

Through The Lens

*A guide to digital photography for computer enthusiasts.
After the click of your camera, you're only half done!*

High dynamic range (HDR)

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There are many situations both indoors and outdoors where there can be a wide range of brightness and darkness. Our human eye copes with this easily and in fact can see about 20 stops of dynamic range. The best digital camera sensors see about 15 stops. So, while our eye may see detail/texture in a dark area, the camera may well interpret it as pure black. Likewise, if our eye sees a bright area with detail/texture, the camera may process it as pure white. This results in a high dynamic range or HDR situation. Most photographers consider it undesirable to have a lot of pure black and pure white areas in a single photo.

To remedy this situation while shooting, the photographer can capture multiple images where some are exposed for dark areas while others are exposed for bright areas. The images can then be combined using specialized software to capture the entire brightness range from the darkest shadows to the brightest highlights. However, it is not usually a feature in free editing packages and requires that you notice an HDR situation while shooting which I rarely do because my eye does such a good job of handling light and dark extremes!

You can use the histogram built into most modern cameras to turn on what is known as "blinkies". It will show areas where the highlights are blown (or burnt), with no detail. You can then lower the exposure and take another shot, with the highlight detail preserved. This is where the phrase "expose to the right" comes from. You expose so the histogram is close to, but not past, the right (bright) side. This is because there is a better chance of rescuing a dark image than a very bright one. As a rule of thumb, if it's a sunny day, I try to have no significant part of my image in the shade. If I'm inside, I try not have people in front of a bright window where the camera may meter on the bright light instead of the human faces.

I have found most cell phones do a much better job of processing a good JPEG in an HDR situation. Many use face detection to expose what it assumes is important to you. But as usual, it decides what it wants to do rather than you. If instead, you have taken the photo with a traditional digital camera, the image could be adjusted in post processing using a photo editing software like Lightroom, Photoshop or the free Photoscape X.

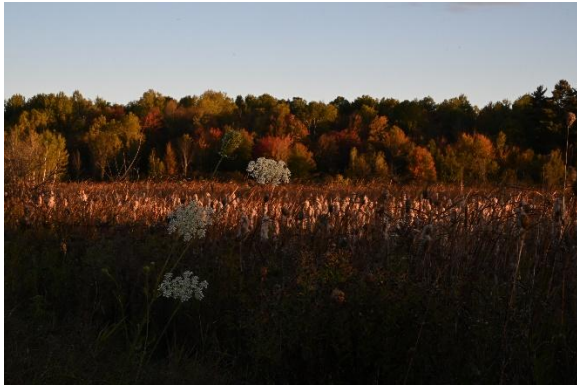
In Photoscape X there is a button on the home screen labelled *HDR* and it does a wonderful job of levelling out the tones (see example). You can then add a bit of contrast from there if you wish under the *Colour* tab.

As well, you can isolate light/dark areas of a photo and then lighten/darken these selected areas accordingly. This will, hopefully, reveal the details that were visible to the naked eye. In

Photoscape X, use the *Mask* function within the *Colour* tab to paint and then adjust the lighting for just those areas. In some circumstances, you can rescue more detail from dark images taken in RAW rather than JPG format. Personally, I always shoot with both formats just in case I need the RAW for adjustments such as these. If your PC is low on storage, simply leave the RAW images on your camera until you have completed your photo editing. You may only need to copy a few of these much larger files onto your computer.

Depending on the scene and your camera settings at the time, you may not be able to fully recover details in shadows, highlights or both. If an image has areas that are completely under/overexposed, it may not be possible to adjust so that detail is visible.

Before adjustments



After adjustments

