

# Luminosity Masks



**Roy Killen, APSEM, EFIAP, GMPSA**

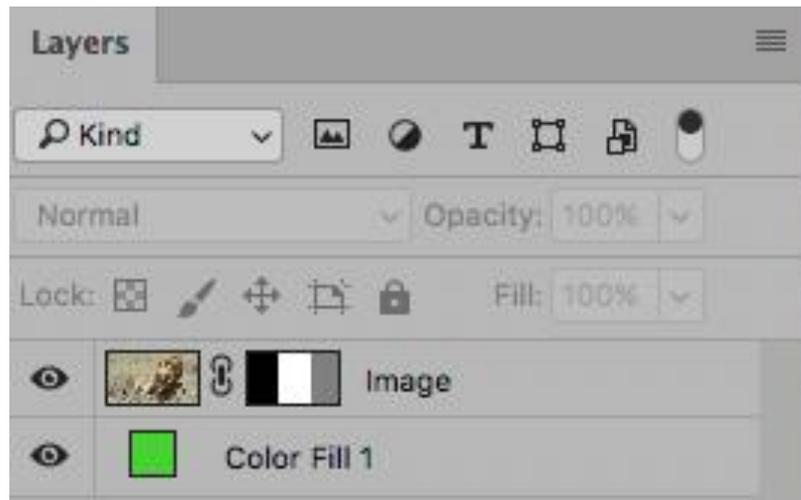
# Luminosity Masks

Luminosity Masks, also known as Luminance Masks, are a special type of layer mask. They are created by making selections based on luminosity values in an image and then converting those (usually complex) selections into a layer mask. They enable you to make adjustments to a limited range of tones without altering the other tones in an image. If you are not confident that you understand what layers and layer masks are, I suggest that you refer to my tutorial on “Layers, Masks and Channels” which is downloadable from the Belmont 16s Photography Club website. I will quickly revise a few of the key points from those notes.

The basic idea of a **Layer Mask** is that it enables you to “mask” or “hide” parts of a layer and reveal other parts. On a layer mask you can have shades of grey but not colours:

- \* On an image layer, the parts of the layer mask that are WHITE allow the corresponding part of the image to be visible. On an adjustment layer, the parts of the mask that are white allow the adjustment to be applied to the corresponding part of the image.
- \* On an image layer, the parts of the layer mask that are BLACK completely hide the corresponding part of the image and reveal the image in the layers below. On an adjustment layer, the parts of the mask that are black prevent the adjustment from having any effect on the corresponding part of the image.
- \* The parts of the layer mask that are shades of GREY reduce the effect of the mask on that part of the image. The extent of the effect will depend on how dark or light the shades of grey are. If the mask is on an image layer, the parts of the image that correspond with the grey parts of the mask will be made partially transparent. If the mask is on an adjustment layer the effect of the adjustment will be partially reduced on the parts of the image that correspond to grey on the mask.

To illustrate this concept, consider a Photoshop document that has two layers, a base layer of a solid colour (green) and above that an image layer. Without a layer mask, what you would see on the screen is just the image. However, if I add a layer mask that is partially black, partially white and partial mid-grey this is what you would see in the Layers palette:



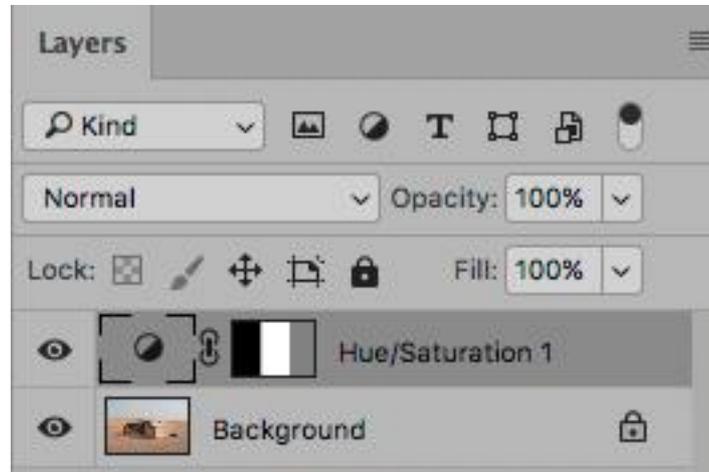
The image would then look like this:



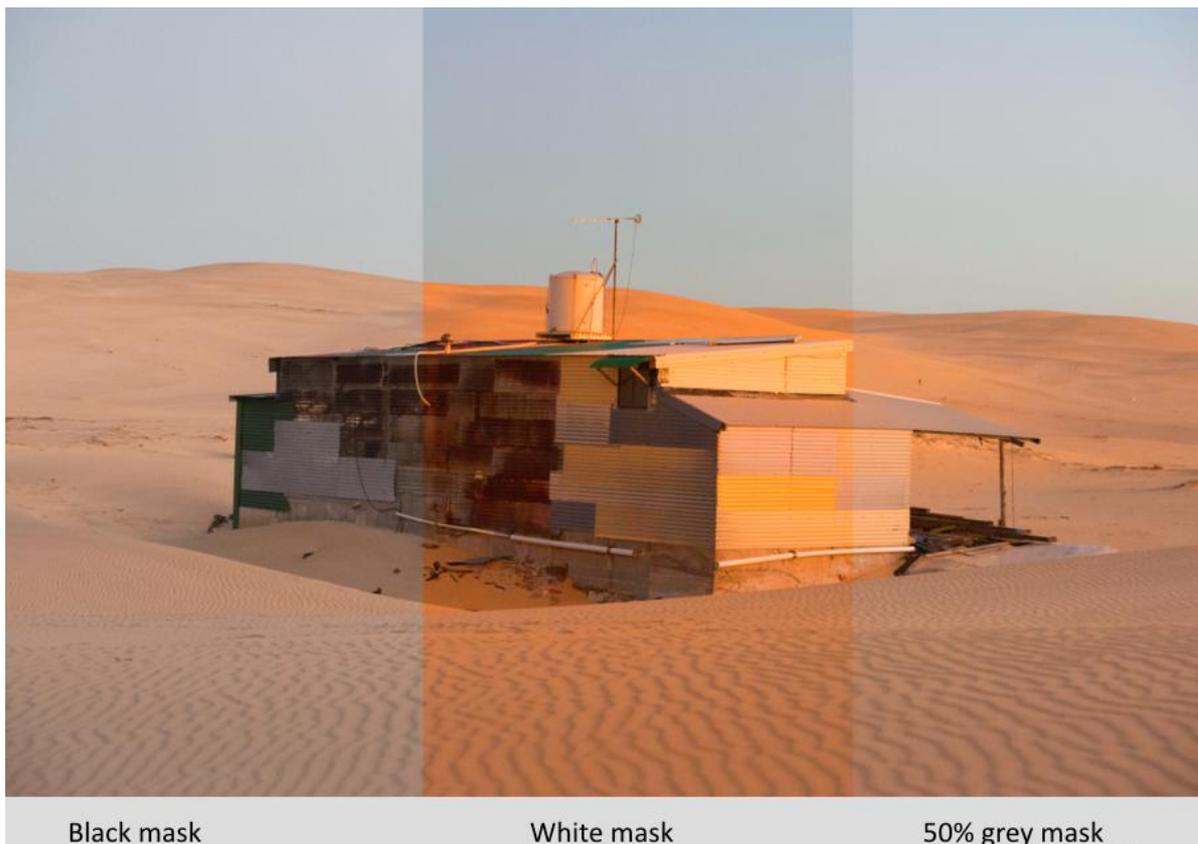
The part of the image that corresponds to the black part of the mask has become transparent. The part of the image that corresponds to the grey area of the mask has become partially transparent.

In Photoshop, when you create any type of *adjustment layer* (Curves, Levels, etc) a white layer mask is automatically created on that adjustment layer. This is in preparation for you to paint (in black or a shade of grey) on that layer mask to reduce the effect of the adjustment on some parts of the layer.

To illustrate this point, I opened an image and added a Hue/Saturation adjustment layer. This automatically placed a white layer mask on that adjustment layer and I painted part of the mask black and part of the mask mid-grey. The layers palette shows this:



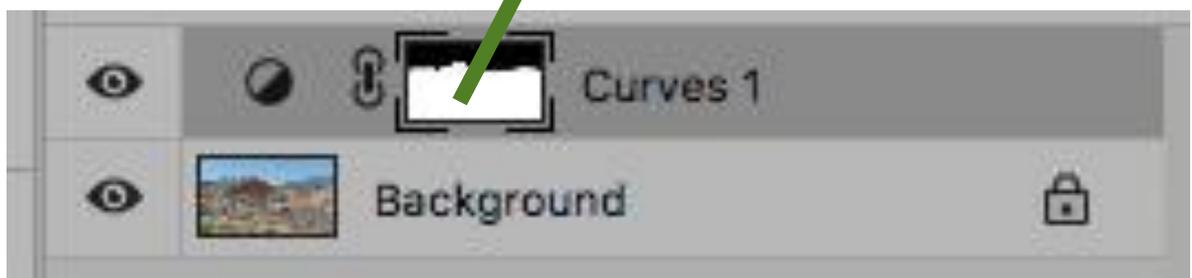
The effect of this on the image is shown here:



Where the mask is black, we can see the image without the effect of the Hue/Saturation adjustment. Where the mask is white we see the full effect of the adjustment. Where the mask is grey we see the partial effect of the adjustment.

## Creating Layer Masks

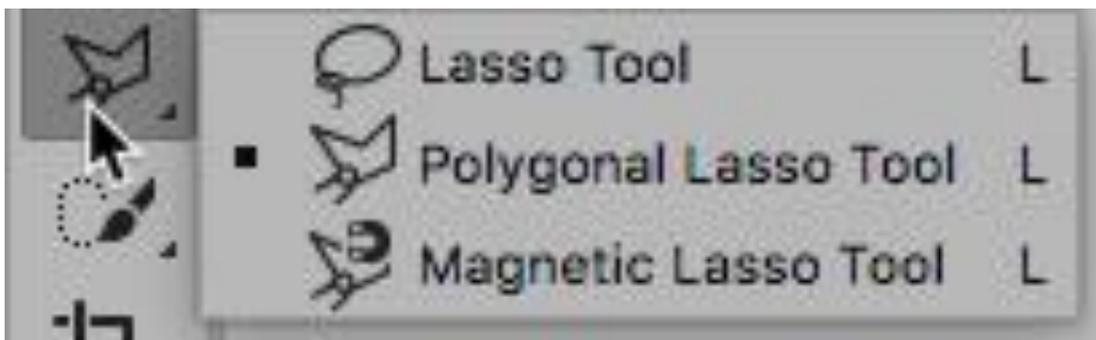
The simplest way to restrict an adjustment to only part of a layer is to use a brush to paint in black over the parts of the layer mask where you do NOT want the adjustment to be applied. For example, with this image I might want to increase the contrast in the foreground and close hills but not change the appearance of the sky or the 'blue' hills. I can do this by adding a suitable Curves adjustment layer (to give the desired contrast) and then painting in black on the area of the layer mask that corresponds with the sky and the blue hills.



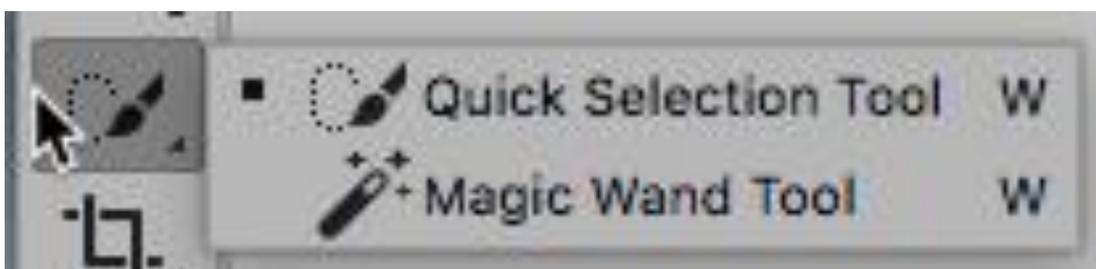
This gives the result I wanted:



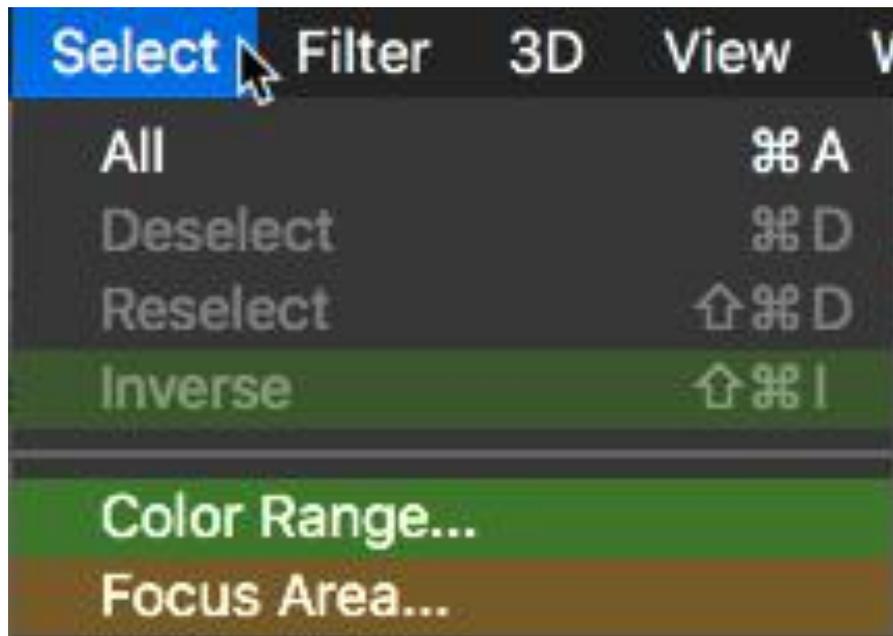
Unless the Layer Mask is very simple (as in the example above) it may be difficult and/or time-consuming to create the mask you want. In those situations you need to be able to create a complex SELECTION and convert that selection into a LAYER MASK. There are many different ways to create selections. You could try to use one the basic selection tools:



Alternatively, you could also try to use one of the quick selection tools:



You might also try selecting a colour range or the in-focus area of the image:



Once you have made a selection (by any means) you can turn it into a Layer Mask by clicking on the Layer Mask icon at the bottom of the Layers palette. All the selection methods above tend to work best when the area or object that you want to select is fairly distinct from the area that you do not want to select. For example with the image below you could get a reasonable selection of the bird in at least four different ways:





Quick selection tool



Magic wand tool



Colour range selection



Focus area selection

Once the basic mask is created from any of these selections you could refine the mask with careful painting. The real challenge comes when you want to make adjustments to an area of the image that is not easily separated from the background. Consider this image for example:



If I wanted to make different adjustments to the bird and to its surroundings it would be very difficult to make a suitable selection with any of the previous methods, particularly for areas such as where the grass is in front of the bird. Of course, for this particular image I could try a Photoshop adjustment such as Shadows/Highlights that does not require me to make any selection. However, the results may not be satisfactory because of the limited control that is available with this adjustment. It would be useful to be able to make a selection of the bird (mainly very dark) and a separate selection of the surroundings (mainly much lighter) in a way that would enable me to make more controlled adjustments to each area.

This degree of control over adjustments can be achieved with luminosity masks. I will illustrate this general technique and then explain how luminosity masks can be created.

### **A SIMPLE EXAMPLE**

The image on the previous page is one that would benefit from separate adjustments to the light and dark areas. Toning down the highlights would make the grass less distracting (particularly in the top left of the image). A slight boost to the tone and contrast in the black feathers would make the bird stand out more from its surroundings. Because the tonal values on the two areas to be adjusted (grass and bird) are so different we could try creating a mask from just the tones below mid-grey (less than 128 on the 0-255 scale) and another mask from just the tones above mid-grey the masks would look like this:



A mask created from the light tones.



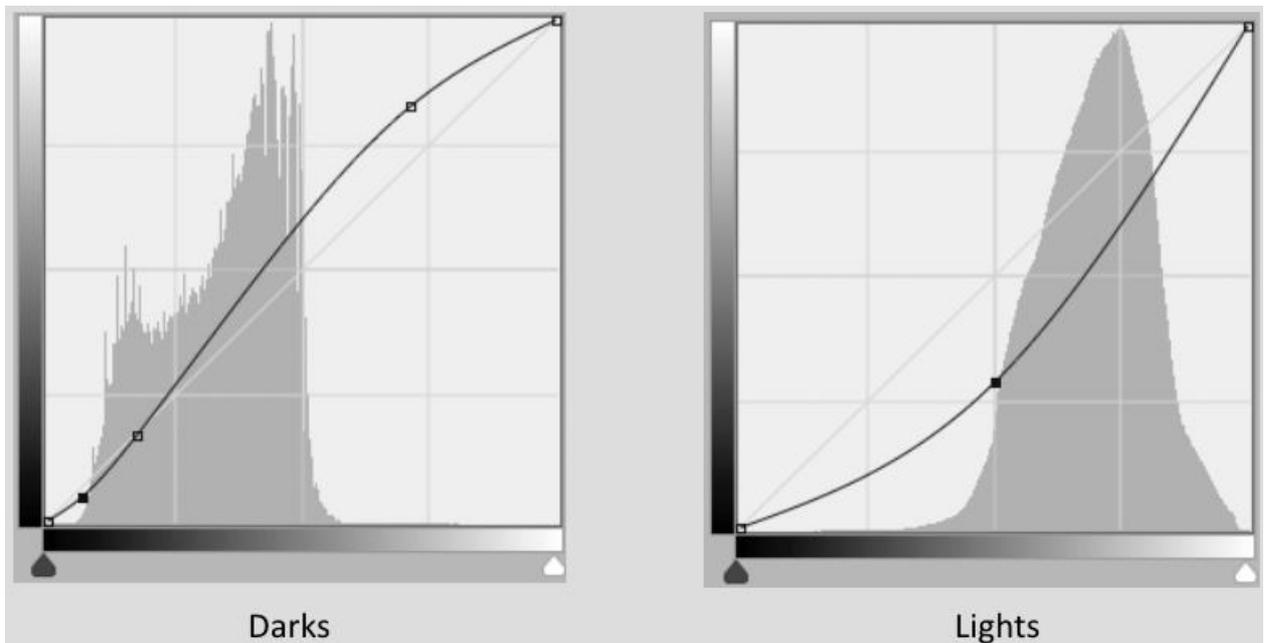
A mask created from the dark tones.

The first thing to notice about the masks is that the light areas correspond to pixels that will be selected. The second thing to notice is that they contain a range of grey tones that give smooth transitions between the pixels that are fully selected (white), those that are partially selected (various shades of grey) and those that are not selected (black). The third thing to notice is that the masks allow you to see what pixels are being selected *before* any adjustment is made. Later in the article I explain how to create these masks and how to refine them if necessary.

For this example, I will apply the masks to two separate Curves adjustment layers.



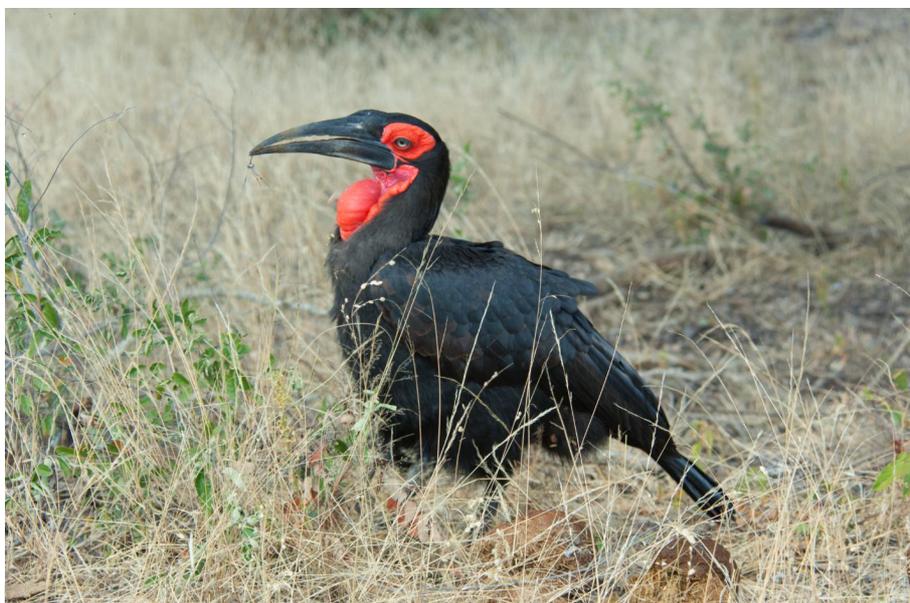
The relative positions of the two Curves adjustment layers (light adjustment above or below the dark adjustment) *may* make a slight difference to the overall appearance of the image because both these masks contain a lot of grey (rather than pure black or white) tones. You can try swapping the positions of these two layers



but for many images the difference will not be significant. The adjustments I applied were:

Notice that the Curves adjustment applied to the dark pixels has a slight 'S' shape which will increase the overall contrast in the dark areas, and that the tones towards the middle of the tonal range have been lightened a little. This adjustment will have virtually no effect on the lighter tones in the image because the mask has hidden those tones.

The Curves adjustment for the light tones will effect all the pixels that are fully or partially selected by that mask and the changes in their tonal values will be more significant than the changes to the dark tones (because the curve has been dragged further away from its neutral position). Notice that this Curve is now quite steep and this will increase contrast in the lighter areas of the image. The overall result is:



## GENERATING LUMINOSITY MASKS

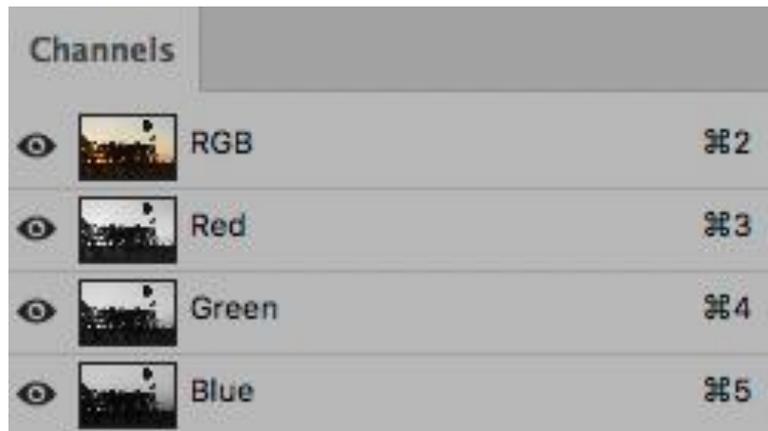
There are many ways to generate luminosity masks. How you choose to do it will depend on how familiar you are with Layers, Masks and Channels in Photoshop and how much ‘manual’ control you want over the process of creating and using the masks. I will start with a brief introduction to generating luminosity masks from the R, G and B channels and then describe some methods that use more ‘automated’ techniques.

I would like to remind you again that if you are not really confident that you understand Layers, Masks and Channels please refer to my tutorial on “Layers, Masks and Channels” which is downloadable from the Belmont 16s Photography Club website. That tutorial has been updated since I first put it there in 2016.

A typical situation in which luminosity masks can be useful for selectively editing an image will be illustrated with the following sunset image in which I want to restore some of the colour to the sky without significantly changing the foreground. As you can see, selecting the sky by any of the methods described in the early part of this tutorial would be quite difficult.



If we open this image in Photoshop and look at the Channels palette we will see this:



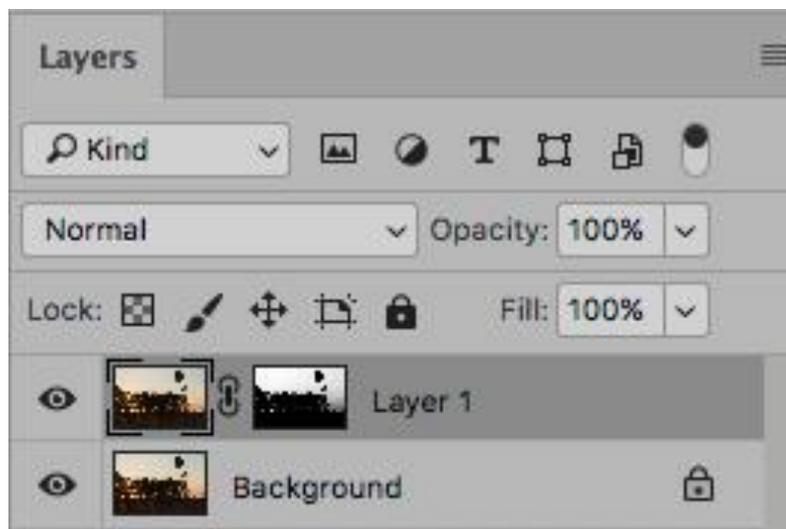
The small icons indicate that in each channel (red, green and blue) the sky is much brighter than the foreground so potentially any one of these channels could be used to create a selection of the sky. If we click on each channel one at a time Photoshop will display the individual channel luminance information rather than the composite RGB image. This will enable us to see that (for this particular image) the blue channel gives suitable separation between the sky and the foreground. The blue channel luminance looks like this:



Note that although the sky area is not very bright the foreground is very dark. (I will explain later how to increase the

contrast between these two areas.) To turn the Blue channel into a selection and then into a Layer Mask, follow these steps:

- ▶ In the Channels palette, make sure that all the channels (red, green, blue) and the RGB channel are visible.
- ▶ Hold down the Control key (Windows) or the Command key (Mac) and click on the Blue channel. This will create a selection from the Blue channel (and put ‘marching ants’ on the image).
- ▶ Go to the Layers palette and duplicate the background layer. A simple way to do this is to select the background layer, hold down the Control key (Windows) or Command key (Mac) and press the letter “J” on the keyboard.
- ▶ Select the duplicate layer (just click on it) and then at the bottom of the Layers palette, click on the “Create Mask” icon (third icon from the left). This will create a Layer Mask on the duplicate layer and the mask will be exactly the same as the luminance information in the Blue channel. In other words, we have created a Luminosity Mask and the Layers palette will look like this:



At this stage, the appearance of the image will not have changed because anything the layer mask is ‘hiding’ on the duplicate layer will simply be revealed from the layer below.

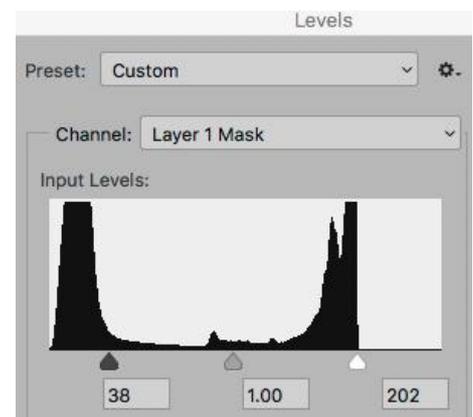
To intensify the colour in the sky, change the Blending Mode of the duplicate layer from “Normal” to “Multiply”. This Blending Mode change will effect only those areas of the image that correspond with the lighter areas of the Layer Mask. The image now looks like this:



Because the lightest areas of the layer mask are shades of grey (rather than pure white) the effect of the blend mode change will be subtle. If it was stronger than you wanted, you could simply reduce the opacity of the duplicate layer.

If you want to make the effect of the blending mode change stronger you could:

- ▶ Alt-click on the layer mask (in the Layers palette) to open it.
- ▶ Select Image>Adjustments>Levels and make an adjustment that would lighten the light areas of the mask and darken the dark areas. Perhaps an adjustment like this:



- ▶ Then Alt-click on the layer mask again to close it.

Because of the adjustments made to the mask, the effect of the blending mode change will be increased in areas of the image that correspond to the lighter areas of the mask and decreased in areas of the image that correspond to the darker areas of the mask.

The image would then look like this:



Again, you have the option of reducing the opacity of the duplicate layer to reduce the effect of the blending mode change if it is too strong. You also have the option of experimenting with different blending modes - perhaps Linear Burn for this image.

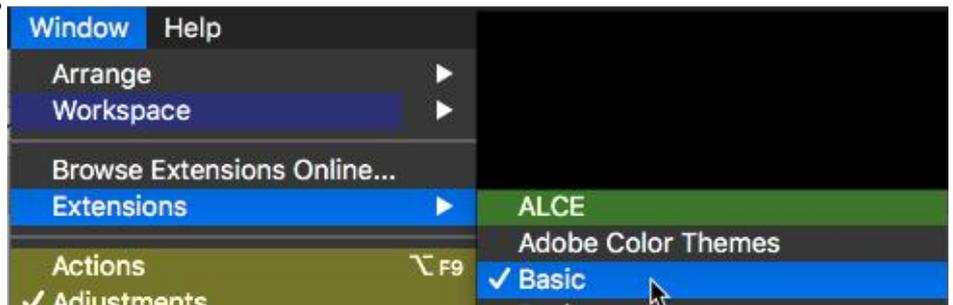
The previous example is a simple way of creating and modifying luminosity masks using one of the colour channels (R, G or B) as the starting point for the selection of tonal values from which to generate the mask. This can be a powerful and useful technique. However, if you want more flexibility in your choice of starting point (rather than just the R, G and B channels) and you want more flexibility in what you can do with the luminosity masks (rather than just apply them to a duplicate of your image) then you might want to explore the use of various “Action Panels” that are available for creating Luminosity Masks.

An “Action” in Photoshop is simply a series of steps that have been recorded so that they can be performed again “at the click of a button”. There are numerous ‘panels’ available that can be installed in Photoshop to provide access to pre-recorded actions that generate Luminosity Masks in various ways.

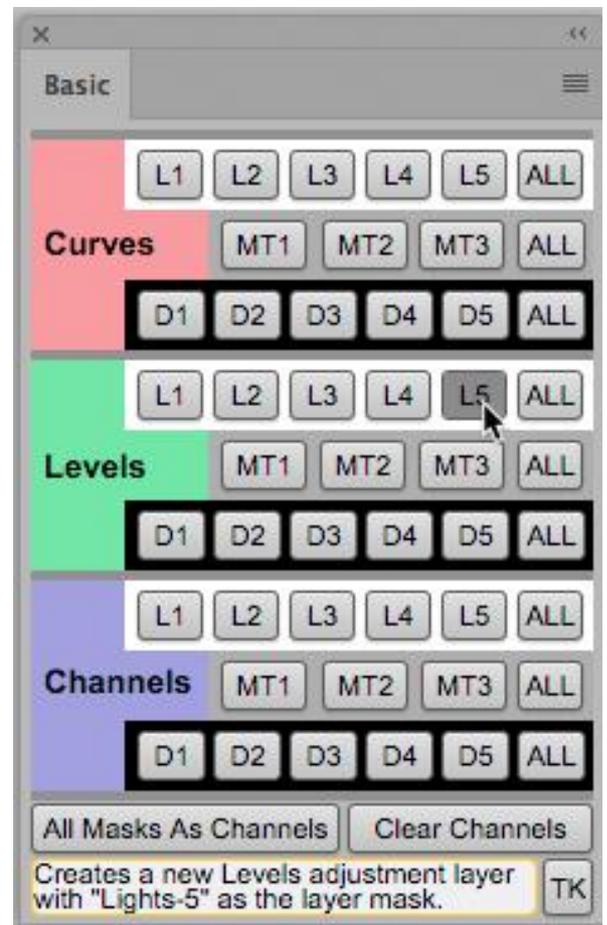
In the Appendix of these notes I have listed some websites and videos that might help you to decide which luminosity mask action panel will suit your needs. Three of the panels that I use are: TK Panel V5; Lumenzia v13.0.2; and Raya Pro 2.0. In the Appendix there is a link to a video that compares these panels with several others.

My recommendation for those just starting to explore Luminosity Masks is to download the FREE “TK Actions Basic Panel” from Tony Kuyper’s website - see the Appendix for download details. This panel will allow you to experiment with the basic uses of luminosity masks and help you to decide which more sophisticated approach might best suit your needs.

When you download the TK Actions Basic Panel you will receive instructions for installing it in Photoshop - just a couple of simple steps of copying files and then it will be available from the



Window>Extensions menu. When you select Window>Extensions from the menu, you get a drop-down list of all the “extensions” that have been installed in Photoshop - just click on “Basic” to open the TK Basic panel. It looks like this:



The top section of this panel is used for generating luminosity masks and putting them on Curves adjustment layers; the middle section is for generating luminosity masks and putting them on Levels adjustment layers; and the bottom section is for generating luminosity masks that are placed in the Channels palette (from where you can use them to create selections and then masks to apply to any layer. If you hover the mouse over any of the

buttons (L5 in this example) the window at the bottom of the panel gives a short description of what will happen if you click the button. In this example it will create a Levels adjustment layer above your image layer and generate a layer mask based on “Lights-5” which is a selection of the pixels in the image that are lighter than about 200 on the 0-255 luminosity scale.

If you click on the “ALL” button in any of the rows it will generate multiple adjustment layers, each with a different luminosity mask - for example, five different Curves adjustment layers each with a different “Lights” luminosity mask. This can be a quick way to review all the masks and decide which mask will be most suitable for a particular image. You can easily delete the layers containing the masks you do not want to use.

After you become familiar with this simple (and free) method of generating luminosity masks you will soon see how they can improve your image editing techniques. At that stage you may wish to explore more complex options that let you generate a greater variety of masks and apply them to a greater variety of adjustment layers (not just Levels and Curves layers).

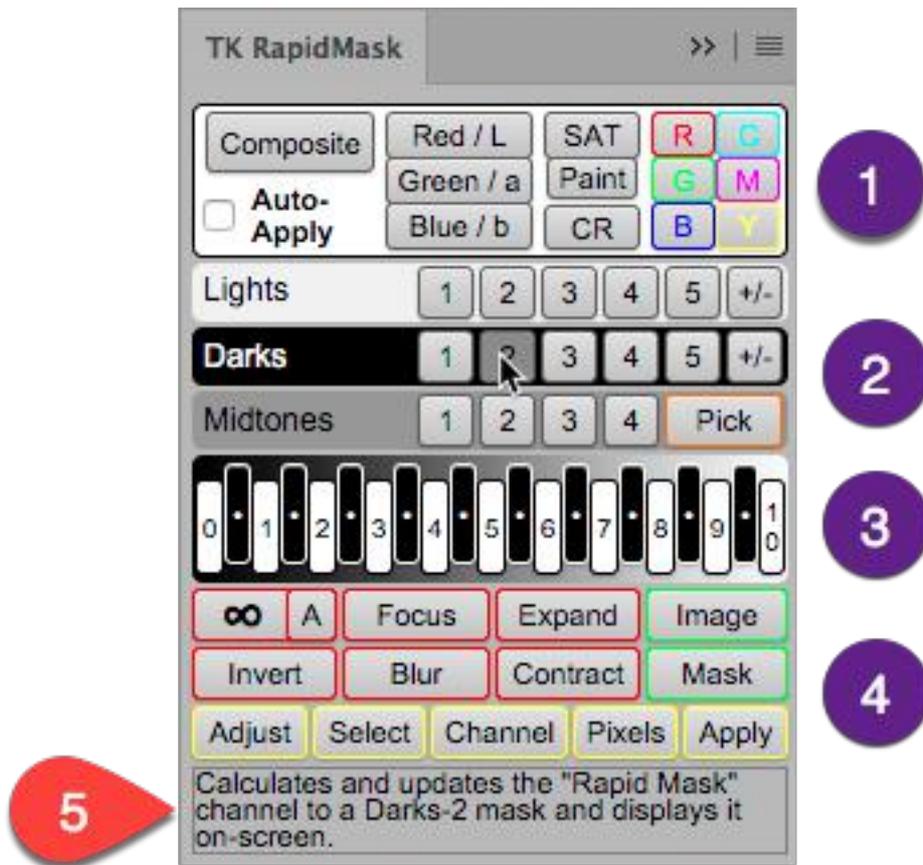
Of the more sophisticated luminosity action panels that I have tried (TK, Lumenzia and Raya) I generally prefer TK for its precision and flexibility but it does take a little more effort to master than either of the others. From version 5, the TK Panel panel actually installs as five separate panels, each one devoted to a separate group of tasks. One panel contains a great selection of very useful shortcuts for frequently used Photoshop functions (such as flattening layers and merging visible layers). There are numerous YouTube videos that explain how to use the TK panel.

Lumenzia is slightly easier to master than TK, simply because it has fewer options and its operation is perhaps a little more intuitive. It is a very good panel for ‘intermediate’ level users.

Raya Pro has been designed specially to assist with the task of blending images and the developer, Jimmy McIntyre, has produced lots of video tutorial to explain how this is done. It is not quite as flexible as TK or Lumenzia for some of the other applications of luminosity masks.

## **EXPLORING THE TK RapidMask PANEL**

If you install the TK Actions V5, a good starting point for understanding how to use it to create luminosity masks is the “TK RapidMask” panel which looks like this:



As with the free TK Basic panel, if you hover the mouse over any button you get a brief description at the bottom of the panel (marker “5”) to tell you what this button will do.

To create a luminosity mask, start at the top of the panel (marker “1”) and select the information that you want the panel to use as the basis for the mask. Normally this will be “Composite” which will use the luminance information in the Red, Green and Blue channels to generate the mask. However, you could choose to use the luminance information in just one of the RGB channels or one of the Lab channels (if your image is in Lab colour mode). You could also use the Saturation levels in the image as a starting point for the mask; or one of the colours (red, green, blue, cyan, magenta or yellow); or a colour range that you select (CR).

Once you select the information that the panel will use to generate the mask, you select a broad tonal range (marker “2”) or a tonal “zone” (marker “3”) for the mask. The +/- bottoms create a full set of tonal selections and place them in the Channels palette. The “pick” button lets you select a tonal range by clicking anywhere in the image.

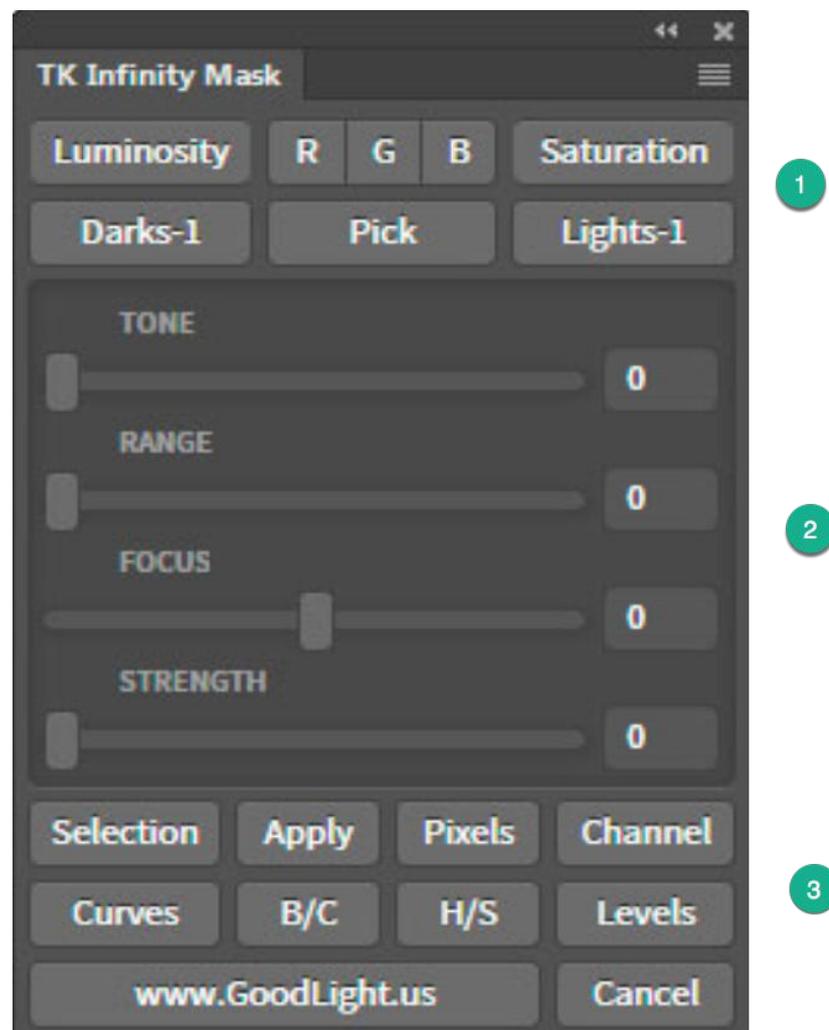
The buttons opposite marker “4” that are outlined in *red* give you various options for refining the mask. The buttons that are

outlined in *yellow* give you options for doing things with the mask - adding it to various types of adjustment layers, turning it into a selection, saving it as a channel, creating a pixel layer out of it, or applying the mask to the currently selected layer. The two buttons outlined in *green* let you swap between viewing the mask and viewing the image with the mask applied.

This might all seem little daunting at first, but once you have experimented with a few images you will soon see how easy it is to use this panel to generate and apply luminosity masks.

## TK Infinity Mask Panel

Tony Kuyper, who developed the TK Actions Panel has recently released a new type of luminosity masking panel that he calls the “TK Infinity Mask Panel”. It enables you to generate an infinite number of masks rather than the fixed number of masks that you can generate with other panels. I find this approach particularly useful and quite intuitive to use. It is also cheaper than most other panels. However, it will only work in the various versions of Photoshop CC (not CS6 or earlier). The Infinity Mask panel looks like this:



The buttons in section “1” allow you to select the information that will be used to generate the masks - the luminance information in the combined Red, Green and Blue channels; or the luminance information in just one of the R, G or B channels; or saturation information; or a colour that you pick in the image. Having made that initial choice you then select the “Darks-1” or the “Lights-1” to limit the tonal range for the initial mask.

At this stage you will be viewing the mask on the screen and you can use the sliders in section “2” of the panel to modify the mask. You can extend or limit the tonal range, make the transitions from light to dark more or less distinct and reduce the overall intensity of the mask.

Finally you select from section “3” where you want the mask to be applied. The options in the bottom row of buttons let you apply the mask to a Curves or Levels or Hue/Saturation of Brightness/Contrast layer. The Channel button lets you save the mask as a Channel. The Selection button turns the mask into a selection (“marching ants”). The Apply button will add the layer mask to whatever layer you have currently selected. The Pixel button will create an image layer from the mask.

## **A SPECIAL APPLICATION FOR LUMINOSITY MASKS**

Most images can benefit from some sharpening before they are printed or before they are displayed on the web. One of the important aspects of sharpening is that it should produce a clear, crisp image that does not look over-sharpened. A sure sign of over-sharpening is the appearance of ‘halos’ (thin bands of brightness in light areas that are adjacent to dark areas - such as in the sky at the horizon).

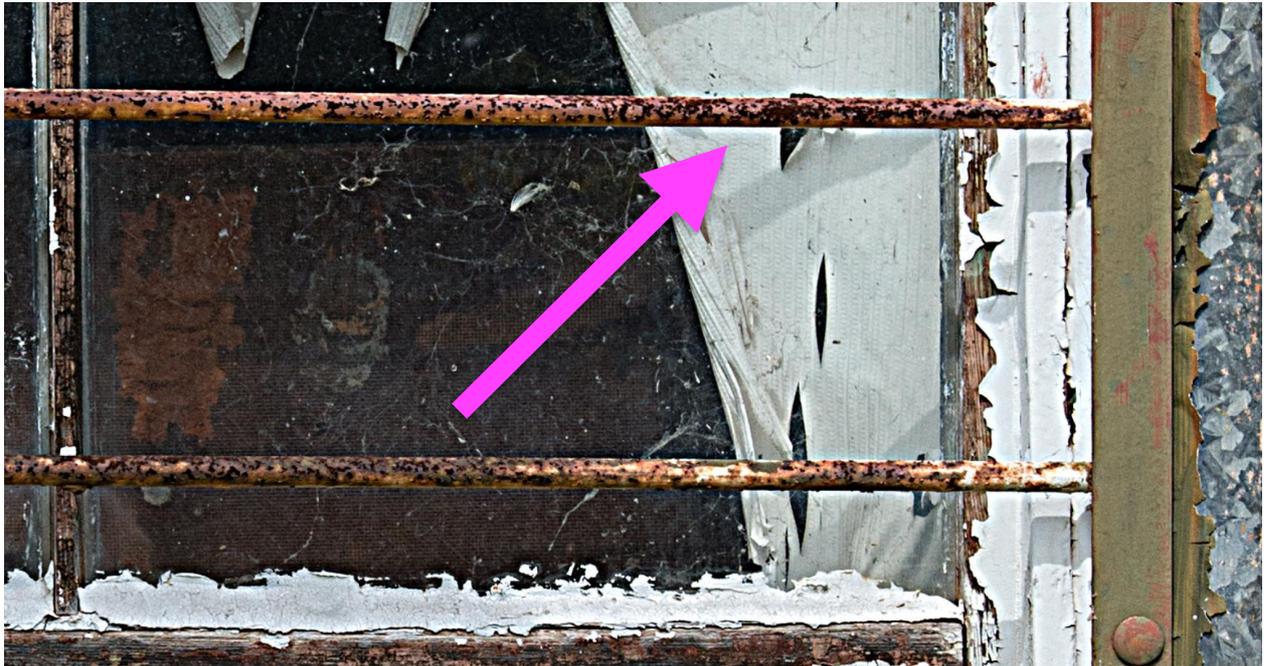
If you are using basic sharpening techniques, such as Unsharp Mask in Photoshop, it can be difficult to avoid these halos. But luminosity masks can help.

In the following example, I have deliberately over-sharpened an image to produce halos so that I can show how they can be removed with a simple luminosity mask generated with one of the Action Panels referred to earlier.

This is the unsharpened image and an enlargement of part of it. Before proceeding, I need to duplicate the image layer - that is where I will do the sharpening and applying the mask.



Here is the same section of the image with an excessive amount of sharpening applied:



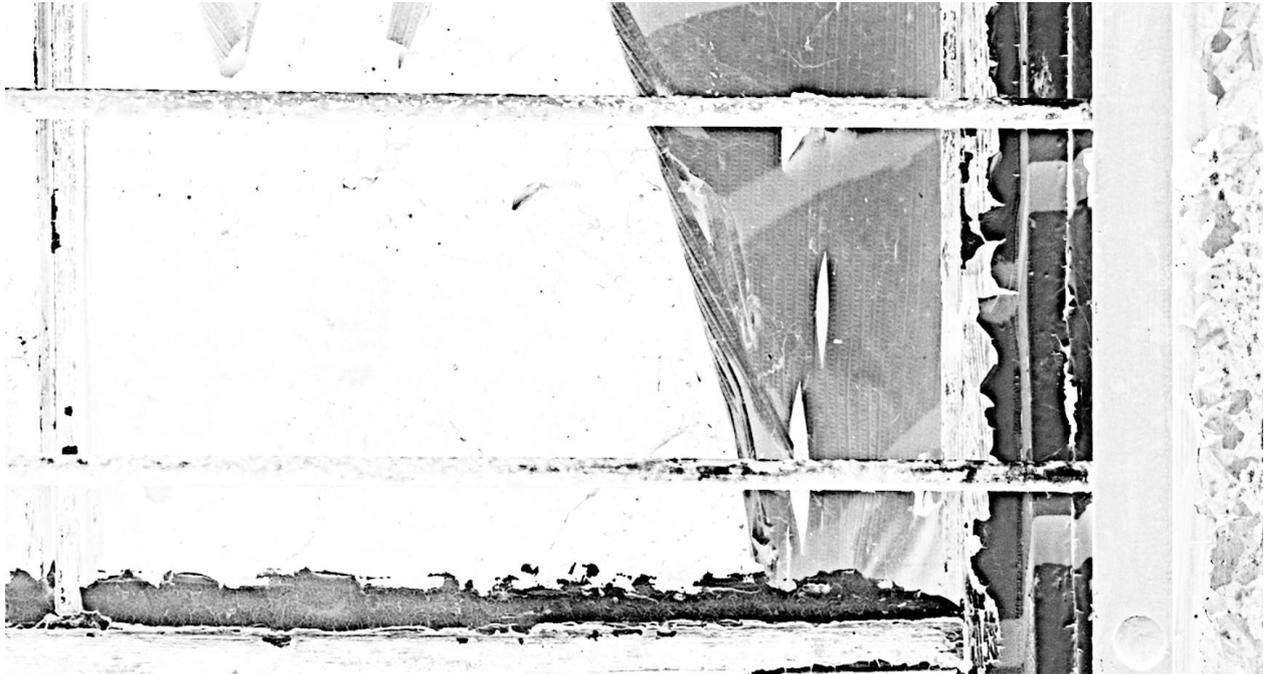
I have added the arrow to draw attention to one area in which the sharpening halos are very visible.

To remove the halos I generated a “Lights” luminosity mask that looks like this:



The halos are clearly visible in this mask, but since I want to hide the halos I need to invert the mask so that the halos are black on the mask.

The inverted mask looks like this and when it is applied to the sharpened image you can see that it hides the halos.



The black areas of the inverted mask may also be hiding some of the other areas of the sharpening image that you do not want to hide. To solve this, you can paint (in white) on the mask to reveal those areas of the image.

## Conclusion

Once you have learned how to create luminosity masks there are many options for using them. The most common uses are for making controlled tonal adjustments and for blending images. However, they can help you refine your editing techniques in many other ways. For example, you can use them to reduce artefacts when sharpening images (but that's for another tutorial). The fun is endless!

Whatever technique you use to create luminosity masks they will generally have one very definite advantage over layer masks created in other ways - the mask will have very good tonal feathering (not abrupt changes from white to black). This allows your adjustments to blend smoothly with the original image and not have a 'paper cut-out' appearance. The result is likely to be a more natural looking final image.

No matter what approach to editing that you take, the success of your final result will depend on careful planning. When you open an image to edit it, you should sit on your hands for a few minutes and not touch anything until you have done two things:

1. Visualised the final result that you want.
2. Plan the basic steps that will allow you to achieve that result.

These notes are just a brief introduction to luminosity masks. If you would like to ask questions about any of the information in these notes, or make suggestions for improving them please email me.

Roy Killen

Email: [roykillen@mac.com](mailto:roykillen@mac.com)

23rd May, 2017.

## APPENDIX - SOME LUMINOSITY MASK RESOURCES

To download the FREE “TK Actions Basic Panel” go to <http://goodlight.us/panels-and-videos.html>

### VIDEOS ON TK ACTIONS

<https://www.youtube.com/watch?v=dqFZTBa9UUI> introduction

<https://www.youtube.com/watch?v=WykYFVcZ0zY>

<https://www.youtube.com/watch?v=v8n44PvcF-8>

[https://www.youtube.com/watch?v=ieWvAHdE2\\_w](https://www.youtube.com/watch?v=ieWvAHdE2_w) TK Actions V5 by Tony Kruper

### OTHER VIDEOS ON LUMINOSITY MASKS

<https://www.youtube.com/watch?v=gz0yHXy0s-U> What are luminosity masks?

[https://www.youtube.com/watch?v=xWnqlyI8iH8&feature=em-subsub\\_digest-vrecs](https://www.youtube.com/watch?v=xWnqlyI8iH8&feature=em-subsub_digest-vrecs) A review of five different luminosity mask panels.

<https://www.youtube.com/watch?v=eewT6z92vBM> Introduction to InstaMask

<https://www.youtube.com/watch?v=ga17QmP-TTY> General info on blending exposures

<https://www.youtube.com/watch?v=FHw5QQW5fpo> Blending exposures

<https://www.youtube.com/watch?v=ImPUyujpfgY> ADP Panel

<https://www.youtube.com/watch?v=yWk8YaOKTQQ> Lumenzia

[https://www.youtube.com/watch?v=t3N\\_gIP3H8Q](https://www.youtube.com/watch?v=t3N_gIP3H8Q) Tonal balancing