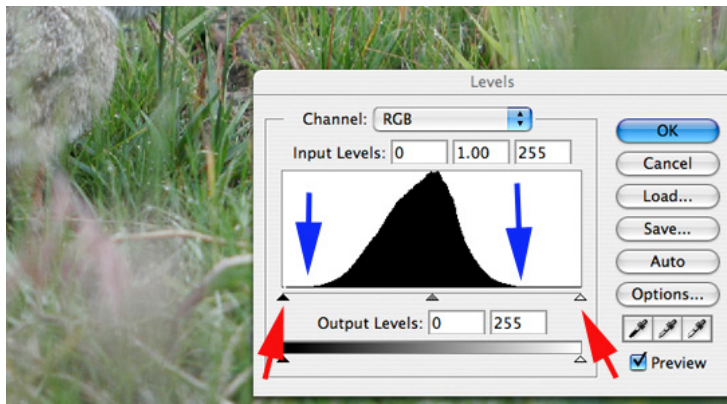# Post Processing Workflow in Photoshop

by Chuck Gardner

In this tutorial I will demonstrate the Photoshop workflow I use when editing my digital photos. We start with a photo of a rabbit which I took early in the morning just after sunrise.   It looks flat and off color with a greenish color bias.


My first step is to open the photo in Levels and examine the histogram which shows the distribution of tones in the photo. Highlights are on the right and shadows on the left.

The blue arrow are pointing to the base of the curve where the lightest and darkest tones in the photo are falling on the tonal scale.   The photo looks flat because the highlights are too far to the left and the shadows are too far to the right.   Ideally the base of the "bell" curve should just barely touch both ends of the horizontal scale where the red arrows are pointing.   In the next step we will adjust the contrast using the sliders the red arrows are pointing to.

Photoshop has many "hidden" features which are accessed by holding down the Alt or other keys. In Levels holding down the Alt (Opt on Mac) key and moving the highlight slider to the left reveals the areas in the photo where the value in any channel is maxed out with a value of 255. When the channel selector is set to RGB the "clipped" areas will be color coded to indicate the channel which is at 255. Where two channels are clipped, such as red + green the color will be the combination of the two; yellow for red+green.

Clipped (overexposed) area are revealed

Channel = RGB

Hold Down Alt and move highlight slider
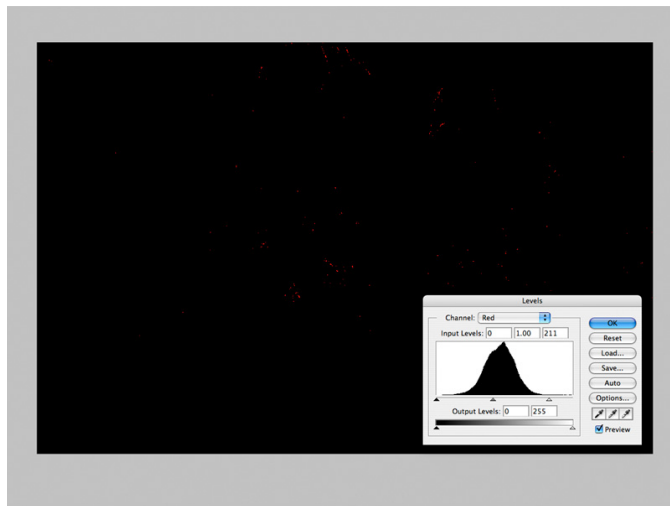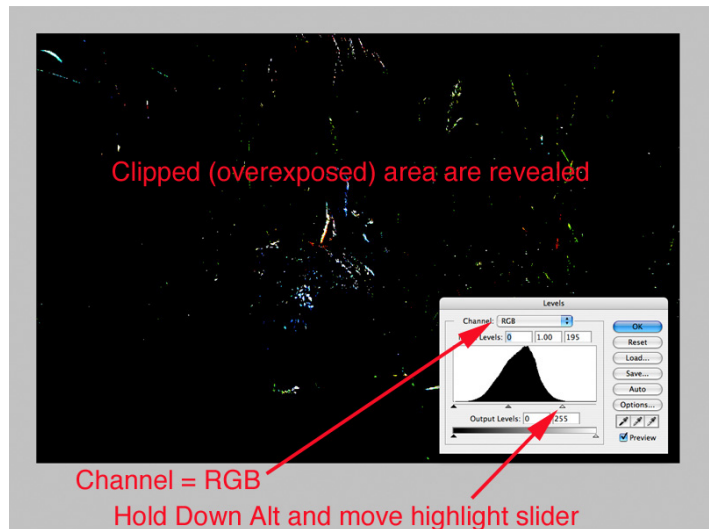
The jumble of RGB colors is a bit confusing so its better to look and adjust one channel at a time. That is done by changing the Channel pull-down menu.

Here the RED channel has been selected, then the Alt/Opt key pressed until red specks indicating clipping appear. The only areas in the photo which should be 255 are pure red or pure white specular highlights.

A similar adjustment can be made in the shadows by holding down Alt/Opt and moving the left triangle to the right. The screen will turn the color of the channel and the shadow areas will turn black when they have a value of zero, which is solid black.

In this photo of the bunny the darkest part of the eye should be pure black. Having a pure black tone in an appropriate area helps create the correct perception of contrast in the image

Hold Down Alt Key and move
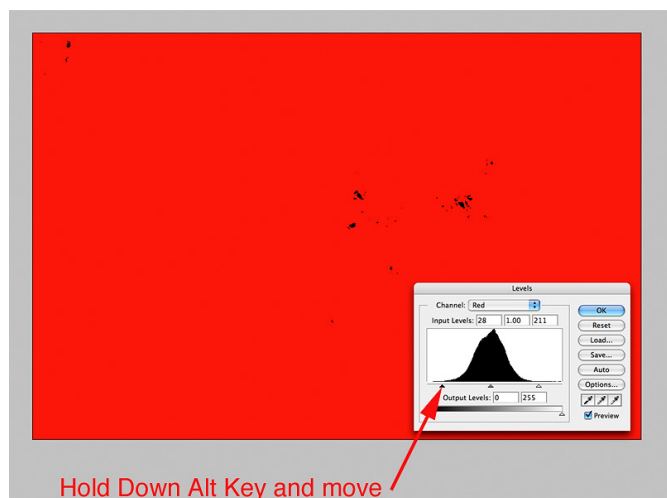
In a digital photo the neutral colors from white, gray to black are all combinations of equal parts red, green, and blue. When the color balance in the camera is set correctly to match the color of the light the colors in the scene will be reproduced correctly. But if the "white balance" of the camera does not match the light the photo will have a off-color cast.

When we adjust each Levels channel individually just to the point of the highlights and shadow values clipping in not only corrects the contrast in the image, it will also correct the white balance.
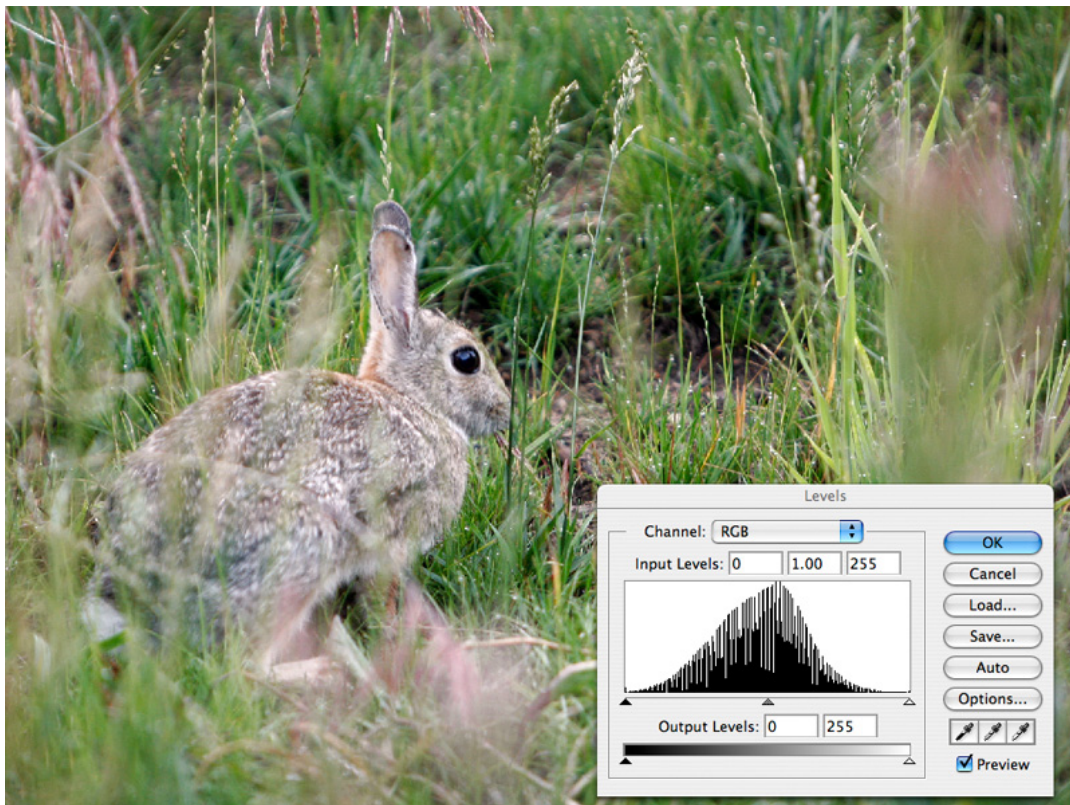
The screenshots on the right show the green and blue channels as the highlights were adjusted to the point of clipping. As each channel is adjusted the photo will look off color until all three are adjusted.
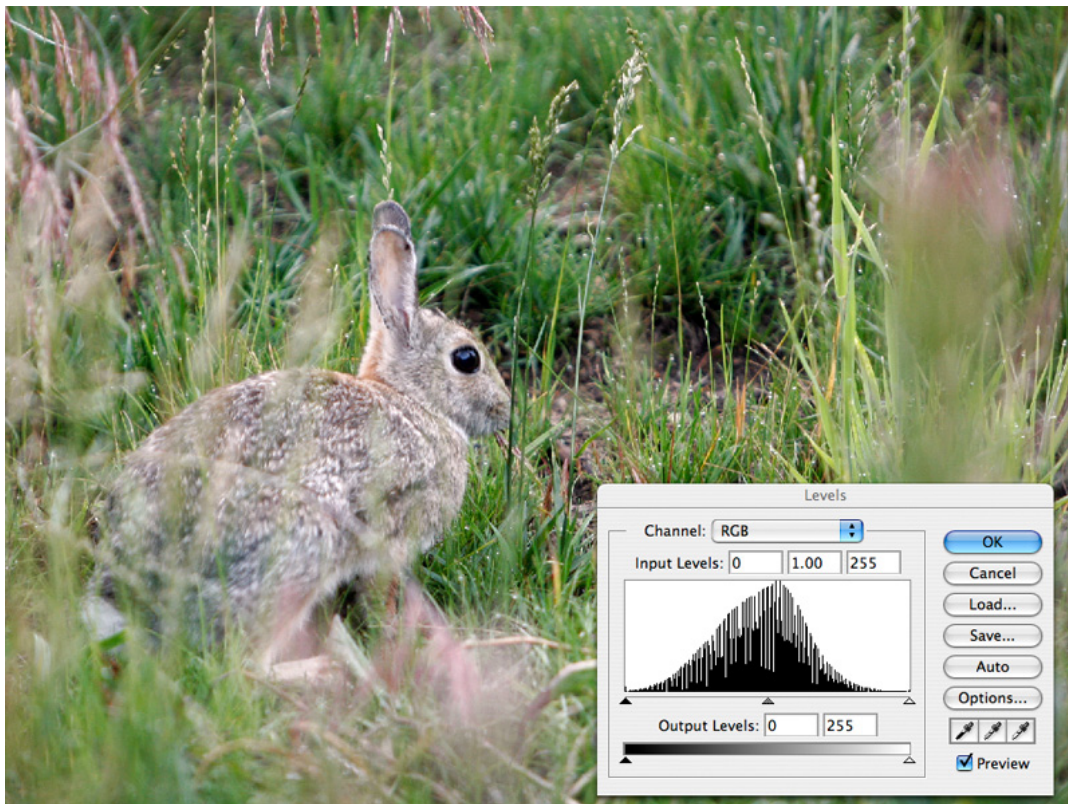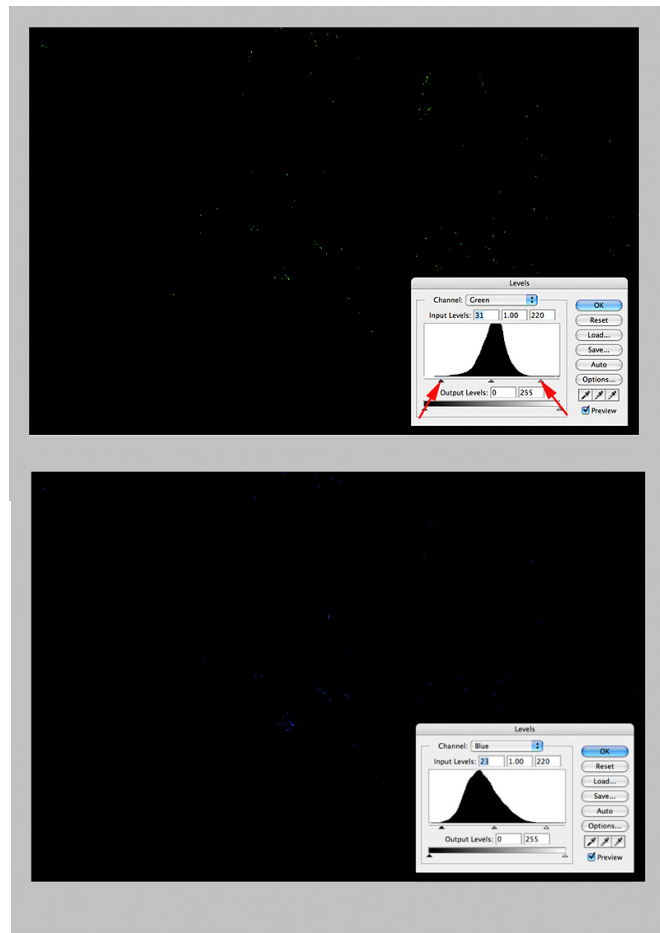
Original photo from the camera

After correction with levels - individual channels

Localized tonal correction using masked duplicate layers

The levels correction done in the previous section takes care of "global" contrast and color correction of a flat or off color image. Global refers to the fact that the entire image is affected by the adjustment.

Often I will want to adjust only specific areas of a photo rather that all parts of it at once and for that task I employ the techniques of duplicate layers and masking. Under the Windows menu in Photoshop is the Layers menu. When a file is opened it has one layer named "Background" which is locked, meaning no changes can be made to it.

Clicking on the background layer and dragging it down over the "new layer" icon at the bottom of the layers window will create a second layer which is an identical copy.

Up at the top of the layers window there is a pull down menus used to select the mode of the layers. Here the mode of the first duplicate layer has been changed from normal to "screen" which has the effect of making the color it each pixel of the image twice as bright.

Drag Background layer down over the new layer icon

Double-clicking the name of the layer allows it to be edited to reflect the mode which has been assigned to it and the effect it has on the image.

Note that the image in the dupe layer remains identical in all respects to the background. It is the mode which tells Photoshop how to adjust the background.
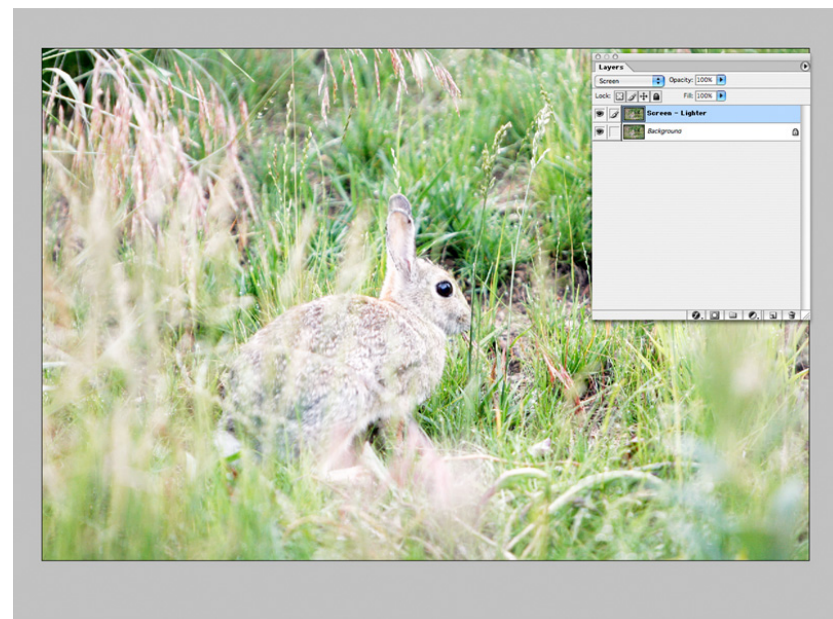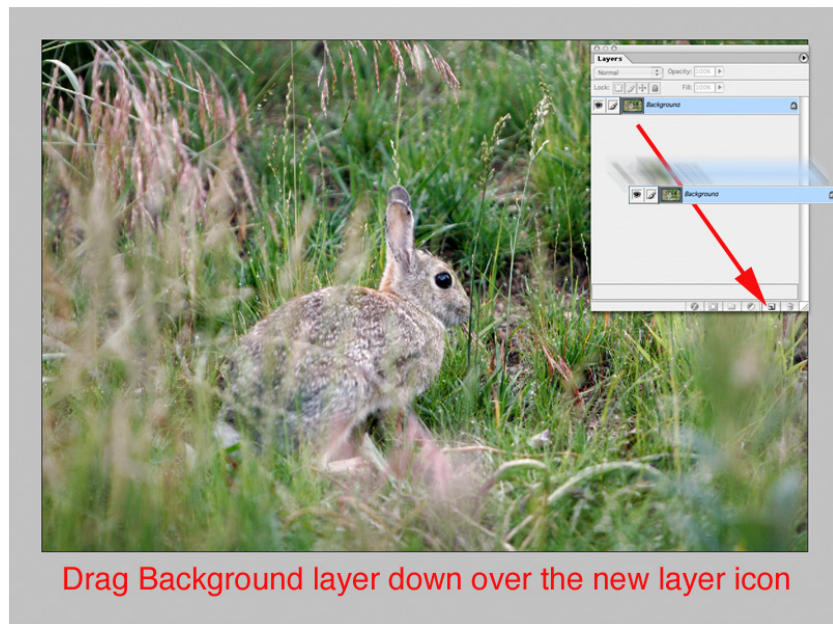
The next step is to add a bitmap mask to the screen layer which was just created over the background layer. In Photoshop a black mask completely blocks the effect the dupe layer will have on the background layer. When the black mask is added to the screen layer the image reverts to its original state.   The shortcut for adding a black bit map mask is to first make sure black is selected as the foreground color by clicking the small black/white icon in the main toolbar. Next click the layer the mask is to be added to. Finally hold down Alt and click the "new mask" icon at the bottom of the layers window. A black rectangle representing the mask will appear in the dupe layer.
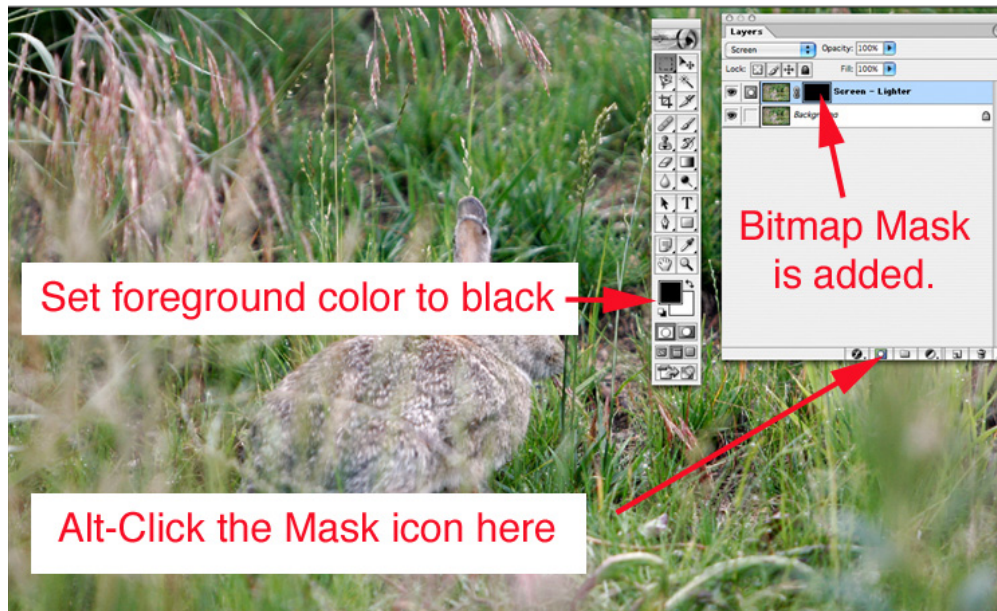

Since we also want to selectively darken areas of the photo a second dupe masked layer must be added. The procedure is the same as for the screen layer with one exception; the mode of the dupe layer is set to "Multiply". When the second layer and mask is added the layers window will look like this:
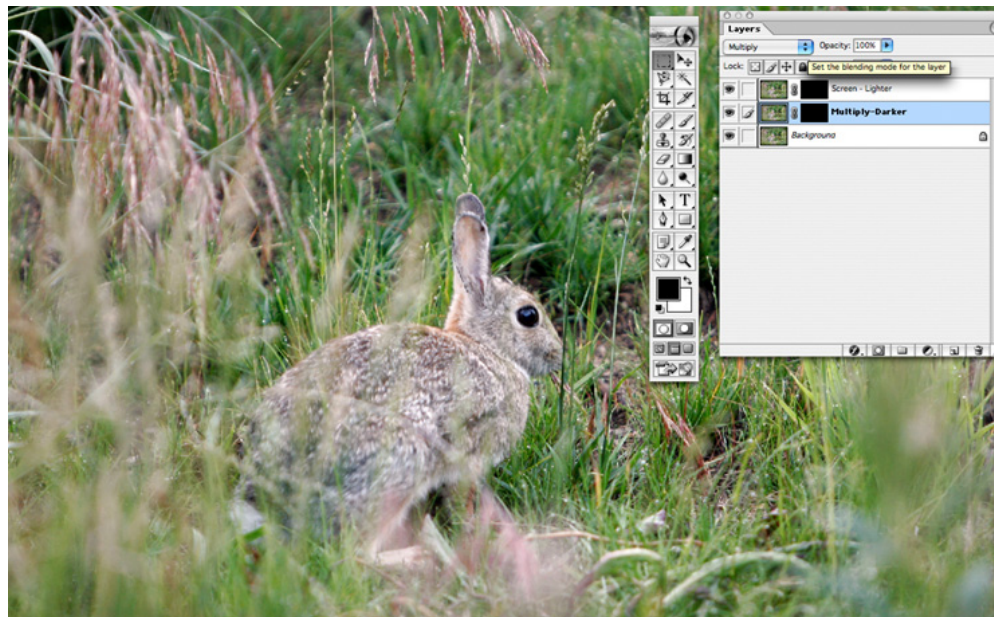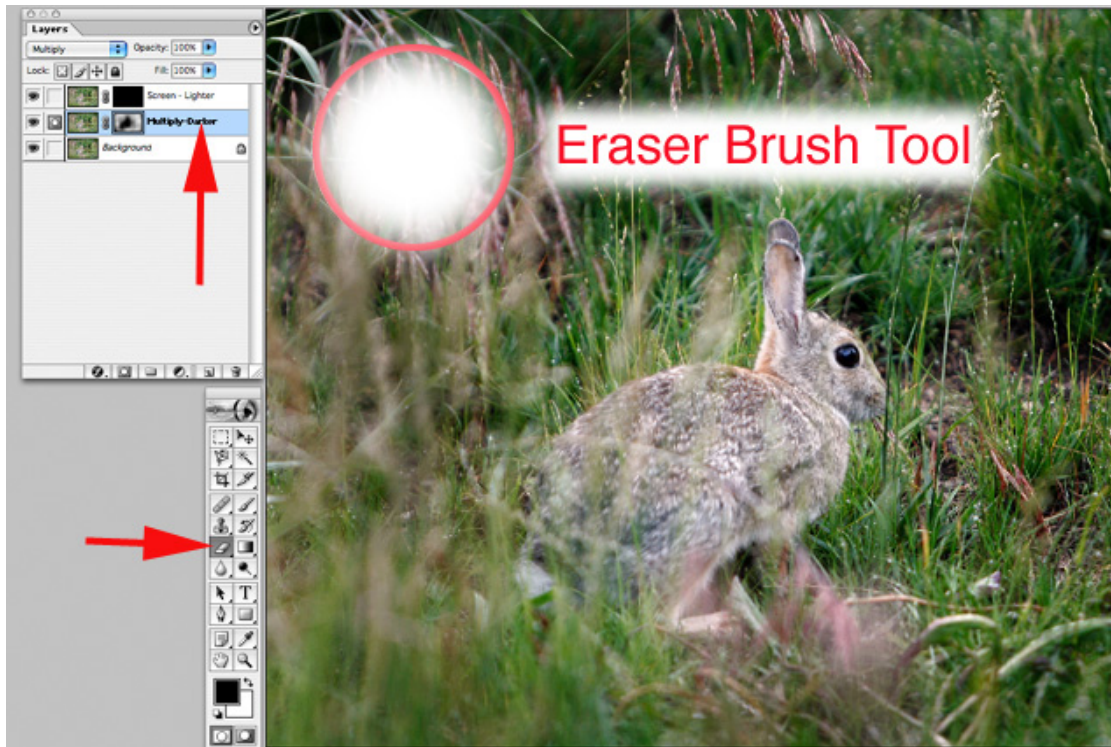
Eraser Brush Tool

Now we are finally ready to adjust the photo selectively.   With black and white set as the foreground / background colors select the eraser tool and set its mode to "brush" and click the airbrush. That creates the softest feathering of the edges. Use the [and] keys to make the brush smaller and larger. Holding down shift and using the same two keys { and } will make the brush softer or harder edged. For this job we want it as soft as possible. Finally set the flow to about 20%

Click the mask on the multiply layer to select it then erase in the edit window where the image needs to be darker. What is actually happening is that the black mask is being erased, but what is seen in the edit window is only the net effect of the change; the areas which are erased over get darker and more saturated. This is very similar to the way the "burn" tool works but with two important differences: 1) the burn tool just adds gray that dulls the colors but multiply retains the color and doubles its value if the mask is erased completely, and; 2) if the mask is erased too much it can be painted back in with a black brush or just dragged to the trash can icon at the bottom right of the levels window and a new one added for a second try.
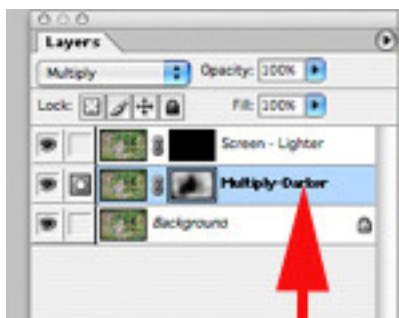
In the example photo I erased all around the bunny to darken the grass and make him contrast more. If you look at the small mask icon in the layer it shows the areas of the mask which were erased. To view the mask full size in the edit window simply Alt+click it. Alt+click the the mask icon again to hide it from view.
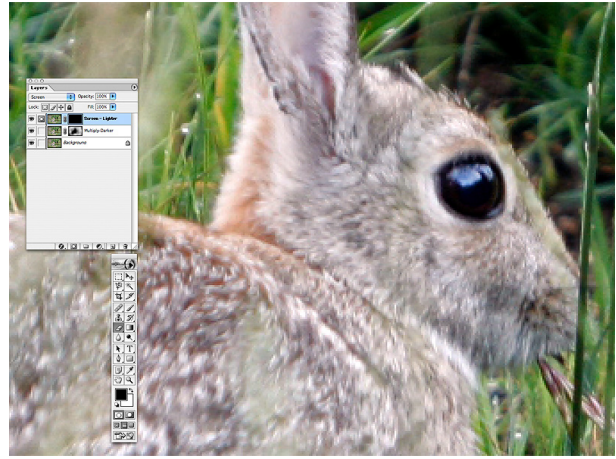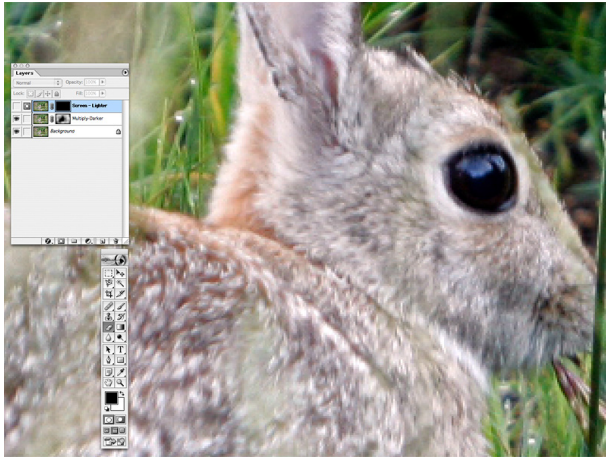
There really wasn't much in this photo which needed to be lightened with the dupe screen layer. The before / after photos above show the result of lightening the catchlight in the eye by selectively erasing the screen layer.
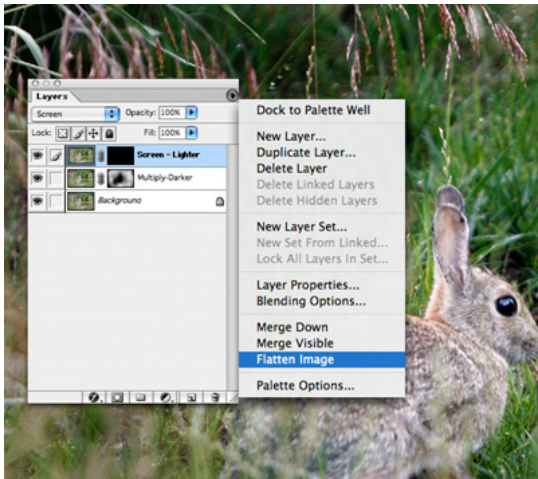

After all the corrections are made using the dupe layer the image is flattened back to a single layer.

Using the history window to make a snapshot before flattening will allow you to return to this step if you plan to save the image as various sizes with varying amounts of unsharp masking, which is the final post processing step.
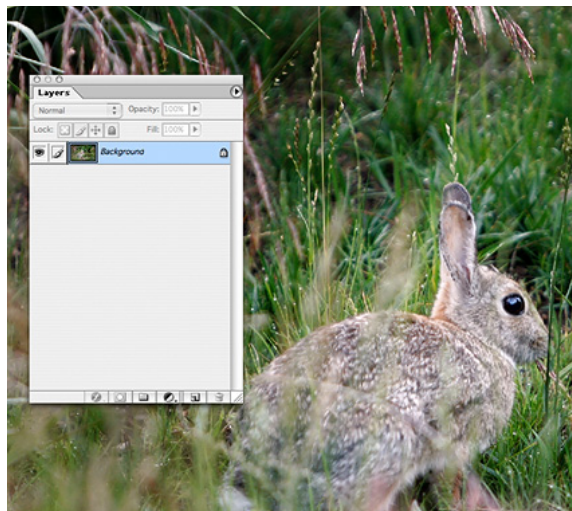
Here is a comparison of how the image looked originally, after the levels correction, and after the selective adjustment with the duped masked layers:
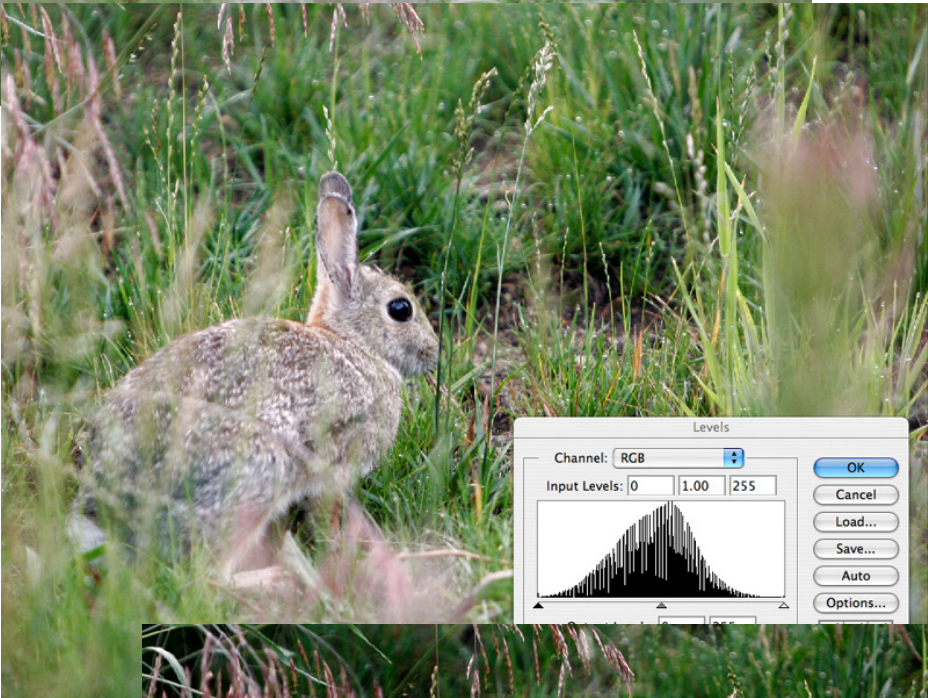
The final post production step is sharpening. Sharpening is necessary to compensate for the fuzziness introduced into the image when is created in the camera. In the actual camera sensor each pixel is only one color - red, green, or blue. But when processing the image each pixel is assigned an RGB value.   A process called "unsharp masking" is used to give the tonal transitions within the image more snap. The additional contrast fools the eye into thinking the transitions are sharper. Hence the name sharpening.

There are many ways to sharpen an image, but the one illustrated below does it in a way which minimizes color noise by fading the sharpening using the luminance channel. It is a bit of deep Photoshop voodoo which applies the sharpening to the detail but not the color.
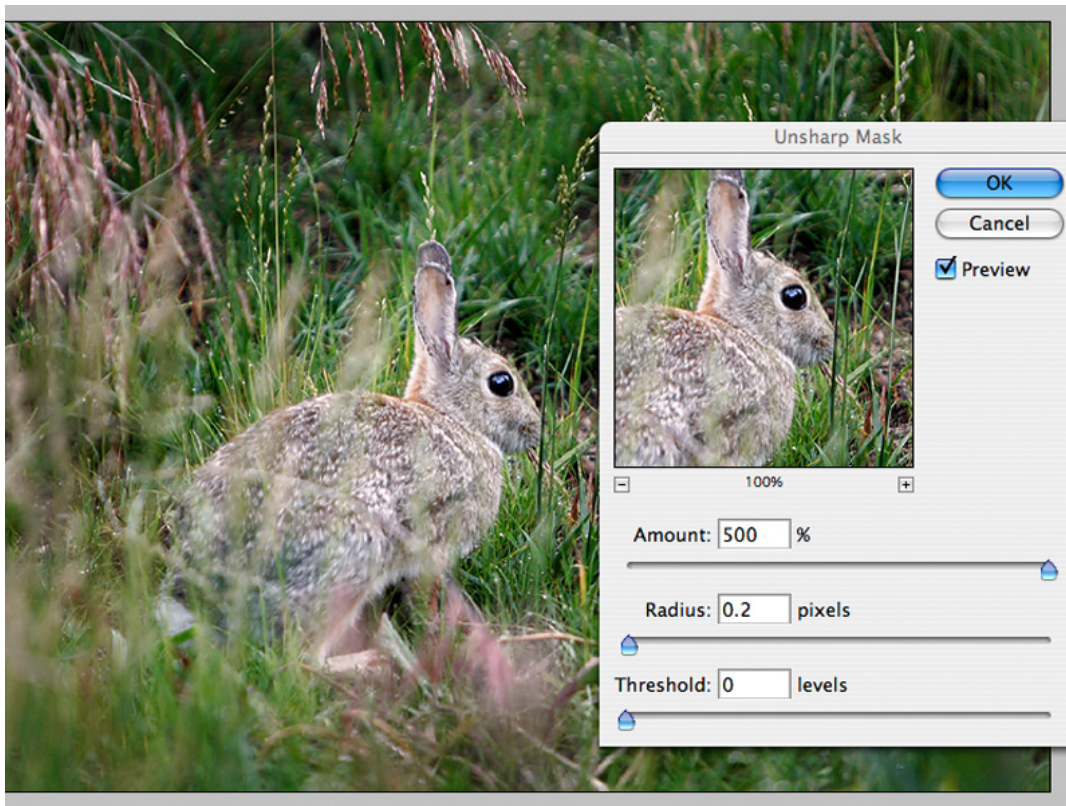
Under the Filter menu select Sharpen > Unsharp Mask and set the values shown above: Amount = 500, Radius = 0.2 and Threshold =0.   Those setting apply very strong sharpening to a very narrow area on either side of the tonal transitions in all areas of the photo.   It must be followed by a second step which applies the sharpening to the detail without affecting the color.
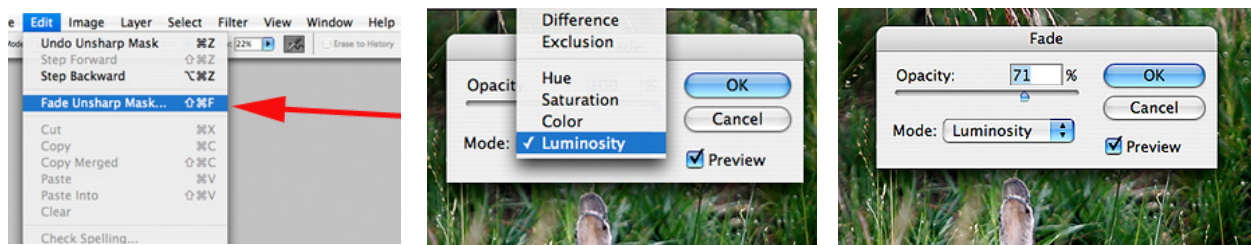
First select Edit > Unsharp Mask.   When the middle dialog box appears change the mode to "luminosity". Finally move the opacity slider from zero which applies no sharpening to 100% as you view the image at 100% magnification. For most subjects an opacity of about 70% - 80% looks best.

The final comparison from camera file to edited, sharpened file are shown below. The reproduction here is affected by the importing them into the layout application and saving as a PDF. You can download the two files for comparison in your web browser at http://super.nova.org/DPR/Technique/images/bunny.jpg

For more information on digital color and lighting visit my tutorial web site: http://super.nova.org/DPR/