Star Trail and Moonlight Photography

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Photos by Czesia Markiewicz

To the casual observer, star and moonlight photography have much in common. After all, they both take place after dark, plus they require extremely long exposures and appropriate alcoholic beverages to keep the artist warm and ward off boredom. Interestingly enough, the similarity ends there. Having recently participated in both forms of nocturnal image-making with my partner, Czesia (whose images appear with this article), I will endeavor to provide an overall view for the budding experimental photographer.

Choosing Your Film

It seems natural to initially assume that high-speed film is the obvious choice for both forms of nighttime photography. Contrary to this, I have found that 50 and 100 ISO (transparency) films, due to their finer grain and lower contrast, will be a safer and more reliable choice. Color negative films lack the sharpness and clarity of transparency emulsions, although they’re a safer bet in terms of exposure latitude. Of particular note is the Fuji Super G Plus 800 often used by press photographers - famous for its saturation and fine grain. If you must use negative film, this film is virtually foolproof, provided the professionals in your minilab know what they’re doing. I also recommend Fujichrome film (Provia 100 and Velvia) when shooting transparency, as its reciprocity characteristics are generally less of a problem than Kodak and Agfa. For high-speed transparency use, Fujichrome 1600 works well, but is not only expensive but also tricky to expose correctly.

Selecting Equipment
Next, you’ll need to decide on your equipment. Manual exposure (preferably mechanical shutter) 35mm bodies are generally best, as they aren’t prone to battery failure halfway through a long exposure. Olympus cameras are famous for this, as they tend to lock open, thereby fogging the film when it’s rewound. Check your camera by removing the battery(s), setting the shutter on "B," and if it opens and closes as it should, you’re set. Mechanical medium and large format lens shutters are ideal, as well. Some high quality images can even be obtained on 4x5 with a little preparation and luck.

When I previously mentioned camera "bodies," my use of the multiple was entirely intentional, because a minimum of two cameras is recommended while having three or four would be even better. The reason for this is the necessary length of exposure and, therefore, the small number of images that can be taken in one night if you’re limited to one camera. Of course, you’ll need tripods for each of them, and cable releases aren’t a bad idea, either. In an average night, expect to shoot no more than a half dozen frames on each body. Be patient. Night photography can’t be rushed!

Lenses are another critical component in the success of star and moonlight photography. The basic rule is "the faster the better" - i.e. a maximum aperture of f2 or f2.8 is ideal. This rules out the majority of amateur zoom lenses, as do the lenses themselves, as they tend not to "hold" focus for long exposures without the help of a little gaffa-tape. My favorite lens is the Nikkor 24mm f2, which wide-open still has sufficient depth of field to render the foreground moderately sharp as well as the stars. As a rough guide, here are the maximum apertures suitable to photograph star trails: 50 ISO f1.4; 100 ISO f2; 400 ISO f4; 1600 ISO f8. Moonlight photography, on the other hand, is not as dependent on the lens’ maximum aperture, since the exposure time can be extended to ensure ideal exposure on the film.

Also, remember that at night it is extremely difficult to compose your image in the camera, so a high-speed lens is virtually a necessity. In the case of large format photography, set up before it gets dark and, if necessary, use the moon or a bright star to focus on during the night. Before setting out, check that your lens or lenses focus perfectly to infinity wide open. (Older lenses are often inaccurate in this regard and will waste your time and film.) As final preparation, pack a few extras--for example, a small torch (flashlight), a battery-powered flash, a stopwatch that can be read in the dark, a lens cleaning rag (to use when condensation sets in), a notepad and pen, warm clothing, liquid refreshment, food, and a good book.

**Star Trail Photography**
Those who believe the Earth rotates will easily understand that the apparent position of the stars in the sky changes throughout the night. The principle behind star trail photography is to leave the shutter of the camera open long enough to capture this phenomenon on film. To serious astrophotographers, this technique is a gimmick and not high on their agenda, but to the rest of us, it can make some interesting and highly creative images.

First of all, pick a really dark night with no moon at all (at least while you’re out photographing). Even slight moonlight will lower the contrast between the night sky and the stars. Check in the local paper for the moonrise and phase information, and make sure there’s little or no cloud cover. Intermittent clouds will produce equally intermittent star trails!

Next, find a location far away from city lights and facing either north (if you’re in the Northern Hemisphere) or south (if you’re Down Under). On our first expedition, we spent the afternoon locating a remote beach facing the open sea, about 100 kms from the city.

Once it’s dark, locate the North or South Celestial Pole (depending on where you’re located). This is basically the point around which the stars appear to rotate, and if you manage to incorporate it in your image, all the better. The North Celestial Pole is very close to the star Polaris, while the South Celestial Pole is quite complex to find as it lies approximately half-way between the Southern Cross and the star Achernar. (Good luck!) One of the most fascinating experiences I had was noting the location of the Southern Cross early in the night and watching it change angle throughout the night, almost before my eyes!

For your first star trail photos, set your lens to infinity, your shutter to "B," and fire away. The general rule is the longer the exposure, the better! A good combination for initial experimentation is 100 ISO film, a wide-angle lens, an aperture of f2 or f2.8, and an exposure of at least one hour. If you can leave your camera on for several hours, you’ll get a more complete image of the circular star pattern, though exposures as short as thirty minutes can be quite successful as well.

An interesting foreground will make any star trail photo more captivating, but may require additional lighting for optimum balance. Try a hand flash unit on full power from five or ten meters or even use car headlights for a minute or two. Naturally, you can measure either with a hand meter for an exposure starting point, but experimentation and keeping notes of what you do are generally more useful. Always be careful to shield the lens from additional light as flare will ruin any star trail image immediately!

Final logistical points to note include condensation and camera movement. The former is particularly troublesome in colder climates and can ruin an otherwise stunningly sharp image over the period of half an hour. Carefully clean the UV filter from time to time, and always minimize camera movement when you’re going about your photography.

**Moonlight Photography**

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<th>Trails and Boat</th>
<th>Provia 1600 - 30 mins @ f2.8 + 2 full power flashes from SB16 flash unit at 5 metres (Nikkor 20mm lens)</th>
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While star trail photography depends on the darkest of dark nights, photographing by moonlight necessitates the complete opposite. Again, utilizing information in your local paper, determine the date at which the moon is full or almost full and the sky is clear. A little cloud cover can be interesting, especially if it features prominently in your photos. Long exposures will blur this, and the clouds themselves will soften the moon’s shadows in much the same way as overcast daylight does.

The bizarre thing about moonlight photos is that they often appear to have been taken in daylight conditions, although without the shadows. This effect can be attributed to the movement of the moon over a period of time, thereby "filling in" the shadows from various angles of illumination. You have a little more flexibility regarding film speed than you do with star trail photography. If you’re in the mood for short exposures or many varied subjects, try 1600 ISO film (15 seconds at f2 under full moonlight is a good starting point). For the more patient, 100 ISO film can be used (15 minutes at f4) with better shadow detail and sharpness than its speedy cousin offers. Large format photography is actually quite easy, although it requires longer exposures due to limited lens aperture choices. Try a 90mm lens on 4x5 (f8 for 2 hours on Velvia).

Naturally, much of the same logistical preparation is required as in star trail photography. A sturdy tripod and reliable cable release are musts as is a small torch to check the camera settings. As a starting point, try photographing a running water scene that’s fairly open to the sky. Using a wide-angle lens will minimize depth of field problems and provide a more interesting image in terms of perspective, as well. Very long exposures are prone to slight color shift, which in itself can be interesting, and can be your only indication that the photo was taken at night. Using your torch to "paint with light" can also be interesting, but try to keep the image tasteful.

As with star trail photography, take notes on your exposure variations and the environmental conditions that prevail. They’ll be invaluable for your future photographic expeditions and will help you explain anything bizarre you may observe on your film (UFO’s, headlights, and the like). Don’t expect "perfect" results the first time, but with careful planning and a little patience, you’ll be able to impress and intrigue your friends and have a bit of fun too!

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Search through aisles of used cameras without ever climbing a ladder.