



Challenge: Insect Image

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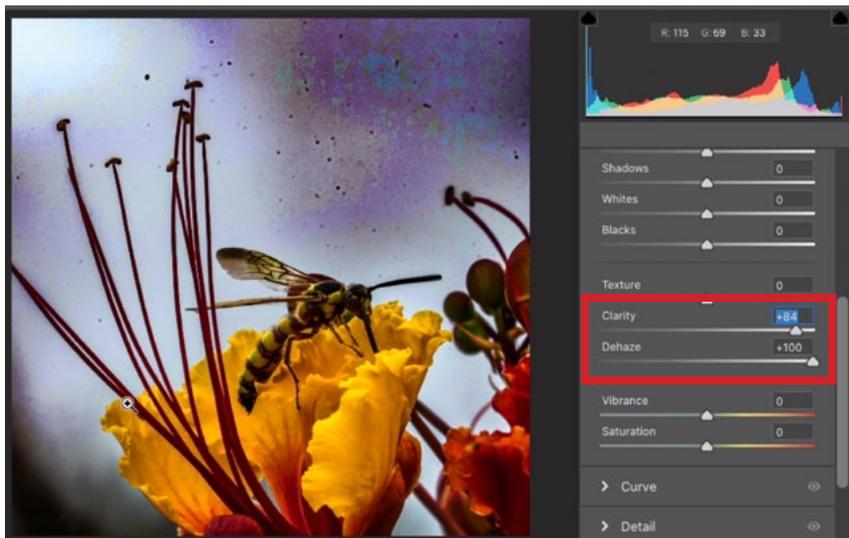
In this lesson, we are going to work on a challenge image that was submitted by a Masters Academy member. The image features a close-up shot of an insect and the challenge lies in removing an object from behind that insect's partially-transparent wing. During the course of the lesson, we will learn how to combine retouching tools to get the best results. We will also learn how to tackle objects with partial transparency.



In this challenge image, we are going to remove the object that appears behind the insect.

Remove Dust Specks (Timestamp 1:00)

The first thing we're going to tackle is the dust in the background of the image. This could be the result of dirt in the air or from a dirty camera sensor. We can get a better idea of how much dirt there is by opening the image in the Camera Raw filter (Filter menu > Camera Raw Filter) and then moving the Clarity and Dehaze sliders far to the right.

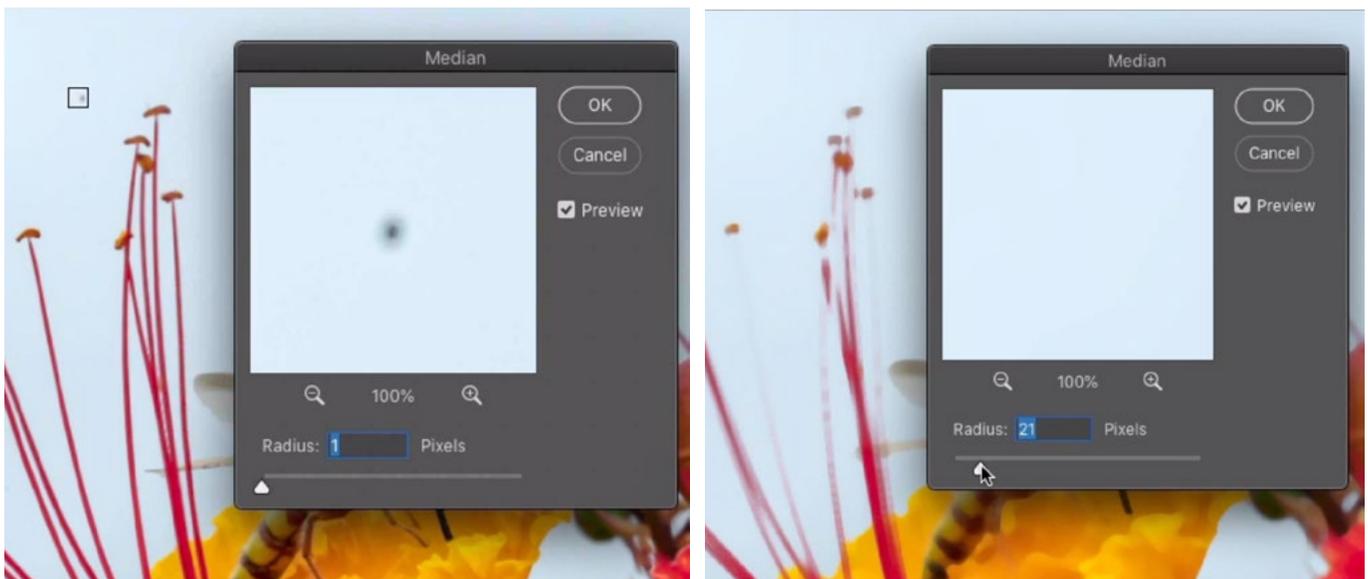


To get a better idea of how many spots there were, we opened the image in the Camera Raw filter and increased the Clarity and Dehaze settings.

We will remove the dust in Photoshop's main interface (not in Camera Raw). We COULD use something like the Spot Healing Brush to click on every dust speck, but that would take a long time. In this image, we are lucky because most of the dust is contained in an area that does not contain any detail. This allows us to use a more generic solution. We are also lucky in that the background is mostly one color, and that color is not contained in other areas of the image. This allows us to isolate that area rather easily.

The Median Filter We're going to use the Median Filter to remove the dust spots. Before doing so, we will duplicate the image layer by using the keyboard shortcut Command+J (Ctrl+J on Win). We'll make sure this duplicate is the active layer because this is the layer to which we want to apply the filter.

The Median Filter can be accessed by clicking on the Filter menu and choosing Noise > Median. The Median dialog will appear, displaying a preview window and a Radius slider. In this filter, we can click on a dust spot (in the main image window) and the preview window will zoom in to that location. Then, we can drag the Radius slider to the right, just until the speck disappears. We'll click OK to exit the Median dialog.

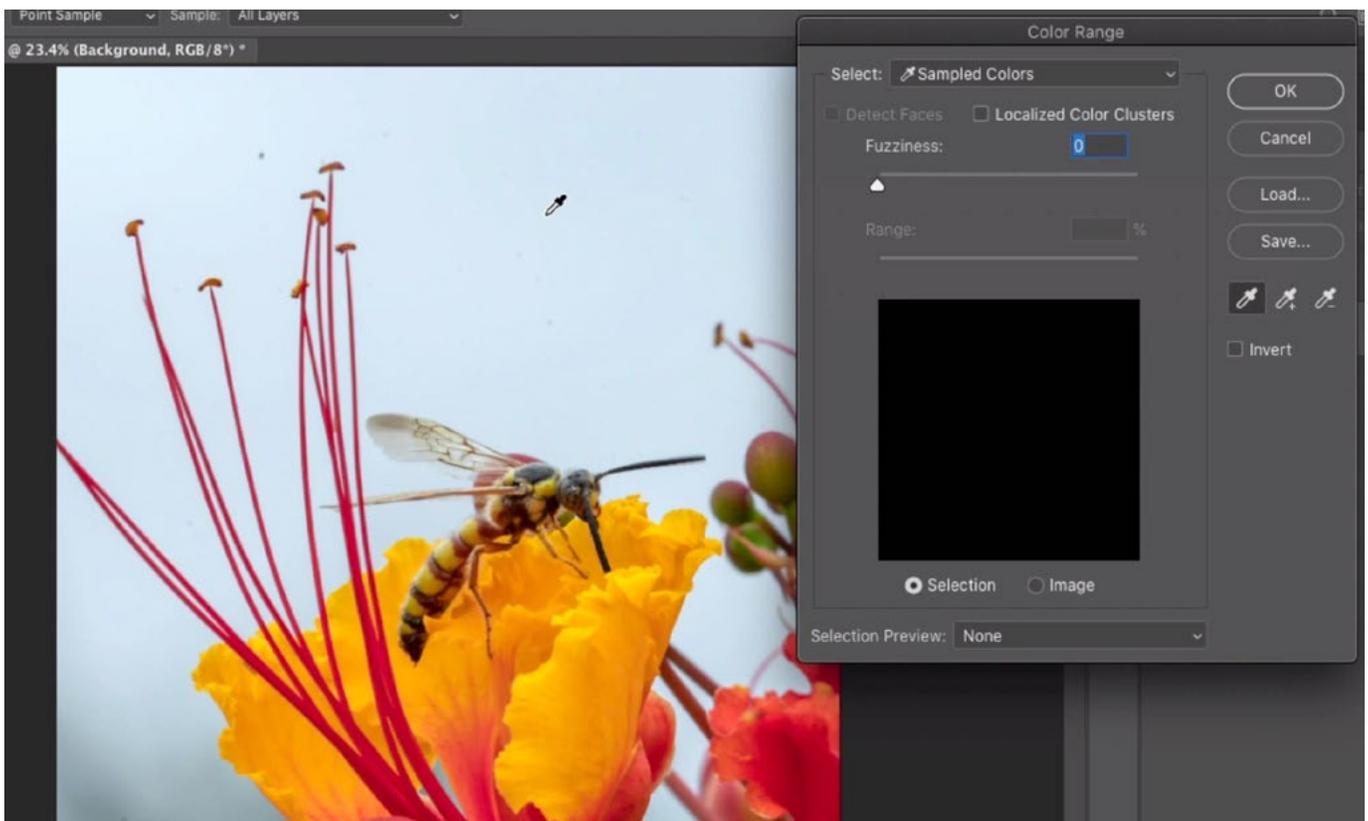


LEFT: In the Median Filter, we clicked on a spot and the preview window zoomed to that location. **RIGHT:** The Radius slider is being increased until the spots are no longer visible.

Now the dust specks have been removed from the background but the rest of the image (the flowers and insect) does not look good. That's why we wanted to apply the filter to a duplicate layer. We'll use a layer mask to isolate the effect so that it can not affect the subjects.

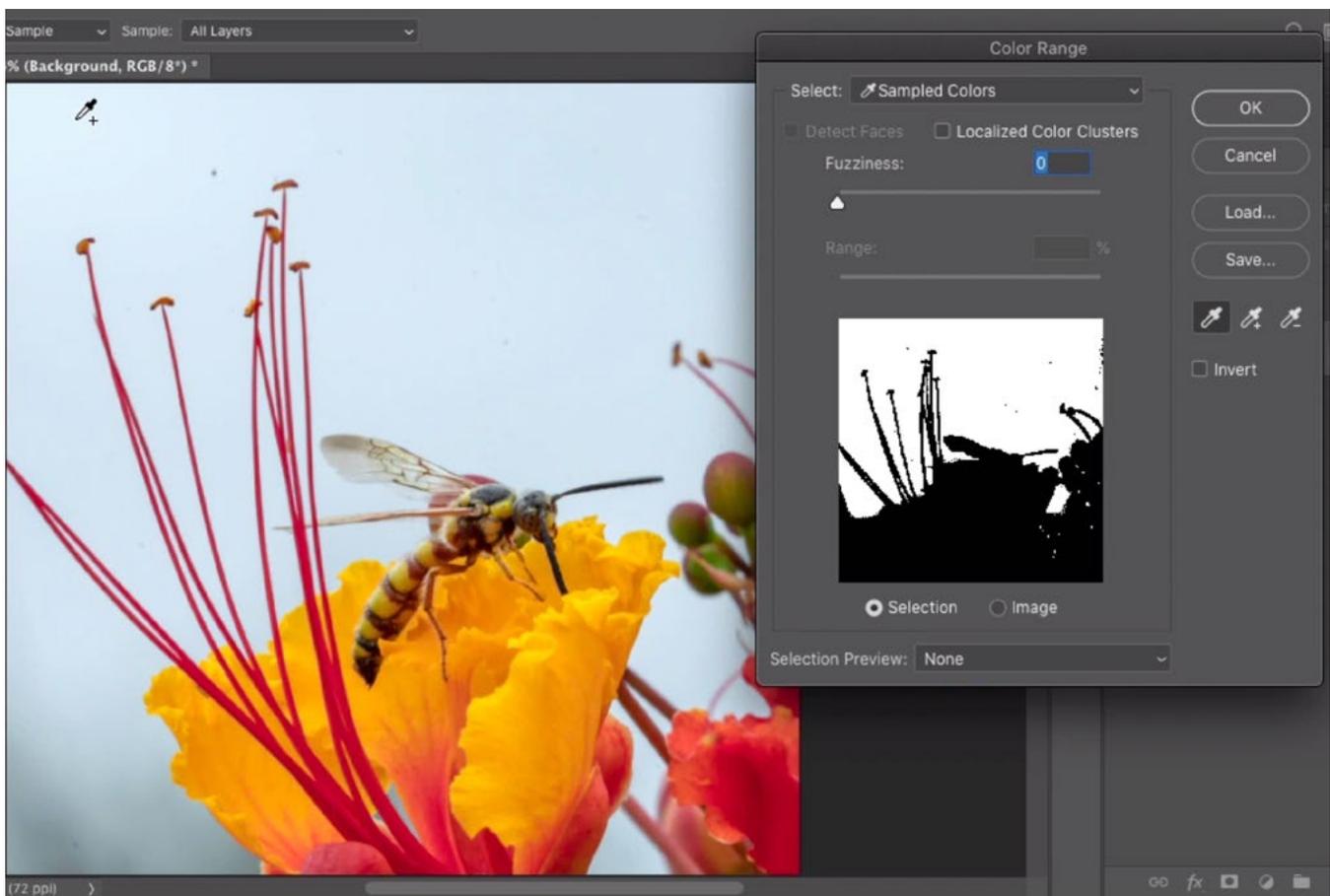
Select Color Range We'll temporarily hide the visibility of the top layer (where the filter was applied) and we'll activate the bottom, original image layer. We'll use this layer to create a selection of the background. There are many different methods for creating this selection, but we used the Color Range command in the video example. We'll click on the Select menu and choose Color Range.

The Color Range dialog box will appear and we'll start by moving the Fuzziness slider all the way to the left (to its lowest setting). The Eyedropper Tool will be active by default and we'll use it to click within the image on the color we want to select. In this case, that's the color of the background.



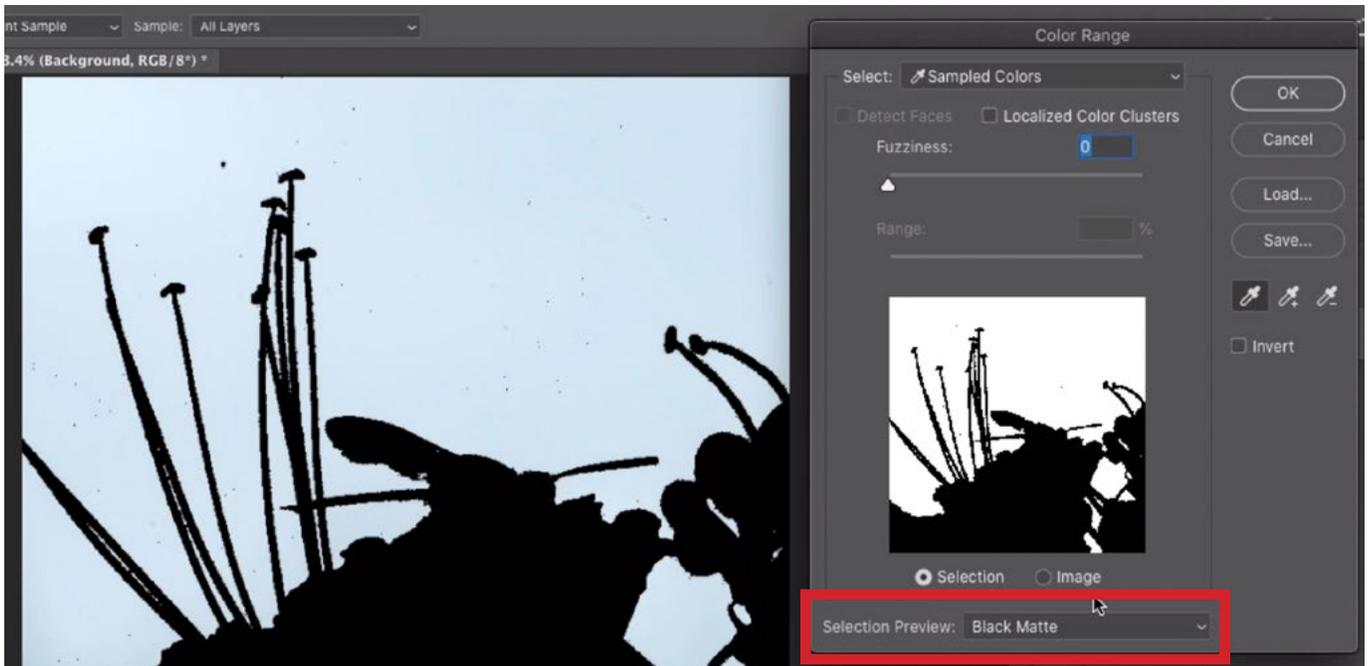
Using the Select Color Range command, the Eyedropper is being used to click on the color we want selected.

In the Color Range dialog, the preview screen shows a mini version of the image. The white areas depict what is selected and the black areas indicate what is not selected. After we initially click within the image, only a small area will become selected. We need to use the add eyedropper (+) to add to this selection. We can either activate it by clicking its icon in the Color Range dialog or we can hold down the Shift key, which will temporarily turn the regular eyedropper into the add eyedropper (+). We'll do this while clicking on additional areas of the background. This will select a wider range of colors and you will see that more of the preview window becomes white.



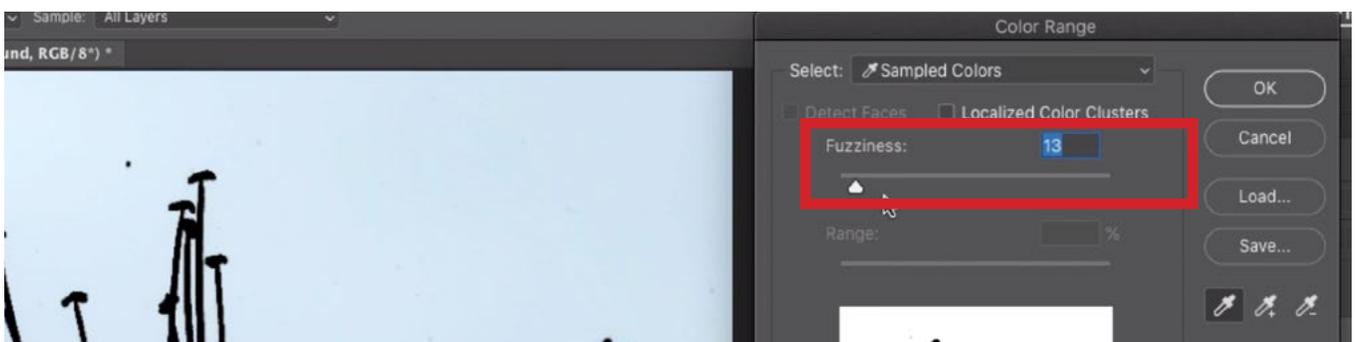
The add eyedropper is being used to click in additional areas, expanding the range of colors that is selected. In the small preview window, the white areas represent the areas that are selected.

If you would like to get a larger preview of the selection, you can change the Selection Preview menu (at the bottom of the Color Range dialog) to Black Matte. This will place a black overlay directly on the image in areas that are not selected.

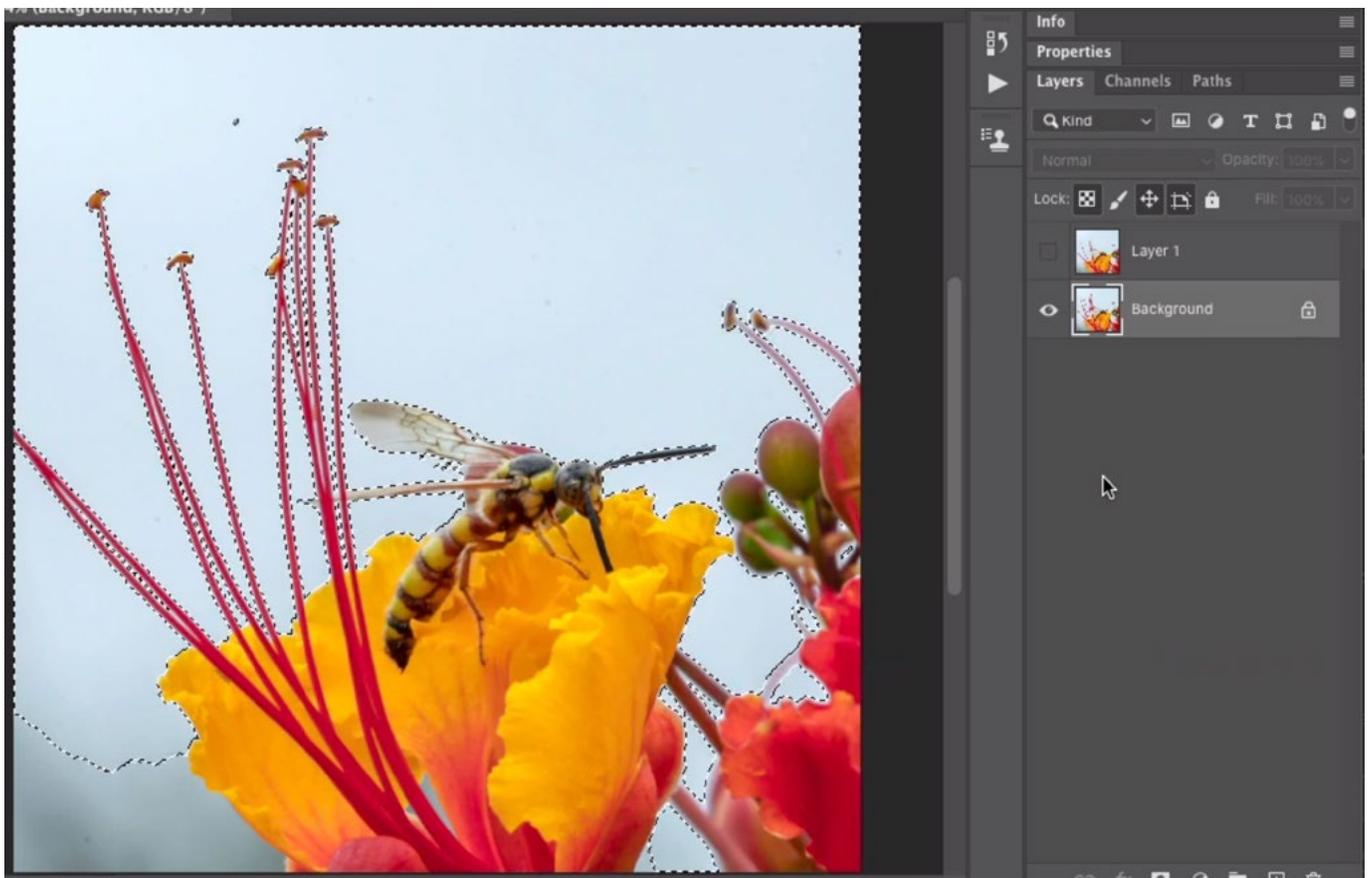


The Selection Preview menu (circled) is set to Black Matte. This places a black overlay directly on the image in areas that are not selected.

After making this initial selection, we can use the Fuzziness slider to fine-tune the results. The Fuzziness setting determines how much the selection can deviate from the colors we clicked on. As we move the slider up, it will select a wider range of colors. We'll move this slider up until most of the background is selected and then we'll click OK to exit the Color Range dialog. We'll be left with a "marching ants" selection around the background.



The Fuzziness slider is moved to the right, expanding the range of colors being selected.



After exiting the Color Range command, a “marching ants” selection is created around the background.

Add layer mask to limit effects of Median Filter Now we have an active selection of the background and this is the area where we’d like the Median Filter to be applied. We’ll turn on the visibility of the top layer and we’ll click on it to make it active. This is the layer on which the Median Filter was applied to remove the dust specks.

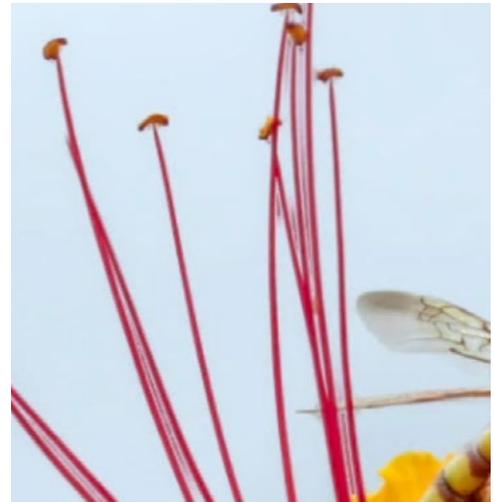
We’ll add a layer mask to this layer by clicking on the Layer Mask icon at the bottom of the Layers Panel. Because there is an active selection at the time the mask is added, the selection will automatically be applied to the layer mask. The selected areas will be the white part of the layer mask and therefore the only part of the layer that is visible.



A layer mask was added to the layer that contains the effects of the Median Filter.

Refine the layer mask After making a selection and layer mask using this method, you may need to further refine the mask. That's the case in the video example. You can see that there is some undesirable artifact in the small crevices of the image. These came from the Median Filter.

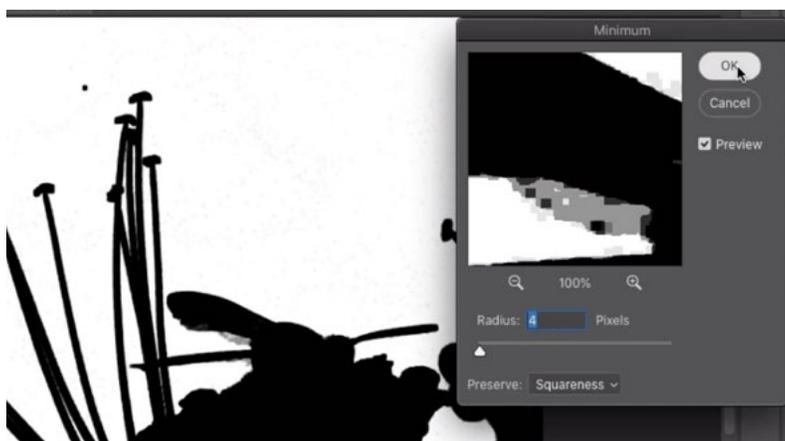
We can view the mask in the main image window by holding down the Option key (Alt on Win) and clicking on the mask icon in the Layers Panel. The black areas represent the areas where the Median Filter will NOT be applied, so we want to expand the black into those little areas with the undesirable artifact. We can do that using a filter.



Some artifact from the Median filter layer remains, which means we need to refine the layer mask.

The Minimum and Maximum filters Because we're viewing the mask in the main image window, we can apply a filter directly to it. We're going to use a filter to minimize the amount of white in the mask. We'll click on the Filter menu and choose Other > Minimum.

Note: Both the Minimum and Maximum filters think about the amount of white in the image. The Minimum filter reduces the amount of white and the Maximum filter will maximize the amount of white in the image.



We're viewing the layer mask in the main image window and the Minimum filter is being applied directly to the mask.

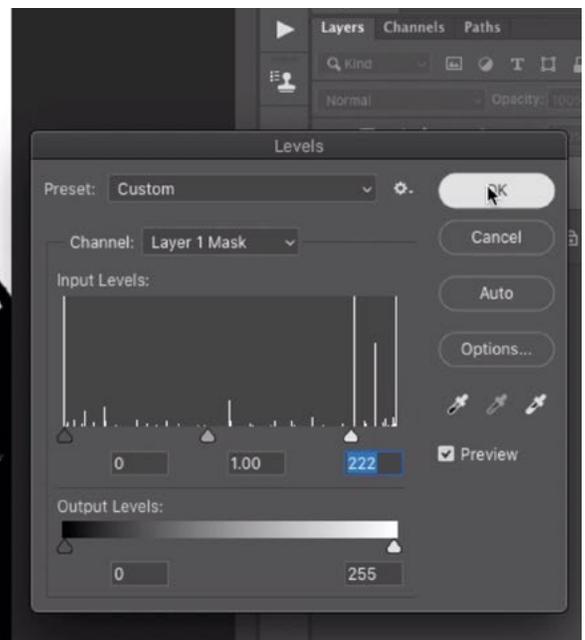
The Minimum dialog will appear and it presents us with a Radius slider. The higher we move this slider, the more the black areas will expand (and the white areas will therefore contract). We'll move this Radius slider up by about three or four, just enough so that the black expands away from the edges of the objects in the image. We'll click OK to exit the Minimum filter dialog.

Levels adjustment to fine-tune mask After using the Minimum filter to lessen the white areas in the mask, we are left with some dark specks in the background, which should be completely white. We can correct this with a Levels adjustment. Remember, we are still working on the layer mask, which is visible in the main image window. We'll click on the Image menu and choose Adjustments > Levels. The Levels dialog will appear and there will be three sliders beneath the Levels chart. The black slider (on the left) controls the black point, forcing more and more areas to black. The white slider (on the right) controls the white point. We'll move this slider to the left, forcing more areas to white, until all of the dark specks disappear from the background area. We'll click OK to exit the Levels dialog.



LEFT: After using the Minimum filter to reduce the whites and increase the blacks, there are some dark specks in the background.

BELOW: A Levels adjustment is being used to remove the dark specks. In the Levels dialog, the white slider is being moved to the left, forcing more areas to white.



Adjust the mask with the Brush Tool You can also use the Brush Tool to modify the mask. Paint with black in areas where you don't want the layer to be visible and paint with white in areas where you do want the layer to be visible.

In the video example, we have one dark spot left in the background area. We'll activate the Brush Tool and paint with white to remove the spot.

The mask looks better now, so we can stop viewing it in the main image window. We'll again hold down the Option key (Alt on Win) and click on the mask thumbnail in the Layers Panel. The main image will be visible again (instead of the mask) and we can inspect the results.



The Brush Tool is being used to paint with white over the spot in the background. We're painting on the layer mask.



In the video example, we still had some artifact between the fine details in the image, so we corrected this by using a small brush to paint with black on the mask in the areas where we saw the artifact.

Note: You do not need to be viewing the mask in the main image window in order to paint on the mask. As long as the mask is active, you can be viewing the image while painting on the mask.

We're back to viewing the image in the main window (instead of the mask) but we are still adjusting the mask with the Brush Tool. The active layer contains artifact between the flower details and we're painting on the mask with black to hide that artifact.

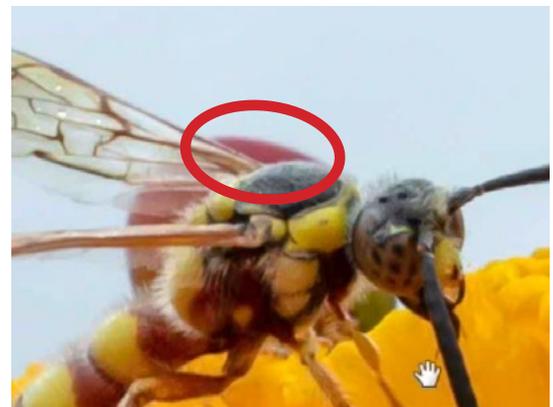
Spot Healing Brush to remove any remaining spots The Median filter was successfully used to remove the vast majority of the dust spots. If there are any remaining spots, you can tackle them with the Spot Healing Brush. That's what we did in the video example because we had one or two remaining spots.

When working with the retouching tools, it's always a good idea to work on a separate layer, so we created a new, empty layer at the top of the layer stack. We activated the Spot Healing Brush and made sure that the Sample setting in the Options Bar (above the image window) was set to "Sample All Layers." This allows us to apply retouching on an empty layer. We then used the Spot Healing Brush, set to a hard-edged brush, to click on the leftover dust specks.

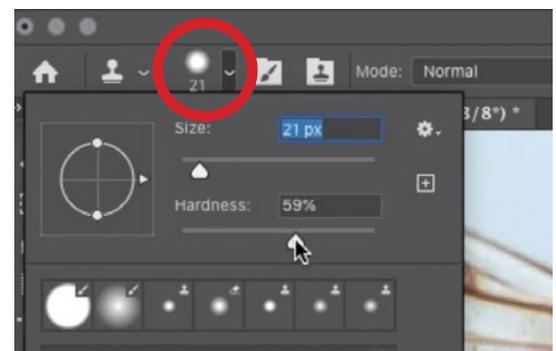
Using Clone Stamp Tool to Retouch Top of Object (12:58)

Now it's time to retouch the object behind the insect. We already created an empty layer on which to place the retouch work, so we'll make sure that top layer is active. Looking closely at the object behind the insect, we can see that it will need to be removed in stages.

We'll start with the red part that is extending out from the top of the insect. This is the most straight-forward retouching job. We'll activate the Clone Stamp Tool for this task. Zooming in on the area, we can see that the edge of the insect is slightly soft. We'll want the softness of the Clone Stamp brush to match this level of softness. With the Clone Stamp Tool active, we can adjust the brush settings within the Options Bar above the image window. We'll set the brush hardness to about 60%.



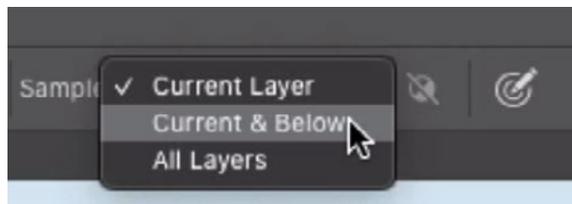
We're going to remove the object in stages, starting with this top part.



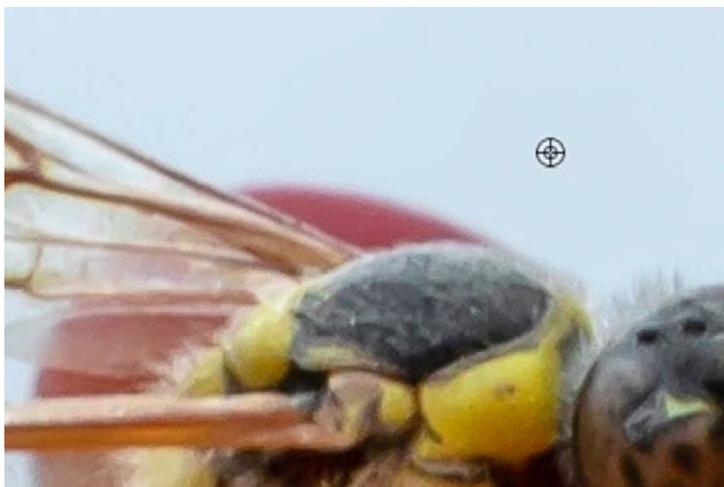
The brush settings can be found in the Options Bar.

We'll also make sure that the Sample menu is set to "Current & Below." This will allow the tool to work on an empty layer.

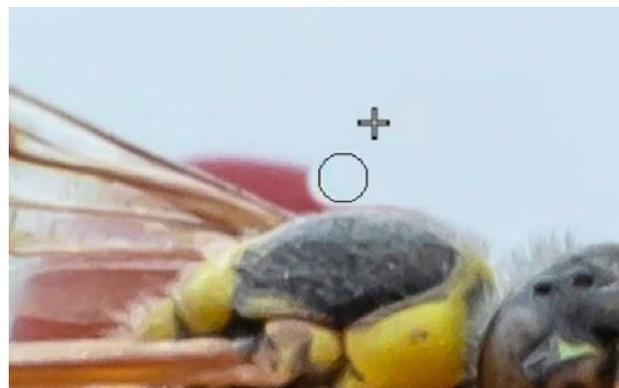
To use the Clone Stamp Tool, hold down the Option key (Alt on Win) and click on the area that you want to sample from. In the video example, we sampled from an area of sky that is right above the object we're going to remove. Then, when you release the mouse button, you can click in the area you want to retouch. This will paint the sampled content directly into this area. A preview of what will be pasted appears within the circular brush tip. In our example, we clicked to paint over the red object, taking care not to extend the paint strokes into the edge of the insect.



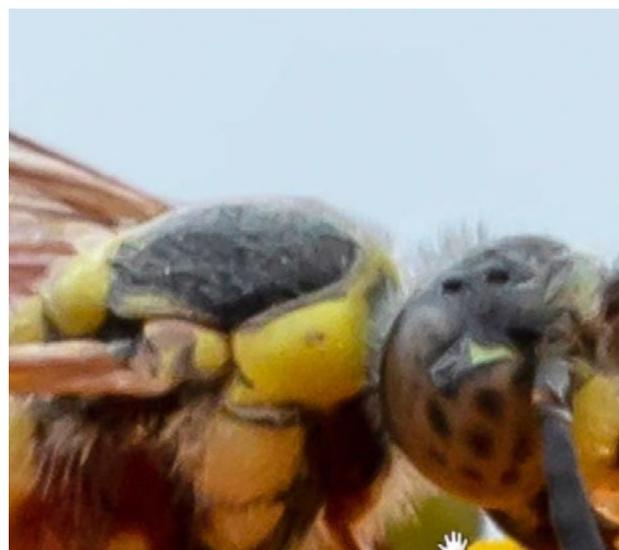
When retouching on an empty layer, make sure that the tool's Sample setting is set to "Current & Below."



ABOVE: The Clone Stamp Tool is being used to sample from an area in the background.



ABOVE RIGHT: The Clone Stamp Tool is being used to paste the sampled content over the unwanted object.



RIGHT: The top of the object was successfully removed.

Use Clone Stamp Tool Along with the Healing Brush (15:10)

Next, we're going to remove the part of the object that is visible between the insect's head and the flower petal. The Clone Stamp Tool can be used for this as well. To retouch the area where the flower petal meets the background, we will sample from another [clean] area where the petal and background meet at a similar angle. Again, we'll hold down the Option key (Alt on Win) and click to sample that area. Then, we'll release the Option key and paint over the retouch area, removing the object. Again, we will try to match the softness of the Clone Stamp brush to the softness of the edges in the image.

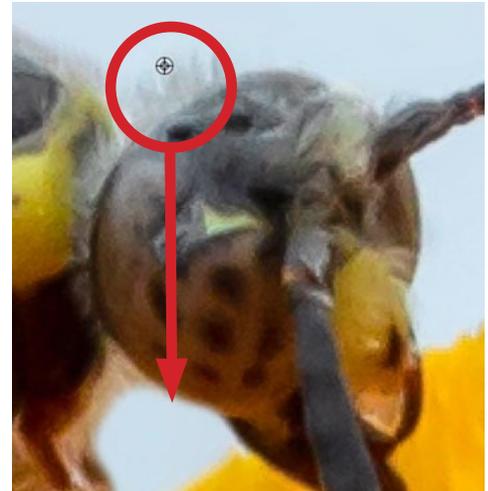


Both the Clone Stamp Tool and the Healing Brush will be used to remove this part of the object.



LEFT: The Clone Stamp Tool is being used to sample an area where the petal meets the clean background. CENTER: The Clone Stamp Tool is being used to align the sampled content with the edge of the petal in the retouch area. RIGHT: We are painting in the sampled content with the Clone Stamp Tool to remove the unwanted object.

The insect has some fuzz under his head, and that's going to get cloned away as we paint in the sampled area. We'll need to find a way to replace the fuzz, so we'll look for other areas of the insect that have fuzz to sample from. There is some fuzz on top of the head which comes in contact with the blue/gray background, so we can use that. It will be oriented in the wrong direction, but that's OK. We can change the Clone Source settings to change the orientation of the content we copied.



We're going to copy the fuzz from the top of the head and use it to replace the fuzz on the bottom of the head.

To copy the fuzz from one area to another, we will actually use the Healing Brush Tool, which will attempt to match the brightness and color of the re-touch area to the surrounding area. We'll use the Healing Brush to sample from the fuzz on the top of the head. Then, we'll open the Clone Source Panel. If it is not already viewable on your screen, you can access it by clicking on the Window menu and choosing "Clone Source."

The Clone Source Panel The Clone Source panel contains settings that allow you to change the size, rotation and orientation of the copied content. We're going to need to use a lot of these settings in order to manipulate the sampled fuzz so that it is facing the correct direction.

We copied fuzz that is pointed upward and we need it to point downward, so we'll click the Flip Vertical button (see screen shot).



After sampling fuzz from the top of the head, we used the Flip Vertical setting in the Clone Source Panel to flip the fuzz upside down so that it can be copied to the bottom of the head.

The fuzz should also be pointed the other direction, so we can also click the Flip Horizontal button. When we look at the preview (of what will be pasted) inside the Clone Stamp brush tip, we can see that the angle is still a little off. It needs to be rotated counter-clockwise slightly. We can use the angle setting within the Clone Source Panel to achieve this. To change the angle setting, you can either manually type in a number (a negative number would rotate counter-clockwise) or you can click and drag left or right on the angle icon. This will automatically change the setting.

Clone Source Shortcuts The Clone Source settings can also be adjusted using keyboard shortcuts. Let's look at a few:

Shift+Option+Arrow keys: Reposition content

Shift+Option+ > : Rotate content clockwise

Shift+Option+ < : Rotate content counter-clockwise

Shift+Option+] : Scale content up (to make it larger)

Shift+Option+ [: Scale content down (to make it smaller)

NOTE: On Windows, use the Alt key instead of the Option key.

Before painting with the Healing Brush, we need to look at some settings in the Options Bar above the image window. We need to make sure that the "Aligned" check box is turned on and that the Sample menu is set to "Current & Below." Now, we can start to paint in the fuzz that we sampled with the Healing Brush, making sure that we don't bump up against the head or body of the insect. Because it's a healing tool, it will attempt to match the color of the surrounding area (the blue/gray background).

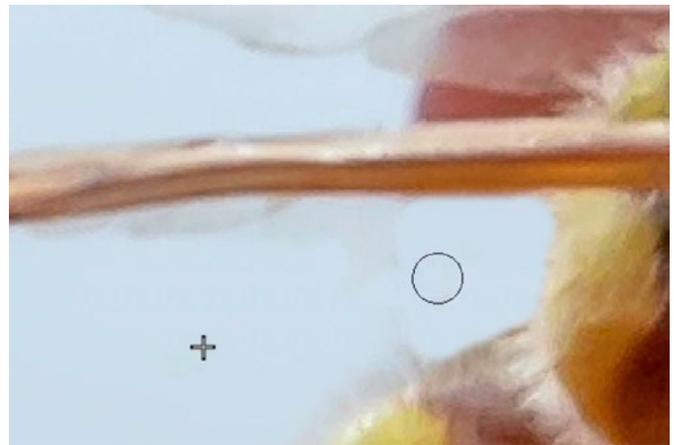


The Healing Brush Tool is being used to paint the copied fuzz (from the top of the head) onto the bottom of the head.

Remove Object from Behind the Transparent Wing (23:22)

Now we're going to focus on the area where the unwanted object intersects with the insect's body and lower wing. Part of the wing is transparent and you can see the object through that area. The body is also covered with fuzz.

We will use the Clone Stamp Tool, which creates a blatant copy and does not attempt to match the color of the surrounding area. We'll sample from an area of clean background and then start to paint over the object, taking care that we don't paint over the body or the solid part of the wing. It's ok that we're painting over the fuzz and the transparent part of the wing. We will clone those back in separately.



LEFT: We're going to remove this part of the object using a combination of tools. RIGHT: The Clone Stamp Tool is being used to copy from a clean area of background and then paste it over the object. The fuzz and part of the wing are being erased as well, but we'll bring those back later.

We need to find areas that we can sample from to bring back the fuzz that we removed from the insect's body. The fuzz we removed was touching the upper joint in the body. If you look at the image, you will see that there is a second body joint that contains fuzz as well. This area is not obstructed and we can therefore copy from this area to paste over our retouch area.



We're going to copy the fuzz from the clean area and paste it over the obstructed area.

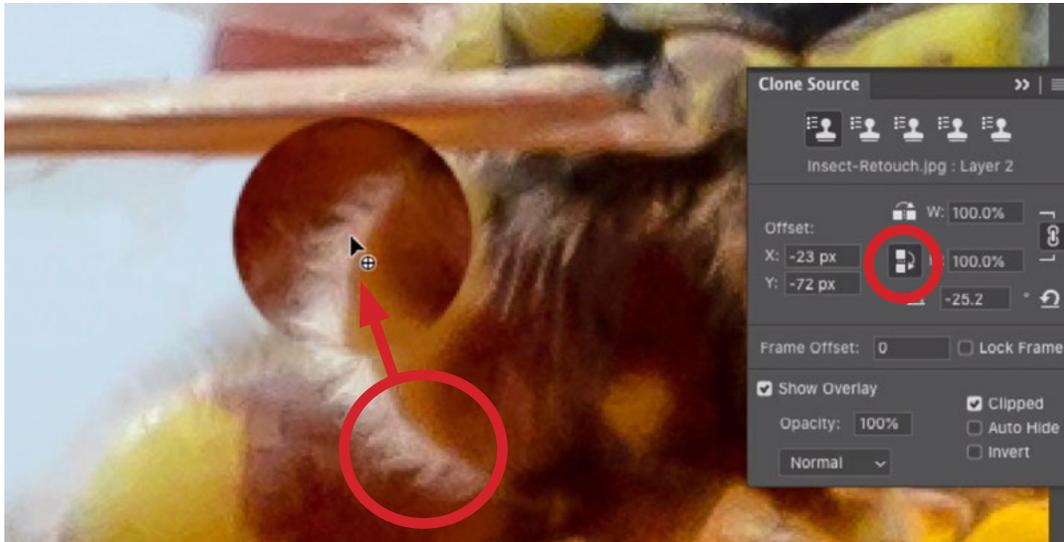
We'll use the Healing Brush because it will try to match the color of the surroundings. With the Healing Brush active, we'll sample from the clean fuzz on the lower body joint. Then, we'll open the Clone Source Panel and make sure that it is using default settings. You can return the panel to its default settings by clicking the little u-turn icon  on the right side of the panel.

We'll position the cursor over the retouch area and will make the brush larger so that we can get a better preview of the content we'll be pasting. This allows us to better line up the sampled area to the clone area. With this large brush, we can click to apply the tool and then immediately use the undo command. This sounds counterintuitive but it's actually locking in the position of the content we're pasting. We can now make the brush smaller and carefully paint over just the fuzz.



LEFT: The Healing Brush is being used to sample an area of fuzz. CENTER: The Healing Brush is positioned over the retouch area and we made the brush large so that we could better see the preview and align the content. RIGHT: The Healing Brush is being used to paint the copied fuzz into the retouch area.

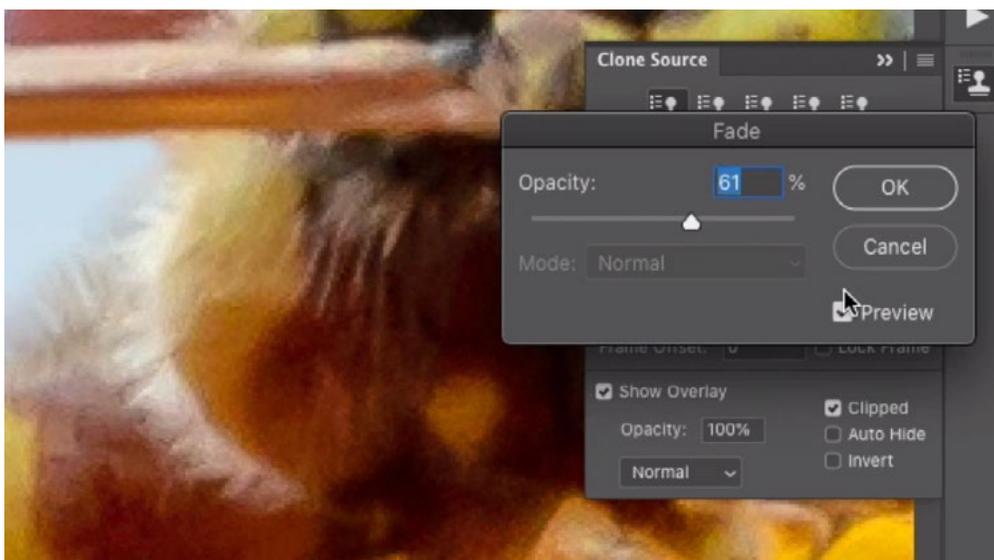
We also need to replace the fuzz that used to extend upward toward the insect's wing. The original fuzz got shorter and shorter as it moved upward. We can copy the fuzz that extends down to the bottom of the body and then flip it vertically using the Clone Source settings. We will also need to adjust the angle of the sampled content so that it aligns with the insect's body. Again, we'll use the Clone Source settings to do this.



The Healing Brush was used to sample the white fuzz on the bottom. In the Clone Source Panel, we flipped the sampled content vertically so that it would align correctly when pasting it on the top part of the insect.

When we go to paint in the sampled fuzz, we need to be really careful. Because we're using the Healing Brush, it's going to match the color of the area that's immediately outside of the area where we painted. Because of this, we need to make sure that the paint strokes do not extend into the insect's body because the tool will try to match the retouch area to that.

The Fade Command If an effect is ever too intense, you can lessen it with the Fade command. This command allows you to lessen the effect of the very last thing you did in Photoshop. Note that it can not go back more than one step. When we were copying fuzz from one area of the insect to another, the fuzz we pasted appeared too bright.



After retouching in the white fuzz, we could see that it was too bright. Here, we are using the Fade command to lessen the effect of the Healing Brush stroke. The Fade command can be used on the very last step you took in Photoshop.

Setting up an area for the Healing Brush

This is a technique that was used in a few different areas of the image. It was useful for tricky areas like the transparent parts of the wing. The Healing Brush is great for matching a retouch area to its surroundings and creating a smooth transition. You just need to make sure that the unwanted object is not part of those surroundings because you don't want the Healing Brush to attempt to match that.

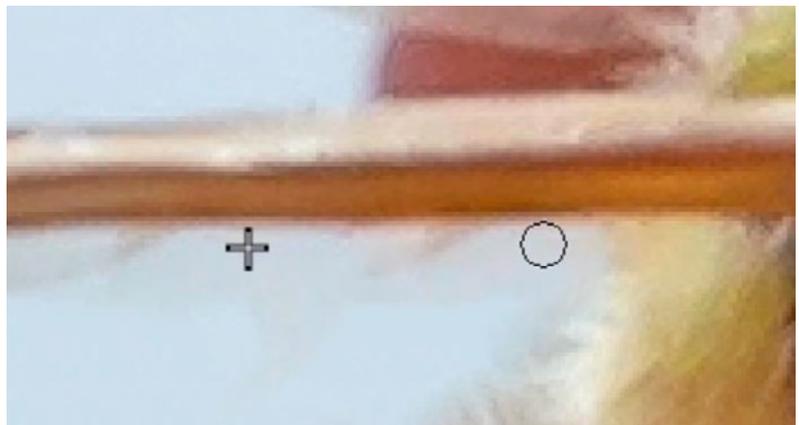
When trying to retouch a tricky area, start by removing the unwanted object with the Clone Stamp Tool. The Clone Stamp Tool creates a blatant copy from one area to another. It does not attempt to create a smooth transition or match the colors to the surroundings. Just fill the area with the color that should ultimately be there. Don't worry about the transition at this point.

Then, activate the Healing Brush and use it to carefully clone the area where the transition should occur. Make sure that the brush does not hit any areas that contain a color that shouldn't be in the retouch area. The Healing Brush will fill the area with the detail that you sampled, but it will use the colors that are in the surrounding area. That's why it was important to start by inserting the appropriate color using the Clone Stamp Tool.

In the video example, we could see the unwanted red object through the wing. We used the Clone Stamp Tool to remove the object, filling the area with content that was copied from another part of the wing. The result didn't look refined, but the object was removed and the area was filled with the color that should ultimately go there.



ABOVE: We're going to remove the object from behind the lower wing.
RIGHT: The Clone Stamp Tool is being used to insert the appropriate color and remove the red object.



Then, we used the Healing Brush to sample from a clean edge of the wing. When we used the Healing Brush to paint in the wing edge on the retouch area, it correctly inserted the detail from the wing edge, but it used the colors of the surroundings so that the result looked natural.



After filling in the wing with the appropriate color, the Healing Brush is being used to copy the edge of another wing and retouch the wing that was obstructed. The Healing Brush is matching the colors to the surrounding areas, making the result look natural.