Introduction to Night Photography
Tips and Techniques for Taking Photos at Night
Introduction To Night Photography

• Types of Night Photography
• Planning for Photographing at Night
• Recommended Gear
• Camera Settings
• Composition
• Light Painting
• Post Processing Tips
• Information Resources
Types of Night Photography

• Moon-Lit
• Star Points/Milky Way
• Star Trails
• Eclipses
• Urban
• Aurora Borealis
Planning for Photographing at Night

- Research – Books, Internet, Friends
  - Dark Sky site
  - [http://darksitefinder.com/maps/world](http://darksitefinder.com/maps/world)
Planning for Photographing at Night

• Research – Books, Internet, Friends

• Timing and Location:
  • The Photographer's Ephemeris
Planning for Photographing at Night

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• Timing and Location:
  • The Photographer's Ephemeris
  • Photo Pills ($10 IOS phones)
Planning for Photographing at Night

• Research – Books, Internet, Friends

• Timing and Location:
  • The Photographer's Ephemeris
  • Photo Pills
  • Sky Guide (IOS) or Stellarium (Android)
Planning for Photographing at Night

- Research – Books, Internet, Friends
- Timing and Location:
  - The Photographer's Ephemeris
  - Photo Pills (for cell phones)
  - Sky Guide (IOS) or Stellarium (Android)
  - Deluxe Moon
Planning for Photographing at Night

• Research – Books, Internet, Friends

• Timing and Location:
  • The Photographer's Ephemeris
  • Photo Pills (for cell phones)
  • Sky Guide (IOS) or Stellarium (Android)
  • Deluxe Moon

• Scouting (Day time)*
  ❖ Extremely important
  ❖ Familiarize yourself with the path in/out
  ❖ Leave markers (stones, tree limbs) where you need to stand
The Milky Way – When to Shoot

• March – April:
  • Visible for the last few hours before sunrise
• May – June:
  • Visible from darkness to before dawn above Eastern Sky horizon
• July – August:
  • High in the sky during the dark hours
• September – October:
  • Briefly visible as it gets dark
• November – February:
  • Below the horizon

Only 4-5 months when you’re going to be able to see the Milky Way; during each of these months you only have about 10 days when the moon isn’t a factor or about 50 days total, not accounting for weather conditions.
The Milky Way – How to Locate in the Field

• Use Photo Pills Augmented Reality
• Use Star Guide/Stellarium
The Milky Way – How to Locate in the Field

- Use Photo Pills Augmented Reality
- Use Star Guide/Stellarium
- Use guide by Kevin Adams

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### The Milky Way Throughout the Year

<table>
<thead>
<tr>
<th>Date</th>
<th>End of Dusk Astronomical Twilight</th>
<th>Middle of the Night</th>
<th>Beginning of Dawn Astronomical Twilight</th>
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<tbody>
<tr>
<td>January 1</td>
<td>High Angle L to High Angle R-W (High)</td>
<td>Near Vertical R-SSE to Near Vertical L-NNE (High)</td>
<td>Low on Horizon-NE to WSW</td>
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<tr>
<td>January 15</td>
<td>High Angle L-ESE to High Angle R-WNW (High)</td>
<td>High Angle R-SSE to High Angle L-NWW (High)</td>
<td>Low on Horizon-SE to NW</td>
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<tr>
<td>February 1</td>
<td>Near Vertical L-SSE to Near Vertical R-NW (High)</td>
<td>Angle R-S to Angle L-N (Mid)</td>
<td>Low Angle L-N to Angle R-S (Low)</td>
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<td>Near Vertical L-SSE to Near Vertical R-NW (Overhead)</td>
<td>Angle R-S to Angle L-N (Mid)</td>
<td>Angle L-S to Angle R-S (Mid)</td>
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<td>Angle L-S to Angle R-S (Mid)</td>
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<td>High Angle L-ESE to High Angle R-NW (High)</td>
<td>Low Angle R-S to Low Angle L-N (Low)</td>
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<td>April 1</td>
<td>Angle R-S to Angle L-N (Mid)</td>
<td>Low on Horizon R to WNW</td>
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<td>June 1</td>
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<td>Angle L-S to Angle R-N (Mid)</td>
<td>Near Vertical L-SW to Near Vertical R-NNE (Overhead)</td>
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<td>Angle L-S to Angle R-N (Mid)</td>
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<td>Vertical to Vertical NE (Overhead)</td>
<td>High Angle L-S to High Angle R-N (High)</td>
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<td>August 1</td>
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<td>Vertical to Vertical NE (Overhead)</td>
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<td>Vertical to Vertical-NNW (Overhead)</td>
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<td>November 1</td>
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<td>December 15</td>
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<td>Vertical to Vertical-NNW (Overhead)</td>
<td>Low Angle R-S to Low Angle L-N (Low)</td>
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Information is based on viewing in the Northern Hemisphere at middle latitudes. While some part of the Milky Way is visible all year, the brightest part—the "core"—that photographers want to capture—is visible for most of the night only during the summer months from June through August. During spring, you can view the Milky Way in the early morning hours and during autumn it is visible in the late evening. During December and January, the visible section of the Milky Way is very faint.

Astronomical twilight varies, but ends approximately 90 minutes after sunset and begins about 90 minutes before sunrise. L (left) and R (right) refer to the angle the Milky Way points. Following the angle is the general compass direction; for instance, NNE means northeast. Overhead, High, Mid, and Low refer to the approximate highest altitude of the Milky Way's arch, as measured from the horizon to directly overhead.

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Chart produced by: Kevin Adams
Website: www.kadamsphoto.com
Digital After Dark Blog: www.kadamsphoto.com/highphotography

Recommended Gear

• Camera:
  • Preferably a full frame camera (higher ISO w/lower noise) but APS-C also will work
  • Mirrorless cameras are fast becoming the favorites
Recommended Gear

• **Camera:**
  - Preferably a full frame camera (higher ISO w/lower noise)

• **Lens:**
  - **Focal Length**
    - 14-24mm (full frame)
    - 35-50mm you may need to take panoramic photos
  - **Aperture:**
    - The wider the better, f/2.8 or wider, f/1.4 even better for lower ISO and noise reduction
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  Release/Intervalometer/Infrared Remote
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• **Remote Shutter**
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• **Headlight/Flash light with red light**

http://kadamsphoto.com/catalog/flashlights-photographers-c-25_42.html
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- **Remote Shutter Release/Intervalometer/Infrared Remote**

- **Headlight/Flash light with red light**

- **Sturdy Tripod**
Camera Settings for Star points (Milky Way)

- Manual Mode
- Image Quality: Raw
- Metering Mode: Evaluative/Matrix
- White Balance: 3400-3800 Kelvin, or set to Auto and fix in post
- Aperture: as wide as it will go, preferably f/2.8 or wider
- ISO: Start at 1600 – 6400 and check Histogram
Exposure Time Examples

• “The 500 Rule”
Max Shutter Speed = 500/Focal Length,
ex. 500/20mm = 25 secs for full frame

• So a good starting point for a full frame, wide angle lens:
  • Aperture: F2.8
  • ISO: 3200
  • Shutter Speed: 25 secs
• Check Histogram and adjust ISO and/or shutter speed accordingly

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<th>Max Exp Length (sec) Crop</th>
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Star Point Focusing

• Need to Use Manual Focus
• Need to focus (near/at) infinity
• Focusing Options:
  • Use Live View, zoom in on stars and manually focus
  • Auto focus on a flashlight beam >50 ft. away
  • Pre-Focus on a distant object during the day and tape/mark focus ring
  • Use Lonely Speck SharpStar

• After focusing, set to manual focus and tape/mark focus ring

*Remember to turn off auto focus*
Composition

- Align Milky Way with interesting foreground objects
- Using distant objects makes it easier to focus
- For nearby objects, consider silhouette or use multiple exposures
  - Image 1: Focus on nearby object, with more exposure time
  - Image 2: Focus on stars
  - Then blend image 1 and 2 in post processing
Composition

- Consider panoramic photos to capture more of the Milky Way
- Can use a “fast” 35-50mm lens
- Stitch together in Lightroom or Photoshop
Light Painting

- Light painting is very tricky
- Need to experiment with types/color of light, duration
- With very long exposures you can enter the scene and do painting as in the above.

*Photos by National Parks at Night*
Post Processing Tips – Simple Steps

• You will need to post process night photos
• Make Lens Correction in Lightroom or Photoshop ACR
• Adjust white balance to taste (ex: 3800K and Tint of +8)
• Reduce light pollution affects with brushes with a cooler temperature setting
• Adjust Exposure to ensure a wide tonal range in the histogram
• In Tone Curve add contrast with an S-curve
• Add Clarity, Vibrance and Saturation as needed
• Noise is always a concern with night photos, use Light Room, or Nik Define or Topaz Denoise to reduce noise
• Consider purchasing Lonely Speck LightRoom Astrophotography Presets ($80)
  • http://www.lonelyspeck.com/film-speck-pro-astrophotography-lightroom-presets/
Information Resources

• Lonely Speck: Astrophotography Tutorials:
  • http://www.lonelyspeck.com/astrophotography-101/

• International Dark Sky Org:
  • http://darksky.org/idsp/

• Interactive World Dark Sky Map:
  http://darksitefinder.com/maps/world.html

• Dave Murrow Photography: Photograph the Night Sky
  • http://www.davemorrowphotography.com/

• Kevin Adams Digital After Dark:
  • http://darksitefinder.com/maps/world.html

• National Parks at Night:
  • http://www.nationalparksatnight.com/

• Questions?