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Creating a Starburst

Joshua Tree National Park, an ideal dry climate for starbursts.

Why would you want to create a starburst?

The starburst conveys drama and a sense of the miraculous. It lets you maximize backlight and halo effects, and to see back-light turn to sidelight along the periphery of the image with wide angle lenses. The star creates a compositional focus, which can be a good thing, though it might make some images too busy.

Backlight on the cobbles, Acadia National Park

Why does this phenomenon happen?

The starburst effect results from diffraction of light off the blades of the lens aperture, and is really an artifact that we can turn to our advantage.

Which lens should you use?

The quality of the star produced is lens-dependent. I like to use my Canon 16-35mm f2.8 lens. My Nikon friends suggest the 24mm PCE or 14-24 f2.8. The best way to determine which lens in your collection performs best is trial and error. Set up a backyard test and you'll notice differences not only in crispness of the star, but in the number of rays produced.

A variety of objects can be used to partially obscure the sun.

How is it done?

Though I'm generally an advocate of using a tripod for landscape photography, there's an advantage to hand-holding your camera when making starbursts, if you can shoot at a fast enough shutter speed to negate vibration. The sun moves surprisingly quickly relative to earthbound objects, so shooting with a tripod requires very fast composing, focusing, and metering. Hand-holding allows you to chase the sun as it moves.

A wide lens, like this 8mm fisheye, can create nice stars without the need to partially obscure the sun.

Stop down your lens to at least f16 to maximize the effect, and compose the scene so that the sun is partially obstructed behind something in your composition like a tree, rock, or building. You can certainly get the effect without doing this, especially with a very wide lens, but the star is likely to be softer. My preference, as you can see from most of the examples, is for a crisp starburst.

Your depth of field preview function allows you to see what the star will look like, and you can adjust your composition while holding the DOF preview button and get a reliable idea of what to expect. To be on the safe side, do this with the viewfinder as (there is some controversy about this) using live view may damage your sensor. Sensors are expensive.

I've found that there is a huge temptation to look into the sun. Work really hard to resist that. Retinas are not replaceable at any price.

I tend to get ugly sun-flare spots. What can I do about that?

This is particularly important because these spots are difficult to remove in post-processing. Take off filters and scrupulously clean your front element. Dust and other imperfections can magnify flare. You'll find that there's a sweet spot between too little and too much visible sun which gives you the beautiful star and minimizes flare, and you can see this reliably using DOF preview and moving the camera.

What about proper exposure?

With this technique, partially obscuring the sun and especially using a wide-angle lens so the bright area comprises a small amount of the composition, evaluative metering will most likely be accurate. Otherwise some overexposure (1-2 stops) may be used to correct

luminosity. Remember that the sun will always be a spectral highlight, so you should expect your histogram to be clipped on the right.

Fall color looks especially appealing with backlight

Why does the effect behave differently in different situations?

Mainly, this has to do with atmospheric moisture. Dry and clear days are best, which is why the technique is used to great advantage here in the desert southwest. Stars formed at the horizon (sunrise and sunset) can be particularly variable, since the light may be passing through differing combinations of particulates and moisture.

Stars can form around any small, bright light source

What else?

Any small (relative to the frame), bright source of light can produce a star. You might want to try this technique with the moon or street lights, for example.