can use small soft boxes on your flashes to shoot with continuous lighting. You can use this technique to light up backgrounds and subjects with separate lights.



You can also shoot by moonlight so that you don't disturb the animals in their environment, such as a turtle nesting site for the rare flatback turtle. This image was captured on an offshore island from a camera on a tripod that was set up right next to the turtle, using half-second exposures, which was the appropriate exposure for the moonlight.



## Activity

Plan a road trip! Do some research to identify some wildlife hot spots you would like to visit that you can drive to—or perhaps fly and then drive to in a rental car. Whether you camp or stay in hotels, the freedom of exploring the countryside with a vehicle to search for the best wildlife photo opportunities is terrific. Outfit yourself and your vehicle with the things that will allow efficient photography, such as a simple beanbag for resting your camera in the window or a roof platform. Set yourself up to maximize the possibilities.

# Orangutans: Photographing Animal Communities

**O**rangutans are great apes and, along with the chimpanzees and gorillas, are our closest animal relatives. Great apes are amazing to encounter and photograph in the wild. Their gestures are so human, and they're so easy to relate to. In this lesson, you will learn various methods and approaches to photograph orangutans, which are challenging subjects. The goal of this lesson is to inspire you and teach you techniques that will help you with your own wildlife photography—whatever your subject of choice is.

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## Tracking Orangutans

Orangutans, which are only found on the islands of Sumatra and Borneo, are so sparse in the forest that you can't just walk around and find one easily. It requires a whole team to find and track them. Team up with researchers who are working at a particular site, because they are following orangutans from morning until night, recording data on everything they do. By tagging along with them, you can be there to photograph interesting things that happen.



It's difficult traveling through the rainforest on foot, so you don't want to carry a lot of equipment when you're following orangutans. Keeping it light is critical, because you might have to climb over fallen trees and scramble all day through the forest to keep up with orangutans.

Always have your camera, with your main lens (such as a 200–400mm lens for orangutans or other large animals), handy. Put your equipment—including batteries, spare memory cards, and accessories for shooting video—in a large daypack. You might also wear a belt pack for items that need to be readily accessible, such as a second camera with a wide lens for shooting close-ups and a few teleconverters. Include a waterproof bag that you can put your lens in if you have to cross a deep river or it starts pouring rain.



Orangutans don't live in big groups like gorillas or chimpanzees, so they're more difficult to photograph. Orangutans are solitary, except for the females and their babies. They range by themselves throughout the forest all day, looking for food and sleeping a different place every night. Wherever they happen to be, they make a nest in a tree and spend the night. It's an all-day trek through the forest, following the orangutan wherever it's going to try to get pictures of what it's doing.

Many times, orangutans are above you when you're photographing them in the trees, so you spend a lot of time aiming upward. Holding the camera upward can become very tiring, so you might want to carry a monopod, which you can clip on your belt and carry it through the forest easily. If an orangutan stops to feed for a while and you want to hold your camera up, you can pop up the monopod and put your camera into it. All the weight is then supported by the monopod, and you can easily aim upward and photograph.



It's not ideal shooting up toward the sky, but it's sometimes unavoidable, so if you have a bit of sky in your background, it's important to pay attention to your exposure so that you don't underexpose your subject. If you have a big bright patch of sky but really want to get a shot, make sure the whites are not completely blown out. You want to maintain some detail in the whites. Your orangutan will probably be quite dark looking in the exposure, but you can



edit it later on the computer and get a lot of detail back in the orangutan. It's better to find a greener background if you can.



The best situation is if you can work from a hill and photograph horizontally toward an orangutan. Try to spend as much time as you can following orangutans in the hilly areas—steep terrain where you can scramble up the hill ahead of them and get a horizontal view. It makes you feel like you're up in the forest canopy without having to climb into the trees.



## High-Definition Video

One of the great things about modern digital single-lens reflex (SLR) cameras is that in addition to shooting great stills, they also can shoot high-definition video. However, if you're going to shoot video, you need to use a sturdy tripod, especially if you're using a telephoto lens.



For shooting video, you need a few accessories. Sound is a very important part of video recording, so put an external microphone on top of your camera, because the internal microphone built into the camera won't capture the forest sound well enough.

When shooting video, use an accessory loop that you can pop onto a mount on the back of your camera. This allows you to look at a bright, magnified version of the image on the back of the camera. Then, you can focus, zoom, frame your shot, and record video. You can start and stop the video without having to put your hand up on the camera.

The main differences between a video tripod head and still heads is that the video head has a leveling base, so even if your tripod isn't perfectly flat, you can level your camera. It also has a built-in fluid-based friction system so that you can very smoothly move your camera and then let go at any point, and it stays right where it is without shaking.

## Climbing Trees

Photographs that show orangutans in the broader forest context are the most difficult type of shot to get. Occasionally, you can get a decent shot from the ground when the orangutan is quite low and you can see the forest habitat, but the shot you really want is the canopy view.



There might be opportunities to rig a rope and climb a tree to get close to an orangutan, using a harness and devices called ascenders that clamp on the rope and help a person inchworm up it. The rope is draped over the tree by shooting a line over it with a bow and arrow.





Even if a person makes it up into the canopy, he might be able to get some nice views, but orangutans move so much faster than a person that the chances of them still being within sight when he gets up there are pretty low. It's a great way to get some scenic shots in the canopy—maybe get a recording of the morning sounds in the rainforest—but it's difficult to get shots of orangutans by using this approach.

A person might get lucky, though. For example, the following shot was taken of an orangutan going to feed in a strangler fig tree. After the orangutan left, a line was rigged in this tree, and small cameras were hidden that could be controlled remotely if the orangutan came back. The result is a very unique shot of an orangutan—a culmination of years of work and trying different approaches.



## Activity

There is nothing that beats practice to improve your wildlife photography. Get out and shoot as much as you can. The following are two ideas that you could choose to work on during a given outing.

**Handholding:** Experiment with a range of shutter speeds and see how slow you can still get sharp images for a given focal length. Remember to maximize your shutter speed when light is getting limited by opening the lens all the way and raising your ISO. Experiment with your ISO settings and see how high you can go on your camera and still get acceptable results.

**Backgrounds:** The background of your wildlife image is much more important than you think. Try to make it look pleasing by using a wide-open aperture. Also, pay close attention to distracting elements in the background or edges and change your position to eliminate them. Practice making a series of shots of the same subject, but alter your position slightly to try to keep improving the background.

# Birds of Paradise: Ultimate Photo Challenge

**T**his lesson is about an ambitious photography project to photograph all 39 species of the birds of paradise in the wild. In this lesson, you will see images from this project, which spanned eight years, and discover the efforts and methods that went into capturing them. You will get a sense of the remarkable diversity in this family of closely related but very different-looking birds that inhabit the vast rain forest of New Guinea, as well as the surrounding islands and parts of Australia.

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## Displaying Birds of Paradise

Unlike the colorful, flashy male birds of paradise, females tend to be much more brown and camouflaged. The females build a nest, lay an egg, and raise the chicks without any input from the males. They can do this because the environment in New Guinea is rich in fruit, which is primarily what they eat, and they don't have any competitors, such as monkeys or squirrels, on the island, so the females can easily get enough food to feed their chicks themselves.

In the following image, a female is feeding a full-grown young male, who, even though is perched around the fruit, is still begging for mom.





As young males develop, for the first few years, they still look like females, with brown plumage, but they start to behave like males and practice courtship displays, which are critical to their later success in attracting mates.

The following is an image of two young male paradise riflebirds in Australia practicing to each other. One is pretending to be the female while the other one does a male's wing display.



Each bird of paradise species has a different characteristic display that it performs for females. The next image, shot with a high shutter speed to freeze the action, is of a magnificent riflebird displaying to a female.



Slower shutter speeds result in more interpretive shots. In the following illustration of his action, the male swings his head back and forth so quickly that his whole neck turns into a blue blur, but his feet are still sharp as he stands there.



How have all these males evolved into this incredible variety of forms? It's all about female choice. In the next image, the females are lined up, watching the black bird in the center, a male Carola's parotia, in his display arena. He has cleared the ground of leaves and made a beautiful dancing court. There are actually also a few other males, trying to figure out what is so special about this male. What does he have that they don't have? Why are all the females watching him?



This process of female choice—females choosing the male with the best display, plumes, or ornaments—is what has created this incredible variety of forms, through the special version of natural selection called sexual selection.

The Western parotias display on the ground, deep in the understory, and do ballerina dances to attract females.



Another completely different-looking species is the Raggiana bird of paradise, with incredible orange flank plumes, photographed with a big lens from a hillside nearby.



The remarkable Wilson's bird of paradise has a striking color pattern—with a bald head that is just blue skin, yellow and red on his back, and crazy tail wires—that results in a visually stunning display to impress the females.



A species that is closely related to the Wilson's bird of paradise is the king bird of paradise, which also has two curly tail wires. The tail wires are the central tail feathers; they are elongated and have small coin-like tabs on the ends. In his display, he cocks his tail over his back, and the wires bounce around behind his head as he presents himself to the female. In the following photo, the bird was practicing displaying on a horizontal branch.



The following image features the tail wires in a tight shot on the tail that cuts off the head of the bird, which is unconventional—breaking the rules of composition—but successful. Cutting off the bird's head focuses your attention on the tail wires, as well as the incredible color contrast between the green tail discs, the red body, and the blue feet. It is a striking image.



The display of the blue bird of paradise is an upside-down display, normally on a sloping branch in the understory. A fill flash was used to light him up in the shady light below the canopy while he fanned out. A female would typically be watching this crazy display from above.





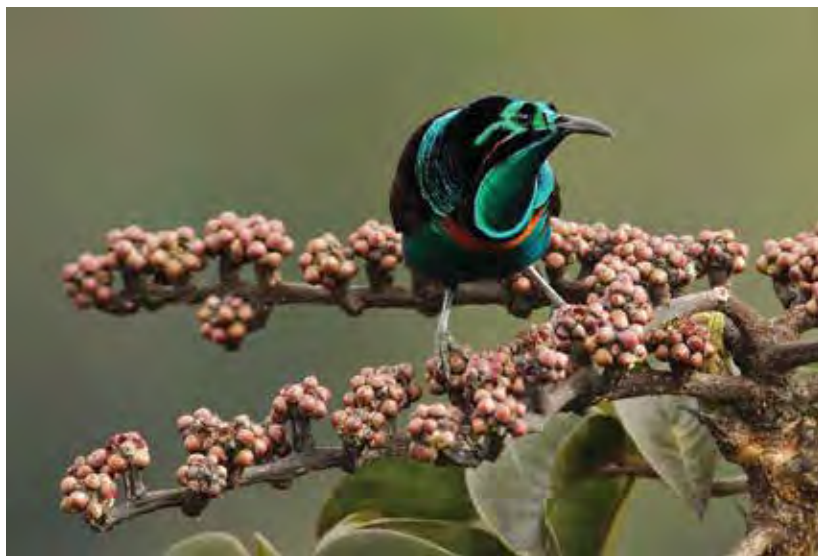
The King of Saxony bird of paradise perches on top of a dead tree branch high in the canopy and calls all day long, but then if he thinks there's a female in the area, he all of a sudden zips down into the understory, where he has a special vine that he has selected as his display site. He lets out a crazy-sounding call, and then he bounces up and down to get maximum effect out of his wavy head wires, which are extremely modified feathers. This shot was taken with a little bit of strobe fill to freeze that motion.





Another species with strange feathers is the twelve-wired bird of paradise, which has strange wirelike feathers coming out of the back of its yellow plumes. He calls, and when a female shows up, he turns his back to her and brushes her in the face with the wires. The females seem to like that. It's part of the courtship ritual.

Up in the cloud forest, in the higher elevation of the big island of New Guinea, there are a number of species of unusual birds of paradise that are mostly black but with iridescent green coloration on their chest and body. This one is called the splendid astrapia, and it's feeding on the schefflera fruit.



Another type of astrapia that is found only in a small part of the high mountains in central New Guinea is called the ribbon-tailed astrapia, which has the longest tail of any bird in the world in proportion to its body size. It also has iridescent plumage, which was captured in the following photographs using a fill flash from the direction of the camera to enhance the reflected light.



## Activity

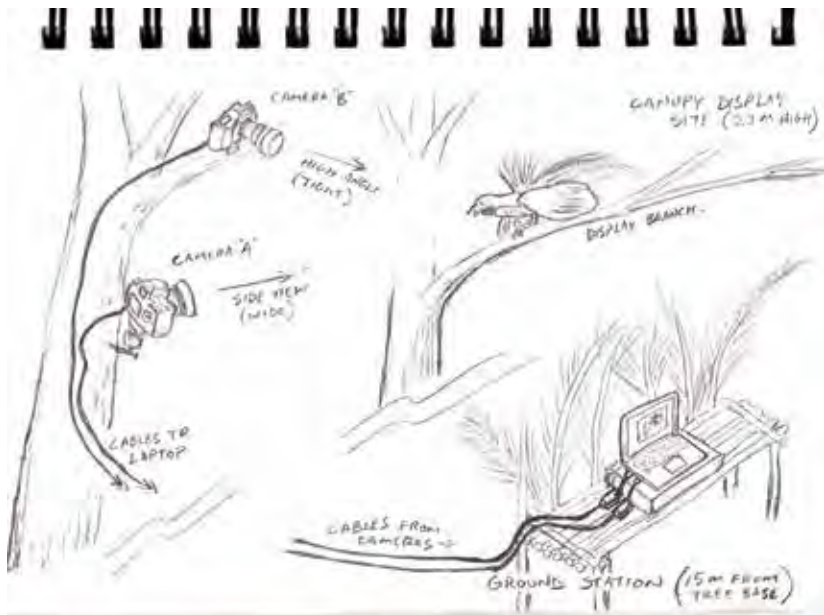
Carrying out an in-depth photography project requires a lot of research, planning, and preparation. Come up with an idea for a project of your own. It could be a realistic one you might actually do or a pipe dream for fun. As an exercise, do the background research on your project idea. Research locations and costs, and learn all you can about your subject and what has been done before. Thorough research makes all the difference to the success of a photography project.

## Getting Your Best Wildlife Photo

The goal of this lesson is to stretch your ideas of what is possible in wildlife photography. You will learn about ways to photograph birds of paradise using remote cameras to get the bird's perspective, instead of the human perspective. You will be introduced to three different species found in three different locations: Goldie's bird of paradise, the greater bird of paradise, and Wahnes's parotia.

### Goldie's Bird of Paradise

The first stop is Ferguson Island, off the far eastern end of the island of New Guinea, where Goldie's bird of paradise can be found. To get ready for a remote control shoot to capture this bird's natural behavior, you need to test your cables, hardware, cameras, and lenses to make sure that they are working. The following sketch illustrates a possible remote camera setup.



The idea is to find a display site in a tree where birds visit every morning, and hopefully there is a tree next to it that you can attach at least two cameras—perhaps camera A with a wide-angle lens from the side and camera B with a high-angle, tighter shot. Both of the cameras have cables running down to the ground and go back to a place where you are able to set up a computer station and control the cameras from the ground.



Up in the canopy, the cameras are camouflaged and hidden so that the birds won't see them. If you look closely in the following picture, one camouflaged camera is at waist level and another one is in between the branches of the tree.



Once all of your equipment is set up, you simply wait for the birds to come. If the birds don't show up, because your cameras are not designed to be left out overnight, you might have to come back the next day and redo all of your setup: climb up the tree in the morning, rig up the cameras, climb down the tree, and wait for the birds to come again.

If the birds have multiple display sites around the forest, you might need to change locations. You might even be able to get a few good shots from the ground, such as the following photo, which captured a female observing a male closely from behind. The male's long, thin tail wires are brushing against the female, perhaps to feel where she is.



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### Wahnes's Parotia

The next location is the Huon Peninsula on the island of New Guinea, where the Wahnes's parotia makes a special court, or display ground. He clears all of the leaves from the court and maintains it. What makes the court special is



that it has a branch above it that serves as a place for the female audience to sit and watch him do his ballerina dance.



The normal way to photograph at a place like this is to build a blind in front of the court, with the help of local assistants and some bush materials.



The traditional view of the bird dancing is the ground-level human view. But the female watches from right above the male, looking down. What she sees is very different than what is seen from the front. To see the display from the female's perspective, set up a camera above the branch that the female sits on. Mount the camera to a nearby tree, pointing down. The camera has cables that run back to the blind, where you control it from. Cover the camera with camouflage material, and maybe even wrap it with some leaves, so that it's almost invisible.



The following image is the view from above a displaying male. The image captures the key moment of the display, when he flashes his breast shield upward. From above, instead of looking like a ballerina's skirt (from the side), he looks like a black disk, with a flashing ornament in the middle. He has a blueish band on the back of his head that can only be seen when you're looking down on it; it's like a reflector on a bicycle pedal, bobbing back and forth. The overhead view shows a very different-looking display from the display seen from the side.



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## Greater Bird of Paradise

The next stop is a group of islands called the Aru Islands, which are very remote. The target here is the greater bird of paradise, which are canopy-displaying birds, so you need a blind that is up in the canopy.



Every morning, you climb up in the dark and get settled in the blind before it gets light. Then, you wait for the birds to come. You might get lucky and see several birds at the display site—both males and females. At some point in their display, the males freeze with their heads down and plumes up and allow the females to take a close look at them.



When a female is interested in a male, she will encourage him, by flicking her wings, to do the final stage of the courtship. In the pre-mating display, the male taps the female on the neck and makes a call, and then they go on to mate.





To get a wide shot of the birds in the environment, you can use a remote camera that you hide in the tree where the birds are displaying. You can hide a camera inside a leaf so that the birds don't notice it and run a cable to control the camera from your blind.



Seeing the greater bird of paradise from the perspective of being up in the canopy with the bird is priceless, and all of the hard work and effort is worth it.



## Activity

Give yourself an assignment. It could be a short trip to a local park or a yearlong documentation of a local species. Wherever you live, you can probably find some interesting wildlife subjects nearby. Make a plan that is realistic for you to actually carry out in terms of time and expense. Do your research, master your equipment, and use the tips you've learned throughout this course to push the artistic quality of your photography to a higher level. Have fun and share your work with others.



## Ethical Guidelines for Photography for National Geographic

National Geographic strives to uphold the highest ethical standards in our business.

We do not condone or accept digitally manipulated imagery that is meant to represent true and accurate depiction of life or events. The content of a photograph must not be altered in Photoshop or by any other means. With the exception of backgrounds on studio or still life images, no element should be digitally added to or subtracted from any photograph. Only standard color correction and retouching to eliminate dust on camera sensors and film, and scratches on scanned negatives of prints are acceptable. And while photographing subjects, we do not intentionally contribute to, alter, or seek to alter or influence events.

These guidelines extend across all publishing platforms, including social media accounts.

In any case where we have chosen to publish an image that has been created by a digital process such as stitching images together to create a panorama, etc., we are transparent and reveal the process used to make the image in the caption or a footnote.

Our workflow was built to ensure that we have complete control and oversight of any assignment work commissioned for publication. Our assignment photographers are required to deliver all digital raw files for all images taken on assignment. Every image is reviewed and edited by the assigned photo editor. All color correction for publication is done in house by our pre-press imaging team.

The trust of our readership is of the utmost importance to us. We work tirelessly to ensure that our publications respect that relationship.

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