

Movie 7 (Chapter 8 extract)

Black and white from color

Adobe Photoshop CS2 for Photographers by Martin Evening ISBN: 0 240 51984 1

is published by Focal Press, an imprint of Elsevier. The title will be available from May 2005. Here are four easy ways to order direct from the publishers:

By phone: Call our Customer Services department on 01865 474010 with your credit card details

By Fax: Fax an order on 01865 474011

By email: Send to directorders@elsevier.com

By web: www.focalpress.com

Orders from the US and Canada should be placed on 1-800-545-2522

By email: custserv.bh@elsevier.com

The title will be stocked in most major bookstores throughout the UK and US and via many resellers worldwide. It will also be available for purchase through the online bookstores Amazon.com and Amazon.co.uk.

Color filters for monochrome work

Color filters can be used in monochrome photography to filter the colors in a scene and thereby alter the color contrast. A strong red filter will filter out the blue/cyan colors and make white clouds stand out with more contrast against a dark sky. A yellow or orange filter will produce a softer effect. A green filter can be used to make foliage appear lighter relative to everything else in the scene and so on... These principles can also be applied to the formulas used in the channel mixer to simulate the same type of filtration. A 50% Red channel and 50% Green channel mix in Monochrome mode, will simulate the effect of using a yellow filter.

Lab color conversions

Another way to convert a color image to monochrome is to do a Lab color mode conversion and copy the luminosity channel. There is nothing necessarily wrong with this method, but it is not much better than making a conversion to grayscale and back to RGB mode again. The Channel Mixer and Hue/Saturation techniques described here are, by comparison, far more versatile.

Black and white from color

When you change a color image from RGB to Grayscale mode in Photoshop, the tonal values of the three RGB channels are averaged out, usually producing a smooth continuous tone grayscale. The formula for this conversion roughly consists of blending 60% of the green channel with 30% of the red and 10% of the blue. The rigidity of this color to mono conversion formula limits the scope for obtaining the best grayscale conversion from a scanned color original. This is what a panchromatic black and white film does, or should be doing rather, because there are slight variations in the evenness of emulsion sensitivity to the visual and nonvisual color spectrum. And it is these variations in spectral sensitivity that give black and white films their own unique character. But the point I would like to make here is, that just like a grayscale conversion in Photoshop, a black and white film interprets color using a standard formula. You may also be familiar with the concept of attaching strong colored filters over the lens to bring out improved tonal contrast in a monochrome image. The same principles can apply to converting from color to black and white in Photoshop, and of course, this allows you the freedom to make this decision after the photograph has been shot. Using the Channel Mixer, you can create a custom RGB to grayscale conversion. This gives you the latitude in Photoshop of being able to make creative decisions at the editing stage that will allow you to simulate the effect of shooting using black and white film with a color filter placed over the lens at the time of shooting.

I have included an alternative technique on page 4 for producing a monochrome image from a color original, which simultaneously uses the Hue/Saturation image adjustment to modify the hue color of the underlying image and at the same time, a second Hue/Saturation layer neutralizes the color to create a neutral, monochrome image.

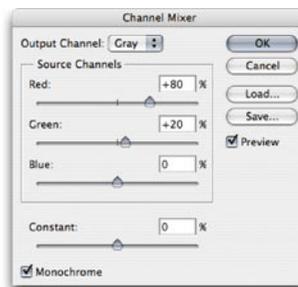
Black and white from color



1 If you shoot using black and white film, the emulsion is more or less evenly sensitive to all colors of the visual spectrum. If you add a strong colored filter over the camera lens at the time of shooting, that color sensitivity is altered as certain wavelengths of color are blocked out by the filter. The following steps mimic the effect of a red lens filter being used to strengthen the cloud contrast in the sky.



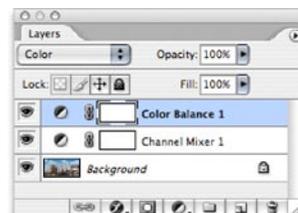
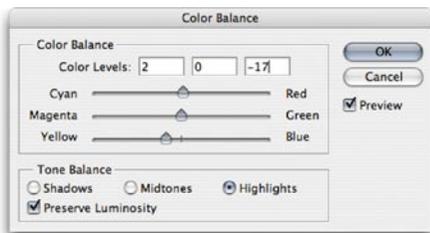
2 To start with I went to the Image menu and chose Adjustments ⇨ Desaturate. This produced a flat-looking result based on a standard grayscale conversion formula where the monochrome RGB image is calculated using a mix of 30% red, 60% green and 10% blue.



3 I chose Edit ⇨ Undo to revert to the original color version of the image and added a Channel Mixer adjustment layer using the settings shown in the dialog above. Note that when the Monochrome box is checked the Channel Mixer will produce a monochrome result based on a color channel mix of your choosing. For the very best results, try to get the percentages in each slider box to add up to 100%. This is not a hard and fast rule – variations other than 100% will just be lighter or darker. So just use whichever settings produce the best looking result. The predominant use of the red channel created a stronger tonal contrast with the clouds in the sky.



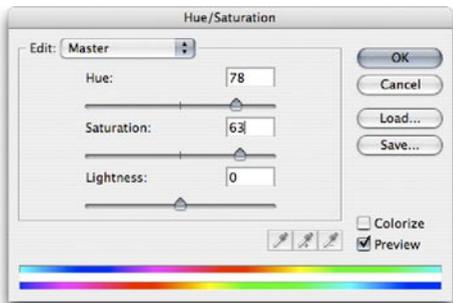
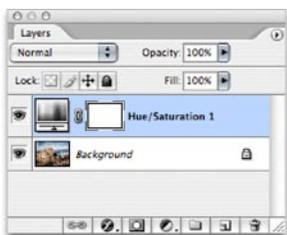
4 Lastly, I added a Color Balance adjustment layer to create a split tone coloring effect. I changed the blending mode of this layer to Color. Doing this preserved the full luminosity information of the layers below.



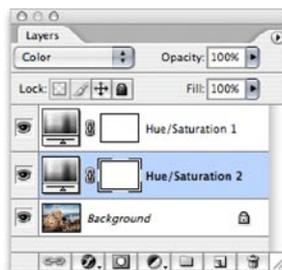


1 Russell Brown, the Senior Creative Director of the Adobe Photoshop team, was one of the first people to demonstrate the following alternative technique for creating a color to monochrome conversion in Photoshop.

2 I opened an RGB image, and went to the Layers palette and added a Hue/Saturation adjustment layer. I took the saturation all the way down to zero so that the photograph was desaturated and became a monochrome version of the color original. The result was more or less what you would expect to get if I had simply converted the image to Grayscale.



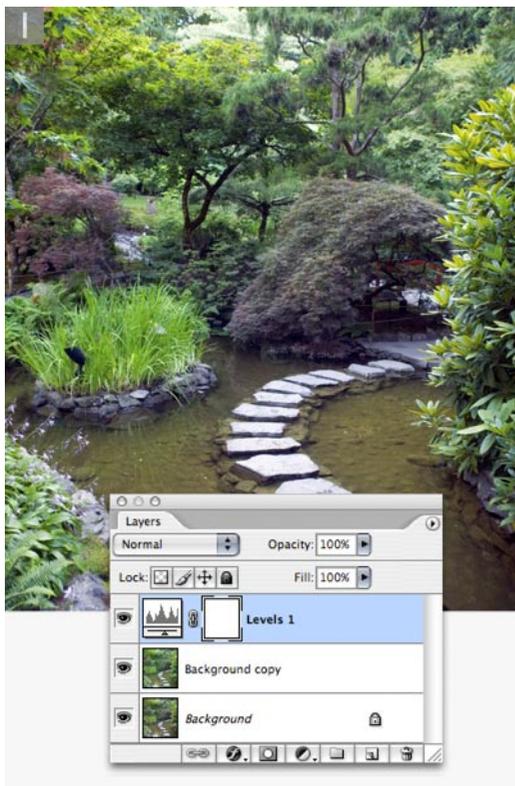
3 I activated the background layer and added a second Hue/Saturation adjustment layer. This will be between the Background layer and the earlier Hue/Saturation layer. I made no adjustments and clicked OK and set the layer blending mode to Color. When you reopen the dialog you can now adjust the Hue slider and achieve a similar result to adjusting the channel mix in the Channel Mixer as shown in the previous tutorial. When you try this out for yourself, you can also adjust the Saturation and Lightness to further tweak the monochrome conversion.



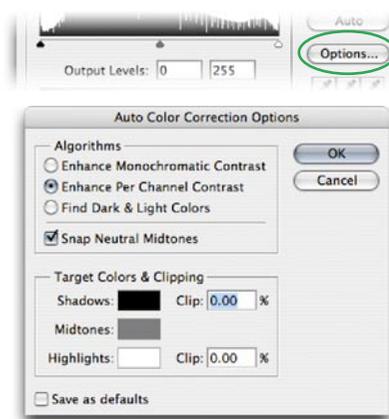
Infrared film simulation

There is a special infrared sensitive film emulsion you can buy that is predominantly sensitive to infrared radiation. And its other main characteristic is that the emulsion is quite grainy. Vegetation in particular reflects a lot of infrared light which is beyond the scope of human vision. Hence, green foliage will appear very bright and almost iridescent when captured on infrared film.

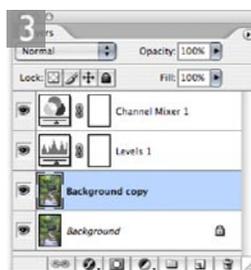
I first invented the following technique some six years ago when I was asked to come up with different ways to convert a color image to black and white. Since then I have had the opportunity to refine the steps used and make some improvements. And now that you can do layered editing in 16-bit per channel mode, one can achieve much smoother results by following the steps shown here.



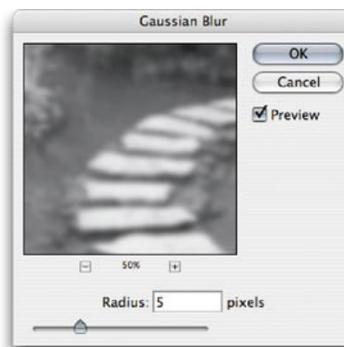
1 This photograph of a Japanese garden is in RGB mode and is a good one for demonstrating the infrared technique, which is basically an extension of the color to monochrome technique using the Channel Mixer. As you can see, there are a lot of green leaves in the picture and the aim of this technique was to lighten the leaves and apply a slight glow to them. The following steps required some extreme image adjustments, and so I felt it was important to keep the image in 16-bit per channel mode throughout. I began by copying the Background layer and then added a Levels adjustment layer. I clicked on the Options button in Levels and checked the Enhance Per Channel Contrast button (shown below).



2 The next step was to add a Channel Mixer adjustment layer set to Monochrome mode. Now if we want the green channel to appear the lightest (because it contains most of the green foliage information) then we have got to somehow boost the green channel mix. The maximum setting allowed is 200% which produces a burnt-out result. Bearing in mind the 'keep everything adding up close to 100%' rule, I reduced the other two channel percentages, to give them minus values. There was a lot of cyan coloring in the green, so I reduced the red channel by 80% and the blue channel was therefore set to minus 20%.



3 I now wanted to add some glow to the foliage. It is important that the underlying image has remained in RGB (because it is the adjustment layer which is making the monochrome conversion). I first made the Background copy layer active and then went to the Channels palette and highlighted the green channel and applied a Gaussian blur filtration to that channel only. The amount used here was 5 pixels, but you might want to apply more on bigger images or to achieve a more diffuse effect. I followed that with an Edit ⇒ Fade Filter command, reducing the blur to a 25% opacity and changed the blend mode to Screen.





4 After step 3, the picture looked rather light and there may have been some burnt out detail in the highlight areas. So this is where the Levels adjustment comes in use again. When you try using this technique, make sure that you can view the Histogram palette as you revisit the Levels dialog, because you will now want to refer to the histogram displayed in the Histogram palette and not the one in the Levels dialog. In this example, I set the Highlight Output slider to 220, in order to retain more detail in the highlights.

To further simulate the infrared emulsion, one could also try adding some Gaussian noise to the Background copy layer.

