



Tree Masking

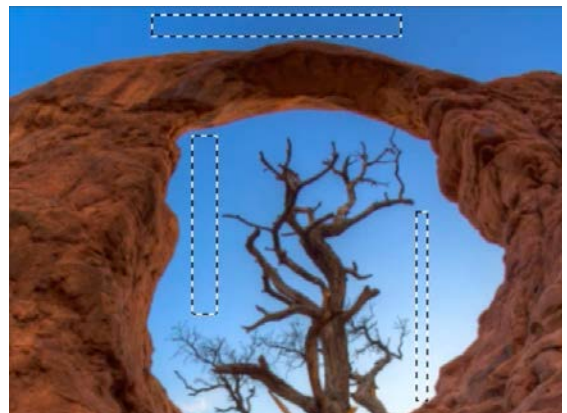
Tree Masking

In this lesson, we're going to learn how to mask trees. When it comes to trees, you'll need to use some special techniques because the standard selection tools will usually fail you.

Select Similar (Timestamp 2:17)

Trees are complicated subjects, but the backgrounds behind them are often times simple. When you are selecting a tree for the purpose of replacing a sky, the sky behind it will likely be a simple expanse of blues and grays. Most trees will not have any blues, so we could instead make a selection of the background and then invert the selection to get the opposite. Let's look at a few ways of doing this.

With the first technique, we'll create a very simple selection and then tell Photoshop to auto-select everything that's similar to what's contained within the selection. In the example image, we'll select the sky in three different areas: an area where it's light, an area where it's dark, and an in-between area. (You can select more than one area by holding down the Shift key.) This selection tells Photoshop what kind of content we ultimately want selected. Then we'll click on the Select menu and choose "Similar." Photoshop will look across the entire picture to find areas that are similar to those that are selected. In this example, the sky is the only area that contains those blues, so the resulting selection should contain most of the sky and nothing else.



A selection was created that includes sky colors and tones.



The Select Similar command was used to expand the selection to include more of the sky.

If there are parts of the sky that did not get selected, we can supplement another tool such as the Magic Wand Tool, which works in a similar way to the Select Similar command. With the Magic Wand Tool, we'll hold down the Shift key (so that we're adding to the selection) and then click within the areas that still need to be selected.

After the sky has been successfully selected, we'll click on the Select menu and choose Inverse. This will create an opposite of the selection so that we instead have the tree selected.

We can check the selection by adding a layer mask. When we create a layer mask while there is an active selection, the selection will be applied to the mask so that the selected areas remain visible while the areas that were not selected are hidden by the mask. We'll click on the Layer Mask icon at the bottom of the Layers panel and the sky area will become hidden. This will show us the isolated tree so that we can inspect the selection/mask.



The Magic Wand Tool is being used to include sky areas that still need to be selected.

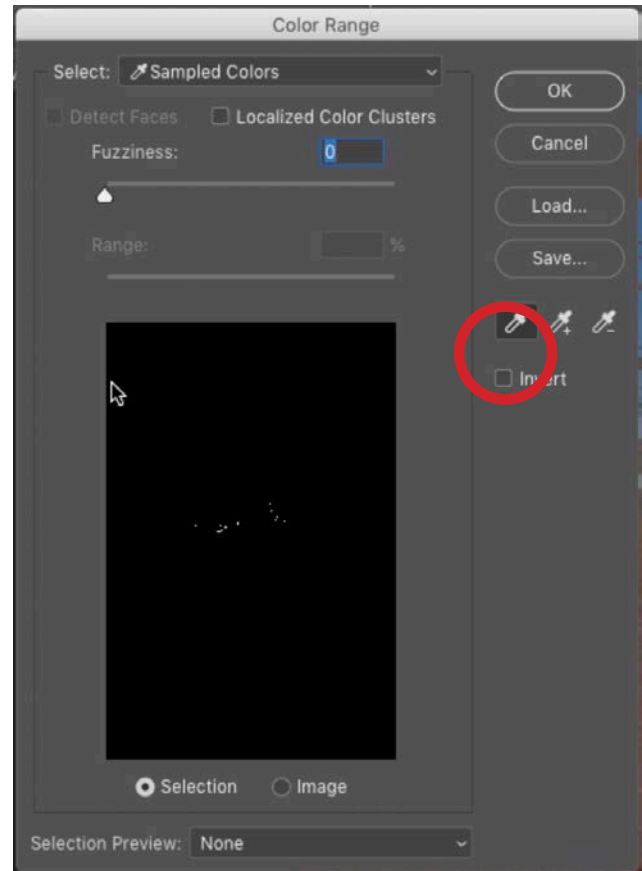


A layer mask was added and a new sky layer was placed beneath the tree layer. This allows us to better evaluate the mask to see where it needs to be refined.

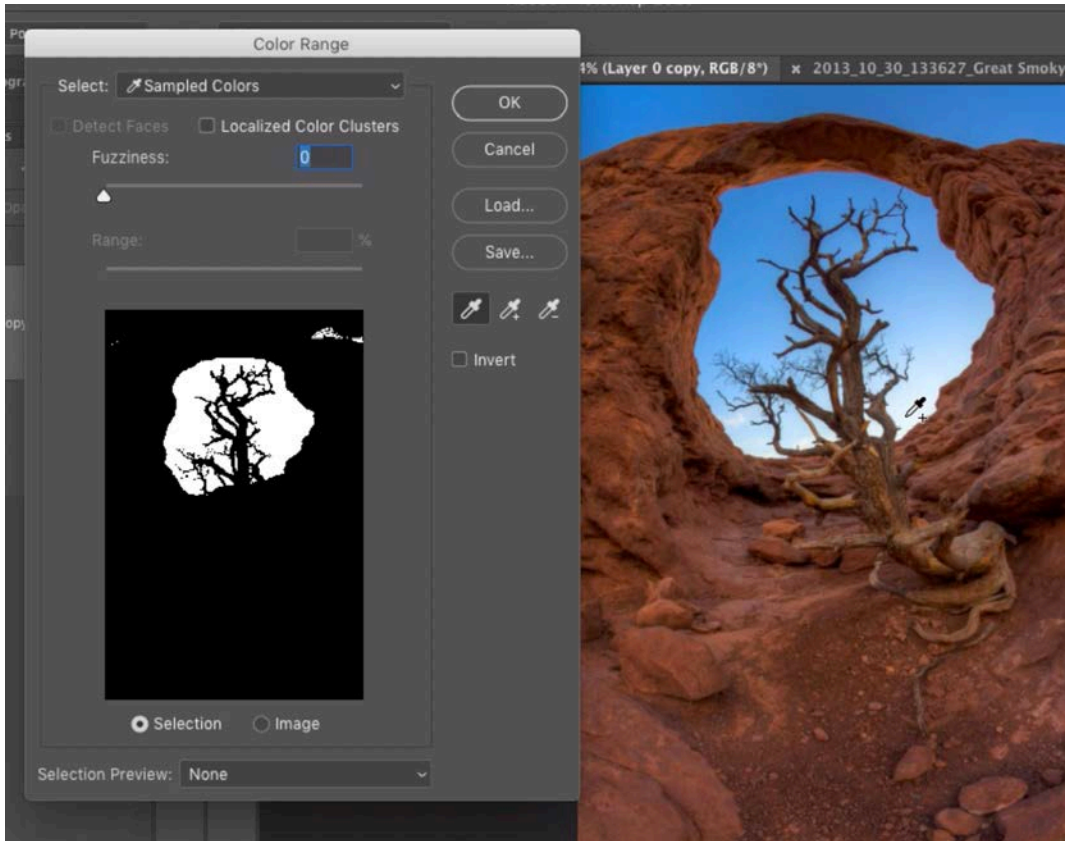
Select Color Range (5:33)

When there is nothing in the image that contains a color similar to that of the sky, we can use the Select Color Range feature. We'll click on the Select menu and choose Color Range. A dialog will appear and it will remember the settings you last used. There are three eyedroppers on the right side of the dialog. Make sure that the left-most eyedropper is active and click somewhere within the blue sky you want selected. This tells Photoshop what color you want selected and a preview of that selection will appear in the Color Range dialog. The dialog contains a Fuzziness slider and if this slider is positioned all the way to the left, then it's going to select only the exact color that you clicked on. As you move the Fuzziness slider to the right, it gradually expands the range of color being selected, deviating more and more from the color you clicked on. It's best not to drag this slider too far as it can produce a less-than-optimal result.

Another way to expand the color range being selected is by using the eyedropper with the plus sign (+) next to it. Activate this eyedropper and then click on more colors that you want selected. You will see that more and more of the preview window becomes white, indicating what area is selected. Another way of accessing the "add to selection" feature is to hold down the Shift key while using the regular, left-most eyedropper. This will tell the tool to add to the selection instead of starting a new selection. If you click and drag on the image using the eyedropper, it will select every color that falls under your cursor as you drag.



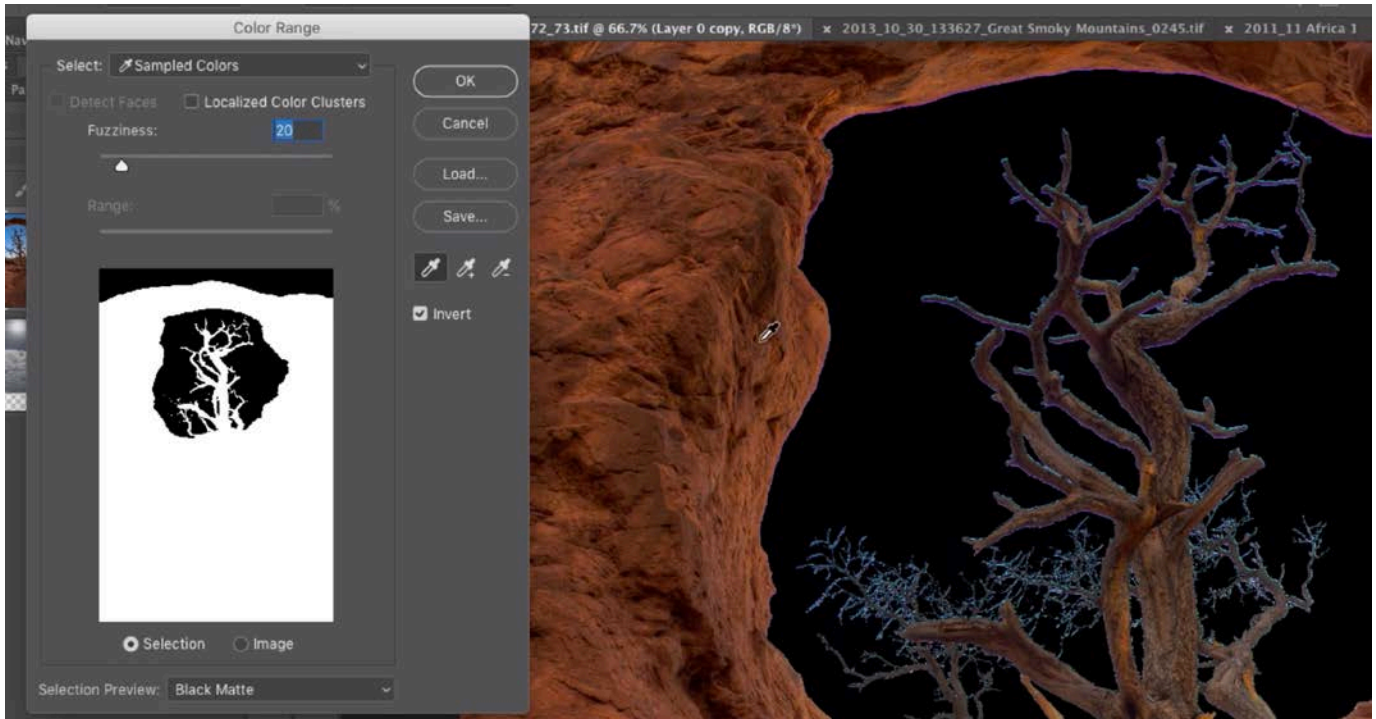
The left eyedropper (circled) in the Color Range dialog was used to click within the sky. Because the Fuzziness slider is all the way to the left, it only selected the exact color we clicked on.



The Shift key is being held down as we use the eyedropper to click in more areas of the sky. Because the Shift key is held down, we're adding to the selection, expanding the color range being selected.

The small black and white preview can make it hard to tell how accurate the selection is compared to the image. The Selection Preview menu (at the bottom of the Color Range dialog) gives us several more options for viewing the selection. We'll change this menu to Black Matte and it will place a black overlay on the image in all areas that are not selected. We can turn on the "Invert" check box in order to get the opposite of the selection, where everything that used to be covered in black looks normal and the opposite area becomes covered in black. In the example image, this gives us a much better idea of what areas still need to be selected. Note that this doesn't just invert the preview. It inverts the actual selection so that we're getting the opposite of what we had before.

After using the eyedroppers to get a good selection, we can fine-tune it using the Fuzziness slider. We need to be careful here, because moving this slider too far to the right will start to remove some of the tiny branches from the selection.



The Selection Preview menu is set to Black Matte, which shows a black overlay in areas that are not selected. The Invert check box is turned on, selecting the opposite of what we originally selected.

I'll usually move this slider up until the blue sky halo surrounding the branches is no larger than two pixels in size. We'll click OK to exit the Color Range dialog and we'll be left with a selection of the tree and other foreground elements. (Note that we have a selection of the tree because turned on the "Invert" check box after selecting the sky.)

We'll now use this selection to add a layer mask. We'll click on the Layer Mask icon at the bottom of the Layers panel and only the areas that are selected will remain visible. The areas that are not selected will become hidden. In the example image, we have a different sky layer below the layer we just masked so we can now see this new sky appear behind the tree.

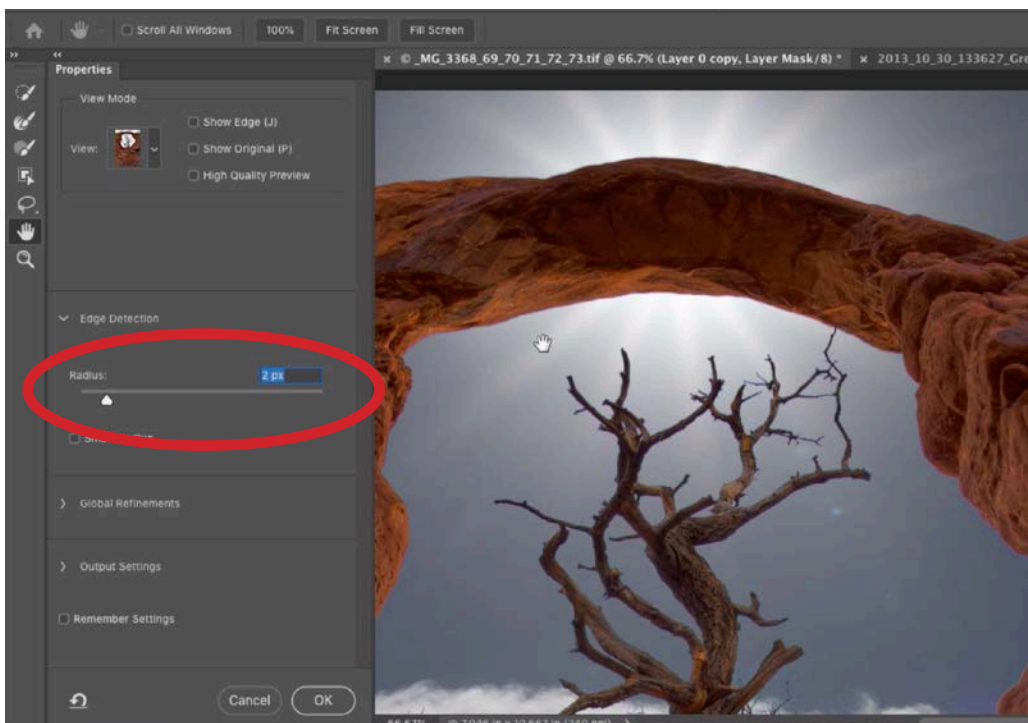


A layer mask was added and a new sky is placed beneath the tree layer. You can see a halo of the original sky in the result.

We'll zoom in on the image and we can see a residual border of the old sky surrounding the tree branches. This is the area that we couldn't perfectly fix using the Color Range command.

Select & Mask (11:57)

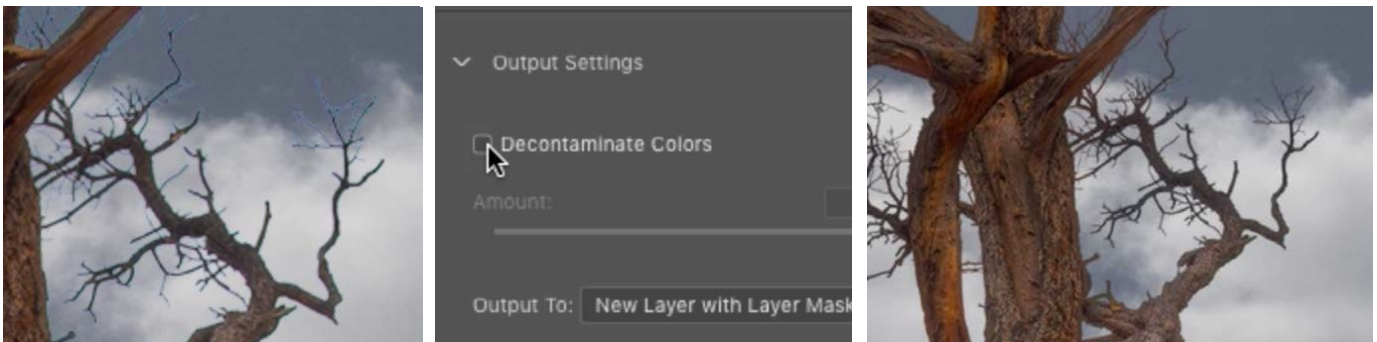
The Select & Mask feature can be useful for instances where we need to refine a current selection. With the selection or mask active (mask in this case), we'll click on the Select menu and choose Select & Mask. A new window will appear in place of the regular Photoshop interface. In the Select & Mask window, the settings appear in a panel on the left side of the interface and we're going to pay attention to the Radius slider. As we move this slider up, we'll be giving Photoshop more and more control over the edges of the selection. If we set this slider to a radius of one, Photoshop will have control over a 1-pixel radius around the selection edges. I try to set this slider to the lowest setting that gives me an acceptable result. In selecting trees like this, the setting is usually between one and three.



In the Select & Mask window, we are setting the Radius slider (circled) to the lowest setting that still removes the halo of the original background from the edges of the tree.

Note: In the video example, we have the View menu set to “On Layers,” which shows the selected layer on top of the underlying layer in the Layers panel. If this menu were set to a different option, the selection preview would appear as an overlay. In an example like this, the “On Layers” view is best for viewing the resulting selection.

As we zoom in and scroll around the image, we can see that there is a colored halo effect around some of the smaller tree branches. The “Decontaminate Colors” check box (under the Output Settings category) can help to correct this. This setting will attempt to eliminate any of the residual color from the original background. The Decontaminate Colors setting has an amount slider beneath it and this controls how aggressive the effect is. I usually set this slider to the lowest setting that still gives me an acceptable result.



LEFT: There is still a halo from the original background surrounding some of the smaller branches. **CENTER:** The “Decontaminate Colors” check box can be found under the Output Settings category in the Select & Mask window. **RIGHT:** After turning on that check box, the halo goes away.

We’ll click OK to exit the Select & Mask window. Whenever you turn on the Decontaminate Colors check box, it’s going to duplicate your original layer and create a layer mask so we will see that second layer appear in the Layers panel. If we’re happy with the results of the mask/selection, we could discard the original layer.



After using the Decontaminate Colors setting, a new layer is created. The original layer is still there, with its visibility turned off.

We can view the contents of a layer mask by holding down the Option key (Alt on Win) and clicking on the mask's thumbnail in the Layers panel. When we do this, the image will change to show us the black and white mask so we can zoom in and scroll around on it. This will give us a better idea of whether there are unwanted gaps or other problems with the mask.

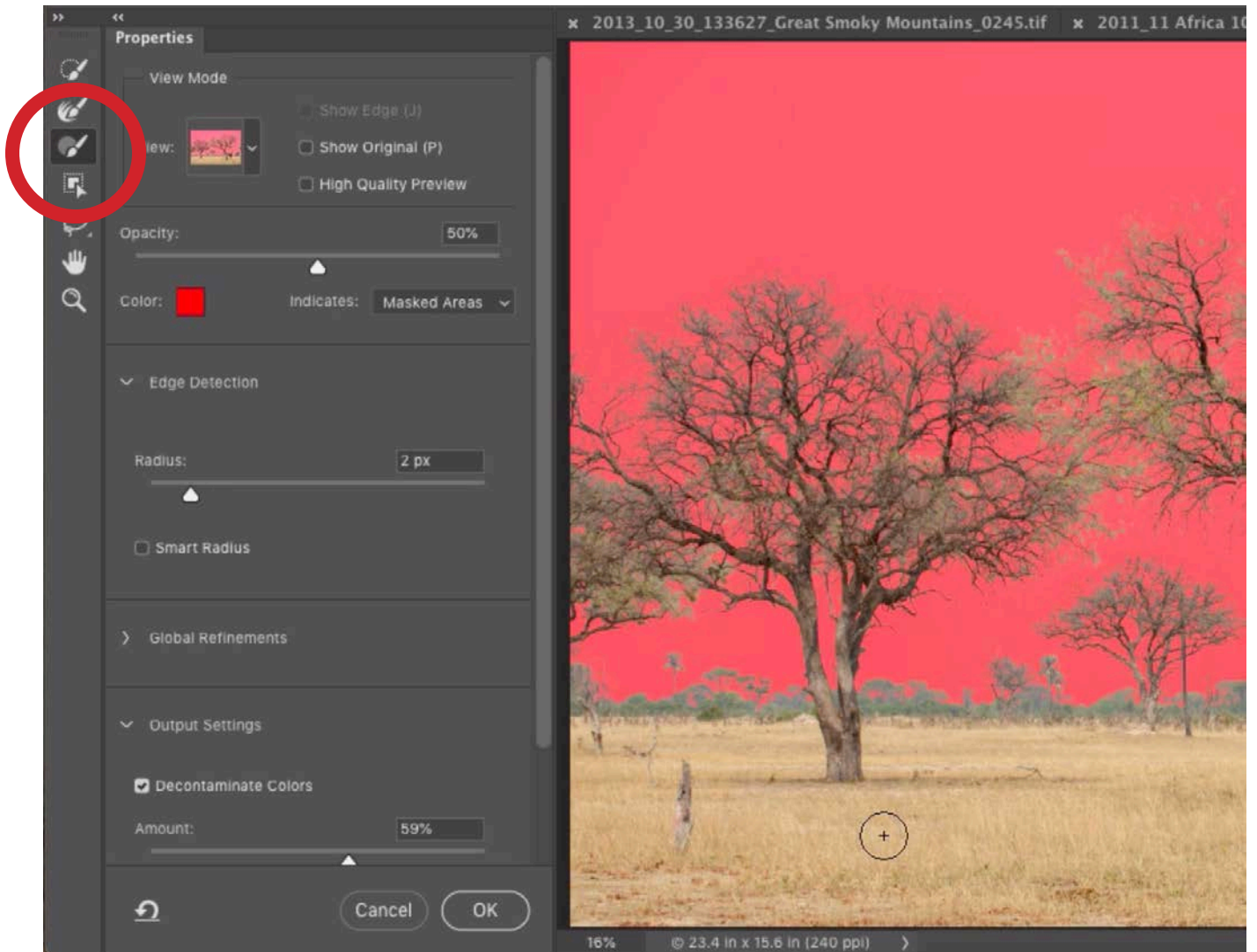
More Select & Mask Tips (25:51)

Let's look at some additional ways of refining a mask or selection within the Select & Mask window. We mentioned before that there are various preview options and you can switch between them using the View menu. The Overlay option will place a red overlay on the image and it is similar to what you would see when working in Quick Mask Mode. Everything that is selected will look normal and everything that is not selected will have a red overlay. It can be useful to view the selection with this View mode because you'll often times find that there is a red overlay covering up some areas that it shouldn't. That would mean that those areas are not selected and will therefore be transparent when the selection is converted into a mask.



In the Select & Mask window, the View menu is being used to change the preview to Overlay, which places a red overlay in all areas that are not selected.

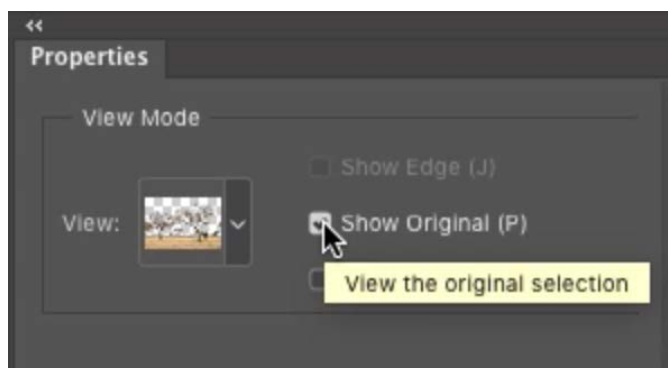
If we have areas that are not selected (therefore covered with a red overlay) but should be, we can manually add them to the selection by using the third brush in the toolbar on the left side of the Select & Mask window. This brush allows us to paint over any areas that should be selected. As we paint, the red overlay will be removed.



The third brush tool (circled) can be used to manually select areas. Using the Overlay view, we can see if there is any red overlay covering areas that should be selected. Here, we're painting over those areas to ensure they are selected.

We already learned that the Radius slider gives Photoshop control over a specified amount of the selection edge. We can also give Photoshop control over the selection by using the second brush in the toolbar on the left side of the interface. Using this brush, we can paint over parts of the selection edge that still show remnants of the original background, changing the brush size as needed. Anywhere we paint with this tool, we are giving Photoshop control over the selection edge and it usually does a good job of locating the edges and masking out the old background.

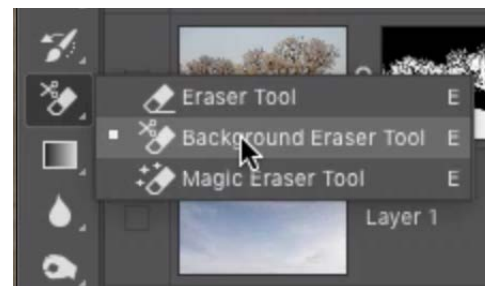
There is a check box near the top of the settings panel called “Show Original.” Turning this on will show you what the selection looked like before you applied the Select & Mask settings. The “High Quality Preview” check box will help you to see the fine details of the mask when you’re zoomed in on the image. The problem with turning this setting on is that it slows down the performance of the brush tools.



In the Select & Mask window, turn on the “Show Original” check box to see what the selection looked like before using the Select & Mask settings.

The Background Eraser (28:13)

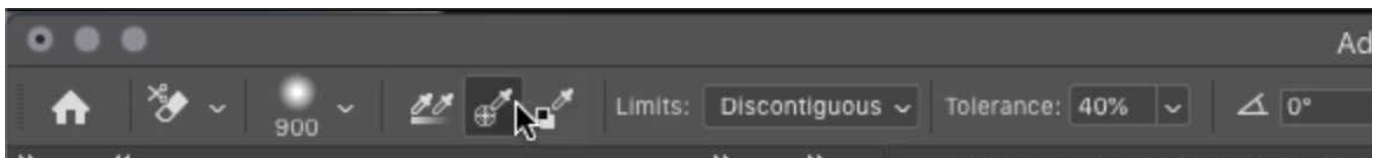
Now let’s look at another tool that can be used for isolating trees off their backgrounds. With a tree image open, we’ll duplicate the image layer so that we can keep the original for comparison purposes later. Then, we’ll activate the Background Eraser Tool, which is bundled with the regular Eraser Tool in the Toolbar on the left side of the Photoshop interface.



The Background Eraser Tool is grouped with the regular Eraser Tool.

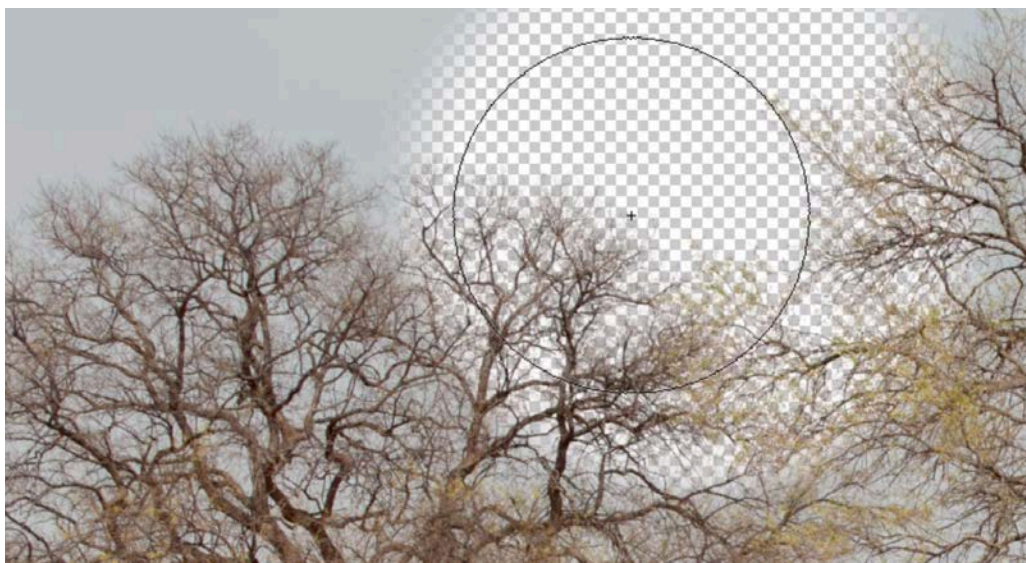
With the Background Eraser Tool active, we'll first specify some settings in the Options Bar above the main image window. We'll set the brush to a large, soft-edged brush. To the right of the brush settings are three icons. We want to make sure the center icon is active and this tells the tool to sample once.

We'll set the Limits menu to Discontiguous, which will allow the tool to erase the sky from the little areas between branches. If we were to choose the Contiguous option, it would only be able to delete pixels in one connected chunk. Finally, we'll set the Tolerance to 40%.



When using the Background Eraser to isolate trees, the above settings work well. The second sample icon is used. The Limits menu is set to Discontiguous and the Tolerance is set to 40%.

When the Background Eraser is active, the cursor will look like a brush with a crosshair in the middle. You can change the size and softness of the brush in the same way that you would with the regular Brush Tool. When we click the mouse button, it's going to look at the color that is directly beneath the crosshair and delete everything of that color from within the circular brush tip.

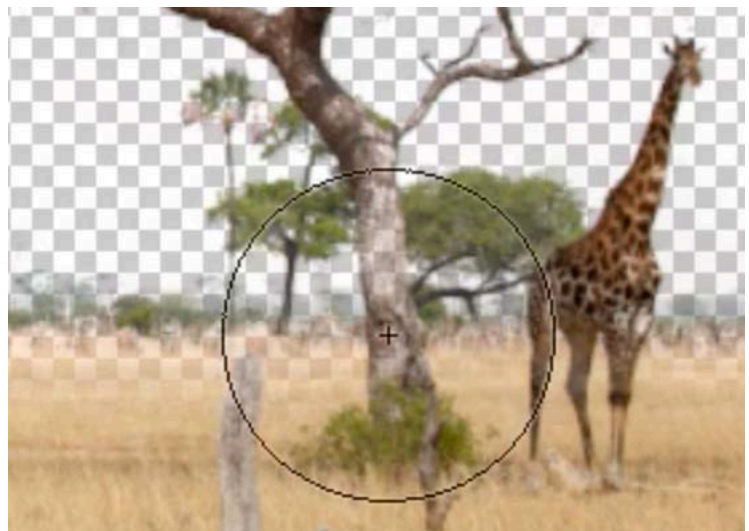


The Background Eraser is being used to remove the sky. The tool erases whatever color is beneath the crosshair when you click to paint.

The Tolerance setting determines how much the tool can deviate from the color that's beneath the crosshair. The higher the Tolerance setting, the more it can erase colors that are brighter and darker than the color that's under the crosshair. I have found that a 40% Tolerance setting works pretty well for trees.

We specified that the tool should sample once (by selecting the center icon), which means that, as we click and drag, it will only erase the color that was underneath the crosshair when we initially clicked using the Background Eraser. If we did not use this setting, then it would constantly change the color being erased as we moved the brush over different parts of the image. By using the "once" setting, we can click and drag to paint directly over the trees. As long as we initially clicked in an area where the crosshair was touching sky, the trees will not be erased.

If the Tolerance setting is too high, you'll find that you might end up deleting too much. This is apparent when you see the transparent checkerboard showing through in areas that should not have been erased. You can protect a particular color from being erased by using the "Protect Foreground Color" setting, which can be found in the Options Bar. To use this setting, we will first hold down the Optionkey (Alt on Win) to temporarily access the Eyedropper Tool and then click on the color we want to protect. In the example image, we'll click to sample a color on a tree trunk. This will set that color as the Foreground Color. Then, we'll turn on the "Protect Foreground Color" check box. Now, as we paint, the tool will be unable to erase anything of that particular color.

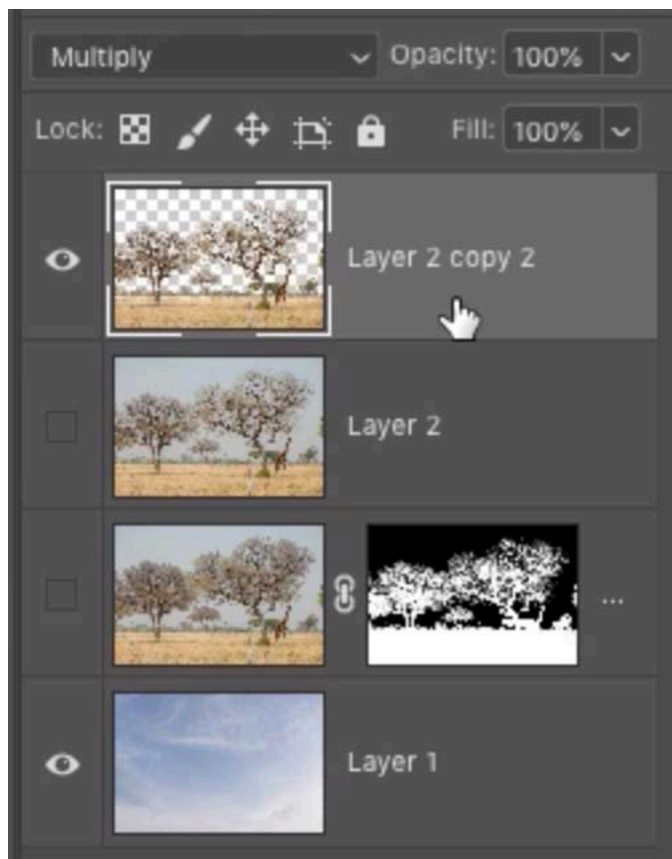


If the Tolerance setting is too high, the Background Eraser may erase more than the background. Here, you can see that it erased part of the tree trunk.

After the sky has been removed using the Background Eraser Tool, we'll place a new sky beneath this layer so that we can see how natural it looks. In the example image, we can still see a hint of the old background color around the edges of some branches. We'll fix this by combining the results we got using the Background Eraser with the results we got by using the Select Color Range and Select & Mask features. I had previously applied those techniques to this image and the result is in a layer that currently has its visibility turned off.

We currently have a sky layer visible at the bottom of the layer stack and we have the layer whose sky was just removed using the Background Eraser visible at the top of the layer stack. We want to take this top layer and act like we're printing this image on top of the background as if we're using ink. To accomplish that, we'll change the blending mode of this layer to Multiply.

Next, we'll drag this layer just below the other version of the image that was masked using the Select Color Range feature. We'll turn on the visibility of that layer. In this version, the masking technique ended up removing some of the tiny branches around the edges of the trees. By placing the other version of the image beneath this layer in Multiply mode, we are allowing the underlying layer to show up only in the areas where the top layer's tree branches were too thin.



We have the layer where the Background Eraser was used to remove the sky on top of the layer stack. A new sky layer was placed at the bottom of the layer stack. The layer with the mask is the one that had its sky hidden using Select & Mask.

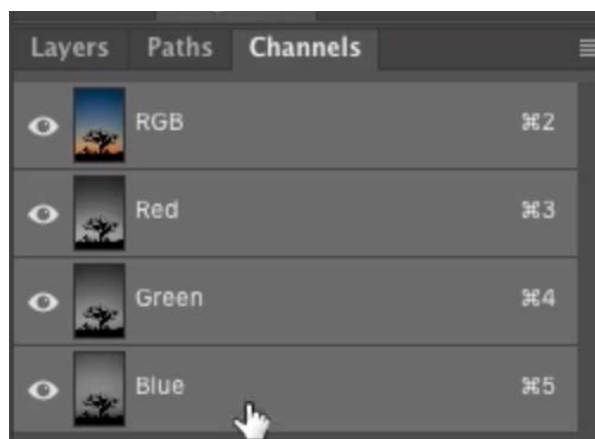


LEFT: The layer that had its sky removed using the Background Eraser was set to the Multiply blending mode and was placed beneath the layer that had its sky removed using a layer mask. This filled in the thinning branches but did so to an extreme level. **RIGHT:** The opacity of the underlying layer was lowered, making the tree look more natural.

The effect is too strong at first (the branches are too dark) so we'll set the opacity of the underlying layer to zero and then we'll slowly bring up the opacity to introduce a hint of those missing branches.

Channel Masks/Luminosity Masks (36:20)

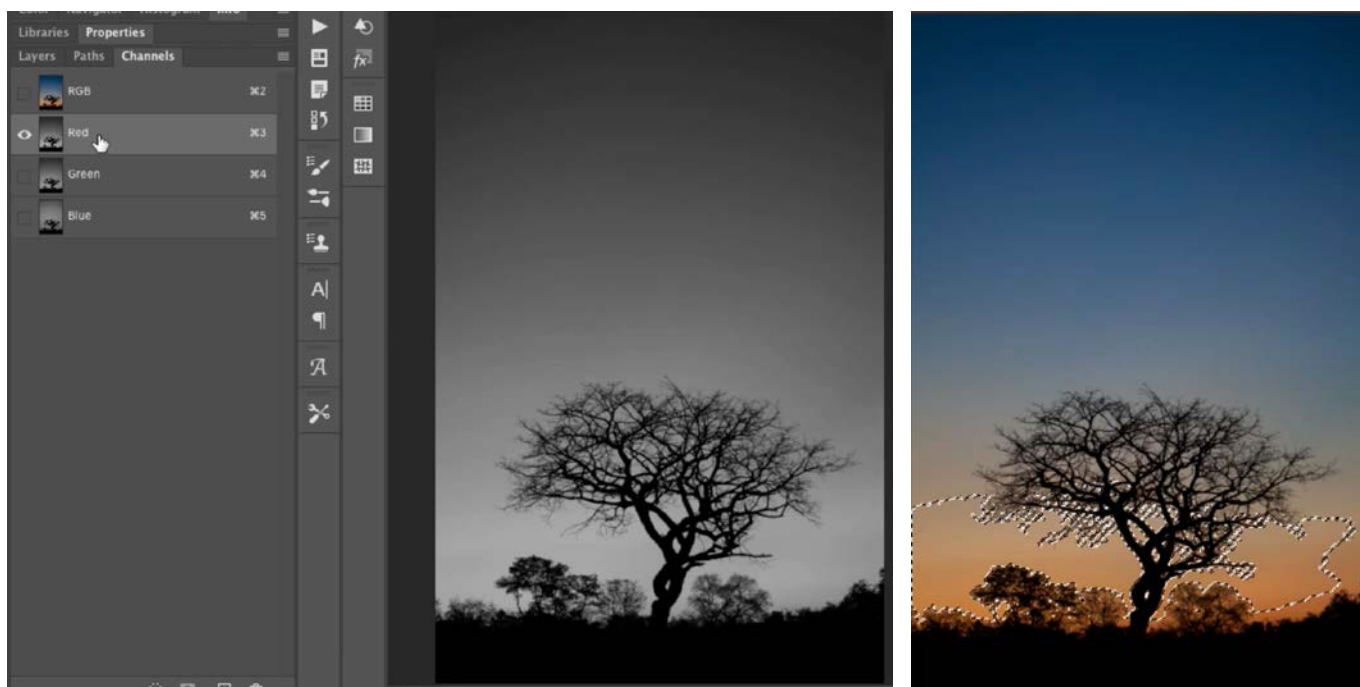
The next technique works well for subjects (trees, in this case) that are in silhouette. We're going to use channel masks, or luminosity masks. These two terms refer to the same thing. With a tree silhouette image open, we'll open the Channels panel. (It's usually grouped with the Layers panel.) This panel shows what the image is made up of behind the scenes. If it's an RGB image, it's made up of red, green and blue light. There will be a channel for each of these colors.



The Channels panel shows the individual color components of the image.

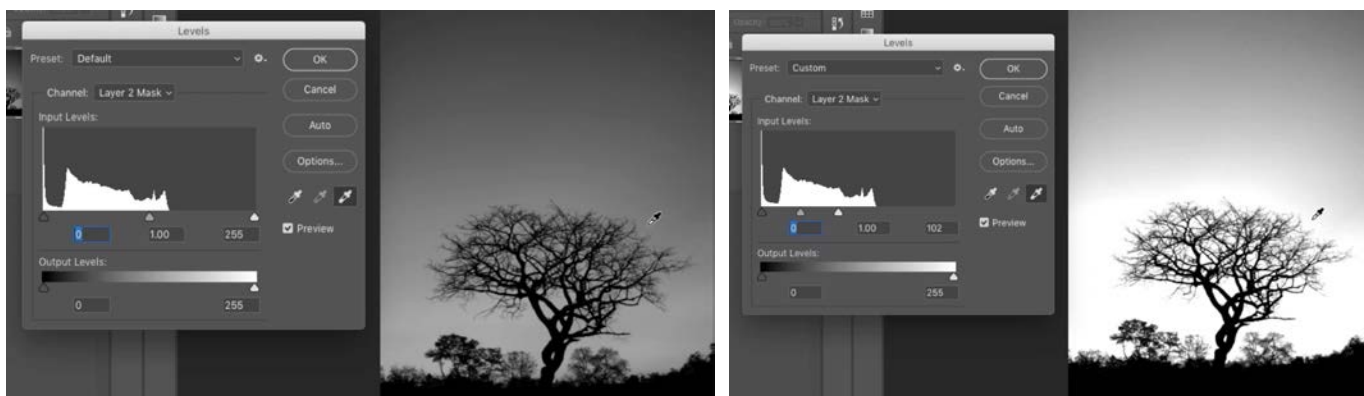
We'll click through each of the three channels to view them individually in the main image window. We want to find the one that has the greatest amount of contrast between the tree and the sky. In the example image, the red channel shows the greatest contrast because the sky is brightest. We want to copy the information from this red channel and place it into a layer mask. We'll then be able to manipulate the mask in order to isolate the tree.

We first need to load this red channel as a selection and we can do that by holding down the Command key (Ctrl on Win) and clicking on the thumbnail for the red channel. A “marching ants” selection will appear on the image. Then, we'll return to the full-color image by clicking on the name of the top, RGB Channel.



LEFT: We clicked through the channels to find the one that showed the most contrast between the tree and the sky. That is the red channel. We are loading that channel as a selection by holding down the Command key (Ctrl on Win) and clicking on the channel thumbnail. **RIGHT:** Back in the Layers panel, you can see the resulting “marching ants” selection.

We'll return to the Layers panel and, with the tree layer still active, we'll click on the Layer Mask icon at the bottom of the panel. This will turn the active selection (which was a copy of the red channel) into a layer mask, essentially pasting the contents of the red channel into the mask. We want to view the mask in the main image window so that we can adjust it. We'll hold down the Option key (Alt on Win) and click on the thumbnail for the mask so that we can view it in the image window. Next, we'll click on the Image menu and choose Adjustments > Levels. In the Levels dialog, there are three Eyedropper tools and we want to make sure that the right one (the white one) is active. We'll use this eyedropper to click in the darkest area that is directly surrounding the tree. When we click, it will force the area we click on, as well as anything that's brighter than that area, to become solid white. Next, we'll activate the black eyedropper and use it to click on the tree to ensure that it is solid black. We'll click OK to exit the Levels dialog.

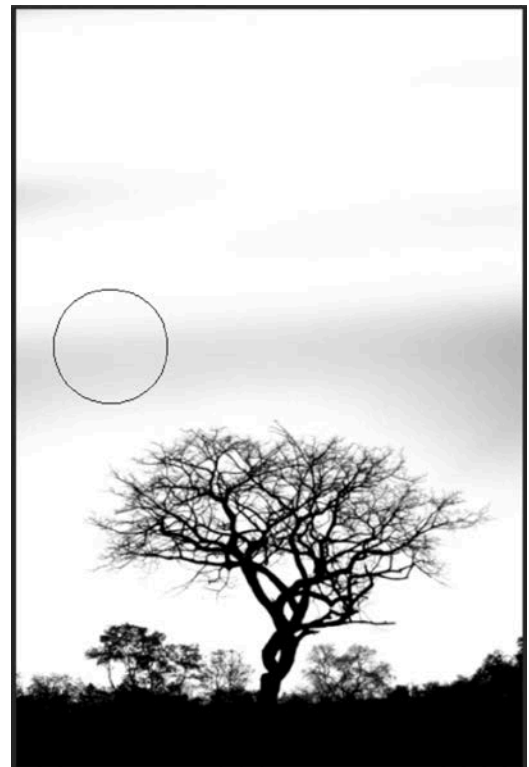


LEFT: We are viewing and adjusting the layer mask in the main image window. Here, you can see the original mask before adjustments. **RIGHT:** We used the white eyedropper to click on the darkest area surrounding the tree, therefore forcing that area to white.

Now, all we need to do is clean up the rest of the mask. We'll activate the Brush Tool and set the foreground color to white so that we'll be painting with white. We'll paint over any parts of the sky that are not currently white.

The entire sky area is now white and the tree is black. Because black hides things in a mask and white reveals things, we need the opposite of what we have. We can quickly invert the mask by clicking on the Image menu and choosing Adjustments > Invert.

We're still viewing the mask in the main image window and we can now turn off this view. We'll hold down the Option key (Alt on Win) and click on the mask thumbnail in order to go back to viewing the actual image layer. With this view, we can see some colors from the original sky surrounding the tree branches. To fix this, we'll click on the Select menu and choose Select & Mask. The Select & Mask window will appear and we'll turn on the "Decontaminate Colors" check box. This will try and eliminate any residual background color from the original image. We'll drag the Amount slider to the left and then gradually increase it, finding the lowest setting that still removes the residual background. If this still doesn't quite do the trick, we can always move the Radius slider up to one or two pixels, giving Photoshop control over the edges of the mask. When we're satisfied with the mask, we'll click OK to exit the Select & Mask window.



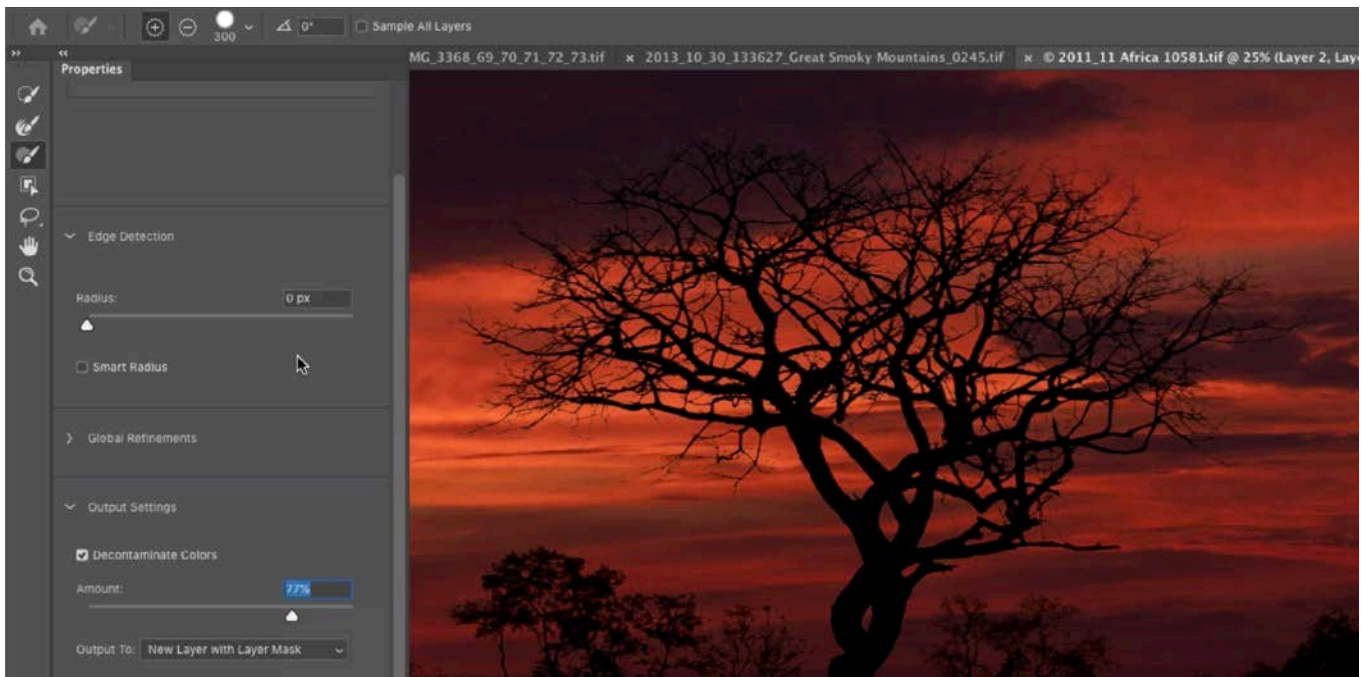
We are still viewing the mask in the main image window. We are cleaning up the mask (so that only the tree is isolated) by painting over the sky area with white.



The mask was inverted so that only the tree area is white. White parts of the mask represent the areas that are visible.



LEFT: After isolating the tree using a channel mask, you can still see some residual halo from the original sky. **BELOW:** In the Select & Mask window, the “Decontaminate Colors” setting is turned on in order to remove the halo from the original sky.

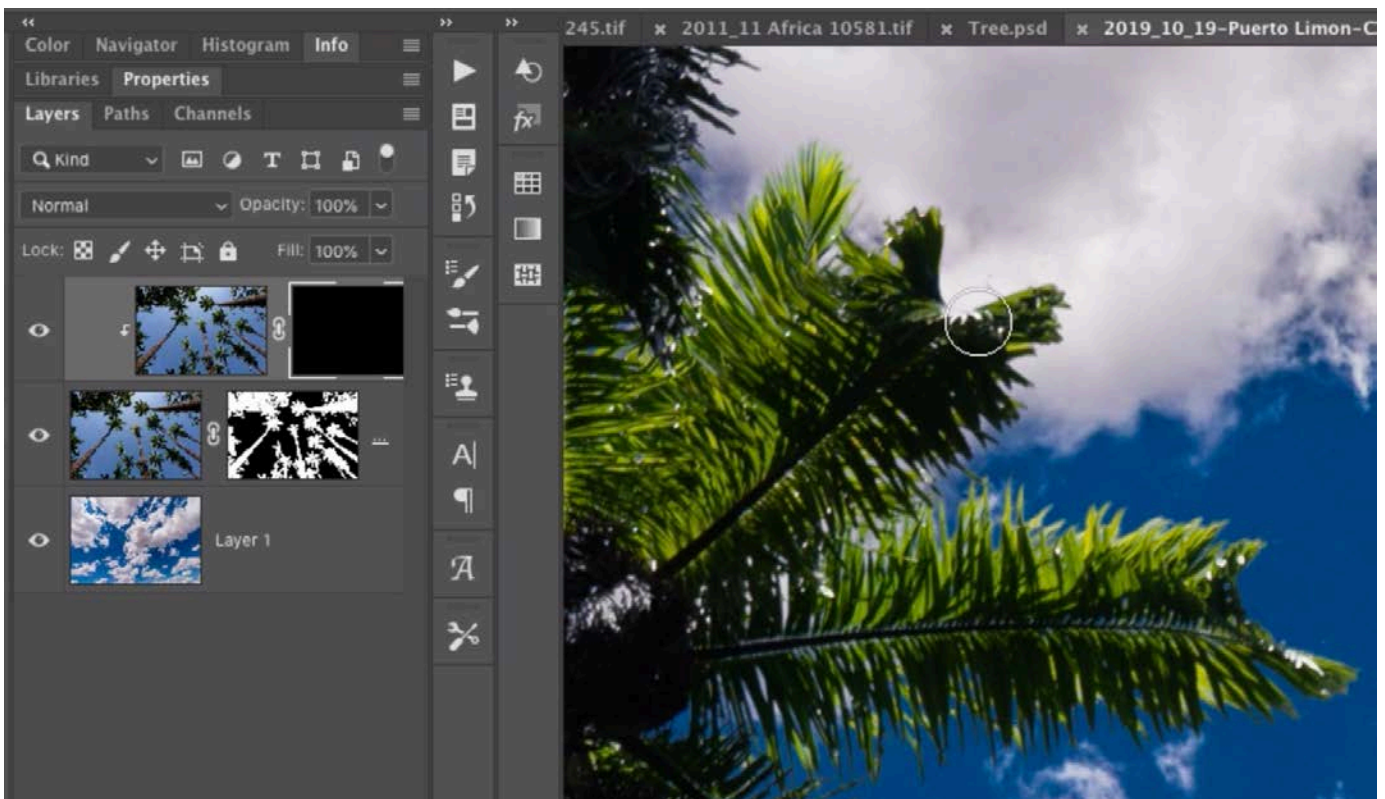


When to use the original layer from “Decontaminate Colors” (42:11)

We mentioned earlier that, whenever the “Decontaminate Colors” check box is turned on, the Select & Mask result will be placed on a new layer. The original layer can still be found in the Layers panel, with its visibility turned off. You usually won’t need to use this original image layer, but there is one instance where I find that it can be useful. That is when you would like to see the original, unmasked layer in certain areas of the image. The sky will still remain masked, but it will bring back any colors that were hidden from within the tree[s].

To achieve this, make sure the original, unmasked layer is active and positioned above the masked layer. Click on the Layer menu and choose to Create Clipping Mask. When you create a clipping mask with a layer, it means that the layer will only show up in areas where the underlying layer is visible. If the underlying layer has a mask, that mask will also hide parts of the clipped layer. You can tell that a layer is clipped because it becomes indented in the Layers panel and a down-pointing arrow shows up to the left of the layer thumbnail.

After clipping the layer, you can further control where the layer is visible by adding a layer mask. I like to invert the layer mask by clicking on the Image menu and choosing Adjustments > Invert. This will make the entire mask black so that it's hiding everything in the layer. Then, I can use a white brush to manually paint in the areas where I want this original tree layer to be visible.



The original, unmasked layer was placed at the top of the layer stack and it was clipped to the masked layer beneath it. A layer mask was added to this layer so that we can selectively paint in the areas where we want it to be visible.