The Hidden Power™ of Photoshop® Elements 4

RICHARD LYNCH

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Acknowledgments

Many people who have helped with this book will likely never suspect that they did so, and, quite honestly, I don't know them well enough to name them. The list ranges from rustic tour guides, to people I've met in passing at camera stores and eBay auctions, to people who participate in image editing forums on the Internet, to those who post book reviews and mentions, to people at work who might ask the most innocent questions about images and cameras. Any time I am forced to consider results and what people are trying to achieve in their images, it helps me look back to where I was years ago when trying to learn image editing. A grand thanks to all the readers who purchased previous versions of the *Hidden Power* book and Hidden Power toolsets, those who have downloaded the free tools or purchased tools, and those who visit the website (www .hiddenelements.com). Your visits and activity confirm for me and assure the publisher that there really is a market of advanced Elements users.

The list of people I can name who help day-to-day remains much the same. My wife, Lisa, and children, Julia and Isabel, provide pointed critique, patience in allowing the work to go on, and dexterity in avoiding collisions with the by-product debris that accumulates in piles during the project, and they show enough interest in the result (whether faked or real) to help make the writing seem less isolated.

Thanks to companions in "the business": Al Ward (www.actionfx.com), Greg Georges (www.reallyusefulpage.com), Fred Showker (www.graphic-design.com), Doug Nelson (www .retouchpro.com), and Barbara Brundage. Thanks to those at the beginning (Stephanie Wall, Mitch Waite, and Beth Millett), those in the middle (Bonnie Bills), and the present Sybex/Wiley crew (Pete Gaughan, Walt Dietrich, Mark Clarkson, Daria Meoli, Linda Recktenwald, and Dan Brodnitz). Contracts be damned, Jeff (Schultz).

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About the Author

After graduating from college with an MFA in writing and separate careers as a chef, a college teacher, and a freelance development editor, Richard Lynch spent five years as senior editor and designer for a how-to photography book publisher, learning the ins and outs of book production and image editing. Over those years he designed and edited 40 books on various facets of photography, from the basics of taking pictures and through the nuances of professional lighting, special effects, and infrared photography, gaining an intimate knowledge of the business and art of photography.

Since moving on to a full-time job in communications, information management, and web development, Lynch has written six books on digital imaging, including *The Hidden Power of Photoshop CS* and *The Hidden Power of Photoshop Elements 3*, between being a columnist for *Digital Photography Techniques*, teaching digital art classes at local colleges, and enjoying digital photography. For freelance design work (CDs, books, websites, and other graphics) and writings on digital imaging, he uses Sigma dSLR cameras, LinoHell scanning equipment, and both Mac and PC computers.

Glad to move away from analog equipment that he'd been using since his first experience dabbling in darkroom arts in grade school, Lynch has been working with digital images since 1986 and with Photoshop full time (50+ hours a week) since 1992.
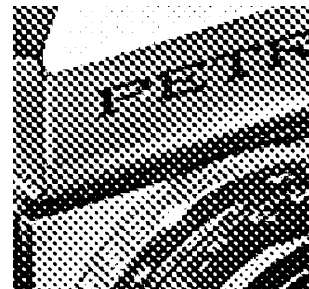
CONTENTS AT A GLANCE

Contents

Foreword

Photoshop Elements has been a runaway best seller for Adobe Systems since it was first introduced in 2001. Who could resist the chance to get so much of the power of Photoshop in an inexpensive, slightly simpler package? But in spite of all the amazing things that Elements can do, lots of people want to be able to do more of the sophisticated kinds of edits and color corrections that aren't easily accomplished in Elements right out of the box.

Richard Lynch's first *Hidden Power of Photoshop Elements* book, for versions 1 and 2 of the program, was a great revelation of what Elements can do with a little help. He introduced tools everyone thought you needed to buy full Photoshop to get, like curves and easy layer masking. Although a whole cottage industry of Elements add-ons has sprung up since then, his *Hidden Power* books remain the best resource for those who want to understand and use Elements at a more advanced level.

With Photoshop Elements 4, Adobe has considerably raised the bar for those who want to expand the program's basic capabilities. They did this by removing the ability to tie into some of the more popular Photoshop features in the program's underlying code, which is how the previous generations of tools worked. Most of the add-on tools designed for earlier versions of Elements no longer work in Elements 4, but Richard has come up with some truly ingenious workarounds to put back a lot of favorite extras, such as the ability to work with individual color channels.

With *The Hidden Power of Photoshop Elements 4*, Richard has not only created new versions of his most popular tools but also offers common-sense discussions of many of the tougher concepts in digital imaging—such as color management—as well as useful advice to keep in mind when taking pictures to make sure you start with the best images possible. Everyone who is at all serious about getting the most out of Photoshop Elements 4 should buy this book.

Barbara Brundage
Author of *Photoshop Elements 4: The Missing Manual*

Introduction

Photoshop Elements is one of the most powerful image editing programs on the planet, bar none. The key to harnessing the power of the program and getting the best results from your images is understanding how the program works, understanding images, and using the inherent capabilities of the program optimally to make the best image adjustments. Getting the most out of your images using Photoshop Elements is what this book is about.

None of the best images are the result of a push-button processes and correction. Computers and computer programs don't think, so expecting that they will make good artistic judgments at the push of a button is an unlikely scenario. As it has been said, beauty is in the eye of the beholder—and that beholder is you. You will need to make artistic judgments that the computer cannot. In the course of the book, you will learn how the program works by learning which tools you really need and how to apply them to make real-world image adjustments. You'll see, step-by-step, how even the most complex image processes work, and then you'll be given automated (and semiautomated) tools (the Hidden Power tools) to compress even hundreds of steps at a time into a single click. These are not fix-it-for-you tools but a means of easily setting up complex scenarios that lead to better corrections. With Hidden Power, you will have the tools to be able to make and understand the most sophisticated image corrections and get better image results globally.

The past five years of working with Photoshop Elements have been a compelling learning experience for me. I have become somewhat of a convert from appreciating the pedestal that Photoshop has been placed on almost unilaterally as the "best" image editing program to appreciating Photoshop Elements as a peer program, on a par with the best. What was initially a challenge to get more from Elements has given me a far deeper understanding of image editing than the previous 10 years I spent as an image editor, digital image technician, and graphic artist using Photoshop. That understanding is what I hope to convey in these pages.

The Goal of This Book

The goal of *The Hidden Power of Photoshop Elements 4* is to take apart the process of correcting images and the images themselves to expose the hidden power Elements has for working with images. You'll learn professional corrections that can be applied with simplicity, and you'll become familiar with the powerful tools you need to know and how they apply to any image. The dissection of process and getting back to fundamentals starts immediately by looking at an essential tool set. The dissection of images starts by looking at tone and separating color into tone components before color correction or editing.

This book is for

- Anyone who wants to get better results from their digital images using Photoshop Elements

- Those who want to understand the process of editing images rather than just making push-button fixes

- Serious hobbyists who want to get more from their investment in Elements or who may feel they are outgrowing the program

- Photographers moving into digital imaging who need powerful tools for image correction

- Graphics hobbyists and professionals who thought their only choice for working with digital images was Photoshop

The focus of the book is on

- Learning a process of approaching images with proven methods and the right tools to make your image corrections

- Learning new tools that Elements supposedly doesn't have to bolster your editing arsenal and expertise

- Working through what you need to do in realistic situations with realistic images by using realistic expectations to get real results

The book is *not* about

- Exploring every last tool in the interface in excruciating detail

- Making crazy effects

The techniques provided here will help you take your corrections to a professional level without hocus-pocus or steps that are impossible to comprehend. It will provide a cache of more than 100 editing tools that provide additional functionality and reveal how to do many things that are generally thought to be impossible using Photoshop Elements alone. The solutions are used right in Photoshop Elements—with no plug-ins, additional investment, or other programs to learn. You'll see what happens behind the scenes in step-by-step procedures, and you'll be given the tools—customized Hidden Power tools created just for this book—to move through those steps quickly. Though created for this book, the tools will work with any image. These tools empower you to make the most out of Photoshop Elements and are available through Hidden Power only.

What Makes a Good Image?

Photoshop Elements gives you the power to alter any pixel in an image. You can technically do anything. Like a bricklayer building a building, you can get in and create your image one pixel at a time to get exactly what you want. If you know what you like and what you don't, it should be easy to improve and create images. Just look at the image or canvas and know what you want to see. Once you know—and can trust—what you want to see on-screen, all you have to do is make whatever changes are necessary so that your image looks the way you imagine it. The whole process should be simple, right? Just click a button and fix it; then print and be done with it.

But it isn't always that easy.

The problem arises because of numbers and possibilities. There can be millions of pixels in an image. Each pixel can be one of millions of colors. Every pixel can be altered with numerous tools and options in groups or separately, with changes based on surrounding pixels or considered on a pixel-by-pixel basis. The color and tone of each pixel have to be orchestrated to make it work with other pixels adjacent to it to form a recognizable whole. When you have finished, that whole has to look as you imagined it. Getting that picture out of your imagination certainly isn't as easy as taking a picture. And building images one pixel at a time overcomplicates the problem of creating what you want to see. Not knowing where to start and what tools to choose just makes the process of working with images that much more difficult.

You have to simplify the approach.

Elements gives you what is potentially a big, heavy toolbox. Some people blindly fall into a trap, thinking they have to understand and use every tool, filter, and effect and strap all those tools to their tool belt in order to be able to use the program efficiently or to do anything the "right" way. There are two things wrong with that idea:

- You don't need to know how to use every tool, filter, or effect; you just need the right ones. There are probably many tools (and shortcuts!) that you will never use.

- There aren't really a right way and a wrong way; there are harder and easier ways and ways that are more and less effective.

In Elements there are numerous tools. Not all are essential; some are essentially redundant; some are merely toys; and some are gimmicky, trendy, or unpredictable. While almost all have their place when you get to know them, the ones that are the most powerful, most useful, and most often used—just like the hammer and screwdriver in a carpenter's tool belt—are often not the most spectacular.

A few others have to be coaxed out of hiding, which is part of what the *Hidden Power* title is all about and some of what the book will do for you.

Not everything that makes an image look better requires a lot of creativity. There are techniques you can use to make an image look better that require very little thinking at all. In fact, much of the initial process of image correction should be nearly automatic. If there is a dust speck in a scan, you'll need to remove it; if there is color correction that needs to be done, you'll need to make the correction. Although there are several ways to approach making any change, if you have a few favorite tools and techniques, the process and correction become much simpler.

In other words, applying a somewhat limited number of tools and techniques can get you most of the effects you will ever need to improve your images. Using what you have in an image and making the most out of that are often key to getting the best results. Some of the most helpful and powerful information in images is hidden or ignored. This book helps reveal that image content and simplifies the tools you will need to use and apply. With fewer tools (and rules) to remember, you can concentrate on what to do with the images rather than pondering options or quizzing yourself as to how to apply the tools. Using image content to leverage selective changes can help target corrections in ways that freehand work nearly never will. It is a fundamental approach. By using fewer tools, you won't be weighed down by the heavy tool belt. Concentrating on a smaller set of tools and using a structured approach will simplify the corrections you make in any image.

But What Corrections Do You Make?

Say you go to the airport to pick up your cousin who has been in the African jungles for a decade. No one has seen him in all that time, let alone seen the talking monkeys he was on the trail of. It sounds like a great photo opportunity, so you grab your camera and head out the door.

You meet him at the airport gate and take some snapshots of him all haggard and weather-beaten from his grueling years living in nature. He looks fresh out of *National Geographic.*

Later, when you open the images on your computer, they seem to have come out pretty well. But the first thing you probably *won't* do in this situation is add an effect that sets his head on fire. Besides occasionally applying a special effect, the biggest wow you can get from your images will usually be achieved by

- Taking a good picture that clearly shows an interesting subject
- Using targeted corrections to make those images look the best you can

Most people viewing your picture will want to see the subject of your image, and you can't get that by burying the subject in flames. Special effects have their time and place, but when the subject and image can be good enough on their own, you can do more to improve the look of your photographic images with good corrections. The idea behind this book is to give you a from-the-ground-up method not only for making better images by correction but also for understanding what makes a better image in the first place. You will find the hidden power not only in Photoshop Elements but also in your subjects and images. The goal of this book is to make people viewing your images say "Wow!" not in response to flames or other effects or magic but because your images look great.

Much of what used to be my standard process in image correction has been rearranged because of my experience with Photoshop Elements. The result is that my process is now simpler and my images have changed for the better. That was a somewhat shocking change to have happen after 10 years of professional experience editing digital images. It was like a carpenter looking at his hammer and suddenly realizing that it actually had two sides and could do more than just bang in the nails. The more shocking thing is that the techniques you'll read about in *The Hidden Power of Photoshop Elements 4* tear down the wall of difference between Photoshop and Elements. I use the same techniques in both programs these days, and—except for a few differences in the interface—I often forget which

program I'm using. The most obvious fact is that it doesn't matter, but the hidden fact is that I learned my current techniques from Elements, not from Photoshop. Using the techniques in this book, you won't often be left using Elements limply and apologetically, as if you were banging in screws with your hammer; you'll be using the best tool you have and the only tool you'll need to edit your images and get the best results.

How This Book Is Organized

As you go through the book, you will discover a mixture of practical theory, examples of the types of changes you'll make in images, and projects to work on to help you understand the process as well as why it works. Projects are put together so that you don't just complete an exercise or press a button and ogle the result, but so that you see what goes on behind the scenes to help understand what you have done. When you understand, you can apply that understanding to other images predictably—either by using tools provided to drive a process or by manually applying learned techniques. There are clear goals from the outset of the procedures, and the examples provided ensure that you can see the changes when they have achieved the desired result. This understanding will enable you to apply the techniques you learn to other images so that your images can be improved consistently.

> When following along with the book's step-by-step instructions, use the methods suggested in the steps for accessing the tools, or the procedures may not function correctly. For example, opening Levels with the keyboard shortcut (Command+L/Ctrl+L) will open the Levels dialog box but will *not* produce an adjustment layer, and this can affect the outcome of a procedure that depends on the adjustment layers being created.

You will learn to take apart image color and tone entirely by using several color-separation methods and to isolate color components, image objects, and areas in a number of different ways. When you can isolate colors and image areas, you can correct those areas separately from the rest of the image and exchange, move, and replace elements to make better images. After learning to correct and manipulate images, you will learn about options for output, including making custom separations to CMYK

and duotones. Hidden Power tools are introduced throughout to reveal functionality and simplify procedures.

Chapter 1: Resolution: The Cornerstone of Image Detail An essential concept that is a key to getting your images right is having enough resolution in the capture to preserve the details you need. In this chapter we'll look at important basic tenets of using resolution in images and captures to your benefit, from defining and understanding imaging terms for resolution to learning what resolution to set for capturing and working with images.

Chapter 2: Seeing Images as Color, Contrast, and Tone It was no accident that this book was built in black-and-white. The full-color images you see are actually stored as grayscale components that are based in color theories. Learning to see color images as grayscale components rather than as "pretty colors" gives you a better understanding of how to work with images and how they come together on-screen. Here we also look at the slippery subject of color management and setting up your system so that what you see on-screen will be the best representation of what you will get in your output.

Chapter 3: The Image Editing Process Outline Simplifying the process of working with image editing and getting the results you need is a key concept in the book as well. This chapter outlines a core process and explains the tools you'll need to accomplish even the most rigorous imaging objectives. You'll be given a clear outline as to how to proceed in correcting any image, and you'll have in hand a definitive list of tools that you'll want to know and use to achieve the best results.

Chapter 4: Separating and Combining Image Components Understanding images starts with separating image components. In this chapter, you'll see how to split color into simple tonal representations, and then we'll look at how black-and-white tone components can be mixed to become color again. We'll parlay the concept of mixing color and tone by applying color with layered effects over image tones to explore creative hand-coloring of images.

Chapter 5: Correcting Image Tone The ability to manipulate tone is integral to making better images, implementing color, and making effective color changes. Understanding how to work with tone can make a big difference in the final image results. We'll look at effective methods for image cleanup, evaluating and optimizing image tone, making contrast adjustments and sharpening, managing image noise, masking, and shaping images with light and shadow. These basics of adjustment are the core techniques you will use to adjust the color components to achieve the results you want.

Chapter 6: Color and Tone Enhancement Because color components are made of black-and-white representations, we'll show how to apply tonal corrections learned in the previous chapter to adjust color images. We'll look at how corrections for color images parallel correction of image tone and work through specific examples applying each correction technique. Once you've completed general color correction, you'll get into more selective color corrections. Changes can be initiated by special controls inherent in specialized Hidden Power tools or combined to produce highly targeted and effective results. This chapter introduces color range, color-specific masking, and history application to enhance image color.

Chapter 7: Altering Composition Similarly to how you can take apart image color, you can extract image elements from an image and then replace, adjust, or remove them. This gives you control over image composition by giving you control of all the objects in an image. With image elements separated and corrected, you are free to reshape, redesign, and repurpose image parts with a basic understanding of how adjustments affect composition.

Chapter 8: The Image Process in Action In this chapter we put together almost all of what we've looked at thus far to gain experience running an image through the Hidden Power process. We'll take one image from start to finish, opening the RAW camera file and then making adjustments to color and composition to improve the final result just as you will do with most of your other images, in a process that follows the outline in Chapter 3.

Chapter 9: Creating and Using Vectors Vectors provide another way to control image content, which can be valuable in making resolution-independent, scalable artwork (creation of logos) and using printer capabilities to their fullest extent. You'll learn to do more of the impossible with Hidden Power by creating and storing your own custom shapes and applying clipping paths.

Chapter 10: Color Separations for Print Additional separations that target the way a printer works can add some flexibility and power to your image output. This chapter shows how to create your own real, separated duotones that function as they would on press. It then explains the process of making CMYK separations and doing the impossible again by saving the CMYK components to printable files right from Elements.

Chapter 11: Options for Printing More options exist for printing than just working with your inkjet printer at home. In this chapter, we look at how to get the best results at home, in addition to other options that may be more attractive and less costly than you think. You'll learn how to print to the edge of the page with an understanding of how the image information is applied.

Appendix: Other Concepts and References The appendix gathers information that just doesn't seem to fit into the rest of the book. You'll learn how to run Photoshop actions in Photoshop Elements. You'll find out more about the "boring" core information surrounding images, including even more on resolution, file types, bit depth, Camera RAW, 16-bit, and getting your own custom tools.

The Hidden Power Tools

One of the most important parts of this book is the collection of Hidden Power tools provided on the CD. The tools are meant for readers of this book only and should not be shared freely. The tools must be installed into Photoshop Elements to be accessible, and they operate on Windows and Macintosh computers.

To install the tools, first locate the proper Hidden Power installer on the CD. Initiate the installation by double-clicking the installer (for Windows, `HPPE4_PC.exe`; for Mac OS X, `HPPE4_Mac`). Target the installation by choosing the `Elements` program folder if prompted; the installers by default will install the tools into Elements following Adobe's default path. Be sure to carefully read the instructions for the installation as they appear on-screen. You'll need a password for the installation, provided here:

Operating System	Installer	Password
PC/Windows	HPPE4_PC.exe	hiddenpower4
Macintosh	HPPE4_Mac	hiddenpower4

Be aware that the password is all in lowercase and the letter case is important. If you have any trouble with the tool installation, please read the troubleshooting file on the CD, and visit the `www.hiddenelements.com` website for information that becomes available after publication of this book. If you do not find a solution to your installation problem, please contact me at `thebookdoc@aol.com`.

Note that custom installations are possible by reading the installer screens and redirecting the installation. On Windows, you can either select a new path using the browse button [...] when it appears or install to any folder of your choice and copy the files to appropriate directories in the `Elements` program folder. On a Mac, choose Custom Install from the installation drop-down list when it appears. Tools can be installed to foreign-language versions of the program by following custom installation instructions and copying the resulting files to appropriate folders (the names of the folders should be the translated equivalent).

After you've installed the tools, you'll be able to access them in the Styles and Effects palette. Open the Styles and Effects palette by choosing Styles and Effects from the Window menu (in the Image Editor rather than Organizer). With the Styles and Effects palette on-screen, choose Effects from the drop-down list at the top left of the palette—this will populate the effects categories in the drop-down list on the right. Choose the Power categories (Power_Adjustments, Power_Masking, Power_Extras, Power_Separations, Power_Paths, and Power_Playback) to reveal the power tool listings. The usage of most of the tools is discussed in this book, and all are described in the readme file for the tools on the CD. Please make use of the Hidden Power forum online to discuss the use of any of the tools. Find links for the forums on the website: `www.hiddenelements.com/forums`.

These Hidden Power tools will enable processes and act as helpers for your image processing. They will condense some of the longer step-by-step procedures you'll learn in the book into clicks of the mouse.

I expect to expand on the Hidden Power tools even more after the release of this book. Check the website and newsletter for additions. Subscribe to the newsletter on the website (`www.hiddenelements.com/newsletter`) and check the download area for more tools (`www.hiddenelements.com/downloads`).

Practice Image Files

All images used as practice files in the book are provided on the accompanying CD so that readers can work along with the exercises. They are mostly provided as `.psd` files (Photoshop documents) but may be in other formats as appropriate to a particular exercise.

These images are for educational purposes only and should not be used freely elsewhere. Work with the images by opening them with Elements directly off the CD, and save them as you need them to your hard drive. The images are all compatible with Macintosh and Windows computers.

Mac and PC Compatibility

The tools and images on the CD are completely compatible with Mac and PC platforms. Most of all of the tools in the Photoshop elements program itself work in nearly identical ways on mac or PC. The greatest difference a user will note in these pages is that shortcuts differ between Mac and PC. For example, to open the Levels palette on PC, the user would press the Ctrl+L keys; on Mac the user would press the Command+L keys (Command is sometimes known as the apple or ⌘). Keyboard equivalents on Mac and PC are:

Macintosh	Windows	Example
Shift	Shift	Shift+X
Option	Alt	Option+X/Alt+X
Command	Ctrl	Command+X/Ctrl+X
Control+click	Right-click	Control+click/Right-click

All keystrokes are included in their entirety in the book, first mac, then PC, separated by a slash "/".

Going Further with Hidden Power

There are several ways that you can contact me via the Internet. I am interested in your questions and comments as a means to improve the book in the future, to put frequently asked questions to rest, to develop new tools, and to correct any typos or other errors that may have slipped in when I wasn't looking. Make use of the Hidden Power forums and newsletter for submitting questions (again: www.hiddenelements.com/forums, www.hidden elements.com/newsletter). E-mail rl@ps6.com or thebookdoc@aol.com to contact me directly. Depending on volume, I'll respond personally to e-mail as often as possible, and I look forward to your input. Frequently asked questions will be answered in the *Hidden Power of Photoshop Elements Newsletter*.

The Hidden Power Websites

I've set up a website with more information about the book at www.hiddenelements.com. The site includes information for readers, including links to the newsletter, additional tools, tutorials, a forum, and a contact page where you can enter comments, questions, and other feedback.

Sybex also strives to keep you supplied with the latest tools and information you need for your work. Please check their website at www.sybex.com for additional content and updates that supplement this book. Enter the book's title or ISBN in the Search box (or search for Lynch), and click Go to get to the book's update page.

The Hidden Power Newsletter

The *Hidden Power of Photoshop Elements Newsletter* keeps you up to date on any changes, notifies you of any tools I've made available, and answers frequently asked questions. I send the newsletter to all subscribers; the frequency of the newsletter depends on the volume of questions and my workload. All you have to do to get the newsletter (free) is subscribe by submitting your e-mail address on the subscription page. You can sign up at the Hidden Power site: www.hiddenelements.com/newsletter.html. Subscription is free, and the newsletter is available to anyone who wants to join.

I hope you see from all this that I don't plan to leave readers stranded in deep water. If you have questions about the book, tools, or installation, contact me by e-mail or in the forum rather than posting a review on Amazon or other websites where I have no opportunity to contact you, answer, or even know that the question exists. Too many times people pose questions in other forums or on other web pages where there is no one who can answer their questions. If you have questions, it is likely that other people will have those same ones too, and I'll be glad to answer them as time allows. You'll need to ask me, as it is much more difficult for me to find *you*.

Part I
Essentials for Serious Image Editing

Serious image editing requires preparation and understanding. You have to be prepared with the best source images (the best content, resolution, and color), and you have to understand what corrections you need to make and how best to enhance the images. Problems in your images that you ignore when you are just starting out become more nagging as you gain experience. What you don't want to do when you work on images is waste hours correcting problems that would have taken moments to fix at the time of capture. And you don't want to waste time learning superfluous or redundant tools and techniques. Capturing the best information and getting the best results require understanding the images themselves and how image information is retained and displayed in print or on a monitor. An outline for the tools you should use helps you focus on the right techniques to get the best results with those images from the outset. This part of the book lays the groundwork you'll need for stepping into more advanced concepts later in the book.

Chapter 1 **Resolution: The Cornerstone of Image Detail**

Chapter 2 **Seeing Images as Color, Contrast, and Tone**

Chapter 3 **The Image Editing Process Outline**

Chapter 1

Resolution: The Cornerstone of Image Detail

Your first task in working with images is to always to capture the best image that you can. Starting with the best capture as a photo or scan, instead of one you will just plan to "fix later," will save you time and give you more image to work with. The better the information you start with, the more likely you'll have what you need to make the best result with less effort, in less time.

Images are built around resolution. There is a finite amount of detail in any pixel-based digital image that you get from a digital camera or scanner. *Resolution* is a measure of potential detail; the more resolution you have, the greater amount of potential detail in the image. High resolution suggests that there will be intricate detail; low resolution suggests that detail may be compromised.

While you will want to capture images at high resolution to retain detail, what you really want for images when they are applied is the *correct* resolution. We'll look at how to leverage resolution in this chapter.

In Terms of Resolution

What Image Resolution to Use

Resizing Images

Multipurpose Images

Can You Have Too Much Resolution?

In Terms of Resolution

Pixels are the smallest visual unit in an image. Each pixel (short for *picture element*) represents a single color or tone. The pixels are organized in rows and columns like blocks or tiles to map out the details, one tiny image pixel at a time. The multitude of pixels in an image (numbering more often in the millions for consumer digital cameras) blends together in our vision to create the look and feel of an image in tone (light and dark) and color (hue and saturation). The more pixels you have in an image, the greater potential detail.

This chapter has essential information that you need to know at any level of image editing. If you are a novice, read on. If you are an experienced image editor, you may want to read this chapter for review. If you are experienced and don't want the review, skip on to Chapter 2.

"Potential" detail is mentioned several times. While there is potential to retain more detail with higher pixel counts, limitations of your equipment, poor focus, bad lighting, and bad image handling can all lead to situations where detail is compromised no matter how many pixels you have in your images.

a   b   c

Figure 1.1

This flower is rendered here with the correct resolution for print in this book (a), one-eighth the proper resolution (b), and one-twelfth the resolution (c). Images with less resolution than necessary will appear with too little detail and become blocky.