The Google Nik Collection – Graham Cam

This article summarises a presentation I delivered at Digital Photography in the Bush, Geelong, 2017. The intent of the presentation was to introduce the attributes of the Nik software suite when used in conjunction with the Adobe RAW convertors.

Originally launched as *The Complete Collection* by Nik, this software package provides one of the most powerful and intuitive workflows for digital photographers. The complete collection is an effective set of post-processing plug-ins for Adobe® Photoshop® and Adobe Photoshop Lightroom®. The collection was designed as a plug-in for Apple® Aperture® but as I do not use Aperture I am unable to comment on Aperture's functionality since Apple discontinued support for this software. More recently, Google purchased the Nik Collection, hence it is now known as the Google Nik Collection, and whilst Google gave an undertaking to further develop and support the Nik software package, Google has now retracted that undertaking. So why use the Nik Collection? There are three good reasons: the first, is that Nik continues to be a useful and powerful post-processing suite of programs, utilised by many professional and advanced-level photographers globally; secondly, whilst no longer supported by Google, the consensus from international software designers is that Nik will continue to be a functional plug-in for many years to come; thirdly, and most compelling, is the price – originally launched at about $500 it was later reduced to $150 and following its acquisition by Google the entire collection is now free. That's right, it's free! The power of each software package and the fact that the collection is free is a compelling argument to evaluate Nik for your workflow.

The Google Nik Collection can be downloaded from https://www.google.com/nikcollection/

The entire collection comprises six plug-ins, each of which delivers an impressive range of photo editing capabilities; these range from filters to improve colour correction, noise reduction and image sharpening, adjustments to colour and tonality in images, retouching and creative effects, and black and white conversions. The latter is one of the most used programs for transforming a colour digital file to an inspiring black and white image.

The success of the Google Nik Collection is the proprietary U-Point® technology, which underpins each application, enabling photographers to apply both precise and refined adjustments to their images, without the need for complicated selections or layer masks. The potential of this U-Point technology will be detailed later in this article.

The Google Nik Collection consists of the following software applications:

Dfine 2

Noise reduction, when required, should be the first step in any digital photography workflow; no sharpening should be applied either in camera or in a RAW convertor before noise reduction is applied. Dfine 2 provides amazingly simple control of contrast and colour noise reduction in digital images. One benefit of Dfine is that it enables both manual and automated detection of digital noise in an image. When the automated mode is selected, Dfine scans an image and identifies varying levels of noise as well as the type of digital noise. The areas where noise is identified are outlined in the image by Measurement Rectangles. Noise reduction is applied to these defined areas, as well as areas of similar noise, using the profile created by Dfine's noise algorithm. In most instances, this automated method resolves the unwanted noise in an image without further intervention. For those who desire a more controlled approach, Dfine's interface enables the user to move or delete a Control Point or add another Control Point, which can

individually increase or decrease the applied noise reduction. Hence, noise reduction might be applied in varying degrees to the background, whilst zero noise reduction can be assigned to the main subject. This can be extremely useful in bird photography where the retention of maximum detail in the primary subject is highly desirable. Is Dfine the best noise reduction program on the market? This will be discussed in a subsequent article where I compare the major noise reduction software packages currently on the market.

Viveza

This program enables selective adjustment of colour and tonality in images without creating complex masks and selections. Viveza's interface delivers the ability to make global adjustments as well as refined selective adjustments using Nik's Control Points. This simplicity makes Viveza one of the most used programs in the Nik collection.

HDR Efex Pro

HDR Efex Pro offers a powerful set of controls and presets to create exceptional natural to fully artistic HDR (High Dynamic Range) images and everything in between. Normally a creative software often applied to landscapes, why not experiment with HDR Efex Pro for images submitted to our new Creative Gallery.

Color Efex Pro

This is an interesting program in that it provides a comprehensive set of filters for colour correction, retouching and creative effects. Filter combinations and Control Points enable photographers to develop their own unique creative style of photography. Like HDR Efex Pro, this program is ideally suited to images submitted to the Creative gallery.

Silver Efex Pro

For those photographers who enjoy the age-old beauty of black-and-white photography, Silver Efex Pro delivers a toolset emulating a range of popular film types, with toner adjustments and older-style borders. I can highly recommend this program for black-and-white digital conversions.

Sharpener Pro

Sharpening digital images is one of the more complex topics in modern photography and possible one of the least understood by those new to photography. The overall aim of the sharpening process is to enhance subtle details and textures without introducing sharpening artifacts such as 'halos'. Sharpener Pro provides a variety of tools for global sharpening adjustments or a more precise selective application using Control Points. Further, there is an output sharpener application, facilitating the best sharpening practices for both digital display and printing.

U-Point technology and Control Points

As mentioned previously, the success of the Nik collection is in its proprietary U-Point technology, which creates effective and easy-to-use Control Points. Let's take a more detailed look at this technology and how easy it is to use in a digital workflow.

The U-Point technology is a selection technology, it is not for all intents and purposes an image editing technology. In other words, the U-Point technology itself does not perform the digital enhancements; these are carried out by the software application in which the plug-in is being used (Photoshop, Photoshop Elements, Lightroom, or Aperture - see comment above). An advantage of using Photoshop or Photoshop Elements is that photographers who like using Layers and

selectivity through Masks can continue to do so, but I stress that this is not a pre-requisite for using the Nik suite of programs. Additional advantages of Photoshop and Photoshop Elements are that Smart Filters and Batch processing can be readily performed.

The processing power of the U-Point technology is facilitated by the application of Control Points. A Control Point selects a reference pixel with a specific set of colour data and records a location of that pixel. The colour data is based upon the red, green, and blue (RBG) values of that reference pixel. In addition, the hue, saturation, and brightness characteristics of that pixel are calculated based on those RGB values. Not only is this data recorded for the reference pixel, but U-Point reviews the pixels surrounding the reference pixel to determine the texture of the object for that reference pixel – for example, smooth and without detail versus rough and with considerable detail. Thus, U-Point can distinguish between objects that might have the same color data but have quite different textures.

U-Point uses the location of the reference pixel in combination with the Size slider's setting to determine if objects that are similar but far away from the reference Control Point should be affected by the same applied adjustment.

With these three data sets, U-Point makes its first selection by comparing every pixel in the image to the reference pixel and then determining how similar the pixels being reviewed in the selection are to the reference pixel. As each pixel is evaluated, the algorithm determines how far away that pixel is from the reference pixel (based on the setting of the Size slider). Thus, U-Point determines a certain red, green, blue, hue, saturation, brightness and texture value as well as the X and Y co-ordinates. The U-Point technology starts at the top left of the area selected and scans through the pixels selected, pixel by pixel and creates a map of similarities. Further, the size of the area selected is important: the larger the size the less important is the distance between a pixel and the reference pixel. With a very large Size value, any pixel similar to the reference pixel will be affected, regardless of where it is in the image.

Let us imagine an image of a Crimson Rosella, perched on a branch, with a sky background. A Control Point inserted in the blue sky might influence a nearby cloud if there is a blue tinge in the clouds. This issue can be overcome by employing more than one Control Point; and this highlights the real power of U-Point technology. Each additional Control Point adds refinement and greater precision to the overall adjustments. Each time an additional Control Point is inserted into the image, every pixel in the image is re-analyzed. If there is also a Control Point in the Crimson Rosella and another Control Point in the branch upon which the rosella is perched, the U-Point technology reviews each pixel in the image and compares each pixel against those in all three Control Points. Thus, a pixel in the sky is evaluated as being similar to the Control Point placed in the sky but dissimilar to the Control Point inserted in either the Crimson Rosella or tree branch, and therefore the sky pixel receives nearly 100% of the effect applied to the sky Control Point. The rosella and the branch, with different Control Points, will receive none of the adjustment to the sky Control Point.

Where a pixel is similar to one in two Control Points, both Control Points will affect the pixel, and the degree of enhancement is relative to the similarity of the two pixels. An example here might be the similarity between the reds in a Control Point in a sunset sky and in a Control Point in the Crimson Rosella.

One mistake often made by those new to the U-Point technology is the over-use of Control Points. A most important advisory note is NOT to add a Control Point for every object in your image; review the image and add a Control Point ONLY when you can see a need for it.

Viveza - An Example

To become familiar with the U-Point technology and Control Points, I would like to briefly take you through the Viveza workflow. As noted above, one reason for choosing Viveza is that it is one of the simplest workflows, and you are more likely to use Viveza as it facilitates control of your image's colour, hue, brightness, saturation and contrast.

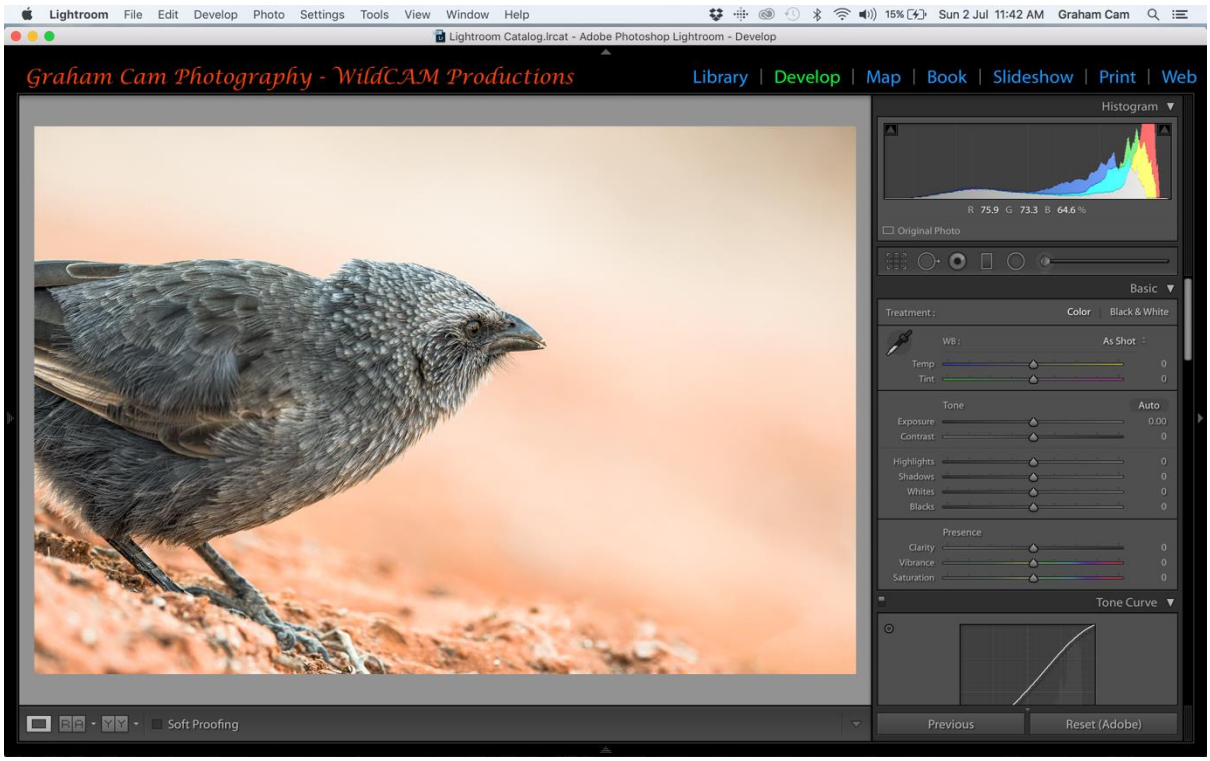

Figure 1: Original photo opened in Lightroom. Note the bright areas in the background.

As you become more familiar with Viveza, one of the first things you will notice is that the Global and Selective adjustment sliders are in the reverse position to the other Nik applications. At first this might not appear intuitive but it is likely that some of the global adjustments such as brightness, saturation and colour temperature will have been assessed and applied in a program such as Lightroom. I don't recommend working exclusively in Viveza at the global level, even though the Brightness, Contrast, Saturation, Structure and Shadow Adjustment, Warmth (ie. colour temperature) and Hue sliders make adjustment similar to the Lightroom control panel. Lightroom offers a far more sophisticated control panel for global adjustments. Whilst Viveza has red, green and blue sliders, Lightroom has a comprehensive set of Hue, Saturation and Luminance sliders that offer far more control.

Once global adjustments have been applied to the image, the real power of Viveza rests with selective Control Point adjustments. At any time in the workflow however, you can alternate between Global and Selective slider adjustments to assess the applied enhancements. By clicking anywhere in the image where a Control Point does not exist, this will change the control panel back to Global adjustments.

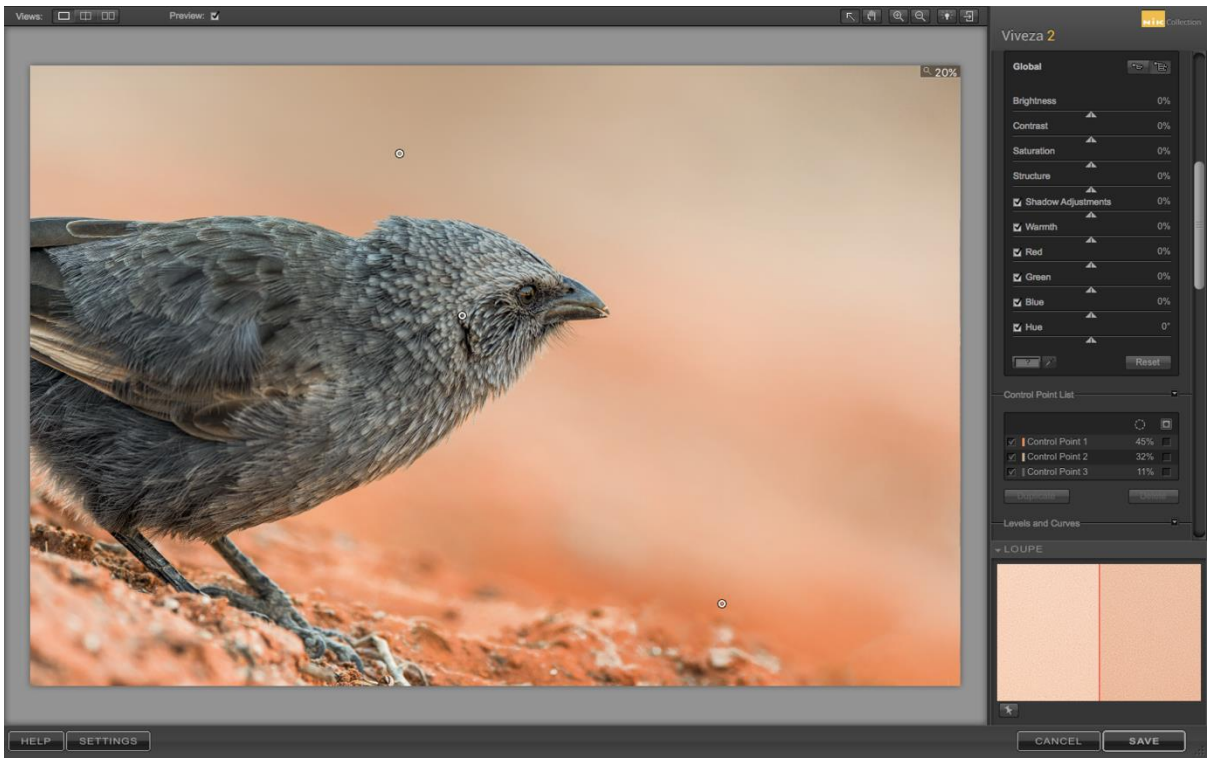

Figure 2: A quick post-processing of the original image in Viveza. Background adjustments have been applied through three Control Points in the image (defined by the three small black and white dots – one of these, in the plumage behind the eye, is difficult to see here; see Figure 3 for detail).

Why use Viveza for selective adjustments rather than Lightroom? Masks for local adjustments can be created in Lightroom and a 'feathering' effect can be applied to the mask. The U-Point technology however, creates a mask based upon pixel similarity and thus more closely approaches a seamless 'luminosity mask', a topic I discuss in another article. A seamless enhancement is the main reason I will often use Viveza for refined local adjustments in my workflows.

When using several Control Points the Selection box is a useful tool for identifying the area of the image that a Control Point is affecting. The circle identifies the specific region of the image affected by the Control Point. I prefer clicking the Show Selection box in the control panel which superimposes a mask over the affected area. The whitest area receives the greatest effect, grey areas receive less and black area are unaffected. One recommendation is toggling back and forth between the colour Preview and the Mask to confirm that adjustments do not 'bleed' into unintended areas in the image.

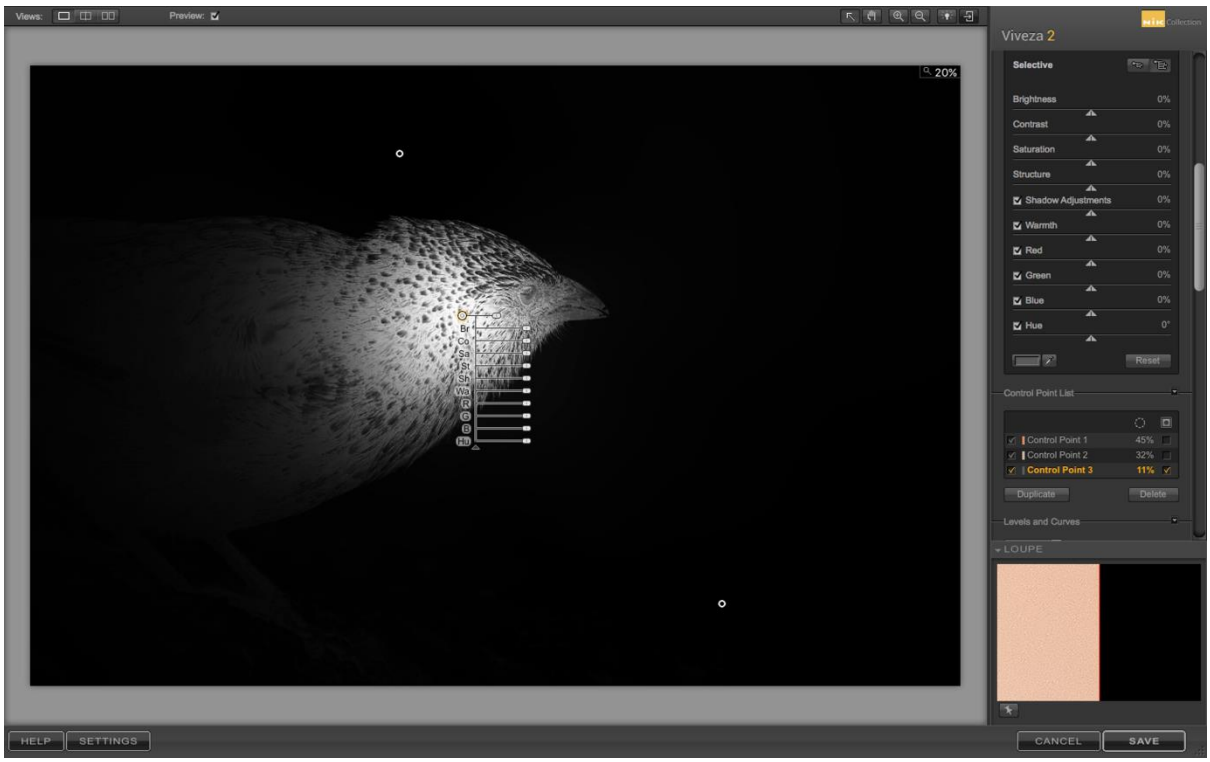

Figure 3: A Control Point targeting the head of the bird to ensure that darkening the background does not darken the bird's head. The top slider of the Control Point sets its size. The whitest areas are where the greatest enhancements will be applied, greyish areas less and black areas have no enhancement.

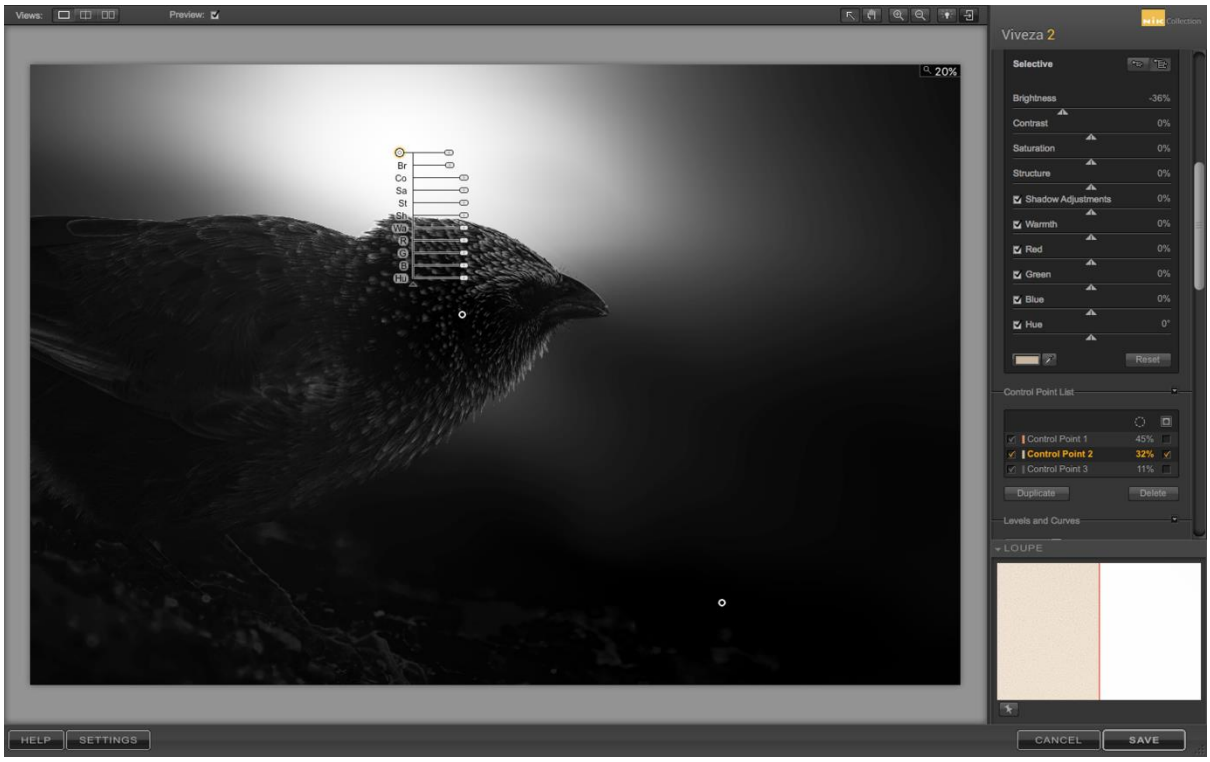

Figure 4: A second Control Point introduced into the brightest part of the back ground above the bird's head. The second slider for this control point has reduced its Brightness. Note that some of head feathers are affected by this Control Point, which is why the Control Point in the bird's head has been introduced to control this adjustment. Also note that the effect of the adjustment is far more seamless than a mask applied in Lightroom.

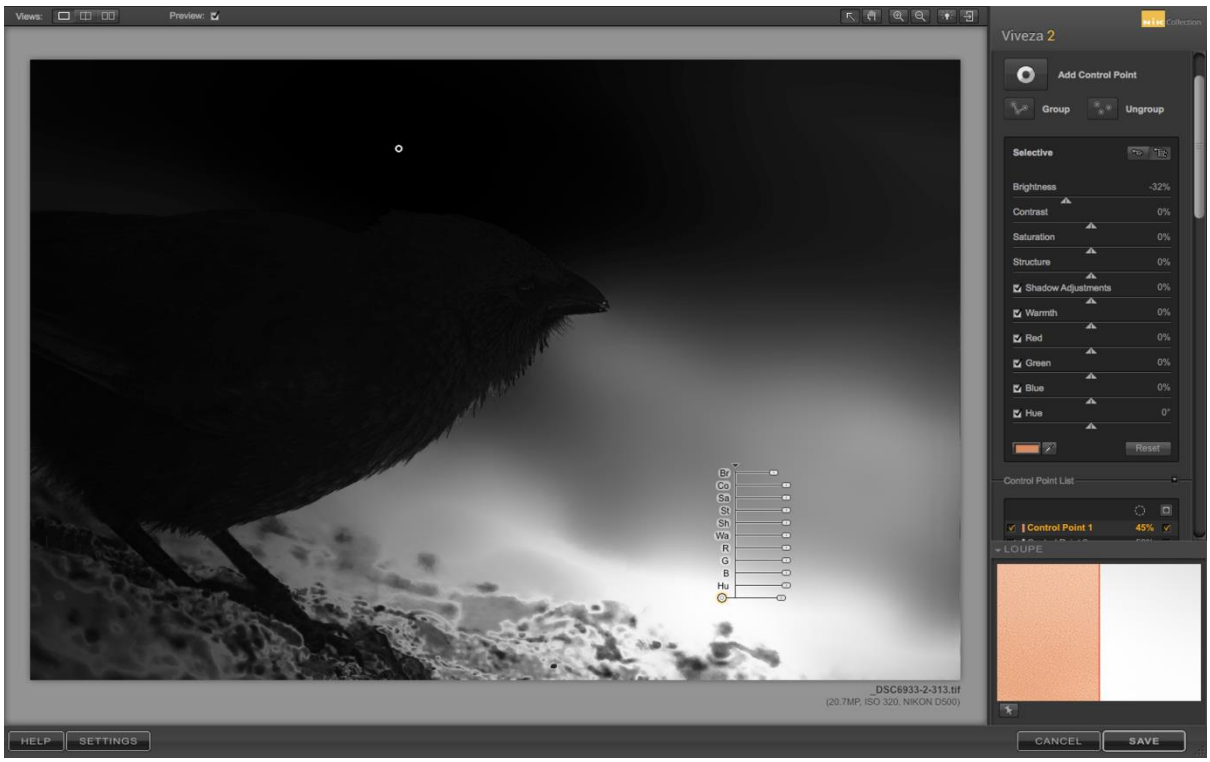

Figure 5: A third Control Point has been introduced into the lower part of the background to reduce the bright areas in the background and give greater saturation to the rich red soil. Note that this Control Point has no impact on the bird.

The most common applications I use Viveza for are selectively refining backgrounds and areas of a bird's plumage, after I'm satisfied with overall adjustments in Lightroom and Photoshop. *Think of Viveza as a colour 'dodge' and 'burn' and a useful free addition to your digital workflow.* Does Viveza always feature in my digital workflow? Only if I feel it will add to the image's attributes. My approach to a digital workflow is to evaluate an image in either Nikon's NX-D or Adobe's Bridge, evaluate the image's attributes and how I want the viewer to interpret my image. Based upon this evaluation I will then apply the most effective workflow.

In compiling this article, I have adopted the position that if suitable content exists then use it – there is little point in re-inventing the wheel. Thus, I have not included detailed instructions on how to use the Viveza plug-in; instead, I refer you to the tutorials available on the Google Nik Collection site, or these links to You Tube videos that will introduce you to the functionality and image applications of the Nik collection and how to use them:

Viveza 2 – getting the most out of Viveza 2
Enhancing the Wildlife Image – Using Nik Software: Laurie Rubin
Nature Photography Colour Workflow Revealed with Christopher Dodds

The next step is to download the Nik software collection to either Photoshop, Photoshop Elements or Lightroom and start experimenting with your own images – this is the best way to learn a new software program.

With these notes, the You Tube videos and two months before the publication of the next newsletter, you should have acquired a basic understanding on how to apply the U-Point Technology. In my next article, I will take you step by step through several disparate bird images, highlighting how even the most minimal use of Viveza can enhance an image.

Enjoy your photography!