Color To Greyscale in Photoshop

(or why B&W film is dead)
## By Jeff Schewe

This figure shows a full color image to be transformed into a high quality continuous greyscale image in Photoshop.

This figure shows a simple "vanilla" RGB to Greyscale mode change representing the panchromatic response of Photoshop..

If Photoshop's color to greyscale conversion were a B&W film, it would fall about like the old Plus-X film in terms of panchromatic response. And, that's without a medium yellow filter. If you know what that means, you must have spent some quality time in an old fashioned contraption called a "Darkroom". If you don't know what that means, well, let's just say that Photoshop's default color to greyscale conversion is a vanilla flavor and you want something special or exotic. It's a bit more work (alright, a lot more than simply doing a mode change) but the control and flexibility is nothing short of total and absolute control over the conversion process.
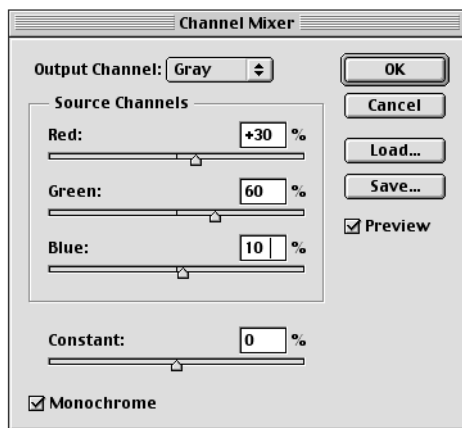
In this figure, the Channel Mixers is being used to represent the basic blend of red, green & blue channels the makes up the Photoshop default.

But, first to understand how to do it better, you need to know what the default color to greyscale conversion

represents. In simple terms (and this depends upon your working space settings for both color and greyscale) Photoshop takes approximately 30% of the Red channel, 60% of the Green channel and 10% of the Blue channel to construct the final conversion. this represents Photoshop's panchromatic response to color.

As I'm sure you have noticed, this blend often fails to provide a really good and useful color contrast in the final greyscale conversion. There are many colors that may be extremely different in color that when converted to B&W are virtually the identical tone. So, what to do you? Well, you could as some may suggest, actually use the Channel Mixers as an Adjustment Layer to modify the resulting conversion to B&W. When used in Monochrome mode, Channel Mixer can allow you to change the formula for the channel mix of the greyscale conversion. This is cool, but rather limited. You could also as some others suggest, convert to Lab color and throw away the color channels and have a greyscale that represents the luminosity of the color image. Again, a useful technique but still limited. The ideal technique, the process that will give you total control is one where you use all the color information already in the file to create a series of greyscale layers that can be modified for opacity by changing the blending or adding a Layer Mask. In this way, without ever touching the levels or curves, you
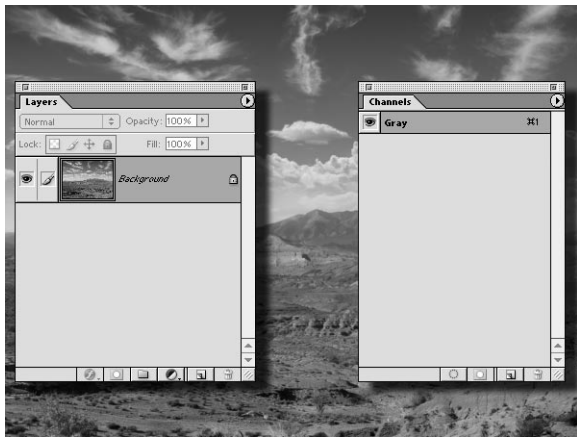
This figure shows the result of duplicating the image and converting it into a greyscale image. You end up with a single channel and layer.

Here the Red channel of the color file is targeted for copying.

can adjust the tone of the final image based upon the color information. The first step in the process is to duplicate your color image and go ahead and convert the dupe to greyscale. This will be your base background layer to build up from.
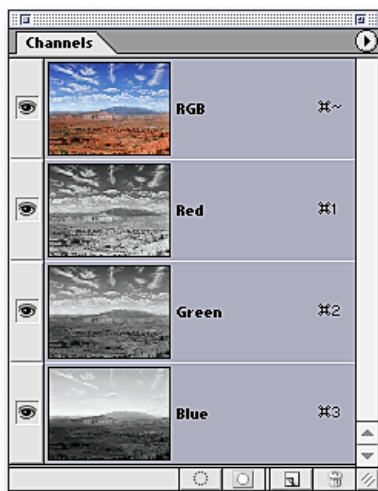
This figure shows the three additive primary colors you have to choose from from the Red, Green and Blue channels that every scan or digital capture provides you.

The next step is to go back to your original color layer and go to the Channels palette. Here you will find a wealth of useful data to use to construct your final greyscale image. Built into every scan or digital capture is the results of filtering the light though Red, Green and Blue Tri-color separation filters. The Red channel is pretty much the same result as if you shot B&W film through a Kodak Wratten #29. The Green channel represents a Wratten #58 and the Blue channel represents a Wratten #47. So, right in your RGB channel collection, you have a full range of Tri-color separation filters to allow you to blend your own mix

of color to greyscale. To use the Red channel, select the Red channel so only the Red channel is visible and targeted. Select all (Command>A for Mac, Control>A for Windows) and copy this channel. Then go back to your greyscale image, target your background layer and paste. This will add the Red channel from your color image as a greyscale layer in your B&W image. At this point, you've got the result of shooting B&W film through a Wratten #25 red filter. Cool huh? A color channel being used as a greyscale layer.

Here the Red channel of the color file has been copied into the greyscale image as a layer.

I suggest giving the channel an appropriate name to avoid confusion later. Also, from this start, you can make a Layer Mask on the Red channel layer to locally control the area where the red layer will show through.

You can continue to move back and forth between your color image and transfer each of the color channels over to the greyscale image and use them to custom blend your greyscale mix. But wait, there's still
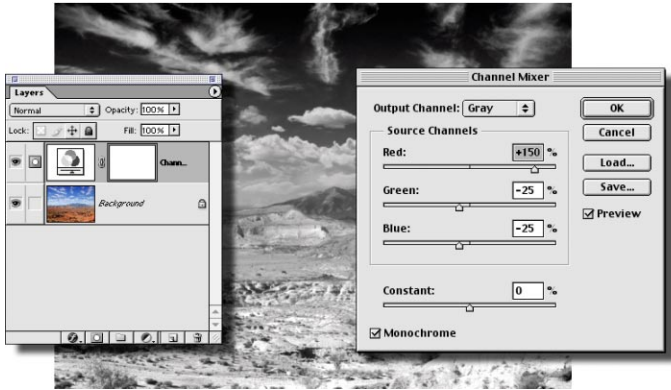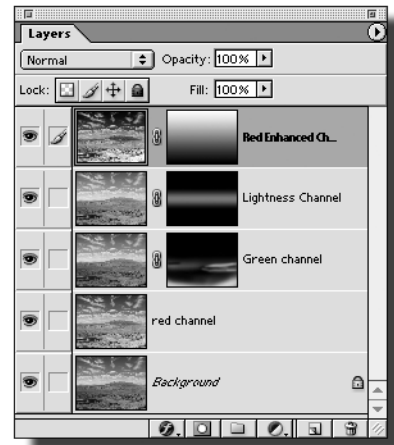
This figure shows using the Channel Mixer to produce a channel blend that would be imposible to shoot in the field.

Here is the layer stack representing each of the individual channels with their layer masks.

more to this technique. The Channel Mixer adjustment can give you greyscale information even beyond merely percentages of Red, Green and Blue. By using channel Mixer as and Adjustment Layer and modifying the percentages in the fields, you can actually produce a conversion within Photoshop that you could never shoot in real life with B&W film.

The trick to this effect is to know and understand that the Channel Mixer sum, the numbers entered into the entry fields, must equal 100%. But, there's nothing to say you can't enter negative numbers in the fields! In the above example, I've entered 150% of the Red channel and a minus 25% (-25) in the Green and Blue fields. The end result is still 100% so the basic luminosity of the image remains unchanged. You will need to actually apply the adjustment layer to the color

This image represents the results of applying a Channel Mixer Adjustment Layer and selecting one of the channels to copy into the greyscale image. Since the result of the Channel Mixer produces 3 identical channels, it doesn't matter which one gets copied into the greyscale image.

image in order to select and copy the adjusted channel information into the greyscale image. The technique is still not complete, you can take it further.

As some have recommended, the Lightness channel of a Lab mode image can have useful information for greyscale use. Well, you can certainly mode change your RGB color image into Lab, activate the Lightness channels, copy and paste that back into your greyscale image. This will push you even further towards total control of your greyscale conversion.

As you can see in the layer stack above, there are a total of 5 separate and discreet greyscale rendering being used to produce the final greyscale conversion. To be honest, there is no way a photographer in the field shooting B&W film could _EVER_ have this level of control over the panchromatic response of any B&W film. It's for this reason that I've not shot any B&W film for over 10 years. The only use I can find for my old darkroom is to store my monitor boxes in. This power and control, all without touching levels or curves as a tone adjustment, is so superior to having to commit to a B&W rendering in the field that I would never consider using B&W film again. Some might say that the grain or the scene range of B&W film may be "better" than color film. Well, you can always use color neg film to still capture a wide scene luminosity and digitally adding film grain is pretty easy.

Nope, sorry, for me. . .

B&W FILM IS DEAD.

R.I.P.

Color

Custom B&W Conversion