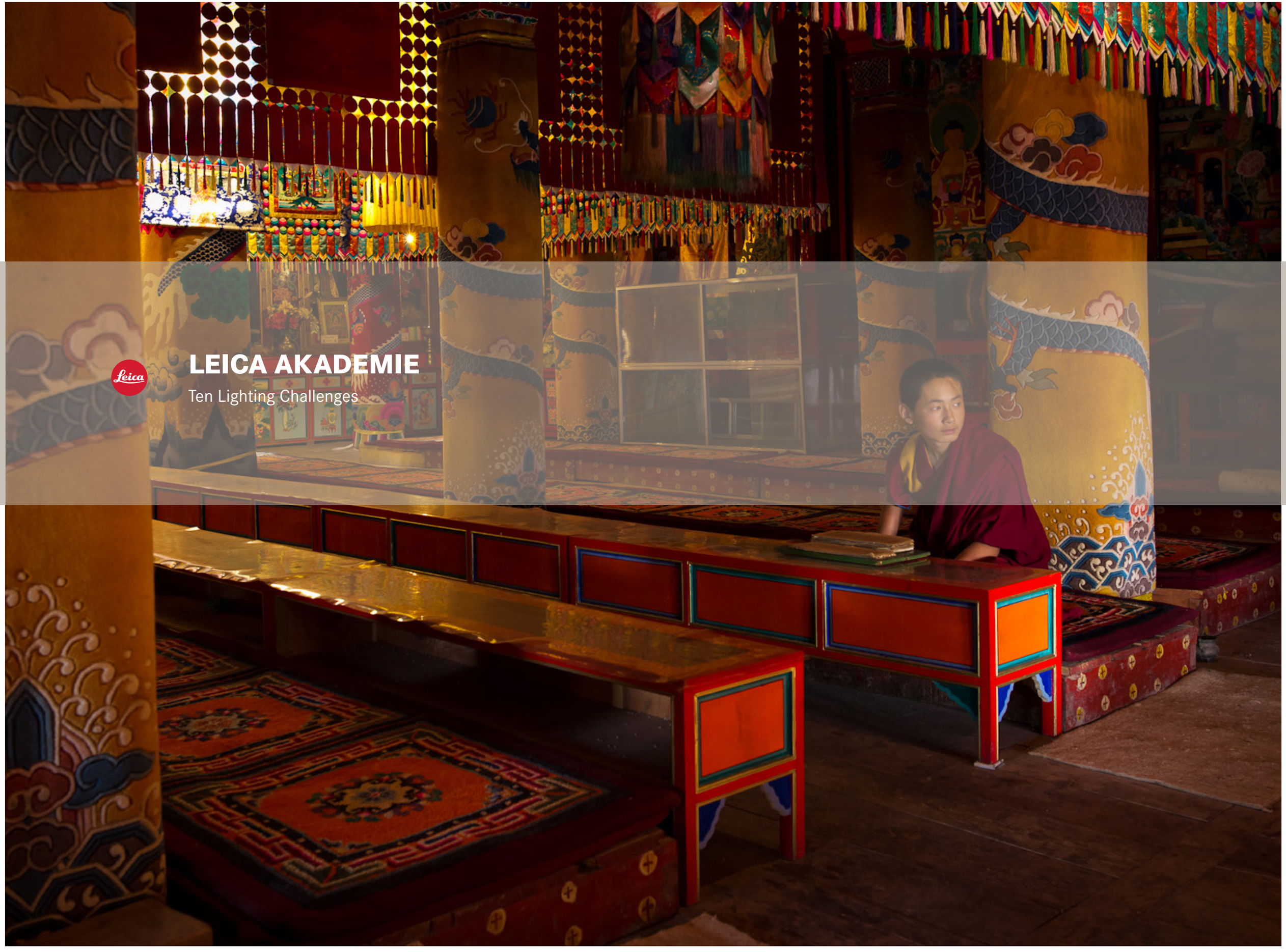


LEICA AKADEMIE

Ten Lighting Challenges

Introduction

Light is what photography is all about - without it we can't really achieve much!

The 'quality' of the light is one of the things that makes an image appealing, or not, but, whilst 'interesting' light can make or break an image, sometimes it throws up technical challenges, such as how to expose properly under difficult conditions of high contrast.

In this eGuide I will be looking at ten different images, each of which posed certain difficulties above and beyond the simple point and shoot approach that is all you need for many straightforward subjects.

For each image I will discuss the challenge and then I'll explain how I produced the image and overcame any other problems that reared their ugly heads.

Of course it's true that there are many solutions to lighting challenges, I'll just be looking at the particular solution I chose rather than going through all possibilities. Other eGuides in the 'Ten' series will address those alternatives.

High Contrast I

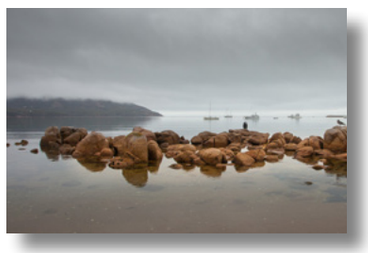
Fill Flash

Low Light

Rainforest

Contre-jour

High Contrast II



Dull Light

Midday Sun

Storms

Too Much Light!

High Contrast I

Tongren, China 2011 - Before and after adjustment

Bright sun and deep shadows are the bane of every photographer's existence. Highlights look washed out or blown to white whilst, at the same time, the detail that our eyes can see in those deep shadows cannot easily be matched by the camera.

These days I'm more of a feature and travel photographer so I don't have the luxury of being able to 'light' my subjects. The light 'qualities' are simply what they are and it's up to me to deal with them.

One thing that we do have going for us these days is some pretty sophisticated post-processing software. Whilst it's true that the camera, used normally and shooting Jpegs, is not as good at recording deep shadows as our eyes, there are ways to maximize the quality of the information captured so that the (apparently) missing information can be coaxed out of the file in post production.

This is of great importance because the final image needs to look like what our eyes *experienced* at the scene, not like the camera, a dumb mechanical device, *recorded* the scene. The camera captures no objective truths, the way it sees bears no resemblance to the way our eyes work so the more extreme the scene, the more help the camera needs.

High Contrast I

There are two broad methods involved in handling high contrast scenes - one method applies to the shooting and one applies to post production.

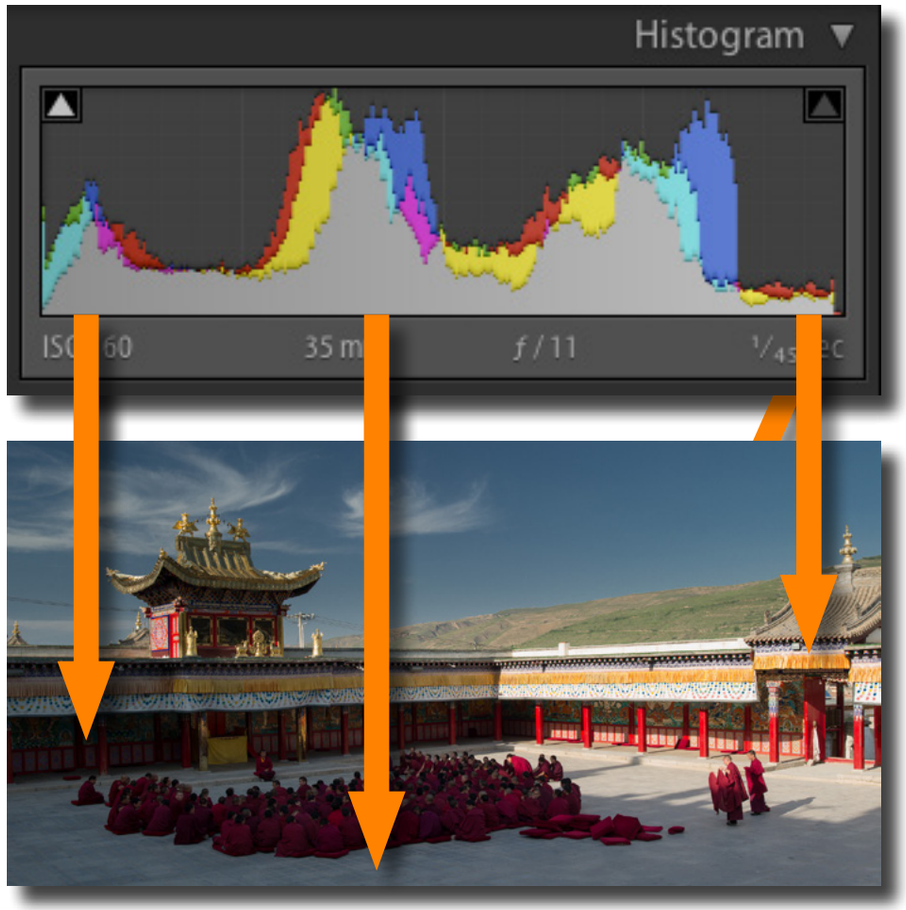
Shooting
The higher the contrast, the more critical the exposure will be. We are aiming to do two things with our exposure :

1. Make sure that the highlights are not over exposed to the point where no detail is recorded (clipping).

2. Give the shadows as much exposure as possible so that the most detail is recorded in the darkest areas.

Obviously these goals pull in two different directions - it's easy to get one right without worrying about the other but to get both recorded as well as possible means the exposure must be spot on.

Luckily the camera's histogram gives us the information we need to make this decision.



Above you can see the histogram as the image was shot. It's clear that the contrast of the scene is at the limit of the sensor's range and the exposure of 1/45 second @ f11 places the brightest part of the scene, the sunlit white parapet, just inside the right hand end of the histogram.

Any *more* exposure and the sunlit bricks would be recorded as a featureless white - any *less* exposure and the shadows would be even darker and less well defined.

The camera's histogram is the best tool available for setting the optimal exposure, at a glance you can see how the tonal range of the scene is distributed between pure white and deep black. Remember, you cannot do anything about the *shape* of the histogram at this stage. All you can do is place it within the limits of the display so that it's as far to the right as possible without clipping those highlights.

Don't be conservative and leave a gap at the right - if you underexpose by only *one* stop you are throwing away half of all your tones.

In extreme cases I'd even advocate shooting a second frame at Plus 1 or even Plus 2, just to capture some extra shadow detail that could be blended in later, just in case, by using layers in Photoshop. But this is getting into different 'territory', it's quite possible to get the exposure right first time with a bit of care.

High Contrast I

Post production

It should be obvious from the histogram to the right that the shadows and mid tones have all been shifted to the right (opened up) quite considerably in the final version.

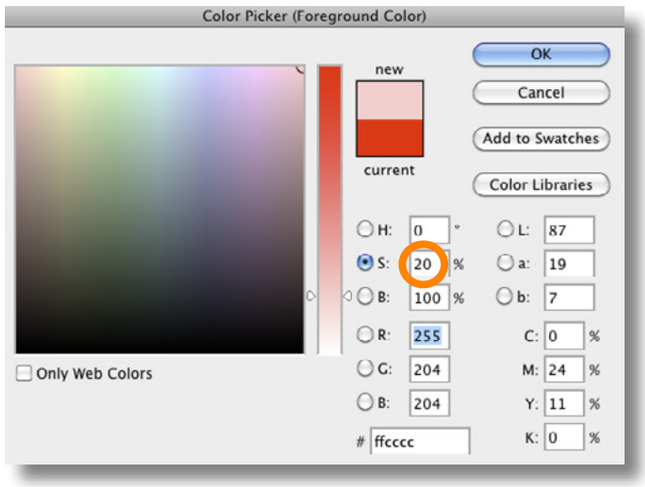
I simply used the Shadow slider in Lightroom 4, setting a value of about +80, to lighten the region between the far left (black) and the mid tones. The highlights have been left alone as they are in the correct place on the histogram and need to remain nice and bright.

If you compare this histogram with the one on the previous page you will see that there are no longer three distinct peaks - the left hand two peaks have been combined into one and there are now more mid-tone values. This shape of histogram shows me that the tones are more evenly distributed across the tonal range and this is generally a more pleasing look.

Only deliberately contrasty images, such as silhouettes, should lack mid-tones, most other images will look best if there are at least *some* mid-tones present and many

post production methods in Lightroom and in Adobe Photoshop actually work towards this goal.

The mid-tones are where detail and colour saturation are displayed the best by inkjet prints. This is not just an aesthetic point, it's a physical one, since, if you think about it, it's impossible to have a colour that is very dark and, at the same time, very intense because the printer needs to add black to a colour to make it dark, which will obviously make it less saturated. Try playing around with the colour picker in Photoshop too, and you will get a sense of how Hue, Saturation and Brightness work together.



Pastel, or light colours are, by their very nature, unsaturated.

High Contrast other examples

Tongren, China
Leica S2, 120mm lens
f8 @ 1/250 sec, ISO160

Tongren, China
Leica S2, 35mm lens
f8 @ 1/250 sec, ISO160

Tongren, China
Leica S2, 35mm lens
f5.6 @ 1/350 sec, ISO160

Low Light

Low Light

Cameras can see in the dark - it's a constant source of amazement to me how much light the camera can capture even when our eyes see featureless gloom.

Even well below the threshold of our own eyes' perception there are enough photons of light floating around to record on the camera's sensor if we give it a chance and the three most significant factors in these circumstances are sensitivity to light (ISO), the light 'gathering' properties of the lens (aperture) and the length of time that the camera can collect the light for (shutter speed).

ISO
The sensitivity of a camera's sensor is expressed in terms of its ISO, which is a term dating back to the days of film when the International Standards Organisation set standards for the sensitivity of film. The same term is used now because of its familiarity but really it's just an amplification of whatever signal the sensor picks up, much like the volume control on a stereo amplifier.

The higher the sensitivity, the less light is needed at a given shutter speed and aperture to give a correct exposure.
Sounds good. But like everything in life, there is no such thing as a free lunch. If you amplify the signal you also amplify any noise in the system and *all* electronic systems generate a small amount of noise.

High quality systems are less noisy than cheap ones - that's one of the things you pay for with expensive audio equipment, and cameras.

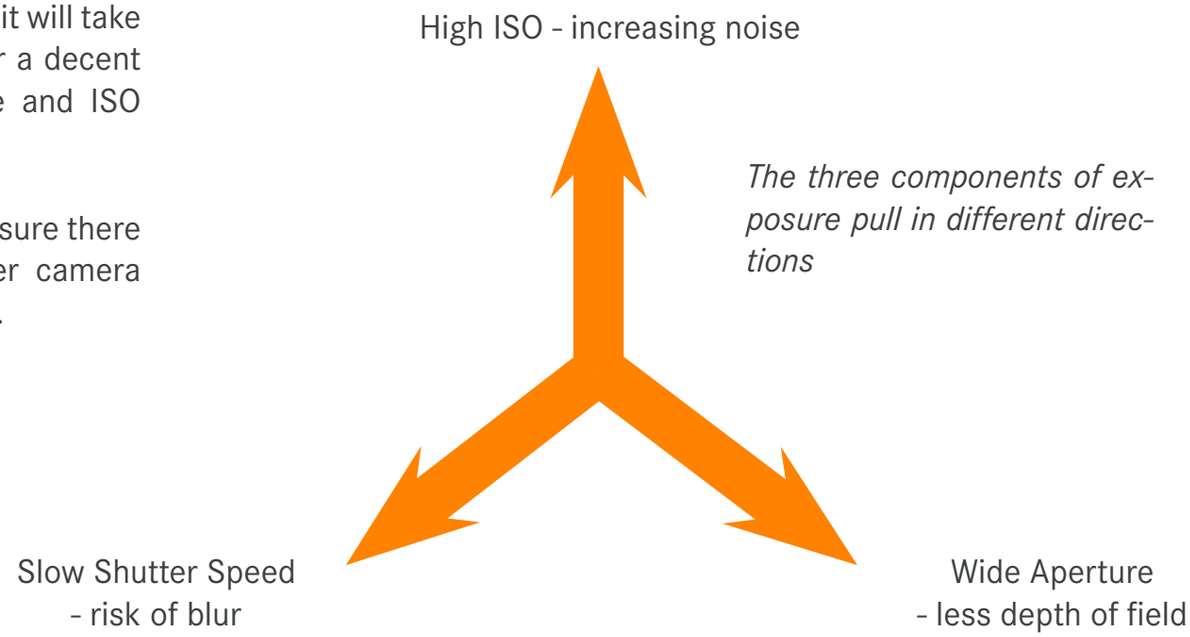
High ISO = High Sensitivity at the cost of increasing noise.

Shutter Speed
This is a measure of how long the sensor is being exposed to any light - the longer it has to collect light the lighter the exposure will be. If light levels are low it will take longer to collect enough light for a decent exposure at any given aperture and ISO settings.

Of course if you have a long exposure there is the risk of blur due to either camera movement or subject movement.

Aperture
The size of the aperture in the lens determines how much light falls on the sensor - a small aperture lets through less light in a given time than a wide one - much like a hosepipe lets water flow at a higher rate through a fatter pipe.

Aperture affects the perception of focus depth - narrow apertures generally result in more depth of the subject in focus. Wide apertures act the opposite - less depth of focus.



The three components of exposure pull in different directions

Low Light

Following on from the previous information it's clear that when the light levels drop really low you will need long exposures (slow shutter speeds), wide aperture lenses and high ISO. Or any combination of the above, which is where the trade offs are to be made.

If you want a low noise image you will need to balance the shutter speed for sharpness with the aperture for depth of field. A shot with plenty of depth of field *and* low noise must therefore sacrifice the shutter speed and risk camera and/or subject movement.

If you cannot use a slow shutter speed and you need some depth of field so everything is sharp then the only way to get a correct exposure is to turn up the ISO.

It's this trade off between three conflicting priorities that causes less experienced photographers so many problems but it really comes down to making a decision about where the priorities of the shot really lie.

In the example given here the inside of this lamasery in China was extremely gloomy and the only light source was a big door to the right and some high skylights in the roof.

My subject, being human, could not be relied upon to stay still for many seconds so my choice of shutter speeds was limited. There was no way I could use a 2 second exposure because the chance of getting a sharp face would be remote.

I wanted a decent depth of field because the rich detail of the hall was as much a part of the shot as my subject so I couldn't use f2.8.

Lastly, I didn't want a noisy shot because I expected to be enlarging this image for a big print. So, what to do?

- I shot on a tripod at 1/3 second hoping that my subject would stay still for that length of time and I shot multiple frames to make sure I got a sharp one.

- I used f6.8 as a compromise between lots of depth of field at f11 or f16 against using f2.8 and a thus lower ISO.

- I turned up the ISO to a point where I knew the noise would be moderate - in this case, on the Leica S2, ISO640 was a reasonable choice.

Trade Offs

High ISO - allows faster shutter speeds and/or more depth of field (DOF) at the **cost** of noise.

Slow Shutter Speeds - allows the use of low ISO and narrow apertures at the **risk** of camera and/or subject movement.

Wide Apertures - leads to faster shutter speeds and needs slower ISO at the **cost** of reduced DOF.

Low Light other examples

Xing Ping, China
Leica S2, 70mm lens. f2.8 @ 1/4 sec, ISO320

Tufi, PNG
Leica S2, 120mm lens. f2.8 @ 1/125 sec, ISO640

Luang Prabang, Laos
17-40mm lens. f4 @ 1/60 sec, ISO800

Contre-jour : Against the Light

Contre-jour

Contre-jour is a French term literally translating to “against daylight” and is an old term meaning shooting into the sun or towards the sun.

This opens up a whole range of possibilities for shooting silhouettes, emphasising dust and mist, making the lens ‘flare’ for dramatic effect and so on.

I always keep an eye out for what the sun is doing to subjects, both with the sun behind me and with the sun in front of me. Shooting *away* from the sun is easy but can result in flat lighting with very little modeling, whilst contra-jour, or into the sun, is anything but straightforward but has the potential to give you more dramatic images.

When I say “anything but straightforward” I am alluding to the fact that digital sensors really do not like being pointed into the sun because the intense brightness of the sun itself causes all sorts of problems with the image capture. The sensor’s photosites can be overloaded with light and this ‘bleeds’ into neighbouring parts of the sensor creating artifacts and generally poor results.

If you take a shot where the sun is within the frame you will often see a big ‘blob’ of bright white rather than the sun’s disc. The edges of this white blob can look quite strange too, with obvious transitions or harsh steps between the white overexposed region and the tones of sky.

Different lenses, sensor brands and raw processors handle this situation better than others - some experimentation is in order - but what you will often see is this image at top right.

You can see clearly the posterisation and banding between the bright white of the area around the sun and the coloured parts of the sky. Nowhere is the sun itself to be seen either - its somewhere in that blob of brightness!

Different raw processors handle this sort of image in various ways - the top right image was processed in Adobe Lightroom 3 whilst the bottom right image was processed in Lightroom 4. The difference in the highlight transitions is remarkable; it’s much more pleasing due to different algorithms being used. The first image is Process Version 2010 and the second image is the new Process Version 2012. A good reason to upgrade to Lightroom 4.

Contre-jour

Back to the image that opened this section...

Shooting into the sun is great when you have mist adding some mood to the shot - the back-lighting makes the mist look a lot more distinct and, best of all, you might get crepuscular rays shining through.

Tip

Rays of light through mist and dust are caused by shadows being cast through it. It's the shadows we are really seeing. This means that something must be casting the shadows - in this case the tree branches. To get these rays, you will need to find a viewpoint where something is blocking the light from the sun.

I simply moved my position until the sun was behind the tree and blocked by a thick group of leaves. This has the double effect of reducing the sun's brightness so that the sensor can deal with it better, as well as making all the shadow rays converge on the tree and so making it the dominant subject in the frame.

It's critical that you get the sun obscured by something substantial because, as you can see from this image to the right, a slightly different position can look very different. In this shot the sun is shining through a gap in the leaves and so is at full strength - the blast of light has overpowered the sensor and we have the dreaded 'white blob' obscuring large parts of the tree itself.

Contre-jour other examples

Mooloolaba, QLD
135mm lens
f2.8 @ 1/500 sec, ISO 100

Clear Mountain, QLD
17-40mm lens
f8 @ 1/125 sec, ISO 100

Samsonvale, QLD
135mm lens
f2.0 @ 1/500 sec, ISO 100

Dull Conditions

Dull Conditions

Dreary, flat overcast conditions on the first day of a shoot for Australian Geographic Magazine. There are two things I can do:

a. wait for better light, or *b*. work with what I have.

Looking on the positive side, there was no wind and the scene was very peaceful. Not only that, but this is far from an unusual situation - cloudy - in Tasmania. The story was not a travel piece, where it's important to make the destination look as good as possible, so cloudy shots were perfectly valid, as long as they were interesting.

So, I decided to take option *b*. and work with what I had.

The first step was to crop to a more panoramic format. The upper and lower portions of the image, being totally drab and featureless, add nothing to the shot so I cropped them out. The result is much better balanced.

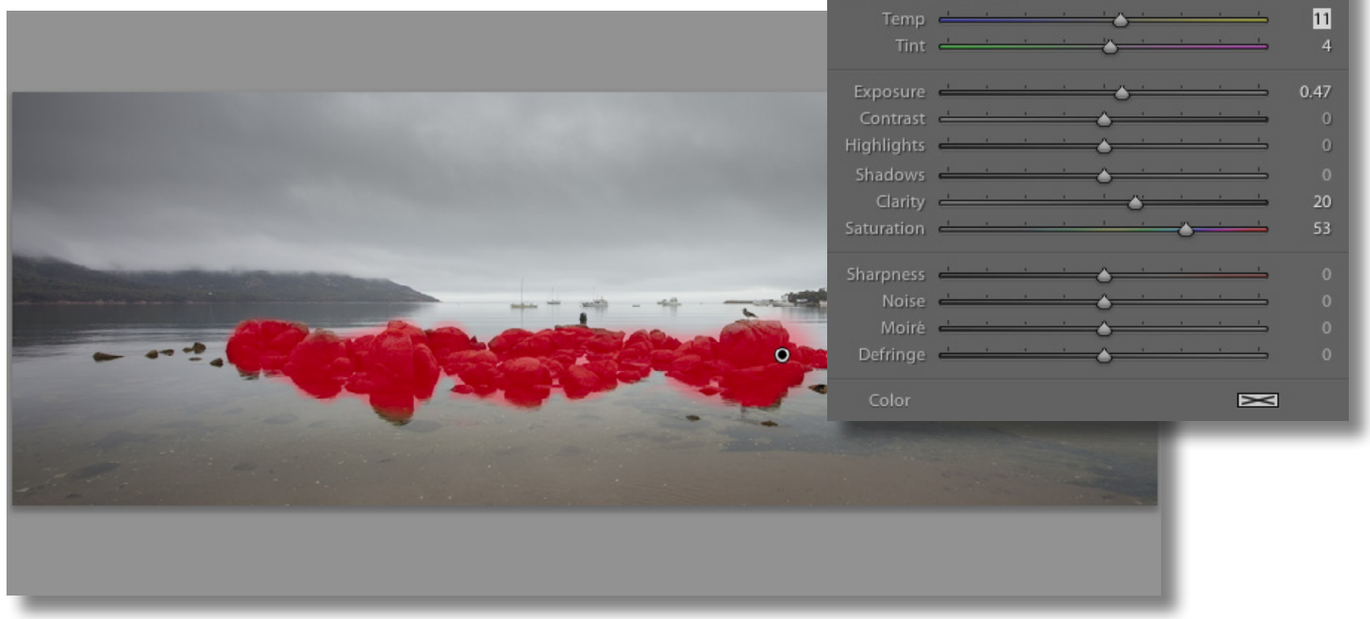
If I had had the opportunity, I would have liked to have gone 'up' a bit too - raising your viewpoint has the effect of separating foreground and background but there was no such vantage point so I did the best I could with the tools to hand, putting my tripod as high as it would go, and using Liveview on the camera so I didn't need to look through the viewfinder.

Dull Conditions

On the day, my eye was able to see much more clearly the orange tone of the exposed rocks and the overall mood was much more grim. I decided that I would need to darken the sky somewhat, and bring back the colour to the rocks. Lightroom has all the tools that I need for these simple tonal adjustments, but Photoshop would have worked just as well too.

I added a gradient to the sky using the Graduated Filter (M) and adjusted it as you see to the left. I find that whilst the expected darkening and a contrast boost certainly help, it can add saturation too, which makes the blue tone in the sky look quite odd. I back off the saturation at this point and take away that blue tinge to make the sky look more plausible.

Adjustment Brush adds a little Exposure plus some Contrast, Saturation and Clarity.



The last thing I did was to add some colour and definition to the rocks using the Adjustment Brush (K). I find this quite adequate for this sort of work because in this kind of situation the position of the edge of the mask is not critical. If it was, I'd go to Photoshop and use full strength masking techniques.

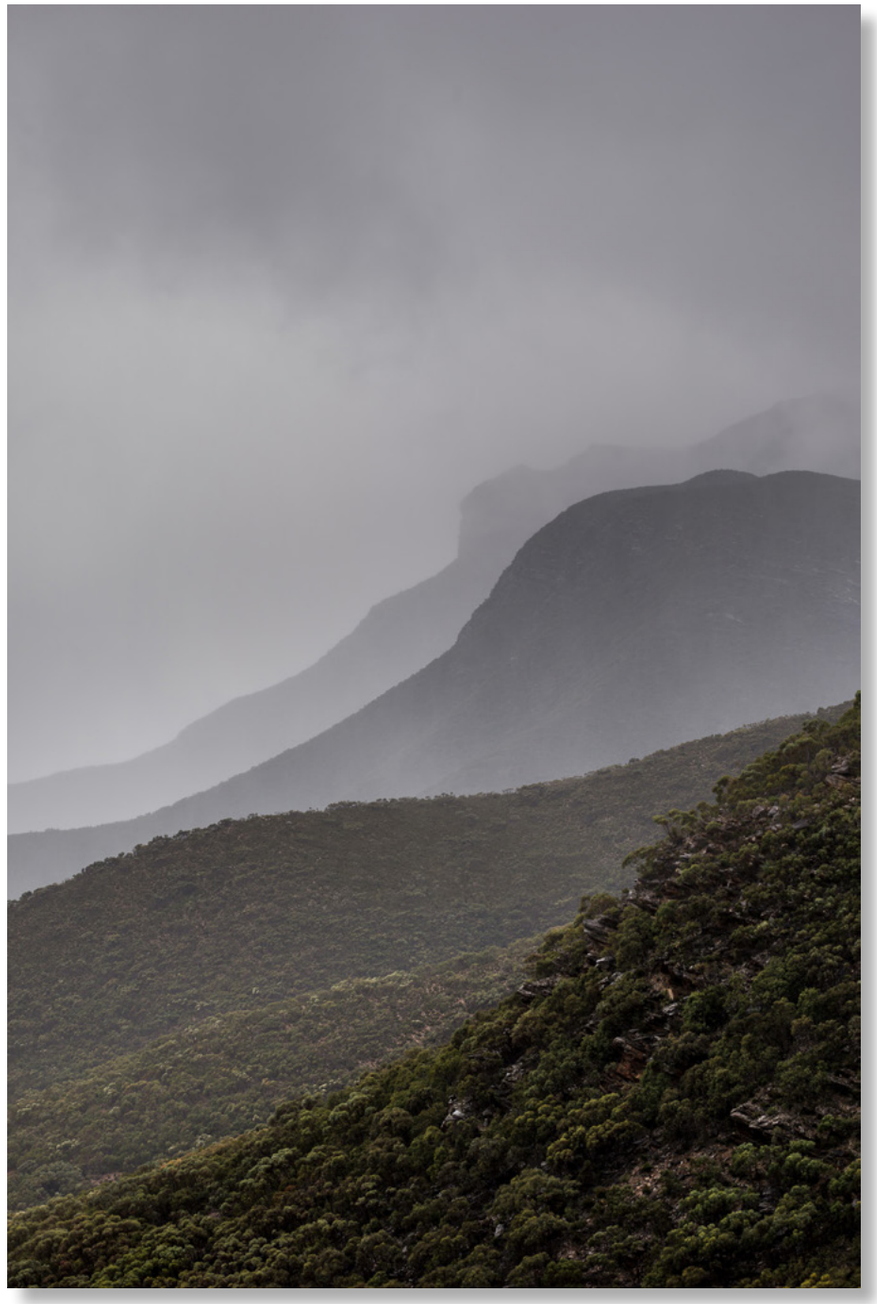
All I have done is paint a mask onto the rocks with a small Adjustment Brush, following the shapes of the rocks and remembering to include their reflections. Then I have added a little white balance 'warmth', some extra exposure, a bit of clarity and some more saturation. The final result is that the rocks now look much more like my eyes saw them, and without going crazy by 'upping' the colours too much.

Dull Conditions other examples

Laos
17-40mm lens
f5.6 @ 1/125 sec, ISO100

Stirling Ranges, WA
Leica S2, 70mm lens
f8 @ 1/60 sec, ISO160

Ping An, China
Leica S2, 30mm lens
f8 @ 1/30 sec, ISO160



Storms at night

Storms at night

Low light, high contrast, a continually changing subject - what could possibly go wrong! Yes, this is a challenging subject but it's not impossible with a bit of care (and a little luck).

The big advantage of shooting storm clouds at night is that the lightning is much more obvious than in the day, plus, because you will have to use long exposures due to the low light conditions, there is a very high chance of capturing a lightning flash during the time of the exposure.

If your exposure was 1/250 second during the day you would have to be very lucky (or quick) to capture a lightning flash but if you are using, say, 10 second exposures then the chances are very good, particularly if you shoot frame after frame.

You will obviously need a tripod too - long exposures need a stable support.

The tricky bit is working out the exposures - the shot featured here was 20 seconds at f5.6 on ISO800 as it was fully dark with no twilight illumination.

I was using a 17-40mm zoom which is an f4 design so I used f5.6 to keep the images as sharp as possible. If you have an f2.0 or faster wide lens it would be a better choice in these circumstances because you could use it at f2.0 at ISO400 with a 5 second exposure.

ISO800 is quite a bit noisier than ISO400, but the biggest difference is the 10 second exposure. During a 20 second exposure the clouds move appreciably, if you get multiple lightning flashes this acts like an on-camera flash and freezes the cloud. Multiple flashes means multiple cloud exposures and you get a kind of double or triple exposure look which is less than ideal.

Using an exposure time of somewhere between 5 and 10 seconds is best, so a fast lens and an ISO of 400 or 800 should work fine.

Shoot some test images and check the histograms - lightning is incredibly bright and can blow out highlights really easily. Get a sense of what exposures are working best and then just keep shooting until you are happy with the results.

A Balancing Act

1 . You want a long enough exposure to capture some ambient light and maybe some stars as well as maximising the chances of capturing a flash.

2. But not too long - since you don't want the clouds to be illuminated by too many lightning flashes and cause a double exposure look.

3. You'll want a low enough ISO to keep the noise down whilst still achieving the above.

4. You'll want to avoid using the lens wide open to maximise image quality but still achieve 1. and 2. above.

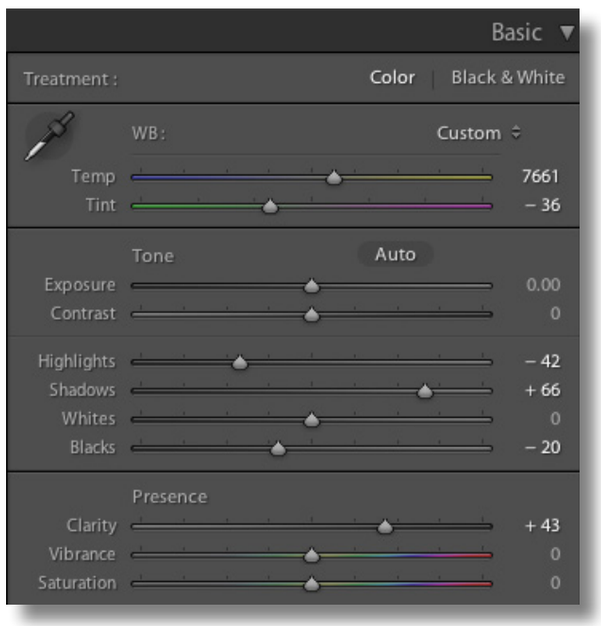
The best gear for this kind of shot is a fast aperture wide lens. A camera which works well at high ISO would be a big help too but most cameras are not too bad in this department.

Storms at night

Knowing that you have a decent capture is not always obvious since the histogram and LCD screen of your camera do not always tell you the whole story.

To the right is the shot straight out of the camera (raw). It looks OK but the lightning forks are hardly visible and the overall image is very contrasty. As we know, the raw file contains a lot more information than either the histogram or the LCD screen can show, so, with a few moves in Lightroom we can reveal all the drama of the clouds and lightning as well as some stars and foreground texture.

Exposure and Contrast remain the same, the key is reducing the Highlights, boosting the Shadows and adding a bunch of Clarity. Lightroom 4 has an amazing capacity to recover what looked like blown highlights as the detail in the bright centre of the cloud shows clearly. The lightning hardly shows up at all in the Before shot but has actually recorded on the sensor and is revealed in the After shot.



Storms other examples

Pilbara, WA
135mm lens
f4.0 @ 1/60 sec, ISO100

Sydney, NSW
Pentax 6x7 (Film) 90mm lens
f5.6 @ 10 sec, ISO50

Walpole, WA
17-40mm lens
f5.6 @ 5 sec, ISO100

Fill Flash

Fill Flash

Contrast... by now you may have noticed this theme running through this eGuide...

If you can control the contrast of the shot, whether it's during the shoot or in post-production, then you are most of the way towards a pleasing image.

There are so many cases where the contrast range of the subject is at the limit of the camera's ability to record it. That's fine as far as it goes, but there is more to just recording the scene's tonal range.

What the camera cannot do is recreate the relationships between tones in the same way that our eyes do - this is simply impossible for a dumb mechanical device. It's this reason that we almost always need to do some modifications to the shot - either in post production software such as Lightroom or Photoshop, or at the time of shooting.

Fill flash is a contrast controlling technique whereby you fill in the shadows - just a little - by using a camera mounted flash. The trick to an effective result is not to overdo it - too much flash overpowers the subject and it's obvious that artificial illumination has been used. Sure, this might be the look you want, but in my work it's necessary to be subtle and keep the effect mostly invisible.

In the example on the previous page I was working on an oyster farmer's barge shooting a story for Australian Geographic. The sun was high and the clouds were really nice but the most three dimensional light seemed to be when the sun was behind my subject. The sun rim-lit my subject making him stand out from the background far more than front (flat) lighting would have done.

Back lit means that the subject's front is *not* lit, so his face and chest were quite dark. Faces are one of the things we first notice when we view an image so it was critical that it was not just a featureless silhouette.

I don't use supplementary light very often, preferring to use the light that nature has supplied, but in certain cases it's really important to add a little light to overcome the contrast. I often carry a small flash for such an eventuality.

Speedlights and DSLRs offer good TTL exposure measuring system (TTL stands for "through the lens") but it tends to be slightly too unsubtle for fill flash.

Here's what I want to achieve:

1. Add some light to the shadow areas - typically under the rims of hats or on backlit faces.

2. Not affect the rest of the shot.

Let's say the sunlit areas have 100 units of light falling on them and the shadows (face) have 10 units. If I add 10 units of light to the subject using the flash I only add **10 percent** to the highlights but I **double** the amount of light on the shadows. In camera terms this adds a whole stop of light to the shadows whilst at the same time adding so little to the highlights that I don't really need to worry about them.

If I take a meter reading off the shadows it might read f2.8, but at the same time the *overall* correct exposure might be f11. That means the shadows are four stops darker than the rest of the scene which is why they look dark! if I set my flash to put out enough light to give f5.6 onto the subject then I have added two stops of light to the shadows but I don't need to alter my overall exposure of f11 because the flash is not powerful enough to affect it much (maybe 1/2 stop max).

Fill Flash

If this all sounds a bit complicated then here's what I do to get this effect : I simply set the exposure compensation on the flash to minus-2. Then I set the camera's exposure mode to Av (aperture priority) and the aperture to about f11 or f8 depending on the conditions.

The TTL flash does it's usual job but the compensation setting forces the flash to underexpose its own exposure by two stops. This adds illumination to the shadows but has very little effect on the overall exposure.

On the flash unit you can set the flash to expose over or under relative to the calculated 'correct' exposure.

In the two examples above it's quite clear which has the fill flash. Both have the same ambient exposure of f11 at 1/200 seconds but the one on the left has flash added at minus 2 exposure compensation set on the flash. The result is quite natural and will give a better result than trying to extract shadow detail in post.

Tip

Don't forget the pop-up flash on mid range camera models - they can be highly effective for fill flash since their lower power output makes it very hard to overexpose the flash illumination. Everything works the same way, including exposure compensation.

Fill Flash other examples

Mornington Station, WA
17-40mm lens
f8 @ 1/200 sec, ISO100

Mornington Station, WA
300mm lens
f2.8 @ 1/125 sec, ISO100

Western Brown Snake
85mm lens
f5.6 @ 1/125 sec, ISO100

Rainforest

Rainforest

Australia is well known for being home to huge areas of wonderful rainforests, from the temperate forests of Tasmania and Victoria up to the tropical rainforests of northern Queensland. Amazing to visit, fantastic to look at but rather tricky to photograph.

Once again we are back to our old enemy, contrast. On a sunny day the deep shadows and sunlit leaves have such a huge brightness range that the camera simply cannot capture the scene in a pleasing manner and any attempt to do multiple exposure HDR-style images can look distinctly odd.

By far the best way, and certainly the simplest way, to get decent images in the rainforest is to wait for a cloudy day. The clouds act like a big softbox and diffuse the sun so that there is way less contrast than there is under full sun.

It's still fairly contrasty, there is a lot of shade to contend with, and the sky will still be very bright but it's much better than trying to shoot with the sun out.

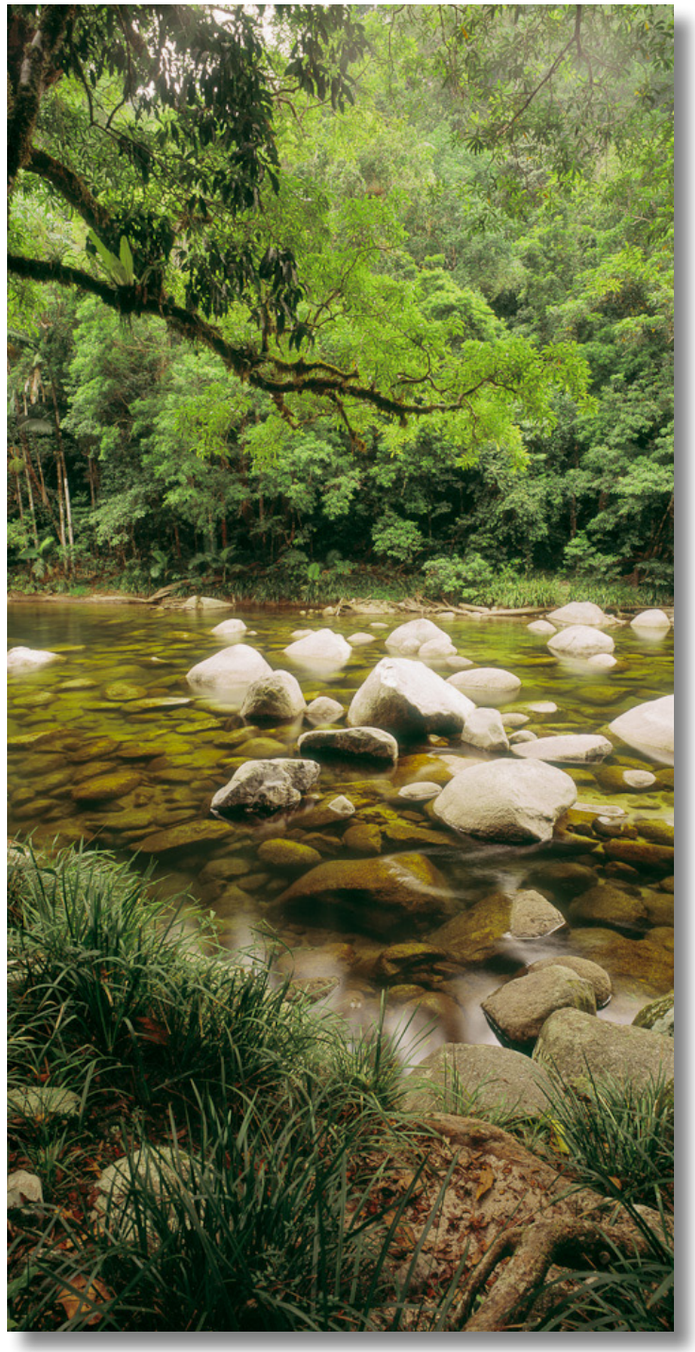
That's the first problem - contrast. The second problem is what to shoot. Forests, by their very nature, are a big mess of leaves, tree trunks, branches, roots etc etc. Making visual sense of this complex and fractal structure is hard - if you are not careful your images will be just a mass of green with no structure or point of reference.

You need to find something on which the viewer's eye can start. Something obvious or distinctive. A clearly visible tree fern, a waterfall, a distinct tree, anything that stands out in some manner and is *obvious to the viewer*.

Waterfalls and streams often make the best subjects because they are clearly the subject and there is usually a clear enough view of them to give some sort of depth to the shot.

The image on the previous page is Mossman Gorge up in far north Queensland, a very popular place and one that has been very heavily photographed by the 200,000 visitors who go there each year.

There is a spot near the end of the road where a really nice tree hangs over the river and the classic shot of Mossman Gorge - like this one to the right - is often shot here. If you look closely at the panoramic shot you might see that the tree on the right, just to the right of the guy with the camera (Christian Fletcher) is the same tree as this one.



Rainforest

Both the images were shot on bright but overcast days, but the two images have a very different look to them.

The vertical image is a simple shot using the boulders in the river as the subject and using the epiphyte-laden tree to frame the shot. The upper half of the image was much brighter than the lower half and I had to darken it a bit in post to even out the exposures. It's still a single shot though, the low contrast of the overcast conditions allows this sort of image to be created quite easily.

The panoramic shot is slightly different. You won't find an island or a tight bend anywhere along the river like this image appears to show. It's actually a 360 degree panorama shot using six images shot on a fisheye lens. The river, which appears to recede in two directions is actually straight - it's the projection of the 360 degree panorama onto a flat 'page' that causes the illusion.

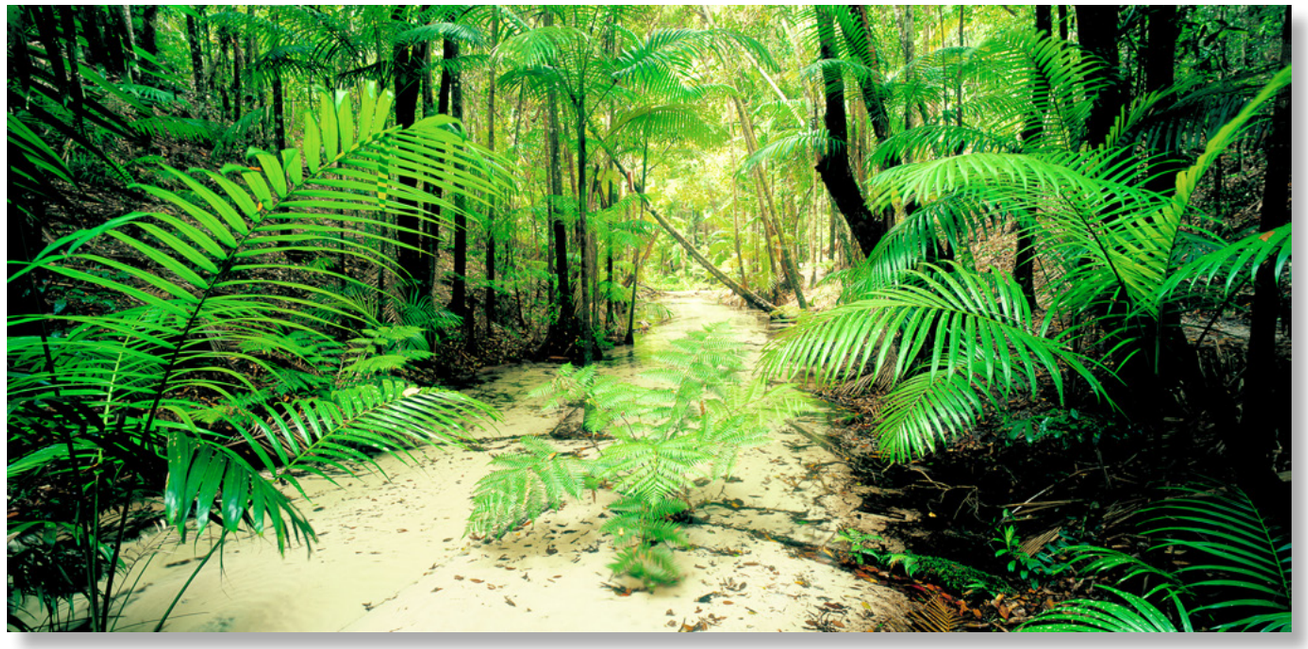
I think this image works well as a flat projection because the arching trees and the foreground boulders make it look like a small island in the river. Because it's a 360 degree stitch I can also choose a different centre point and make a totally different image - these are the same six shots, just looking in two different directions, at 180 degrees to one another. The six images to the right are the six fisheye shots I took with the camera in a vertical orientation. They stitch together in PTGUI very easily.

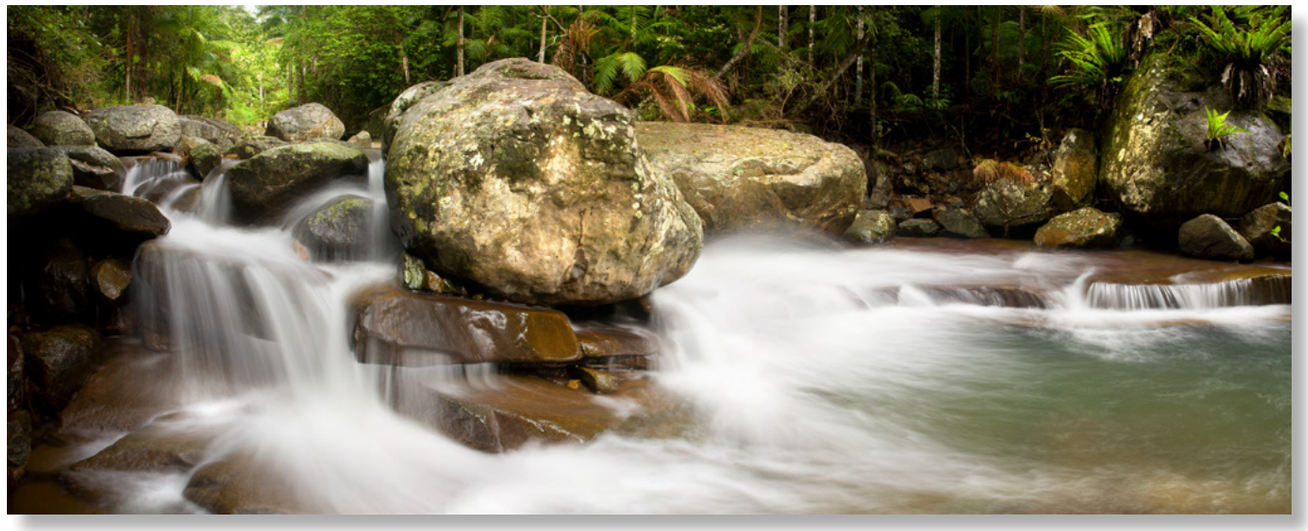
But that was not what I was looking for however, what I really wanted was another way of depicting the experience of being in the rainforest - the 360^0 panorama on the first page of this section is far more 'realistic'.

I think this sort of image works well too, a way of showing what rainforest looks like in a single shot. This is a different projection from the same stitched image but I still think the 360^0 shot on the first page of this section gives the viewer the best sense of 'being there'.

The lighting challenge is easy to overcome - just don't shoot on a sunny day if you can possibly avoid it. Your results will be far more pleasing if you shoot when either the sun is behind a cloud or, better still, when the sky is totally cloudy.

Rainforest other examples





Fraser Island, QLD
Ebony 4x5, Film, 57mm lens. f11 @ 1/2 sec, ISO 100

Liffey Falls, TAS
Leica S2, 100mm lens. f8 @ 2 sec, ISO 100

Mt Warning, NSW
24mm Tilt-shift lens. f8 @ 1/2 sec, ISO 100

High Contrast II

High Contrast II

In the section *High Contrast I* we looked at how you can extract shadow detail using the clever algorithms in Lightroom 4 - it's a simple enough tweak involving a move on the Shadows slider.

Of course there is a limit to what shadow details can be recovered from a single capture and if you overdo it you'll start to see noise appearing which can make the shadows look quite muddy.

So what to do when the brightness range exceeds the camera sensor's ability to record it?

Simple - shoot two images. One exposed for the highlights and one for the shadows.

If this sounds a bit hokey or 'Photoshoppy' then you might be interested to know that this method of combining two differently exposed images has been around since at least 1857 when Lady Elizabeth Eastlake, one of the first serious English critics of photography wrote in the Quarterly Review in 1857, "*If the sky be given, therefore, the landscape remains black and underdone; if the landscape be rendered, the impatient action of light has burnt out all cloud form in one blaze of white*".

She is clearly referring to the limited ability of the currently available film emulsions (albumen and collodion processes) to record anything past a limited range of brightness. If the sky was correctly exposed then the foreground would be mostly black and if the foreground was revealed then the sky would be a featureless white.

So when we talk about combining two exposures we are continuing a method that has been used for over 150 years.

Fortunately for us, digital imaging makes this vastly easier and we can combine image to pixel level accuracy such that any seams or edges are totally invisible. However, it's 'easier' but not exactly 'easy'.

Building masks in Photoshop by hand is fiddly and time consuming so I prefer to use a variety of methods including this fully automated one which does not even use Photoshop, just good ol' Lightroom.

CAMILLE SILVY. Valley of the Huisne, France, 1858. Albumen print. Victoria and Albert Museum, London.

Shot twice and the two differently exposured negatives combined at the printing stage. In its day, that was a radical and controversial technique.

http://en.wikipedia.org/wiki/Camille_Silvy

High Contrast II

Lightroom Plugins.

Adobe Lightroom has an architecture that allows third party developers to create small software applications that 'hook' into Lightroom and allow specific functions to be added to the normal Lightroom features.

There are plenty of plugins floating around, some free, some costing a few dollars. One of the best places to see what's on offer is the Lightroom Exchange.

Lightroom Exchange

There are some really useful plugins here - take the time to have a good look and you might be amazed at how many time saving tools there are here but the one I want to talk about is called LR/Enfuse and was written by a very clever guy called Timothy Armes. Last time I looked there were over 20,000 downloads of this plugin from the Adobe site. The plugin is donationware so you choose what you pay. It's an amazing deal.

www.photographers-toolbox.com

LR/Enfuse is based on open source technology which is very arcane (Mertens-Kautz-Van Reeth exposure fusion algorithms anybody?) but the LR/Enfuse plugin takes this underlying technology and wraps it up in an easy to understand dialogue box so that photographers like you and I can operate it.

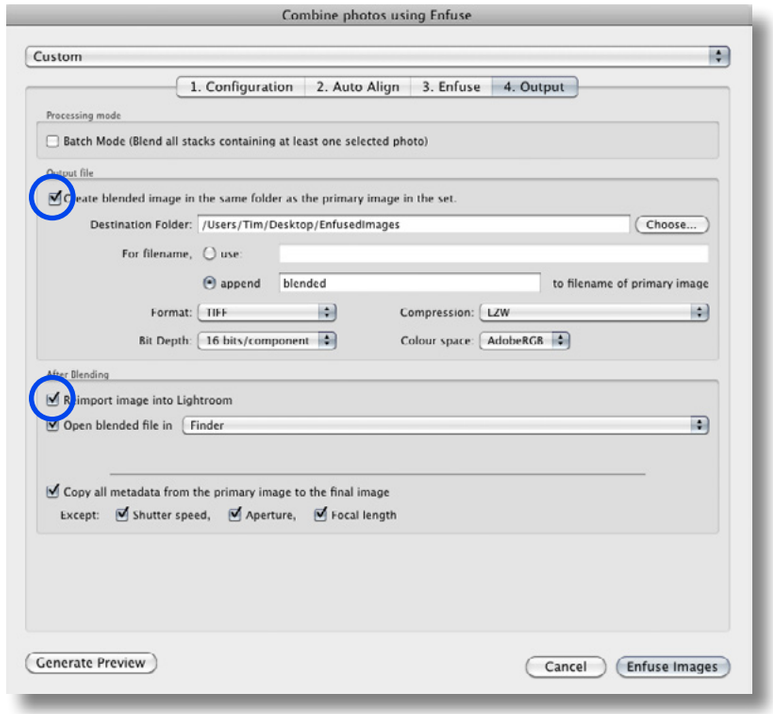
It's simple to use - see the accompanying video.

1. In Lightroom select two identical images shot with different exposures. Typically you will have used a tripod and exposed one for the highlights and one for the shadows.

2. From the File / Plugin Extras menu item select LR/Enfuse to get the LR/Enfuse dialogue box.

3. Ignore Auto Align if you used a tripod and go straight to Enfuse where the defaults will work just fine for simple exposure blends.

4. Output. Check the 'Create Blended image in same folder as primary image...' box, set a word to append to the file name ('blend' is a good choice). Check the 'Re-import into Lightroom' box - this is really cool because your new file pops up in your Lightroom catalogue right next to the original files. No need to re-synch the folders, etc; it's just there.



That's it. Click the 'Enfuse Images' button and let it do its magic.

Be aware that this is an automatic algorithm and cannot be expected to deal with all subjects. Fine organic outlines like trees can cause some problems but the example used here worked as well as any Photoshop method I know and only took 30 seconds.

High Contrast other examples

Langdale, UK
17-40mm lens
f5.6 @ 1/30 sec, ISO200

South West WA
Leica S2, 30mm lens
f11 @ 1/2 sec, ISO160

Wyadup Beach, WA
17-40mm lens
f11 @ 1 sec, ISO100

Midday Sun

Midday Sun

Australia is blessed with a sunny climate and, north of the Tropic of Capricorn, the sun is actually directly overhead for most of the summer.

This is great if you are a beach-lover but as photographers we know that having the sun directly overhead is a recipe for flat images with no modeling and harsh shadows. Blue-sky days with overhead sun are my least favourite times to be out shooting - not only am I less likely to get good images but it's damned uncomfortable!

Here's the thing: I don't always get to choose my time of day to be out shooting and this is never more true than on travel assignments when you may not get a chance to return to a good spot at the right time of day or an opportunity might crop up that is not to be missed - regardless of where the sun is.

It's at this time of day that your Polarising (POL) filter is your best friend. When the sun is overhead the POL filter works in any direction to darken the sky but that's not what I am interested in. I want to use it - yes, you guessed it - to reduce contrast.

With POL filter

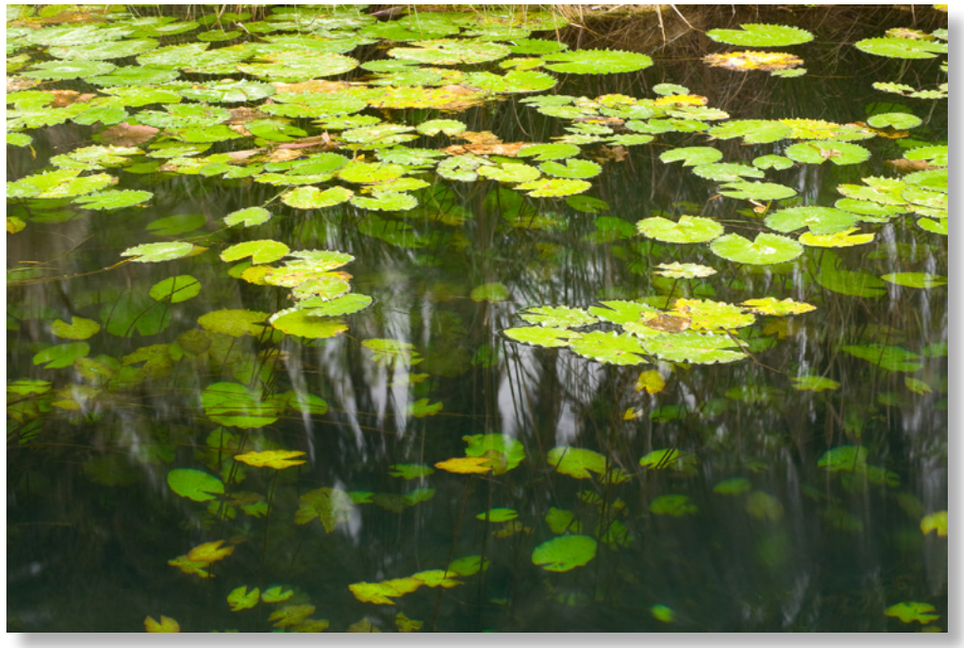
Without POL filter

In the shots to the left I was up in the Kimberley on a cruise ship and a group of three sharks came sniffing around the stern of the ship. It was an obvious 'photo-op' so I grabbed my camera and headed for the rear transom deck.

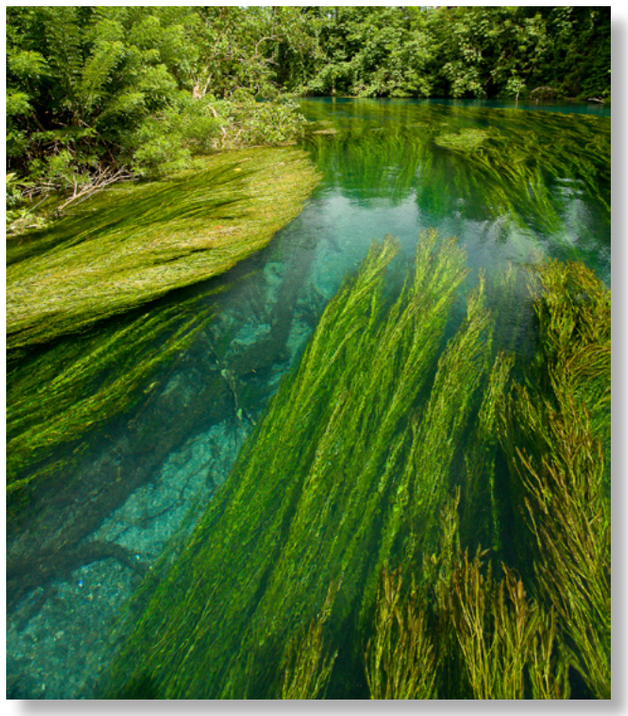
There was a huge amount of glare off the water - if I exposed such that the bright areas of water and sky were OK then the foreground was too dark and you could hardly see the shark through the clear water. If I exposed for the foreground, the rest of the image blew out.

Adding the POL filter was the answer - Polarisers, both sunglasses and camera filters, reduce glare off surfaces like glass and water, and it's this glare that becomes a highlight in the shot. Removing the glare reduces the contrast of the scene making the shadow areas relatively lighter. Low contrast means more shadow detail, in this case revealing much more detail below the surface of the water.

Polarisers other examples



Millstream NP, WA
17-40mm lens
f5.6 @ 1/6 sec, ISO100



Sub Antarctic Islands
24mm lens
f11 @ 1/60 sec, ISO100

Savoli River, PNG
17-40mm lens
f5.6 @ 1/125 sec, ISO100

Too much light!

Too much light!

How can you have too much light? In many of the previous Challenges I have been emphasising the trade-offs between ISO, shutter speed and aperture in low light. It would therefore follow that more light is better if you want to get the best image quality.

Well, yes and no.

'Yes', because shooting at a high shutter speed and an optimum aperture using low ISO will certainly give you the best image quality but 'no', when you actually *need* to use a very slow shutter speed.

It sounds simple, but most cameras' ISO only goes down to 100, or maybe 50, and the aperture can only be stopped down to f22 or maybe f32. Leaving aside other issues surrounding the use of small apertures for a moment, let's look at what this means in full daylight.

Using ISO50 and f22 on a bright sunny day will result in a shutter speed of about 1/15 second. That's the slowest shutter speed possible in bright daylight.

There are plenty of subjects that look good when they actually blur during a long exposure, water for one. Seascapes, rivers, waterfalls, clouds and so on all move and, whilst freezing their motion is fine, sometimes you want to express that movement in the image by letting it blur.

Given that the slowest shutter speed we can realistically use on a bright day is 1/15 second, it's very hard to get enough blur to make the picture work and in fact 1/15 second is nowhere near slow enough for water - you need more like 1 second, or even longer.

The only way to achieve this effect is to physically reduce the amount of light entering the lens and that means using a *neutral density* (ND) filter.

ND Filters

ND filters are simple tools, they are just tinted glass that fit in front of the lens and absorb light. You can get them in varying strengths starting at one stop or ND2 as some manufacturers term them.

ND4 is two stops, ND8 is three stops and so on. The number 8 in this case is 2 raised to the power of 3 i.e. 2x2x2 which is three stops of light reduction.

None of these filters are strong enough for our purposes. Three stops takes us from 1/15 second to 1/2 second, not nearly enough for a good blur.

What we need are a variety of ND filters called Strong NDs and these range from six to ten stops. That's ND64, ND128, ND400 etc. The stronger the better - a ten stop ND will change the exposure from, say, 1/125 second at f11 to 8 seconds at f11 or 16 seconds at f16. That's a good long time for any movement to be revealed in the shot, even on the brightest of days.

There are plenty of manufacturers to choose from:

B+W
Hoya
Formatt
Hitec
Lee
Schneider
Heliopan

All make ND filters of 6-stops strength or more. Get the strongest you can find (and afford) in a size to fit your biggest lens. Then use stepping rings to fit it onto your smaller lenses. One size fits all.

Too much light!

Using strong ND filters is pretty easy although there are some ‘gotchas’ for the unwary.

Focussing
By their very nature, strong NDs are really dark, so dark that you are hard pushed to even see through a 10-stop one. This means that focussing will either have to be done with the filter off, or by using the camera’s LiveView feature which can cope to a certain extent with the light loss.

Stability
Long exposures mean you must use a tripod, and for exposures of 15 seconds or more, a good one. Small portable tripods will only work under the best of conditions i.e. no wind, so use the best tripod you have.

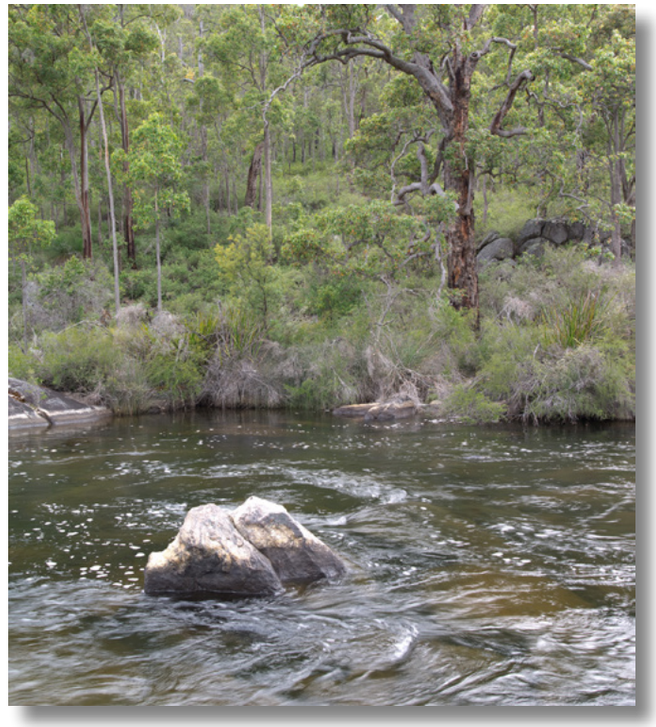
Colour Casts
Some filters give a red-ish or green-ish cast to the image. This can be mostly, but not always completely, removed in the raw processor. Be aware that a bit more post production work might still be needed; even if the filter is advertised as actually ‘neutral’, they rarely are perfectly so.

Unwanted Movement
In the shot featured here, I wanted the water to blur over an 8 second exposure but as it was a bit windy, there was no way the foliage would stay still long enough to record sharply.

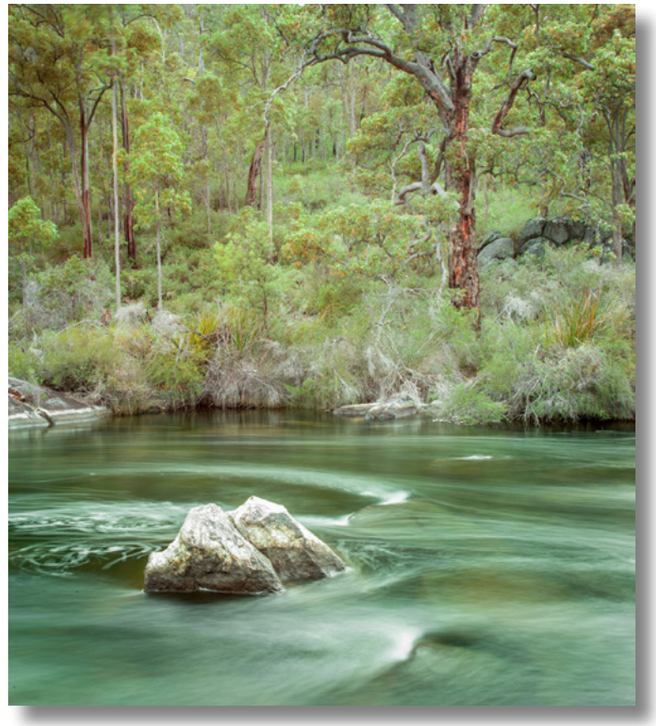
So, that’s easy to fix, just shoot two images. One using a long exposure with the ND on the lens and one with it off. Make sure the second shot has a short enough exposure to capture the foliage sharply.

Then simply combine them as two layers in Photoshop using the sharp foliage from one image and the blurred water from the other one. Easy.

Variable NDs.
In theory, a superb idea; in reality they have a few flaws. Variable NDs are essentially two polarising filters working together but if you use a wide lens and turn the ring to maximise the effect, you will get very odd falloff patterns. I’d only use them with a 50mm lens or longer, the *wider* the lens the *less* you can dial in the density.



1/60
@ f11



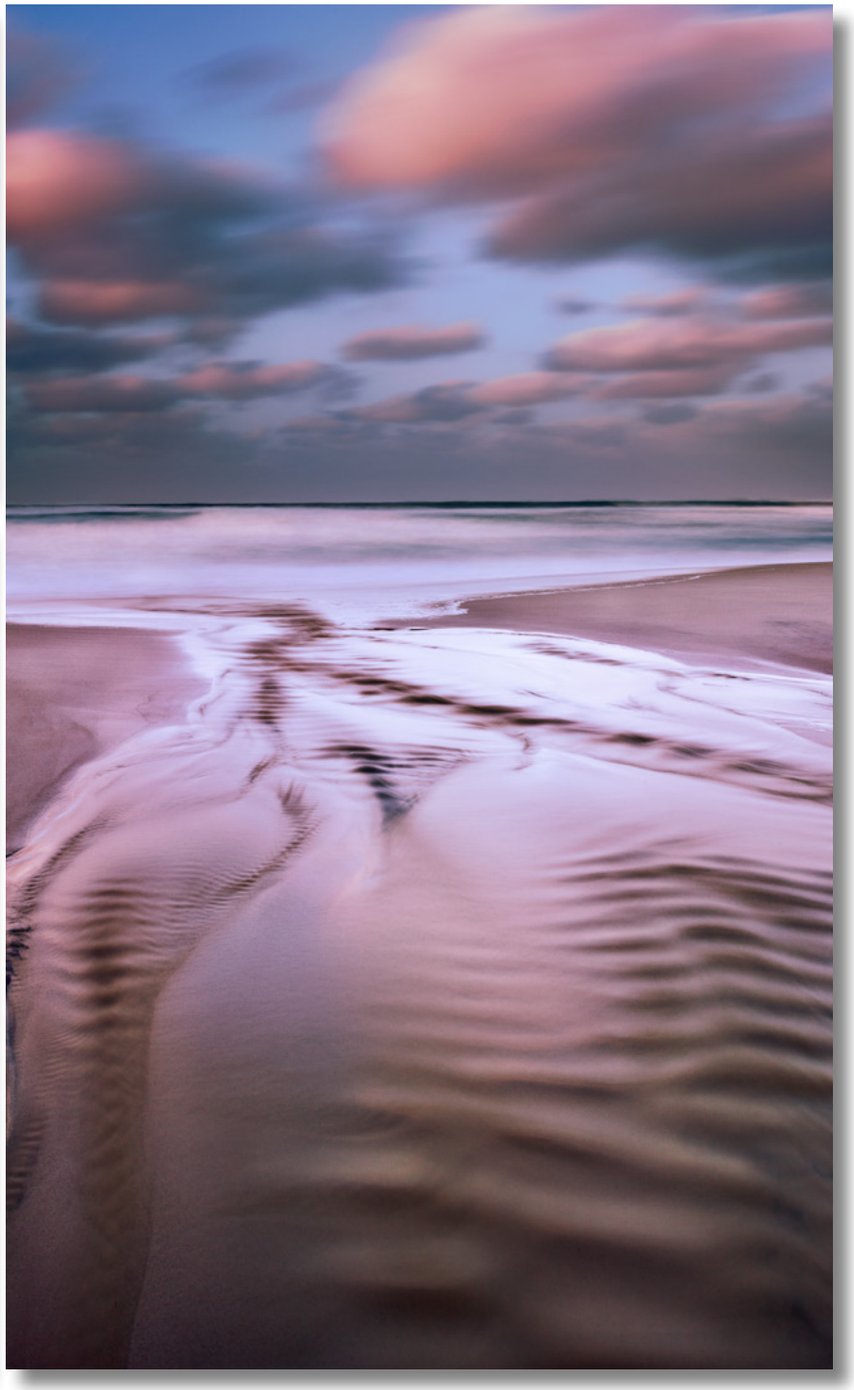
15 seconds
@ f11

Too much light! other examples

Bremer Bay, WA
Leica S2, 70mm lens
f8 @ 15 sec, ISO160

South West WA
Leica S2, 30mm lens
f11 @ 10 sec, ISO160

Mornington Peninsula,VIC
Leica S2, 30mm lens
f11 @ 8 sec, ISO160



Nick Rains

I have been a full time professional photographer since 1985 when I left the United Kingdom in search of adventure and ended up in Australia shooting the Americas Cup yachting extravaganza in 1986/7.

Returning to the UK I mostly shot sport and travel around Europe before returning to Australia for good in 1990 where, being based in Sydney, I became more involved with both landscape photography and commercial photography.

During my eight years in Sydney I worked for a variety of publishers including Reader's Digest Books, Random House, New Holland, Penguin and Viking. I also did commercial work for the likes of Shell, Australian Tourism Commission and NSW Tourism but it was my landscape and travel images that gave me the most satisfaction. Over the years I have clocked up over half a million kms around Australia, looking for new places to photograph or even going back to the same places to get better images.

I moved to Queensland in 1998, and opened a gallery in Brisbane in 2001 and I have written and photographed six books, of which the currently in print title, **Australia - A Photographer's Eye** - is now in a second edition.

Since 2006 I have been shooting more travel work outside Australia, and doing a lot more writing about all things photographic. This lead to me becoming Principal Instructor for **Leica Akademie Australia** as well as leading tours overseas for keen photographers.

Nick Rains

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