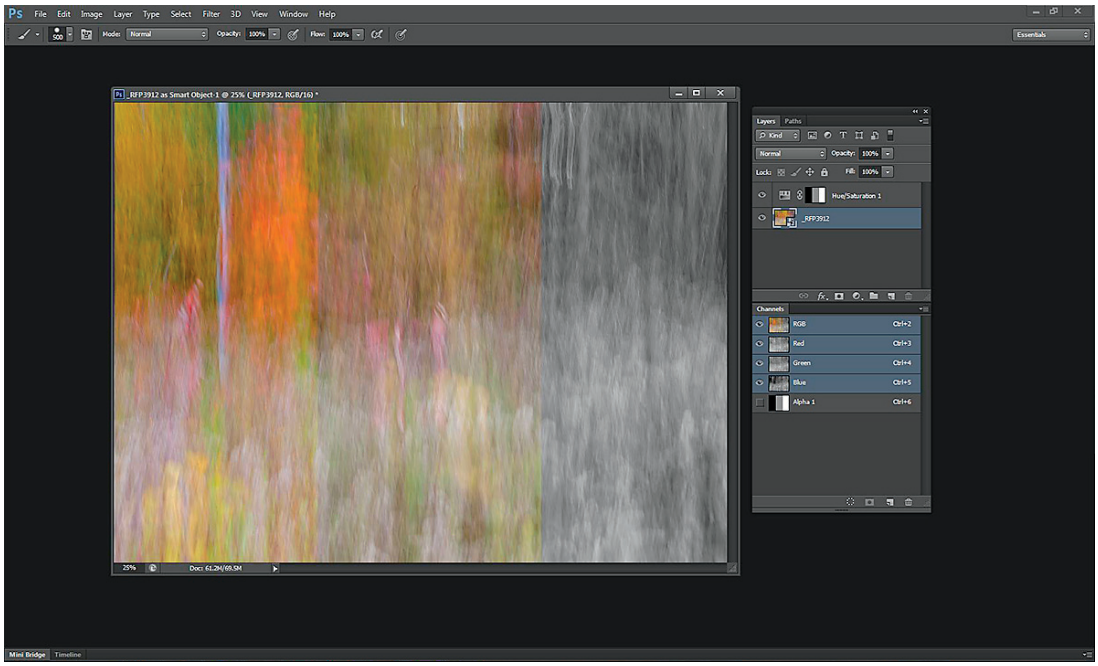
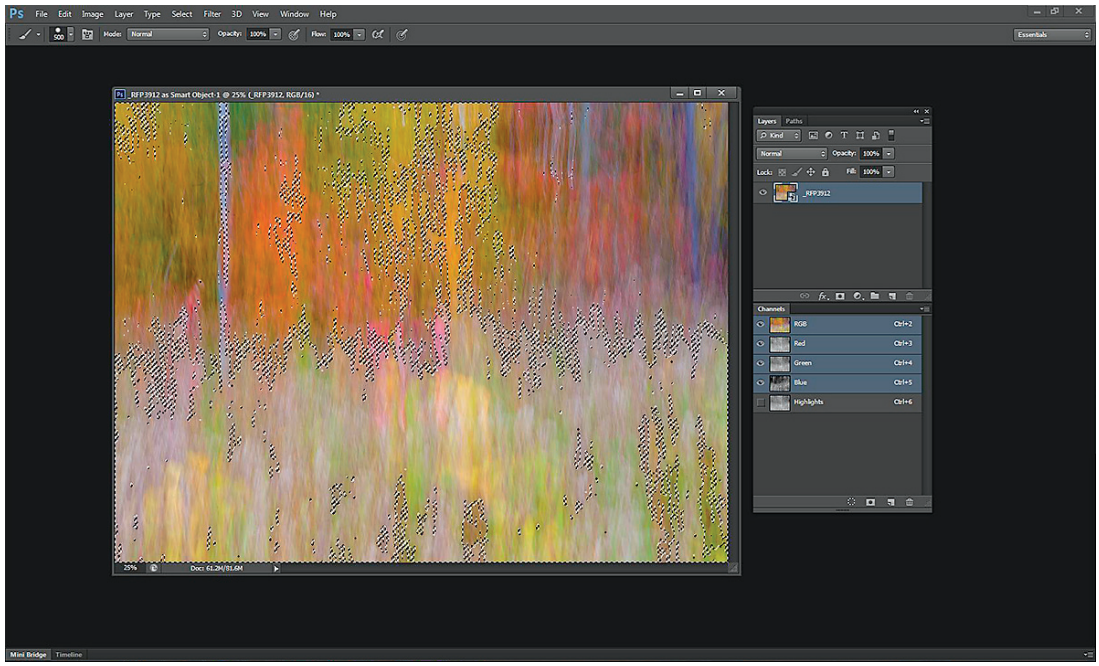


▲ *Figure 4.19: Selection saved as a new alpha channel*

on the main base layer, the alpha channel goes away. Clicking on the Hue/Saturation adjustment layer again will bring the alpha channel back. We can make it permanent—or permanent until we delete it—by saving the selection. To do this, go to Select>Load Selection, then Select>Save Selection. You can make this process easier by clicking on the small dotted circle at the bottom of the Channels palette, which will load the selection, and then clicking on the icon directly to the right of the dotted circle, which will save the selection as a channel. The selection is now saved as a channel and appears as Alpha 1 in the Channels palette (figure 4.19).

Any selection in an image can be saved as an alpha channel, whether a very simple or very complex selection. What we'll be doing in chapter 5 is making selections based on luminance or brightness values in the image and saving those as alpha channels. I'll preview one of those selections now. I've selected the highlight values (everything brighter than 128) in the impressionistic image shown in figure 4.20, and saved that selection as an alpha channel called Highlights.

With this selection saved as an alpha channel, we can come back to it at any time, load it, and apply adjustments to the image using that selection. To load the selection in the future, you can go to Select>Load Selection and choose the desired channel from the drop-down menu, or you can click on the alpha channel to activate it, then click on the dotted circle at the bottom of the Channels palette. You can also simply press the CTRL key (on Mac) and click on the desired alpha channel.

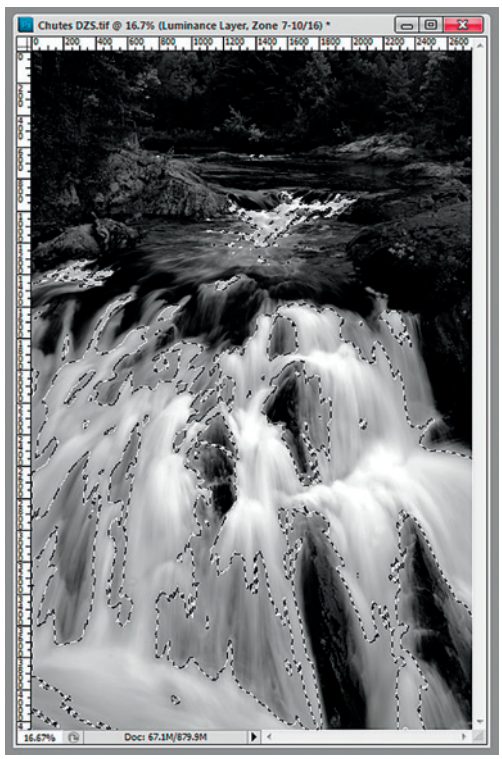


▲ *Figure 4.20: Highlights selected and saved as an alpha channel*

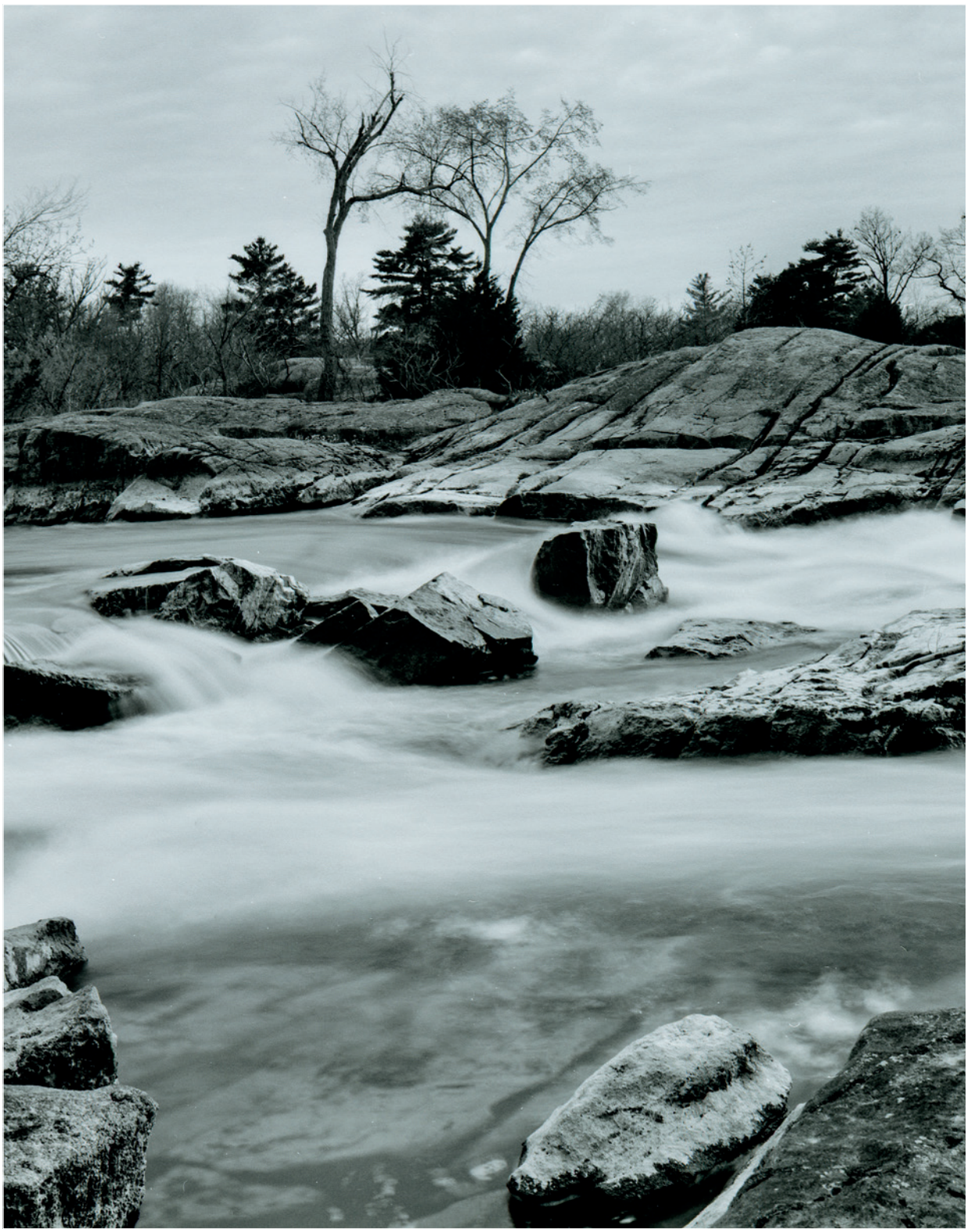
When you click on an alpha channel to activate it, the effect of the mask is easily seen in the image. I've switched to a different image for the example in figure 4.21, because it has a broader tonal scale and shows the effect more clearly. Note that in the file information at the top of the image, it shows Zones 7–10. This is one of several masks we'll be creating in chapter 5.

Alpha channels are also saved with the image, and are available in the future should you wish to go back and refine or change previous edits. The alpha channels will remain part of the image file until you delete them.

That covers the major and more complex tools that will be used in the DZS. The rest are standard tools and adjustments. These include Curves, Levels, Hue/Saturation, Vibrance, and Unsharp Mask. With those basics and some insights into the more complex tools behind us, we can now move into the heart of editing images with the Digital Zone System.



▶ *Figure 4.21: Alpha channel selected. White shows where any adjustment will be visible and black hides the effect of any adjustment.*



Chapter 5
The Digital Zone System

We have discussed how cameras and meters "see" light, how exposure works in the digital world, and which tools are used in the Digital Zone System. We can now move on to looking at how to optimize our digital images with the DZS.

I'll toss in a caveat now. This editing methodology does create some large files. If your computer is short on RAM, performance will be slower. Both RAM and hard drive space are relatively inexpensive, and processing power is abundant with the dual-, quad-, six-, and eight-core processors available today, so there is really nothing to fear with large image files.

The DZS uses what are called luminance masks to separate areas of different tones or brightness in an image. The concept of luminance masks has been written about and used for many years. What we're doing now is breaking it down and making more refined selections for each area of tone or brightness. We'll call these zone masks.

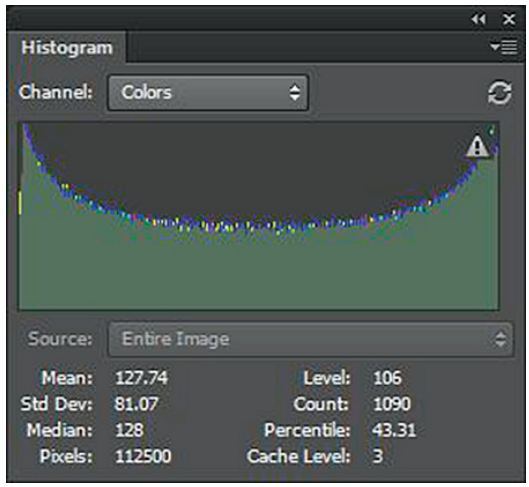
Why Luminance?

Using luminance information embedded in a digital image is a natural way to view an image because of the way the human visual system works. The human visual system has two types of receptors called cones and rods. Cones are used to see color. Rods are used to see brightness. We know that without light we cannot see color. But even in a dark room we can still discern objects. Those are the rod receptors in our eyes at work. We have far more rod receptors than cone receptors. Using luminance values allows us to isolate color adjustments to specific areas of brightness. For instance, we can isolate a saturation change in an area of higher brightness so that it doesn't affect the same color in an area of lower brightness. We'll see this later on when we look at some examples of the DZS in practice.

The beauty of zone masks is that they're self-feathering. That is, each zone or selection intersects or overlaps with the others to give you smooth transitions and maintain smooth tonal gradations or transitions in your images. Can't we just feather a regular selection? Not really. Feathering individual selections is a discrete process. The selections, even when feathered, do not intersect or overlap with each other, so you can get some harsh transitions between selections when making adjustments. With zone masks, each selection overlaps with others in a gradual manner, so that adjustments to one zone transition to other zones gradually, and keep those tonal transitions smooth.

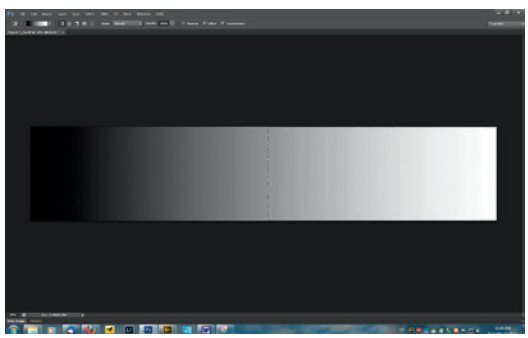
Setting up the zone masks is a bit of work, but worthwhile work. You can speed up the process by using an action, and you can even download a pre-programmed action from the Rocky Nook website at *rockynook.com/dzs*.

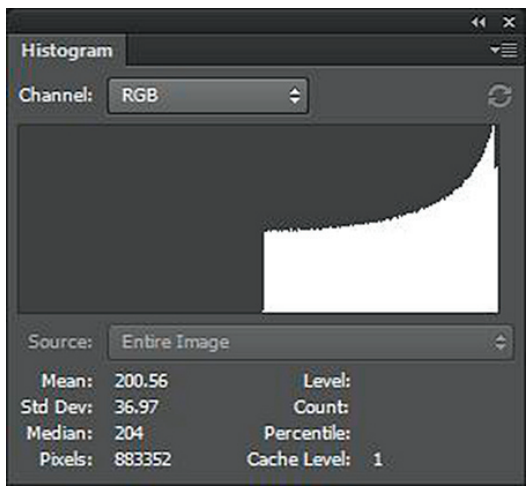
Downloadable actions can be found on the Rocky Nook website at rockynook.com/dzs



▲ *Figure 5.1: Black-to-white gradient*

Before getting into the detailed steps of setting up zone masks and working with an actual image, let's take a look at how the selections work on a sample image. For illustration purposes, what we'll look at is a black-to-white gradient. In figure 5.1, we see a black-to-white gradient with the histogram for the gradient.



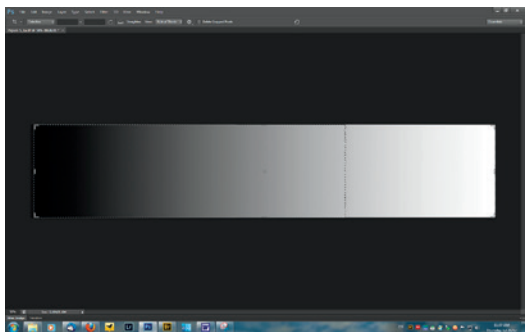


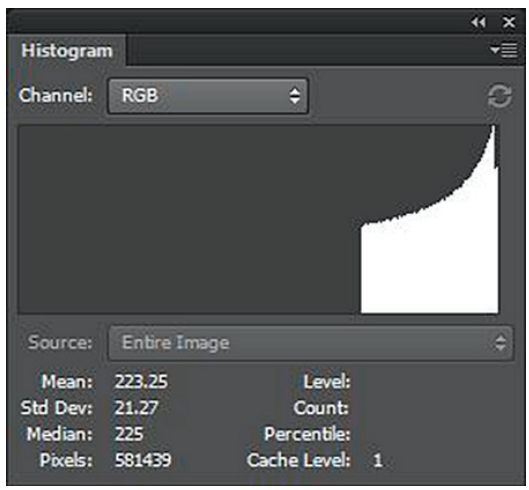
▲ *Figure 5.2: Highlights selected*

In Photoshop CS6, we can select the highlights in an image by holding CTRL+ALT+2 (⌘+option+2) together. (In versions prior to Photoshop CS5, using CTRL+ALT+~ did the same thing.) You can also select the highlights by holding CTRL (⌘) and clicking on the composite RGB channel in the Channels palette. When we do that, we get a selection with a histogram that looks like figure 5.2.

◀ *Figure 5.3: Photoshop layer stack showing alpha channel*

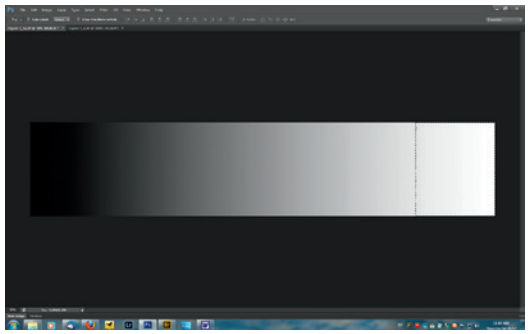
What has happened with the histogram? We've made a selection such that just less than half the image is selected—the portion that's brighter than a middle value (128 or Zone V). We can save this selection as an alpha channel, then make another selection. The layer stack with the alpha channel looks like the screenshot in figure 5.3.

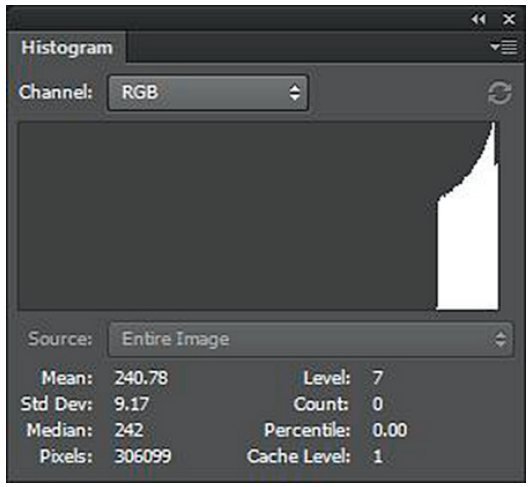




▲ *Figure 5.4: Smaller selection created from highlights*

Holding CTRL+ALT+SHIFT (+option+shift) and clicking on the thumbnail for the alpha channel will create an intersecting or overlapping selection. The histogram for this new selection is shown in figure 5.4. As you move your cursor over the alpha channel thumbnail while holding CTRL+ALT+SHIFT (+option+shift) you'll see a little x in the box below the finger. This indicates that you're making an intersecting selection.





▲ *Figure 5.5:Successively smaller selections can be created*

Compare this histogram with the one from the first selection. It is showing half the brightness as in the first selection. This will be important as we move forward. We can repeat this process and get a smaller intersecting selection, as shown in figure 5.5. Once again, take note of what happens to the histogram. It has been cut down by half again.

We could invert the original selection (the highlights selection) and repeat the process. Doing so would create similar selections on the darker end of the gradient.

What does it mean when you cut brightness by half or double it? It means you've added or subtracted one stop of light. Each of the new selections we make is removing one stop of light or brightness from the previous selection. We know from our earlier discussion that one stop of brightness equates to one zone in the original Zone System. What we have with these intersecting selections is a way to create areas of brightness that can be likened to the zones in the Zone System.

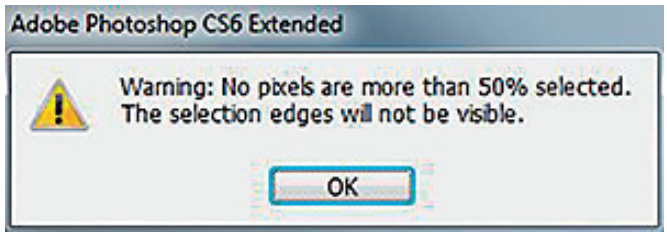
Separating Zones

We're not quite done yet. Most of these selections are made up of multiple zones. We need a way to separate them and make each an individual zone. We do that by subtracting one selection from another. The first selection contains all the brightness values higher than 128, or Zone V. We'll consider this to be Zones VI through X. Our second selection contains one stop or zone less. It contains Zones VII through X. Subtracting the second selection from the first leaves us with just Zone VI.

The way to subtract one selection from another is to hold CTRL+ALT (+option) and click on the thumbnail for the alpha channel we want to subtract. The steps are as follows:

1. Select>Load Selection>Alpha 1 (or CTRL+click +click) on the alpha channel you want to load, per chapter 4).
2. CTRL+ALT+click (+option+click) on the thumbnail for Alpha 2.

When you do this, you're going to see the warning message shown in figure 5.6. Don't worry. This warning message doesn't mean you don't have a selection. You do. What this is telling you is that none of the pixels in the selection are more than 50% visible. This is because we're making a selection of a very small set of pixels, combined with the fact that these overlapping selections are highly feathered.



◀ *Figure 5.6: Photoshop warning dialog box*

Repeating this set of steps for other selections will create a series of zones one stop apart. Keep in mind, there is an action you can download as well. I would recommend walking through the steps manually at least once to get a feel for what's happening.

In applying the Zone System to black-and-white film, Adams was truly working with tones, or luminance values. There was no color muddying things up. In the digital world, if we just apply the zone masks we're creating as adjustment layers on the image file, we're working with luminance and color. What we want to do is separate color from luminance so we can work on each separately.

Photoshop has several different Blending Modes for layers. One of them is Luminosity. It gets us partly to where we want to be, but not all the way.

Creating a Luminance Layer

We are going to separate luminosity by creating a new luminance layer that contains only the information on brightness values, irrespective of color. There is no way to do that directly in Photoshop, but there is a workaround. On the Photoshop installation disk for versions earlier than CS5, or contained in the download if you downloaded the program from Adobe, is a folder called Goodies. Inside this folder is a filter called HSB/HSL. To install this filter, unzip the folder, open the extracted folder, and look for the Optional MultiPlugin.8bf file. This plug-in includes the HSB/HSL filter.

For CS5 and CS6, Adobe no longer includes this plug-in with the software, therefore it must be downloaded separately from the Adobe website. For CS5, the package can be downloaded from *http://www.adobe.com/support/downloads/detail.jsp?ftpID=4688*. With CS6, the optional plug-ins are available at *http://helpx.adobe.com/photoshop/kb/plug-ins-photoshop-cs61.html* under the "Plug-ins available via web download" heading. Copy and paste the plug-in into the PhotoshopCSx/Plug-ins folder on your hard drive. Restart Photoshop and the plug-in should appear under Filter>Other>HSB/HSL.

HSB stands for "hue, saturation, and brightness," and HSL stands for "hue, saturation, and lightness." With both, the H is the same, but the saturation differs between the two.

In the HSB model, saturation is at its highest when brightness is 100. This makes

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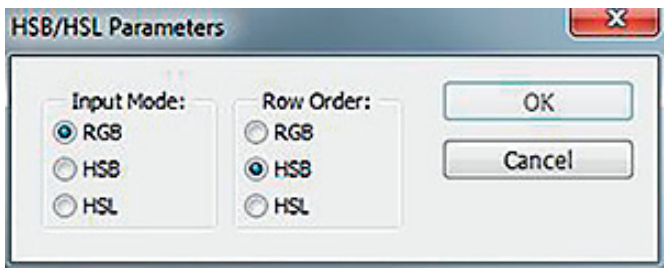
intuitive sense. We need light to see color. The more light, the more color we see. In the HSL model, saturation is highest when lightness is 50%. From that point, saturation drops as lightness increases or decreases. That's not really what we want., so for purposes of the DZS, we're going to use the HSB filter. I've created an action to generate the luminance layer, which you can download at *rockynook.com/dzs*.

The steps to create a luminance layer are outlined next, and as with the zone masks, I recommend walking through these steps at least once to get comfortable with what's happening.

1. Open your image file. If you already have layers in the file, click to activate the background or base layer.
2. Go to Image>Duplicate.
3. Go to Filter>Other>HSB/HSL. A dialog box like the one in figure 5.7 will pop up. Make sure RGB is selected as the Input Mode and HSB as the Row Order. Click OK.



▶ *Figure 5.7: HSB/HSL selection dialog*

4. In the Channels palette, click on the Blue channel to select it. The Blue channel corresponds to the Brightness channel in HSB. Photoshop does not rename the channels Hue, Saturation, and Brightness, so you just need to know that the Blue channel represents Brightness.
5. With the Blue (Brightness) channel selected, go to Select>All or press CTRL+A (⌘+A). Next go to Edit>Copy or press CTRL+C (⌘+C).
6. Select the original image and go to Edit>Paste or press CTRL+V (⌘+V). This will paste the luminance information onto the original image as a new layer.
7. Set the Layer Blend Mode of this luminance layer to Luminosity.
8. Rename the new layer Luminance or something else that will remind you what it is. In the action that you can download, it's called Luminance Layer.

That's it! You have now extracted the luminance, or brightness, values from your image and can use zone masks to make adjustments to the luminance information, separate from the color information.

One thing to take note of is that the luminance layer is in grayscale. That's because we've removed the color information and are left with just brightness values. This will become key in converting to black-and-white, which will be covered in chapter 6.

Creating Zone Masks

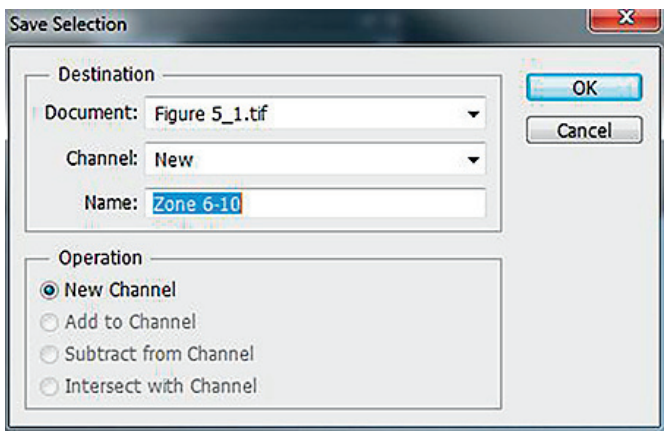
Now we can move on to creating zone masks. This is a multi-step process and does take a bit of time. The action mentioned earlier will speed up the process to just a few seconds. There are a few things to be aware of before you begin.

First, if you're working on an existing image that already has adjustment layers in place, the effect of those layers on the image will be taken into account when you create your zone masks. To avoid those adjustment layers affecting your zone masks, turn the visibility of the layers off by clicking on the eye icon to the left of the layer.

Second, when you run the action to create your zone masks on an image that has existing adjustment layers, a dialog box may pop up that says "Progress" and "Merging Layers." The layers will not actually end up being merged into a single layer at the end. This is the effect of the adjustment layers being taken into account when the zone masks are created. You'll still get the dialog message if the visibility of those layers is turned off, but the effect of the layers on the image will not affect the creation of the zone masks with the layer visibility turned off.

Now let's move on to actually creating zone masks. Complete the following steps:

1. Click on the luminance layer to activate it.
2. Select the highlights in the image as outlined earlier in the chapter.
3. Go to Select>Save Selection, which will open the dialog box shown in figure 5.8.
4. In the Name field, give the selection a name that will easily remind you what it is. I use Zone 6–10. New Channel is selected by default, and that's what you want. You can also use the quicker method of saving the selection as a channel, as discussed in chapter 4, in which case you'll need to double-click on the alpha channel to rename it.



◀ *Figure 5.8: Save Selection dialog box*

5. Press CTRL+ALT+SHIFT (+option+shift) and click on the thumbnail for the Zone 6–10 channel in the Channels palette. This will create the next smaller selection, as shown above.