Night Photography

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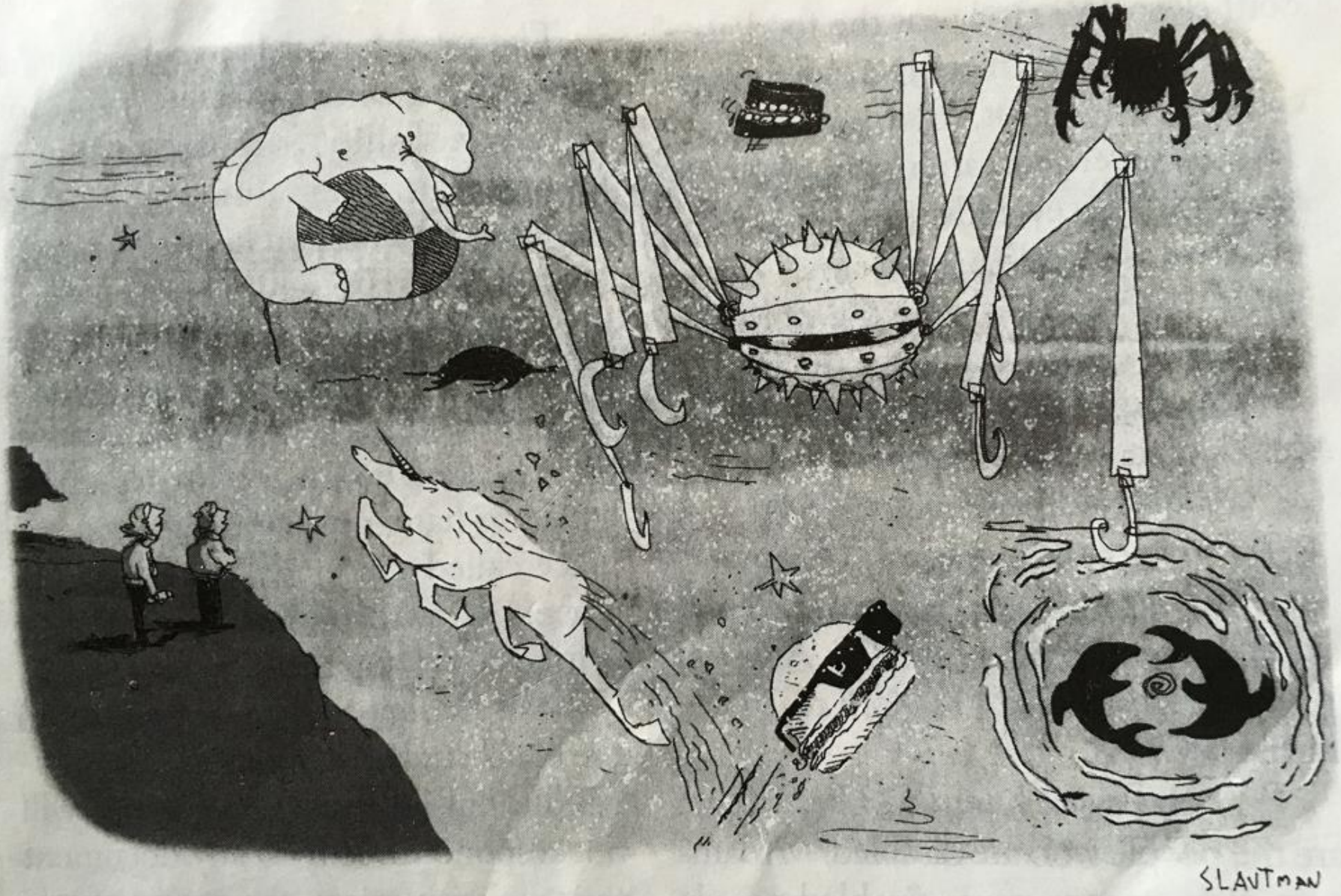

"It's amazing what you can see once you get away from all that light pollution."


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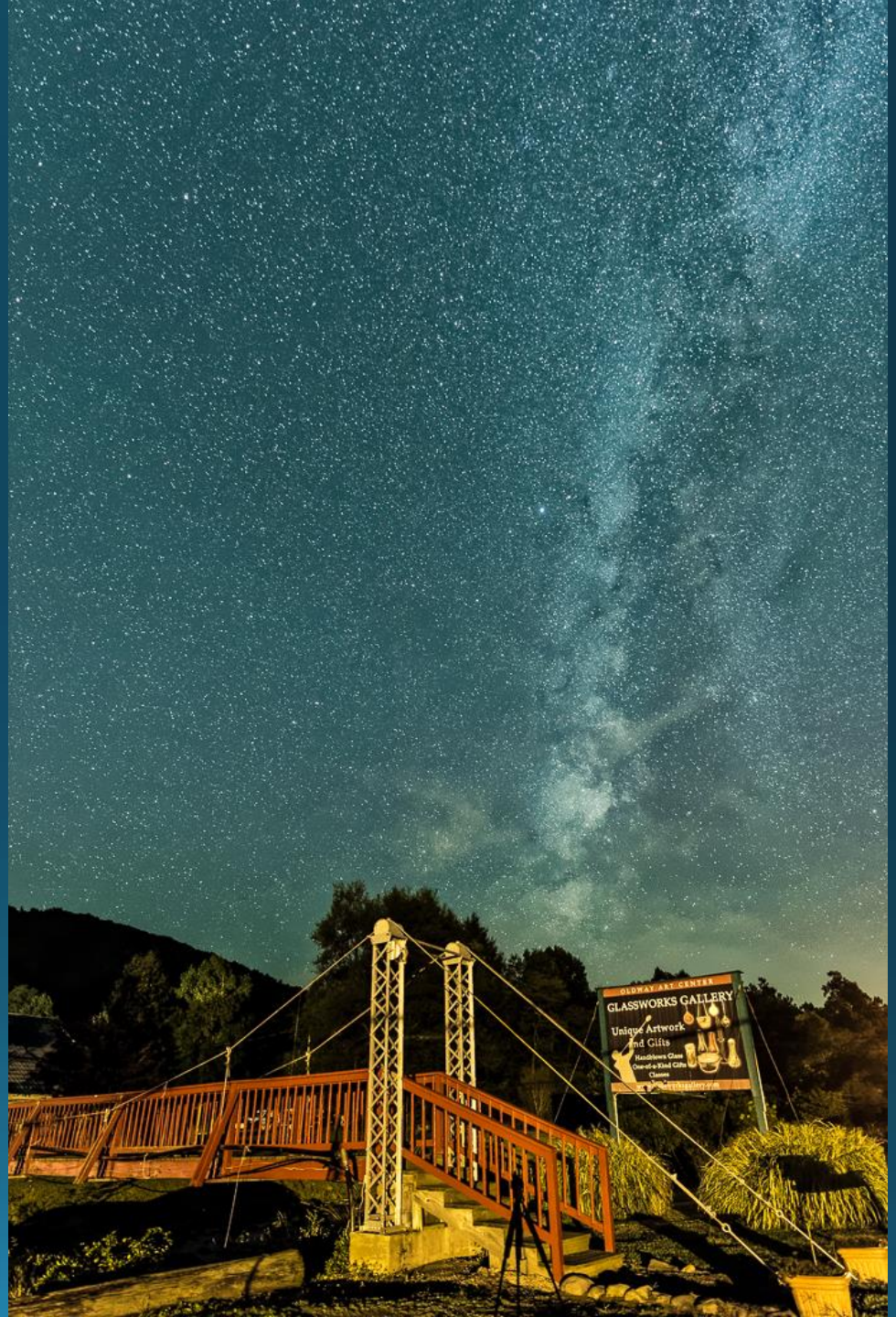
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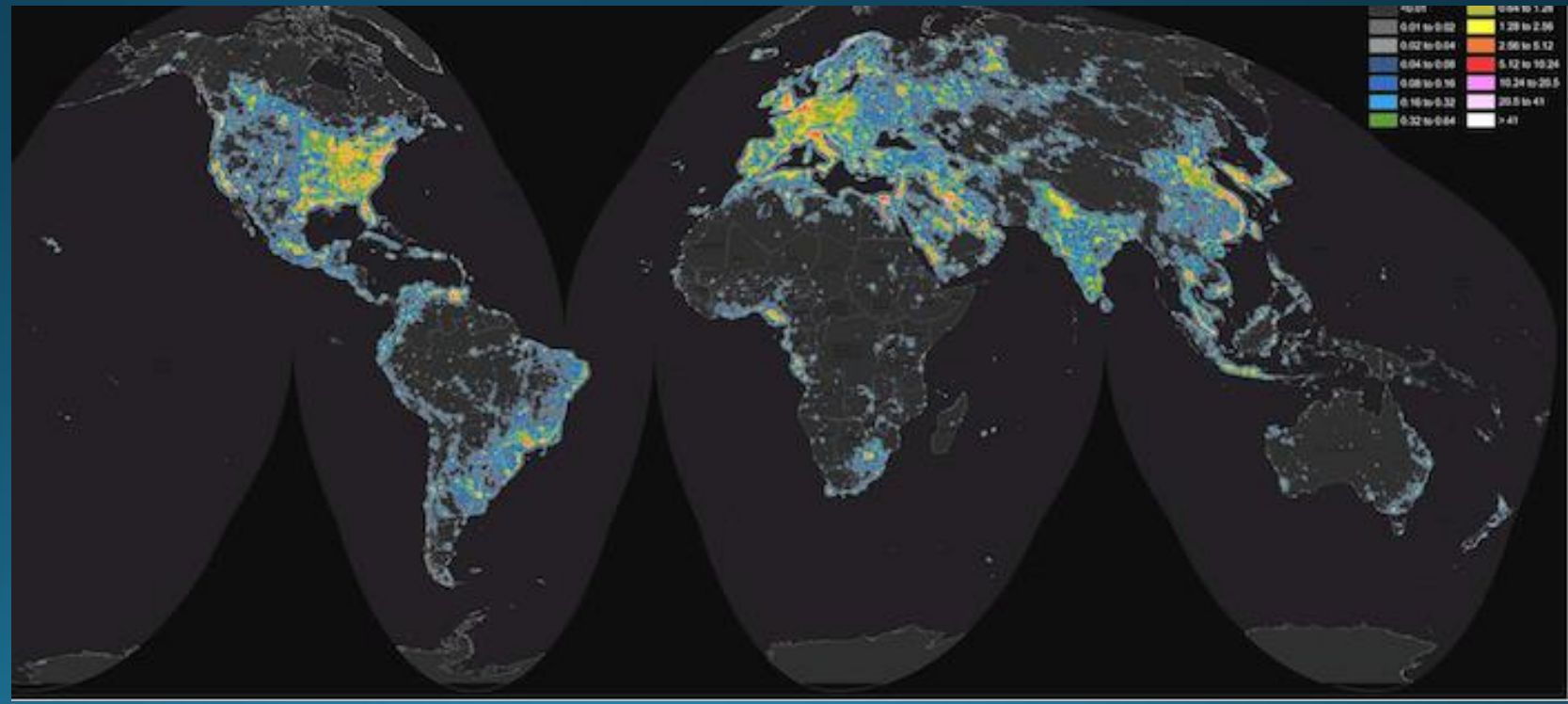
Dark skies are no longer for most

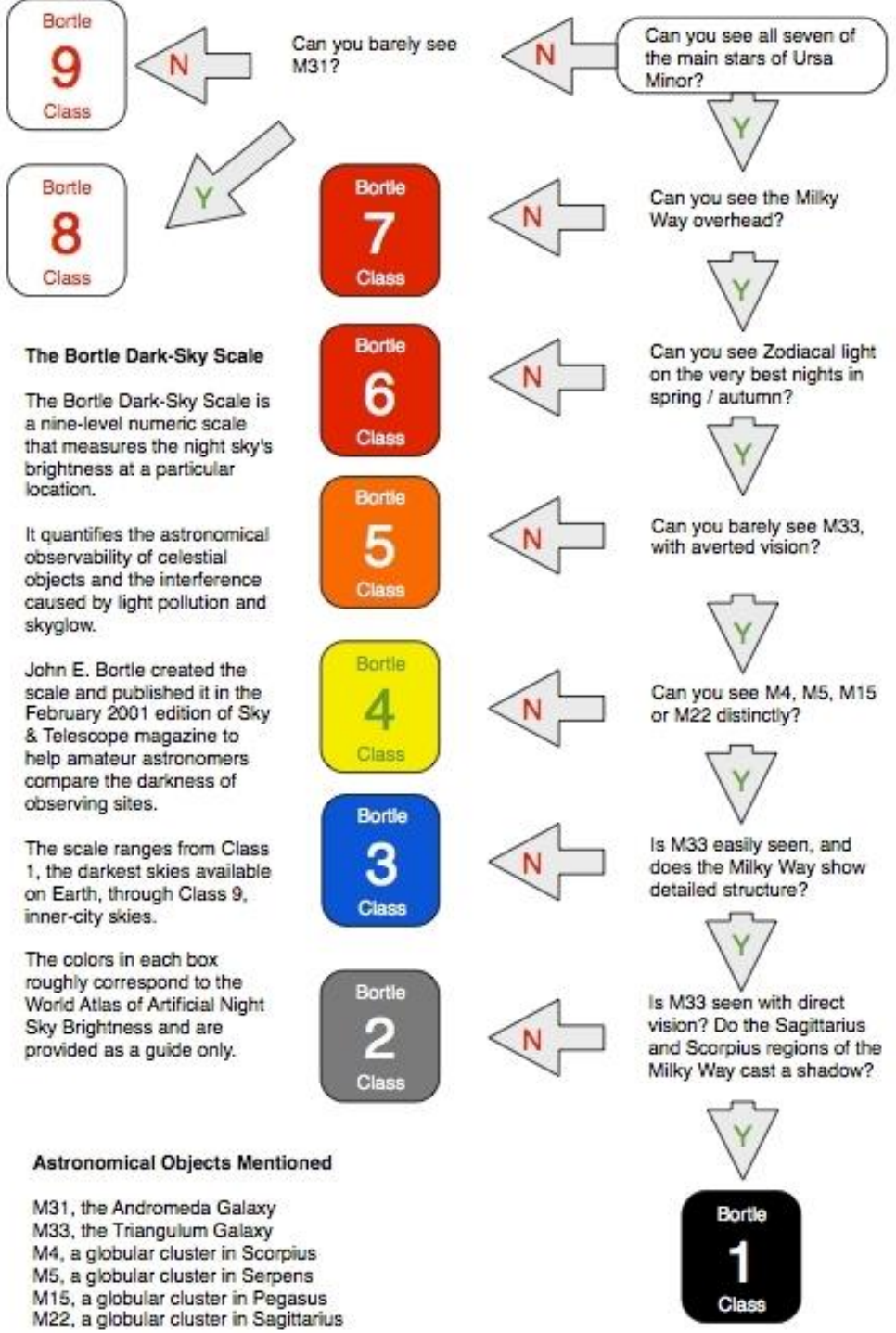
- 99% people in USA, Europe cannot see stars
- 80% of the world lives under sky with the glow of light pollution
  - Called sky glow, light dome
- Why should we care?
- Other than to photograph?



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

Color	Bortle* Class
	1
	2
	3
	4
	4.5
	5
	6,7
	8,9



The Bortle Dark-Sky Scale

The Bortle 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 skyglow.

John E. Bortle 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 Scorpius
M5, a globular cluster in Serpens
M15, a globular cluster in Pegasus
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

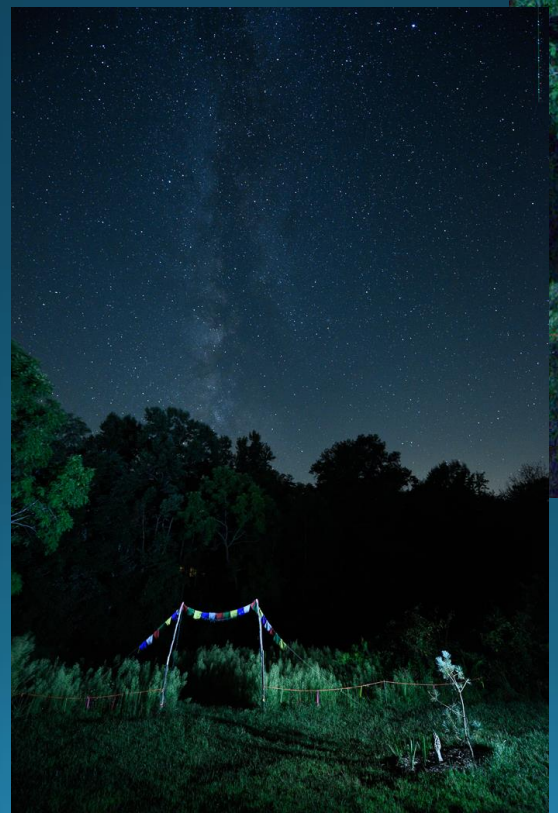
- 15-20 sec best
- 20-30, slight trailing, depending on lens/camera
- Intervalometer let's you set odd numbers (17 sec, 18, etc.)
- WB to tungsten, or whatever if you are RAW
- Check the histogram, will look bright –backlit
- More constellations, less time, darker exposure
  - More stars, need more time

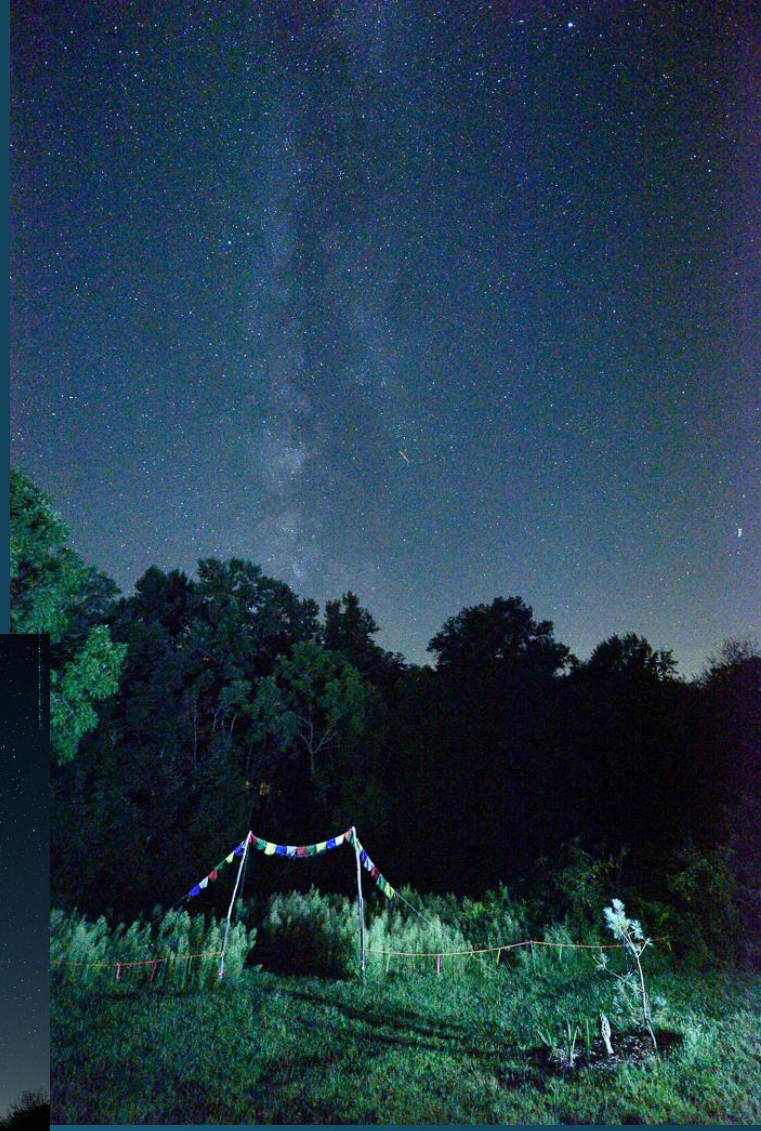
Shooting for star trails

- 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)

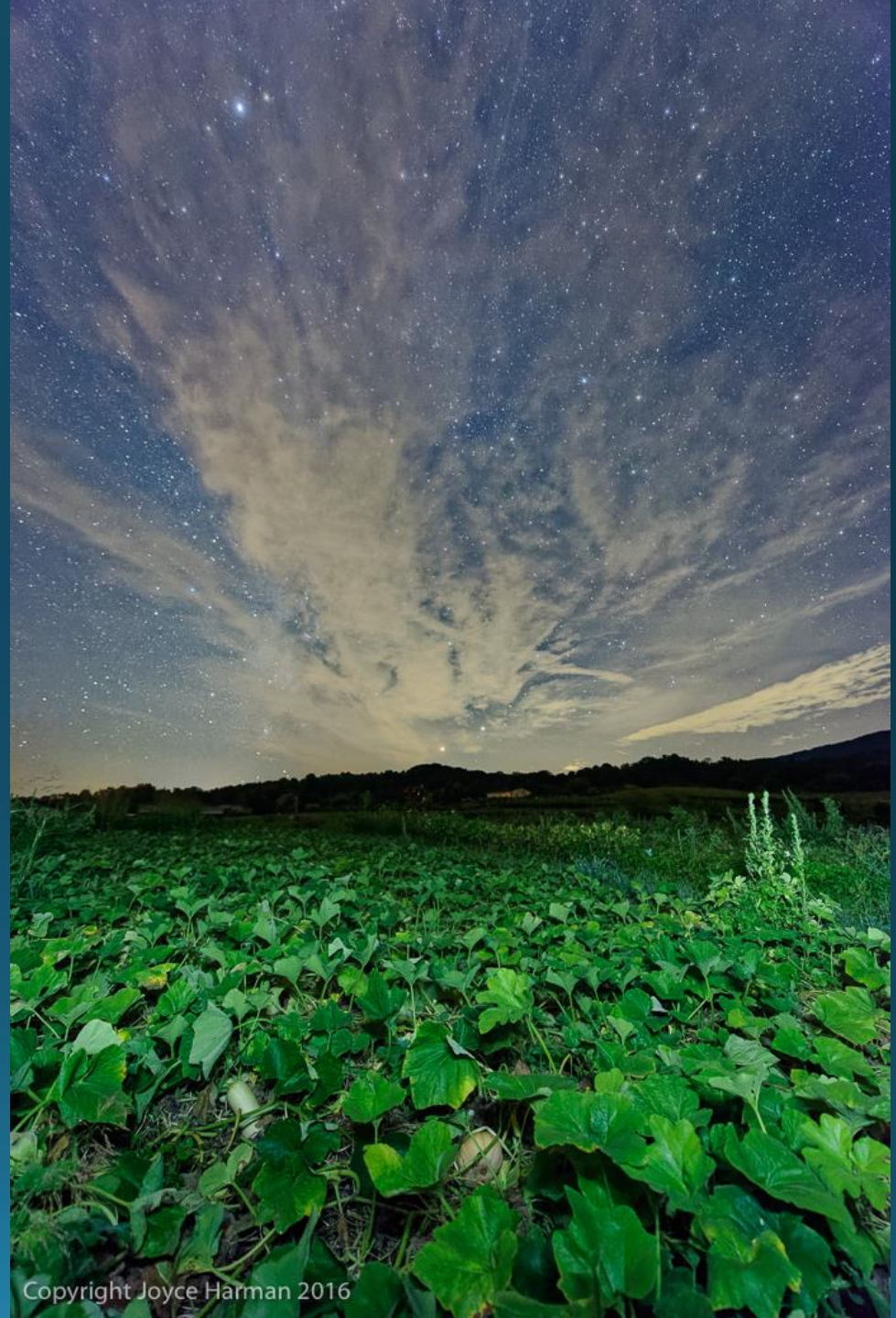
Shoot to combine exposures

- 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 prgrams 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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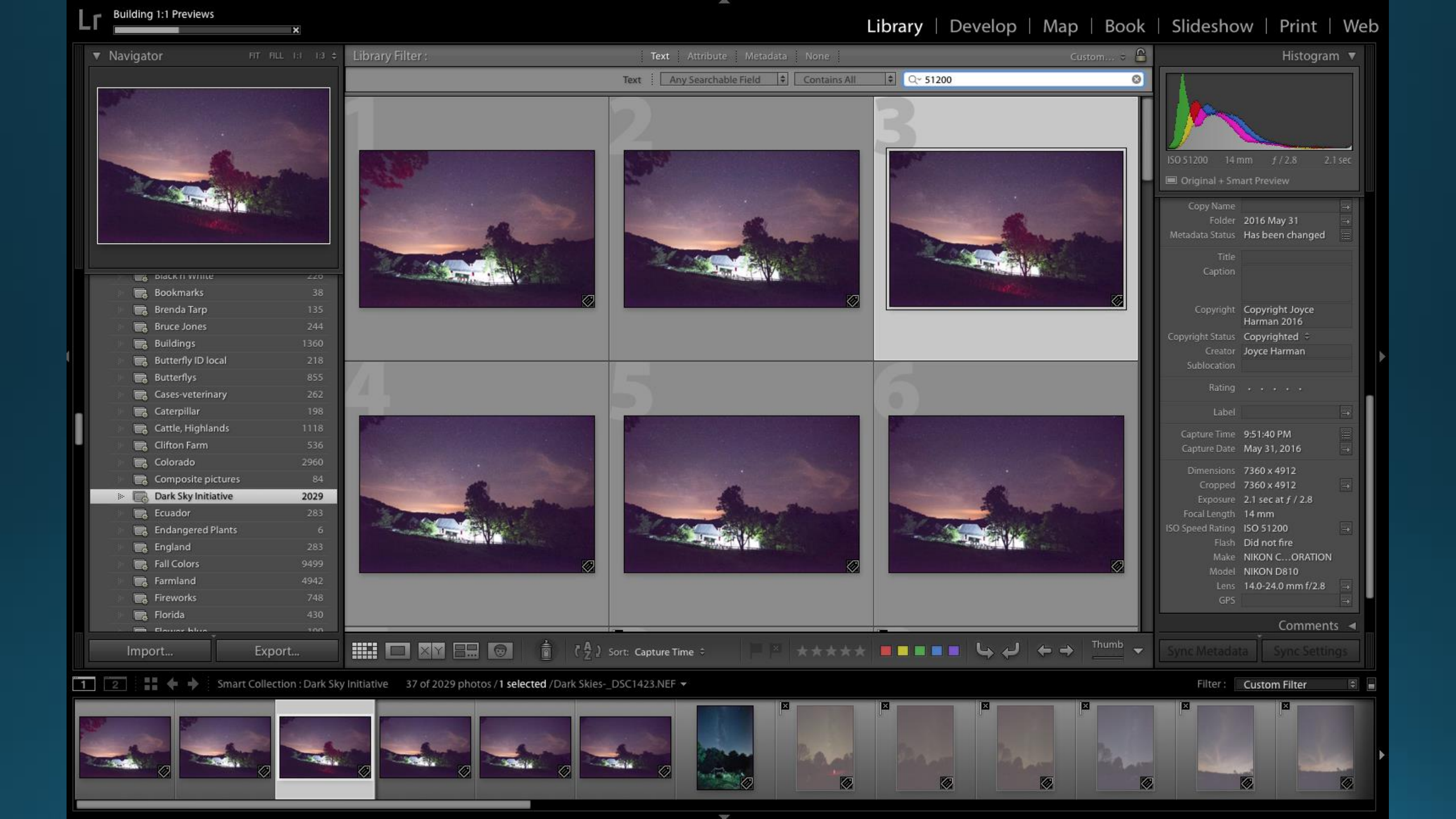
Begin Processing

- 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


Building 1:1 Previews
Library | Develop | Map | Book | Slideshow | Print | Web
Navigator
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Text
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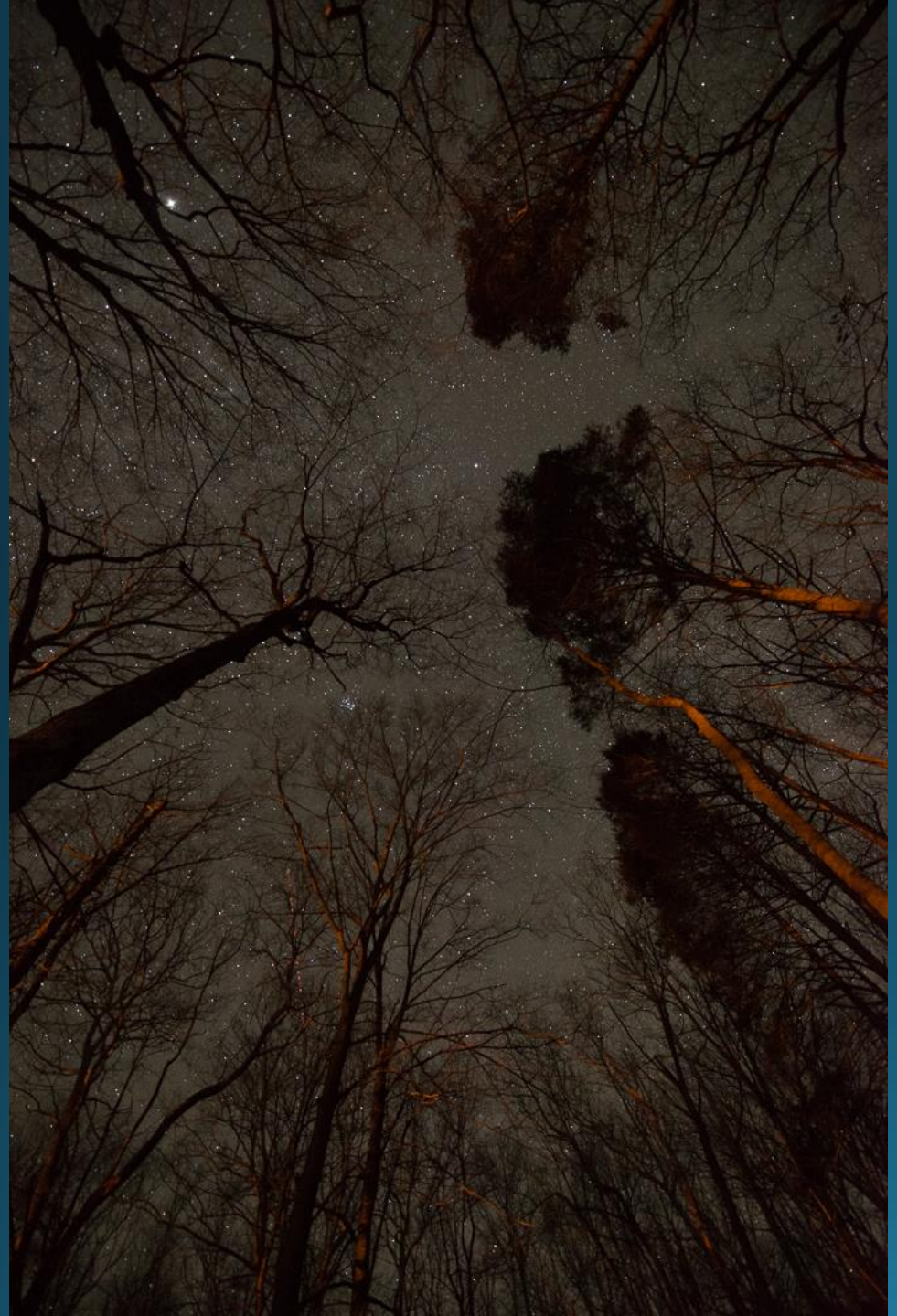
GPS
Comments
Bookmarks 38
Brenda Tarp 135
Bruce Jones 244
Buildings 1360
Butterfly ID local 218
Butterflys 855
Cases-veterinary 262
Caterpillar 198
Cattle, Highlands 1118
Clifton Farm 536
Colorado 2960
Composite pictures 84
Dark Sky Initiative 2029
Ecuador 283
Endangered Plants 6
England 283
Fall Colors 9499
Farmland 4942
Fireworks 748
Florida 430
Import...
Export...
Sort: Capture Time
Thumb
Sync Metadata
Sync Settings
Smart Collection : Dark Sky Initiative
37 of 2029 photos / 1 selected /Dark Skies-_DSC1423.NEF
Filter :
Custom Filter




VOLVO


VOLVO

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! Smooths out everything, loses stars
- Can blend foreground made with longer exposure
- May need to try different programs for individual pictures

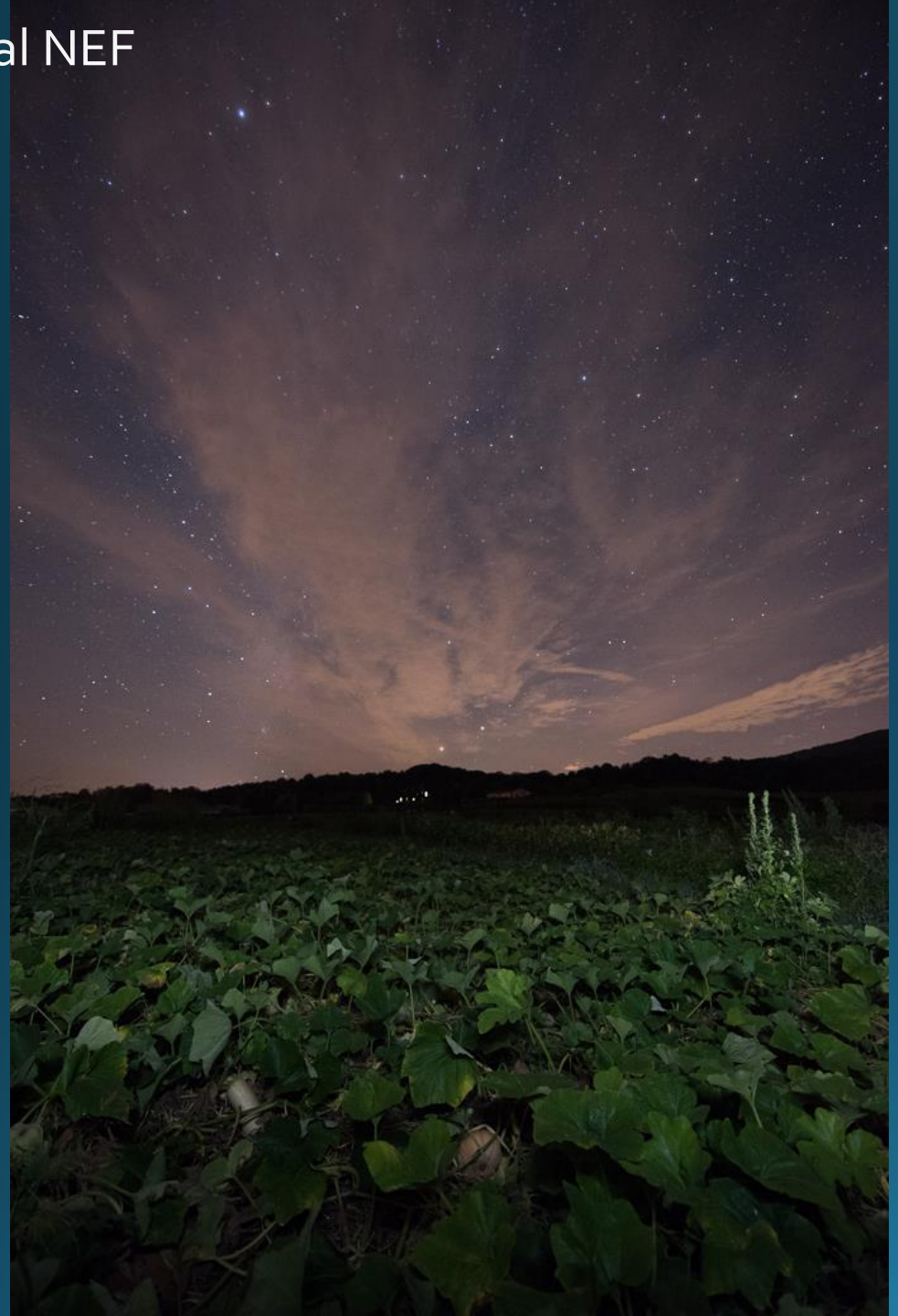
DXO

- 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!!!

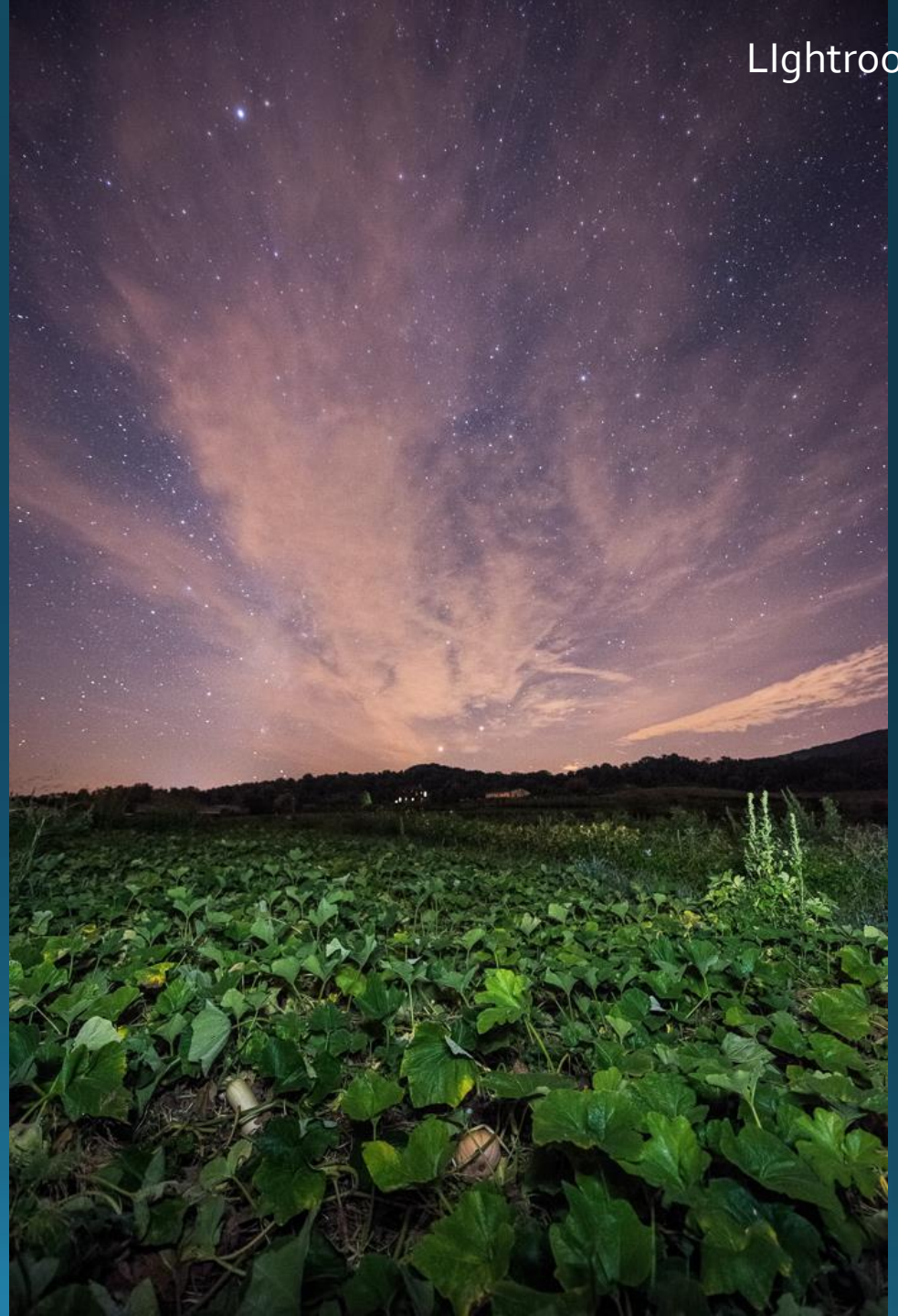
Denoise software

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

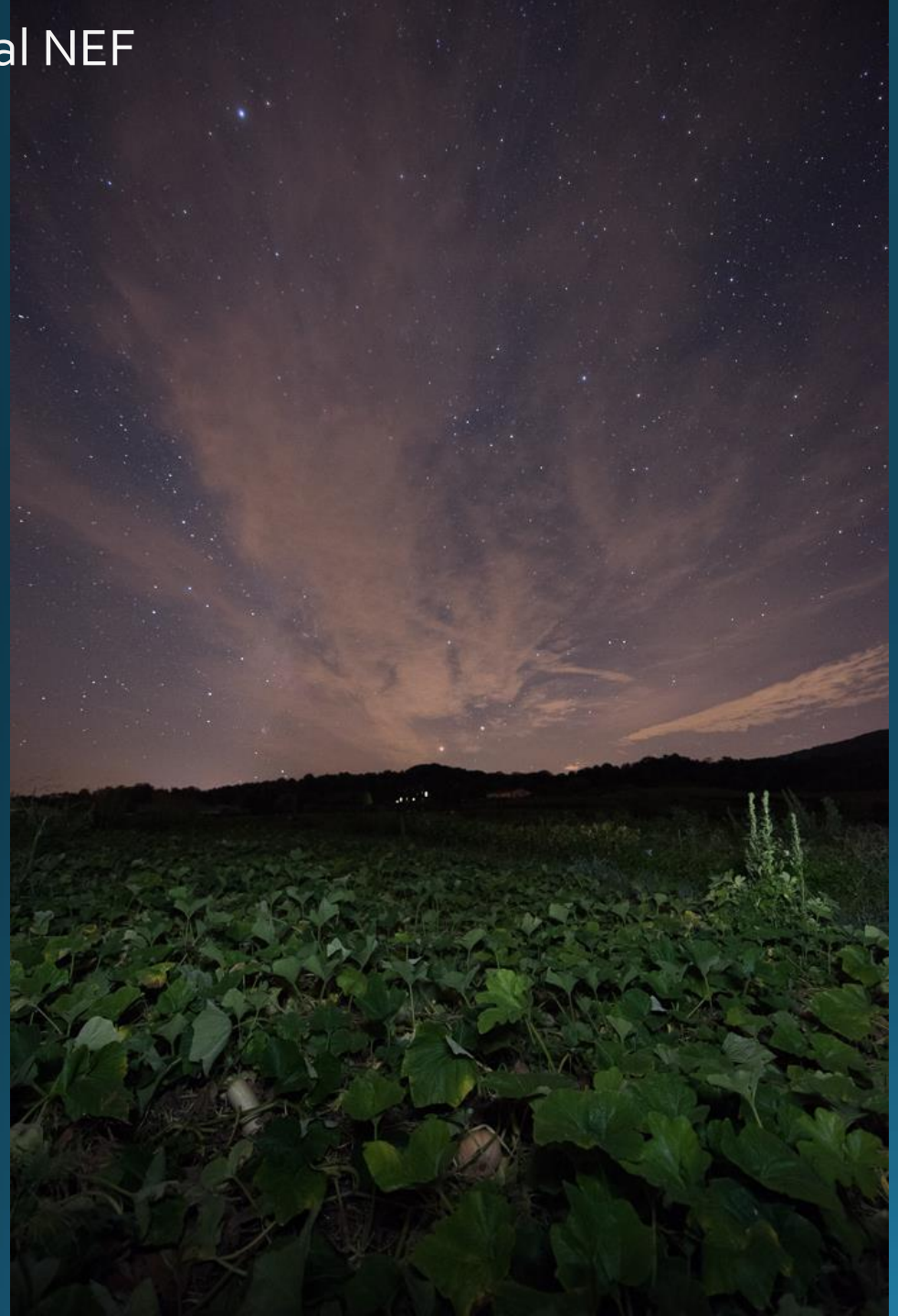
- Original NEF



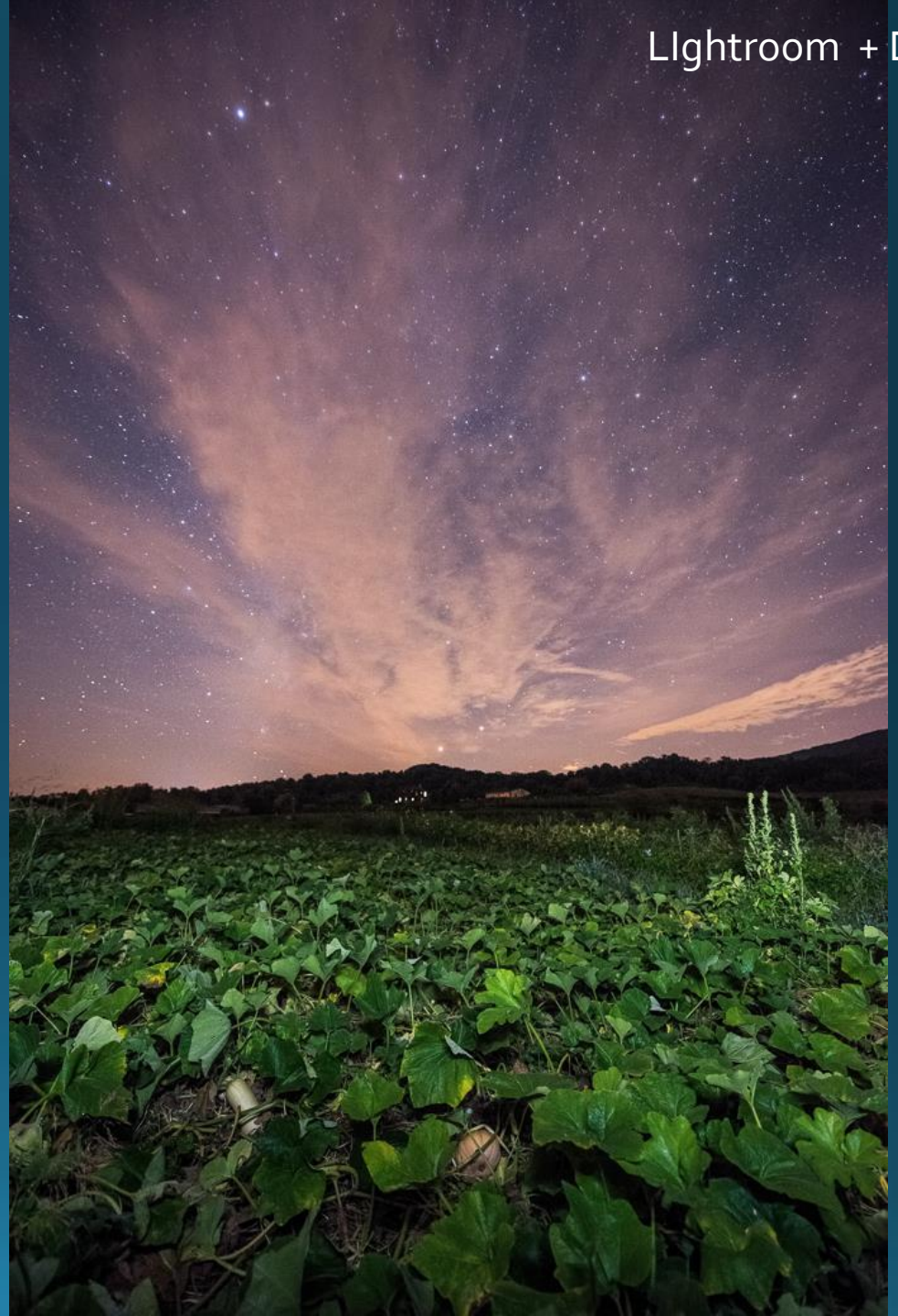
LIghtroom only



- Original NEF



LIghtroom + Define



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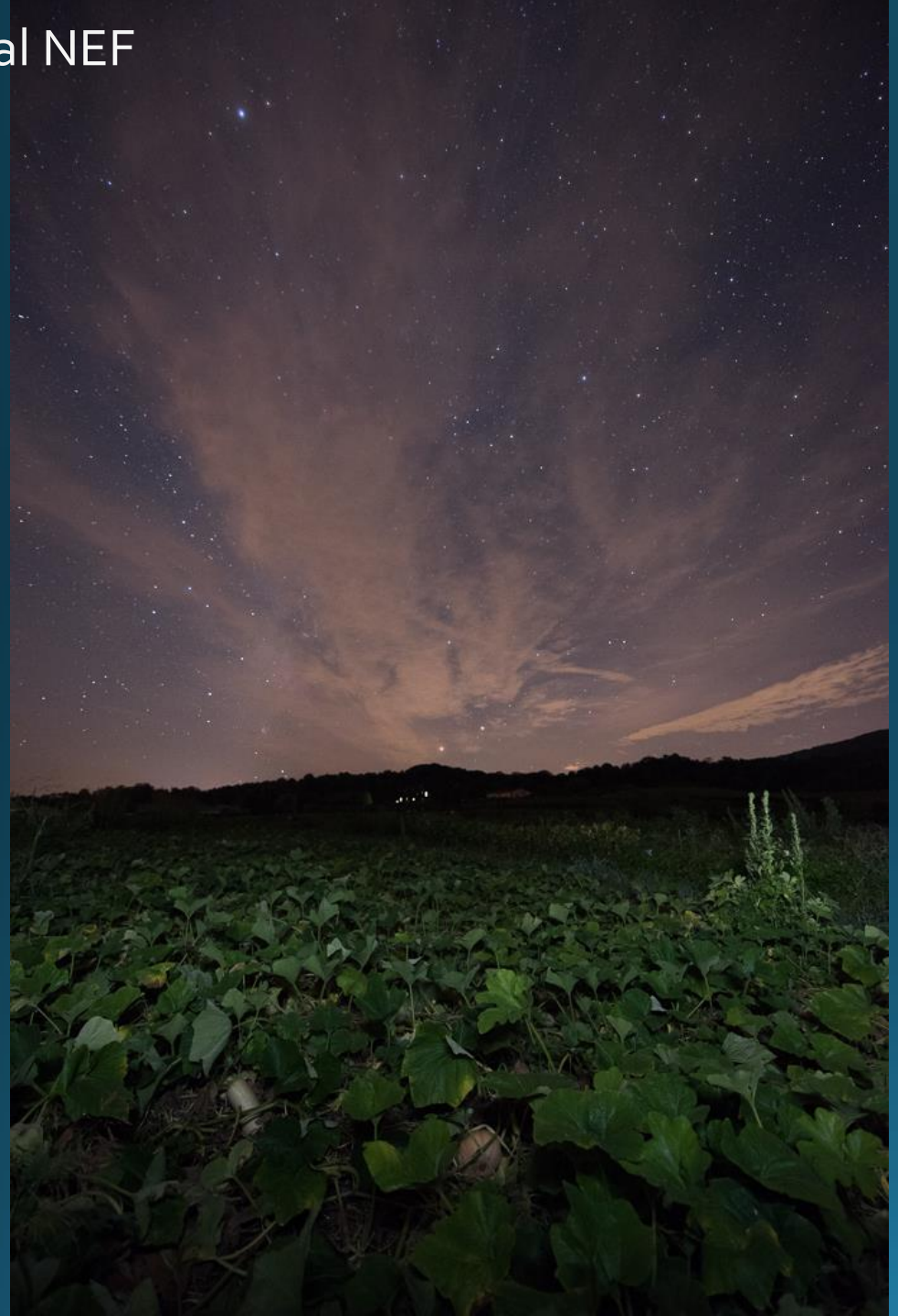
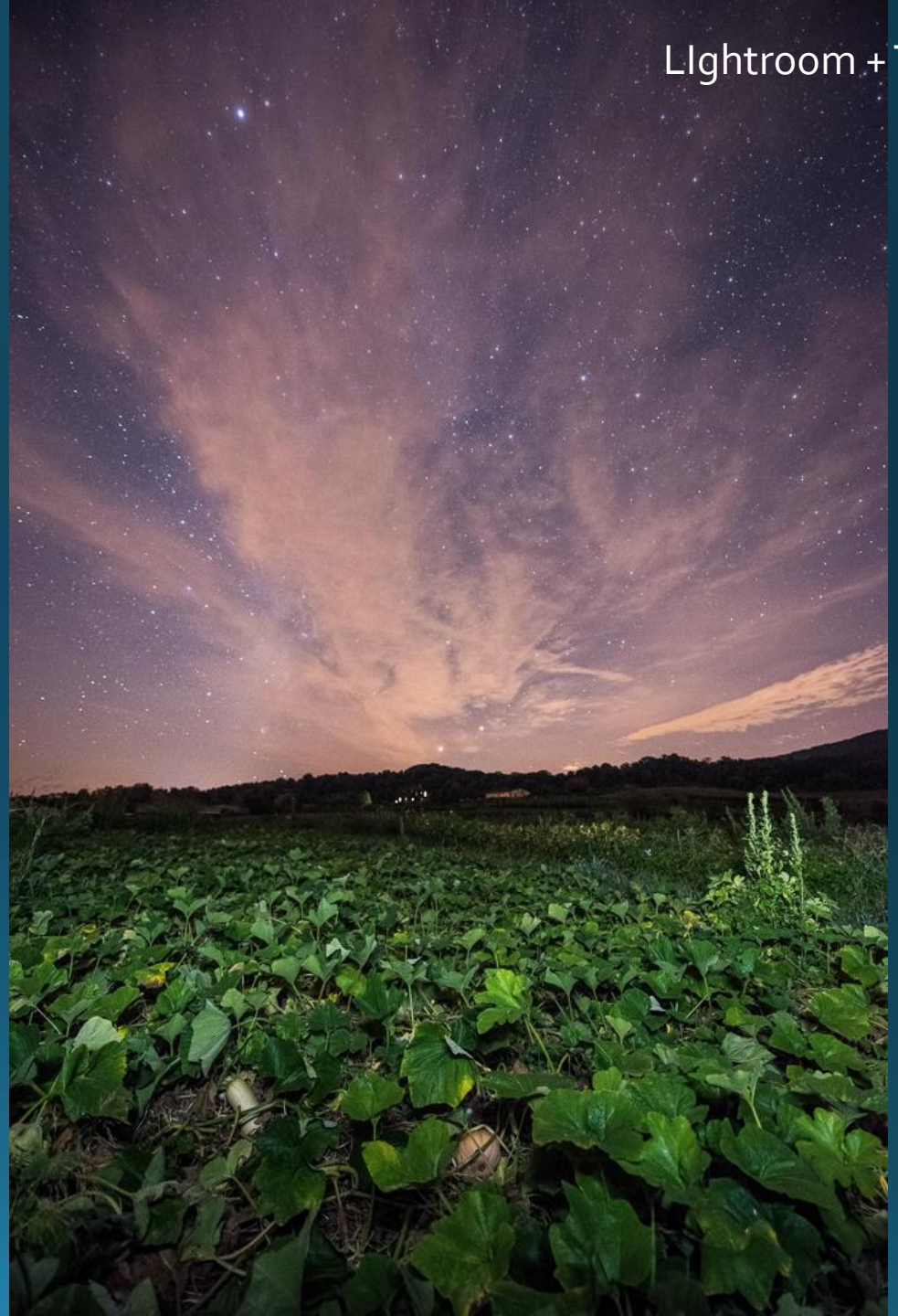
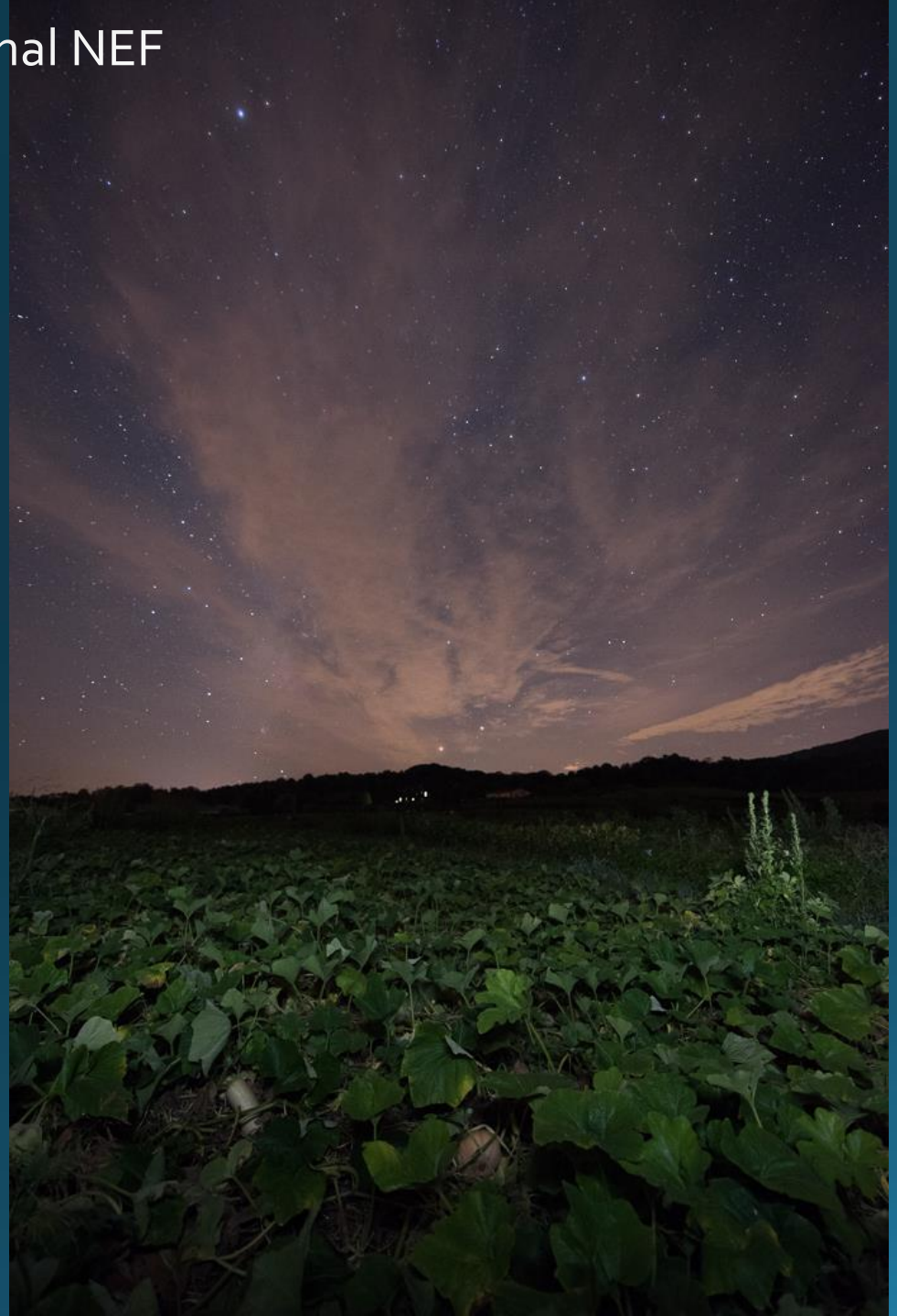


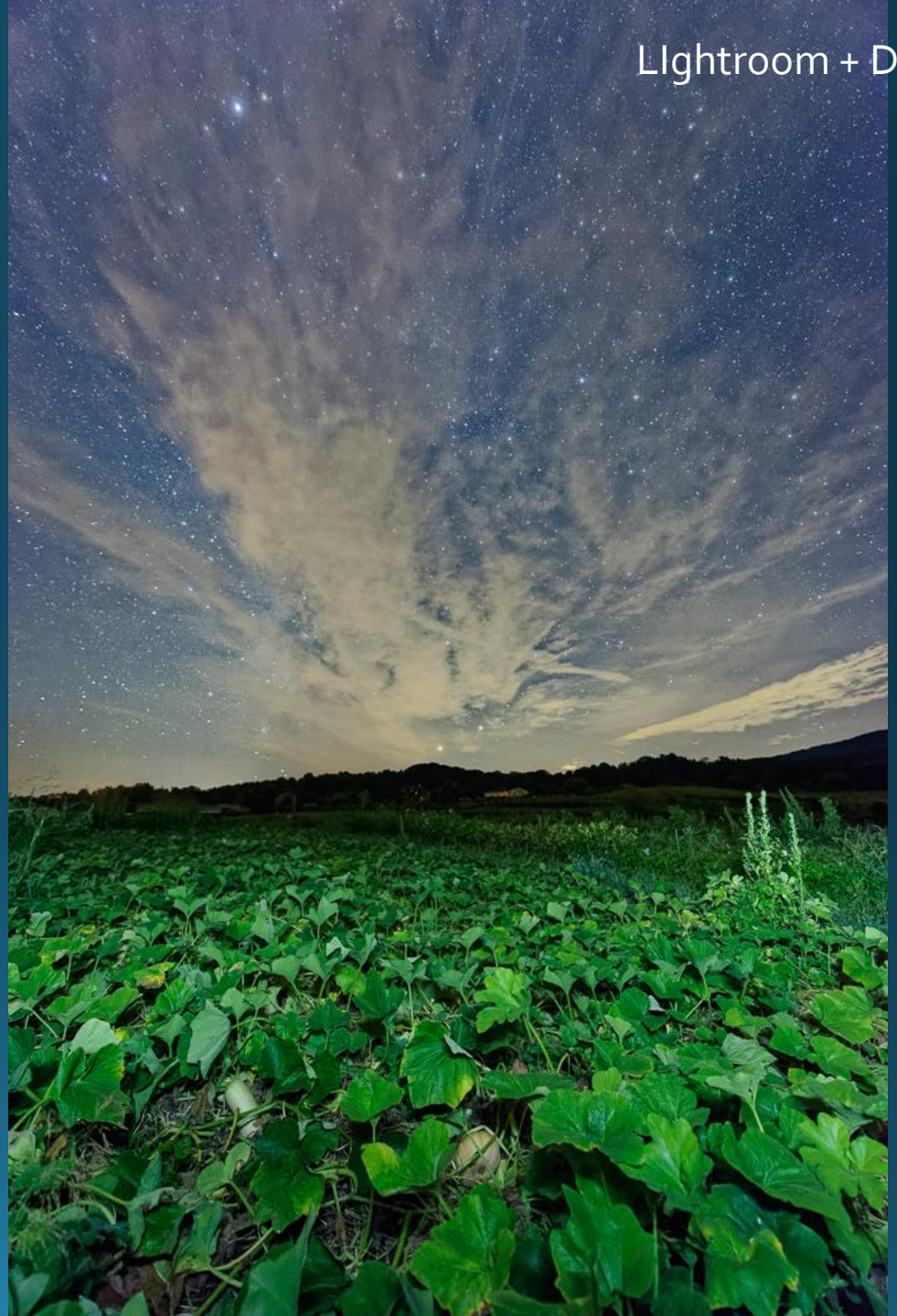
LIghtroom + Topaz



- Original NEF

LIghtroom + DXO





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