How do I make part of a black and white picture show color?

1. Start with a color image.
2. Add a Hue/Saturation adjustment layer either via the adjustment layer menu in the Layers palette (the black and white circle icon) or from the Layers menu.
3. In the Hue/Saturation dialog, drag the Saturation slider all the way to the left to remove all color from your picture. Click OK to exit Hue/Saturation and add the adjustment layer.
4. With the Hue/Saturation layer selected in the Layers palette (click on it to select it, if it is not), use the Brush tool to paint with black on your image wherever you want to restore color to the picture. Paint directly on the picture; trust me, you won't be putting black on your image. As long as the Hue/Saturation layer is selected in the Layers palette, you are editing its mask, not the image.
5. If you add more than you want, paint with white to remove the extra color. When editing masks, black removes the effect; white adds/applies it.