Night Photography

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“It’s amazing what you can see once you get away from all that light pollution.”
Dark skies are no longer for most

• 99% people in USA, Europe cannot see stars
• 80% of the world lives under sky with the glow of light pollution
  • Called sky glow, light dome
• Why should we care?
• Other than to photograph?
Bortle scale

• A 9 level rating of the amount of light pollution (and ease of photographing) the dark skies
• Class 1, being the darkest is amazing to photograph, milky way goes to the horizon
• Class 2, 3 also easy to photograph the details of the milky way
• Class 4, 5 can see the milky way but the details are being lost
• Class 6 might see traces of the milky way
• Class 7 lose the milky way and most stars
• Class 8, 9 city lights, see very few stars
The Bottle Dark-Sky Scale

The Bottle Dark-Sky Scale is a nine-level numeric scale that measures the night sky's brightness at a particular location.

It quantifies the astronomical observability of celestial objects and the interference caused by light pollution and sky glow.

John E. Bottle created the scale and published it in the February 2001 edition of Sky & Telescope magazine to help amateur astronomers compare the darkness of observing sites.

The scale ranges from Class 1, the darkest skies available on Earth, through Class 9, inner-city skies.

The colors in each box roughly correspond to the World Atlas of Artificial Night Sky Brightness and are provided as a guide only.

Astronomical Objects Mentioned

M31, the Andromeda Galaxy
M33, the Triangulum Galaxy
M4, a globular cluster in Scutum
M6, a globular cluster in Scutum
M16, a globular cluster in Sagittarius
M22, a globular cluster in Sagittarius
Light carries a long way

- Light trespass
  - Into people’s bedrooms
  - Backyards
  - Can be a mile away (rural areas)

- Affects awareness of darkness
- Many health effects, wildlife effects
- Affects your images with longer exposures
Optimum shooting

- Clear skies
- Scattered, interesting clouds can add interest
- Fog can add interest
- 2 hours after sunset
- 30 min before or after moon rise or set
- Gives minimum 10 days decent shooting per month
- Sometimes find a 1-2 hour window and sneak in a shoot
- Milky Way visible March - October
Equipment

- Camera with high ISO capability
- Manual settings
- Tripod, tripod, tripod
- Cable release/camera app
- Intervalometer, in camera or separate
- Wide angle lens, the sky is the feature, foreground makes the image
- F2.8 or better (1.4 is great)
- Need very high ISO if f4.5 or greater
Shooting sharp stars, milky way

- 15-20 sec best
- 20-30, slight trailing, depending on lens/camera
- Intervalometer let’s you set odd numbers (17 sec, 18, etc.)
- WB to tungsten, or whatever if you are RAW
- Check the histogram, will look bright –backlit
- More constellations, less time, darker exposure
  - More stars, need more time
Shooting for star trails

• Usually 4 min at low ISO (200, 400)
• Reduces noise for long exposure
• DO NOT use long exposure noise reduction!
• Shoot a 4 min with lens cap on for hot pixels
• Set Intervalometer for lots shots
• Go to sleep, wake up, have coffee, collect gear
• Put all images into processing program, have more coffee/nap
Shooting test before real

• Set camera to highest ISO
  • Set to bulb, hold shutter open for few seconds
  • Do your composition
  • Ugly!

• Reset to shoot
  • Reset ISO to working (4000-6400, or less)
  • Set your timer (15-20 sec)
  • Beautiful..sort of
Shooting

• Watch dew on camera
  • Add hand warmers (Kevin Adams has handy holder)
  • Arctic jacket
  • Wipe off lens (but it can creep back fast)

• Takes 20 minutes for eyes to adjust, see more and more stars
  • Use red lights
  • Turn them off for shooting
  • Be considerate of others (parks beginning to limit night shooting)
Shoot to combine exposures

- Large landscapes, cannot light
- 1. Expose for landscape
  - Could be 90 seconds, 4 min, or?
  - Get decent exposure to reduce noise
- 2. Expose for stars
- 3. Blend in Photoshop (newer blending programs also)
  - Luminar? Topaz? On 1?
Exposure blending
Lighting

• Does not take much light
• Add light from sides to enhance texture
• May want to take silhouette also
• If clouds are present, take several shots
Begin Processing

• Import to Lightroom (or other organizing software)
• Command F: enter your high ISO number
  • Get all images with high ISO
  • X them all
  • Photo: Delete rejected photos, delete from disc (can also right click)
• Select favorites for further processing
Correct perspective

- Many possibilities, decide if going to do it while in another program
- Photoshop:
  - Filter, Adaptive Wide Angle.....very cool!
- Lightroom:
  - Transform, guided is the most precise
- DXO:
  - Viewpoint
Denoise—Key to great images

• Key is to preserve detail
• Helps to shoot with significant light in foreground if possible
• Do not overdo it! Smoothes out everything, loses stars
• Can blend foreground made with longer exposure
• May need to try different programs for individual pictures
DXO

• LR: File—Plug in Extras to find it
• Import RAW file!!!
  • Does not work with Fuji files, even DNG, Tiff 😞
• Downloads camera info for correction
• Primarily use for prime denoise
• Also
  • Smart lighting
  • Clear View
• Export as Tiff!!!
Denoise software

- Lightroom
- Nik: Define
- MacPhun: Noiseless pro (usually very smooth, detailless) (now Luminar, not tested yet)
- Topaz: Denoise (best inexpensive)
- DXO: usually use Prime, sometimes need their regular
• Original NEF

Lightroom only
• Original NEF

Lightroom + Define
• Original NEF
- Original NEF
Color

• What color is the night sky??
• What color do you like? Do you see it as?
• Reality is, it’s dark........
• Images will show more stars than you can easily see, though the longer you are out, darker the sky, the more stars you will see
• Process to your taste
  • Will vary according to image, clouds, haze, mist, light pollution
Back to Lightroom

- Clarity = midtone sharpening, clearness
- Anything else you wish, shadows, whites, etc. for whole image
- WB adjustments
- Graduated filter tool
  - Brighten or darken top or bottom part, brush out parts covered (trees, etc.)
- Elliptical tool
  - Horizons with light pollution
  - Change WB, tint to counter the yellowness of light pollution
  - Feather edges to blend it well, brush out structures it covers
Resources

• Kevin Adams
  • https://www.kadamsphoto.com
  • Conference every other year
  • Hand warmer holder
  • eNewsletter

• Royce Bair
  • http://intothenightphoto.blogspot.com
  • Great ebook!

• International Dark Sky Association
  • Also has local chapters. http://www.darksky.org