



# Digital Photography as a Hobby

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# Are you afraid of your digital camera?

- Many of us have cameras in the closet or drawer ...
- Did your son or daughter tell you to get a “good” camera?
- Are you intimidated by the camera?
- Have you used it? Transferred pictures to computer?
- Ever edited a photo?
- Shared a photo – by cell phone or e-mail?
- Sent a digital picture to be printed?
- Have you “lost” your pictures?

We'll try to help you with answers to all of these questions!

# Types of Cameras – Cell Phone



Screen  
Only!

All smart phones have decent cameras with some zoom capability; included in cost of phone.

# Types of Cameras – Point and Shoot 1



Nikon, Canon, Sony, Fuji, Olympus .....

Pocket cameras with little or lots of zoom capability. Cost range from \$100 to \$250. Built in flash, mostly automatic, little operator control.

# Types of Cameras – Point and Shoot 2



Nikon, Canon, Sony, Fuji, Olympus .....

Point and shoot with more capabilities: zoom, mode selection. Bigger, more to hold. Price range from \$250-\$500.

# Types of Cameras – Digital Single Lens Reflex DLSR



Interchangeable lens camera – most versatility, choice of lenses, external flash. Maximum operator control, but still offers full automatic mode. Cost range (body only) \$800 and up and up! More on DLSR features later.

# So what do YOU need?

- What do you want to do???
- Selection Criteria:
  - Use – size, weight and features
    - Screen Only or Viewfinder?
  - Use – storage media capacity (“film”)
  - Picture quality – how many megapixels is enough?
  - Optical zoom? Again driven by use.
  - Picture display? Print or media?
  - Cost
  - Support availability

Digital Zoom  
is useless.

12 MP  
minimum,  
Prefer 20 MP

# Other “Stuff” – The sky’s the limit!

- Camera bags, photographer’s vests
- Tripods and monopods
- External flash units
- “Soft Box” for flash – portrait work
- Lenses and more lenses!
- Extra batteries
- Extra memory cards



**Just get what you WILL USE!!!**



# Memory Media

- Most digital cameras today use one of the classes of SD cards.
- SD is “secure digital”
  - SDHC SD High Capacity
  - SDXC SD Extreme Capacity
- Micro SD – miniaturized SD format card – needs an adapter
- Buy high speed cards!



32 GB card holds over 3000 20 megapixel files!!!

About \$30; film equivalent:  
over 80 rolls, 36 exp @ \$2  
plus \$6 to process, prints  
at \$0.20 **Total \$1240!!!!**



# Starting Out

- DO NOT LEAVE DISPOSABLE BATTERIES IN YOUR CAMERA!!!
- Turn it on! - Fresh batteries, recharge batteries Set on AUTO
- Frame your shot – use your screen or viewfinder.
- Expose picture
- Review picture - “chimp” it!!!
- If you don't like it, delete it. Discarding 0's and 1's is free!

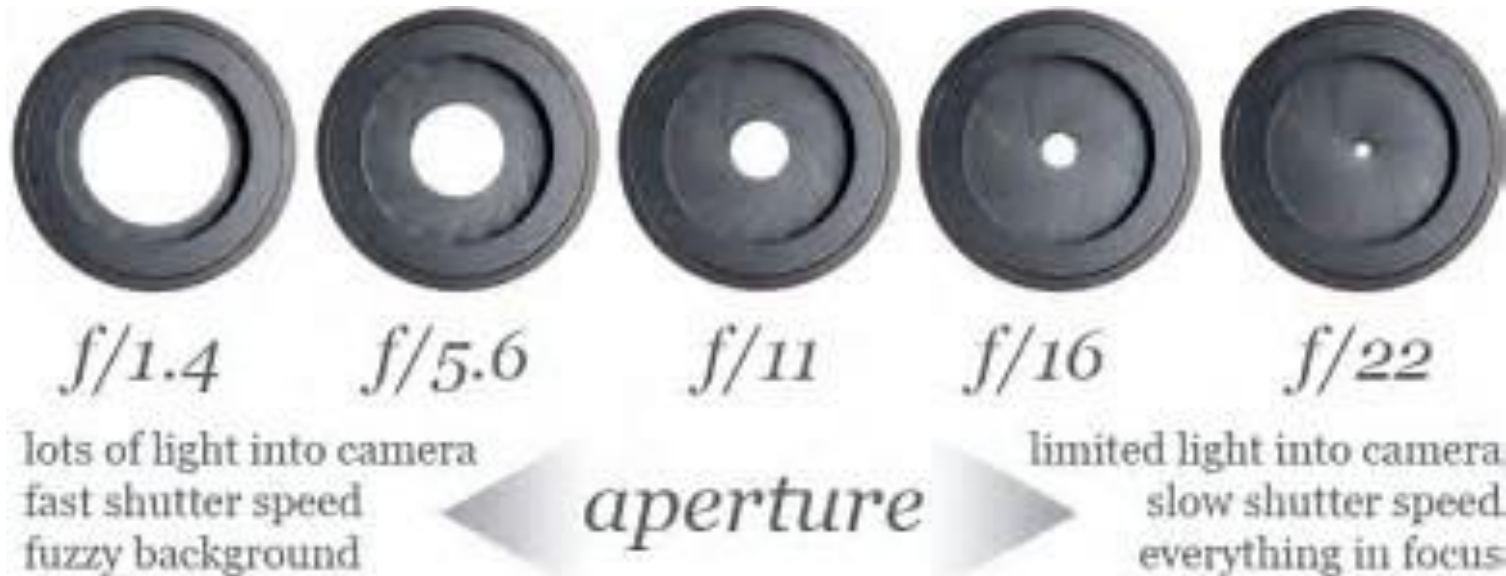
Digital Photography offers immediate feedback on how you're doing!

# The Language of Photography

- There are several settings that control what actually gets through the lens and onto the sensor (film).
- These are aperture, shutter speed, zoom, focal length, ISO, and depth of field.
- We'll go over each, define them and show how they interact with each other and what they do to your photo.
- $f/2.8$ ,  $1/250$  sec, 135 mm, ISO 400 describe the settings for your photo
- Depth of Field is a dependent variable

# Aperture

- The aperture is the hole in back of the lens through which light passes onto the sensor. Historically described by a measure called the “f - number”
- The higher the f-number, the smaller the hole, and the less light gets through the lens. f/22 is a very small hole while f/1.4 is a large hole.
- Just think of the f-number as how open or closed your blinds are!



# Shutter Speed

- This is pretty simple: How long does the hole behind your lens stay open when you push the button?
- Shutter speed varies between seconds and tiny fractions of seconds. Typical daylight exposures call for  $1/60^{\text{th}}$  of a second down to about  $1/200^{\text{th}}$ .
- To stop action - sporting events or birds on the wing, need to go much faster to “freeze” the action –  $1/500^{\text{th}}$  down to  $1/2000^{\text{th}}$  of a second!



- Freeze Action
- Sharp, crisp image
- Less light, may underexpose

- Blur Movement
- Soft image
- More light, may overexpose

# Shutter Speed and Aperture Relationship

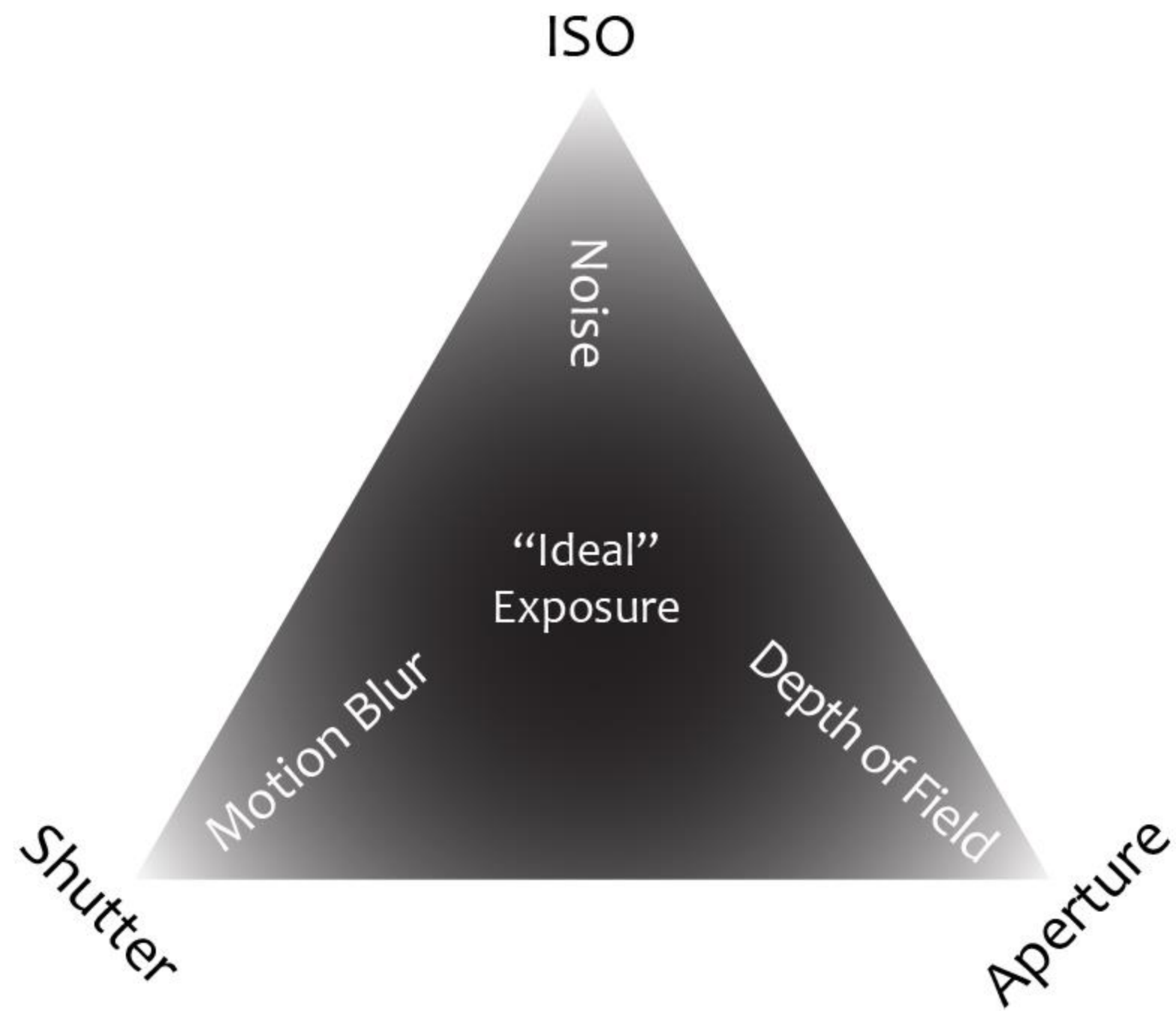
- To keep the same amount of light on the sensor, if you increase the aperture (lower f-number) – which lets more light in – you have to decrease the shutter open time – have it open for shorter times.
- So as you decrease f-number, you need to decrease shutter speed.
- Third leg of the exposure triangle is ISO, or “film” sensitivity.

# ISO – International Standards Organization

## “Film Speed”

- ISO is a measure of the sensitivity of your sensor (or film) to light. The higher the ISO is the less light is needed to take a picture.
- In film days, speeds of 25-200 were used for nearly all situations, 400 was FAST!
- Today’s digital camera sensors offer dynamic changes to ISO on a shot to shot basis – all the way up to numbers like 12,500!
- Selecting your ISO does two things: allows you to shoot in less light and also allows you to control “noise”
- Higher ISOs give pixilation (“noise”), so this must balance low light needs.

Film lingo  
was ASA





# Burst Mode

- One key characteristic of modern digital cameras is the ability to use burst mode or continuous exposure mode.
- Depending on camera, you can take from 5-12 frames per second in continuous mode
- This allows you to capture the “right” moment in an action scenario
- Extra frames are easily discarded ... don’t have to “develop” multiple frames to get your keeper!
- This is why you need to get fast memory cards, marked Class 10 or greater than 80 Mbit/second write speed.

In the “old days” 1 frame/sec was max with a motor drive on a film camera ... if the film didn’t break!

# Lenses – Zoom and Focal Length

- Zoom is the amount of magnification you can get with a variable focal length lens.
- Focal Length in millimeters divided by the sensor size gives you a measure of how much magnification a lens will give you.



35 mm, f/1.8



70-300 mm, f4.5-5.6



18-135 mm, f/3.5-5.6



70-400 mm, f/4-5.6

# Full Frame vs. Crop Sensor

- Lenses are described as “full frame” or “crop sensor” lenses.
- Digital cameras have sensors that are equal to or smaller than 35 mm film cameras.
- If sensor is same size as the 35 mm film frame, it is called a FULL FRAME camera.
- Sensors smaller than the 35 mm standard are CROP SENSOR cameras.
- Full Frame lenses can be used on crop sensor cameras and will have longer focal lengths by the crop factor.
- Crop sensor lenses used on full frame cameras will not fully illuminate the sensor.

# Zoom Lens Examples



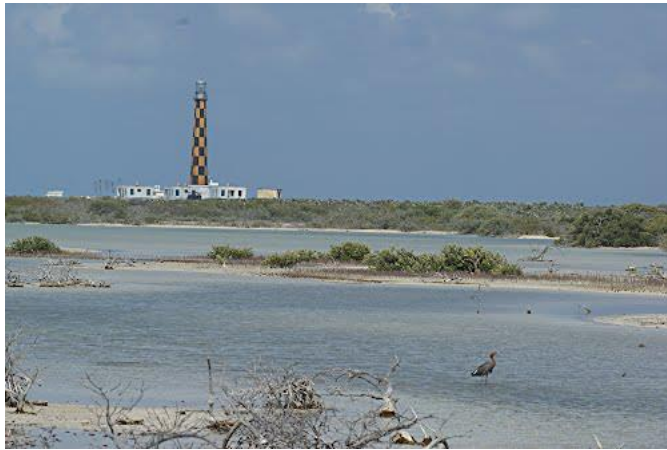
Red-tail on the fence  
f/5.6, 1/500 sec, 300 mm

This beauty was shot through my sliding doors  
from about 70 feet.



Gentoo penguins on the move – Antarctic Peninsula f/6.3, 1/400 sec, 210 mm

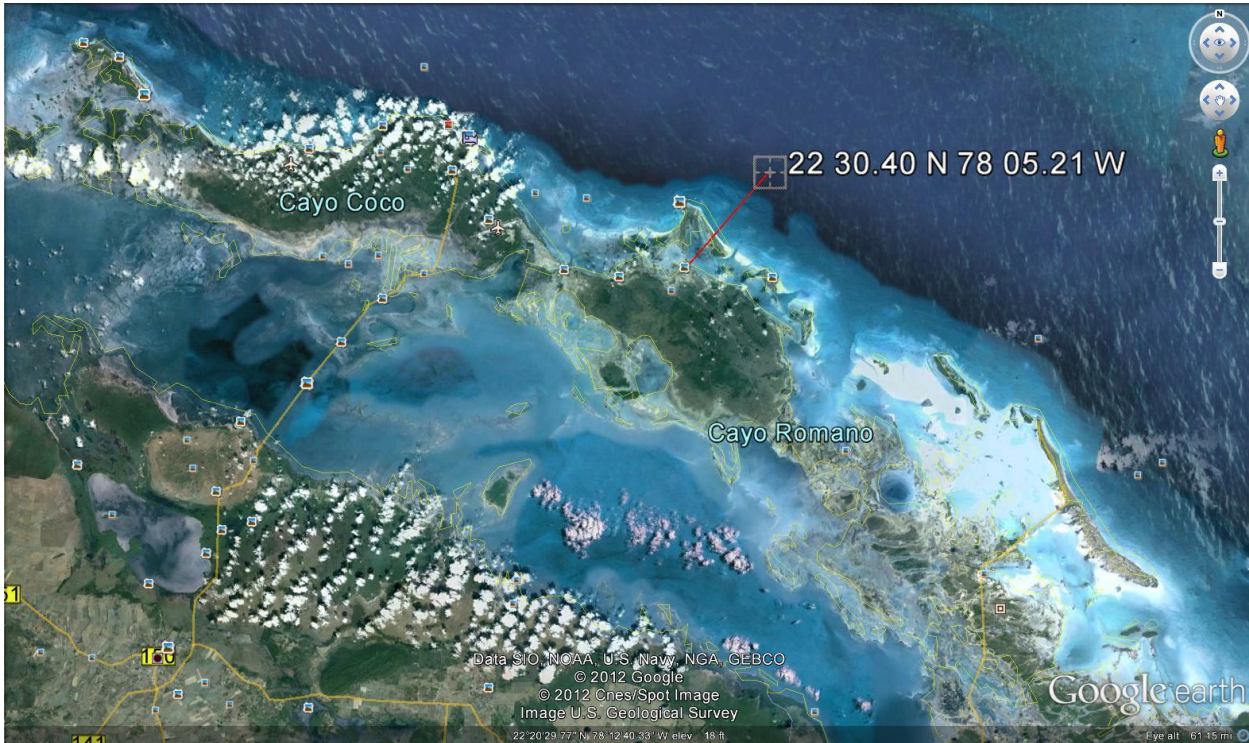
These little guys (about 3' long) were about 200 yards from the ship.



Google Photo: Cayo Paradon,  
Cuba Lighthouse



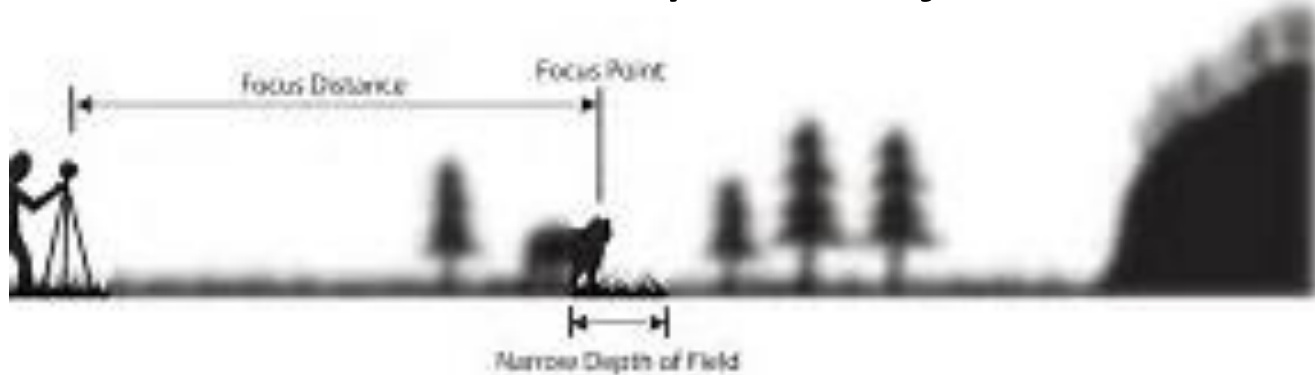
My Photo Olympus E-30, 300 mm Lens



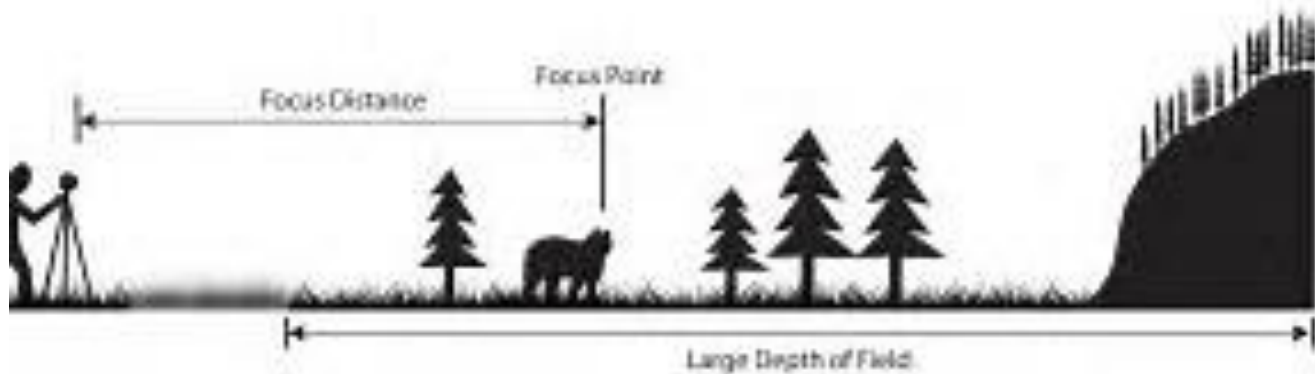
0920 10 Nov 2012  
(GMT-4)  
C 123, STBD Beam  
Bearing 220, D 7 mi

# Depth of Field

- This is a more advanced concept, but a very important one for many types of photography.
- Depth of field, sometimes called depth of focus, is how much of the area in front of and behind your subject is in focus.



Low f-number



High f-number,  
Focal range 1/3 in  
front, and 2/3 in back



# Depth of Field Examples



Baby mockingbird in a  
Nellie Stevens holly  
f/5.6, 1/800 sec, 200 mm  
lens

Just the bird is in focus



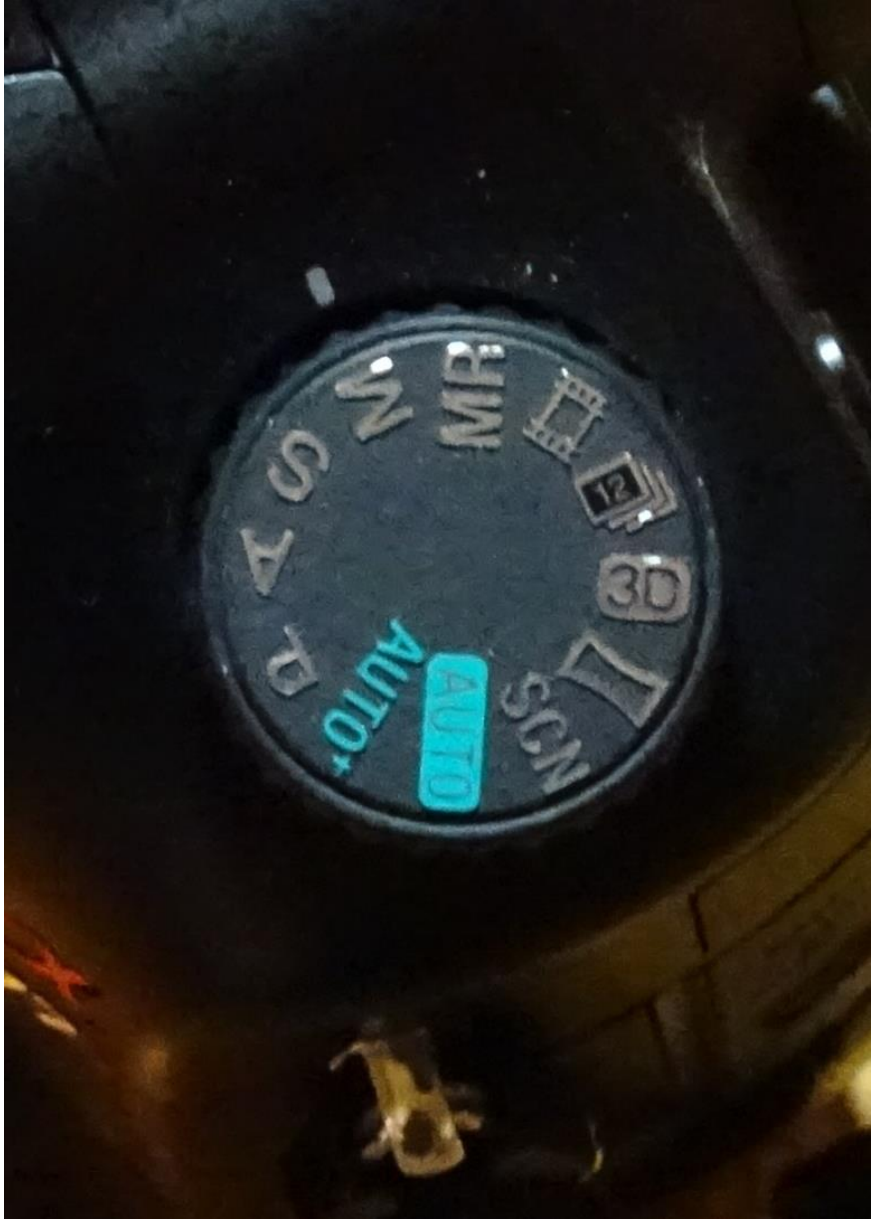
Aurora, Indiana at Christmas time  
f/5.9, 1/200<sup>th</sup> second, 35 mm lens

Everything is in focus

# Shooting Modes

- Automatic – camera selects all exposure parameters – you frame and shoot. **AUTO**
- Aperture Preferred – You set aperture, camera selects other exposure parameters - **A**
- Shutter Preferred – You select shutter speed and camera does the rest –**S**
- Manual – You select all exposure settings! **M**
- Program – Varies with camera **P**





# Automatic Mode

- General purpose mode – when you don't have time to think about settings.
- Group outings ...



# Aperture Preferred - A

- Use this mode when you want to control depth of focus to make subject “jump out”
- If leaves were in focus, would be distracting.
- Again, focus on the eyes!







Barred Owl  
f/5.6, 1/1000 sec, 120 mm

About 15 feet away: eyes  
sharp, bark starting to blur  
both in front and behind  
bird.

Focus on the eyes!



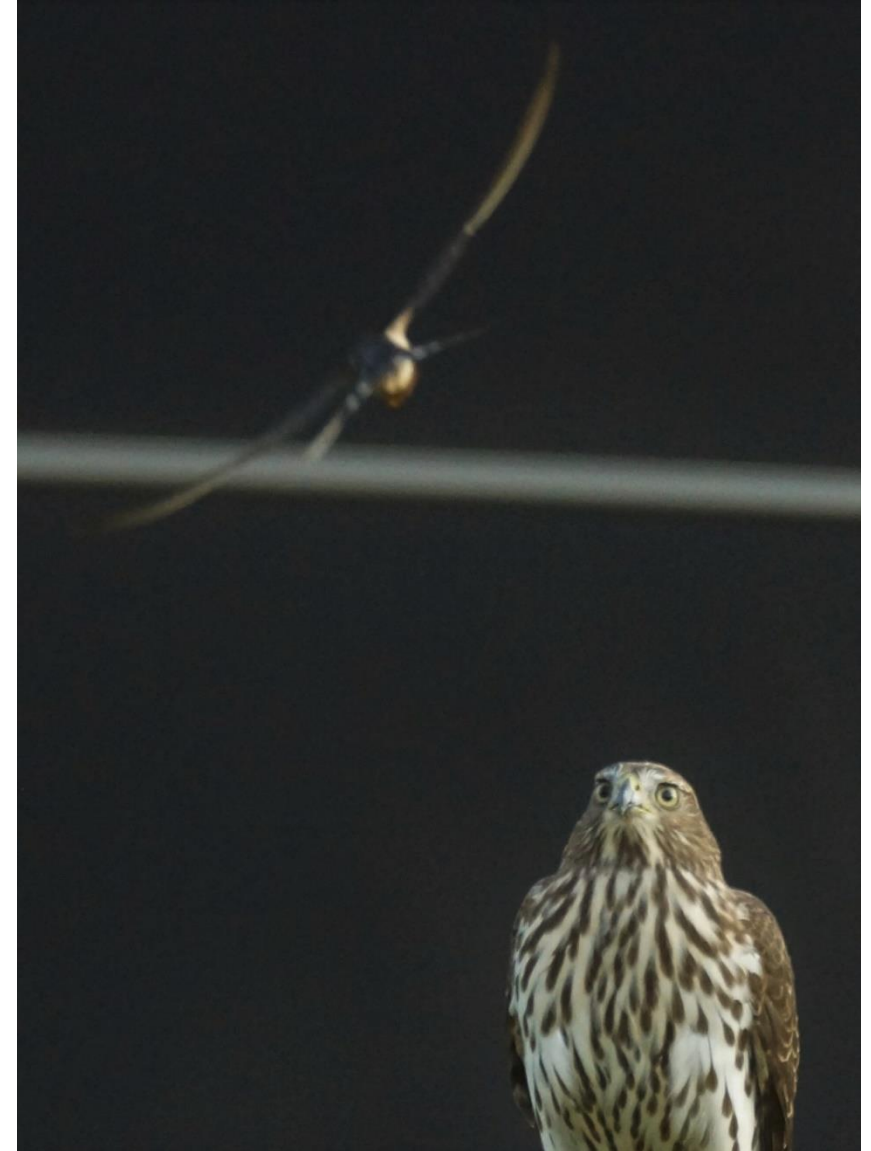
Great Horned Owl  
f/5.6, 1/1250 sec, 200 mm

About 18 feet away: eyes  
sharp, blur both in front  
and behind bird.

The eyes have it!

# Shutter Preferred - S

- Generally used to stop action – moving event, wildlife, sporting events.
- Other uses, slower shutters, can be poetic – background clear, moving object for drama.
- Sometimes it's just luck!!!
- f/5.6, 1/500 sec, 300 mm, ISO 1600





Red-tail on the wing  
f/9, 1/640 sec, 300 mm

Bird was about 300 feet up and fast  
shutter stopped action.

Used fairly high f-number – don't know  
range to bird so need deep field of focus



Great Blue at Hagerman  
f/9, 1/1600 sec, 300 mm

Bird was probably 150  
yards away.

Lucky, far shore was  
beyond focal range, so  
blurs nicely



Humming for Lunch  
f/6.3, 1/1000 sec, 140  
mm

Taken through a  
window about 5 feet  
away

# Manual - M

- Select this mode when you need to take full control of your exposures.
- More challenging since you have to think of it all
- Chimping helps!!!
- Sometimes the only way you'll get keepers.

Also shot on  
AUTO -  
Throwaway!



Iceberg off Antarctic Peninsula – f/10, 1/500<sup>th</sup>, 230 mm lens, ISO 100.  
Berg was about ½ mile away, and about the size of the MS Zaandam!



# Where are my pictures???

- Now that you've shot some pictures, what's next?
- Review on camera – not a good way to share.
- Download to your computer – wired or wireless.
  - If your camera came with a special cable, use it.
  - If your camera supports wireless and you have wifi, read the manual to learn how to do this.
- If you need to take memory card out of camera, get a USB card reader
  - Turn camera OFF when removing or replacing card.

# Set up File System on your Computer

- Start right and set up a system so you're not searching for your pictures all the time!
- I use a major folder called "Photos" and each download is named for the date the pictures were taken: 2017-08-09 for example.
- After I've reviewed the date folder (and culled it down) I add a one word descriptor: 2017-08-09 Hawk
- I also back up all my photo files on at least 2 external hard drives!

# Photo Editing Software

- Photo Shop (also a verb now!) ; Very powerful, overkill for hobbyist.  
Cloud based - subscription \$20-50/month
- Lightroom – Cloud based – subscription, \$10 and up per month
- ON1 RAW – Very powerful, stand alone, \$100 typically.
- Adobe Elements 15 – “PhotoShop light” \$80, stand alone product
- Etc etc etc
- Windows built in photo viewer allows simple editing, and it’s FREE

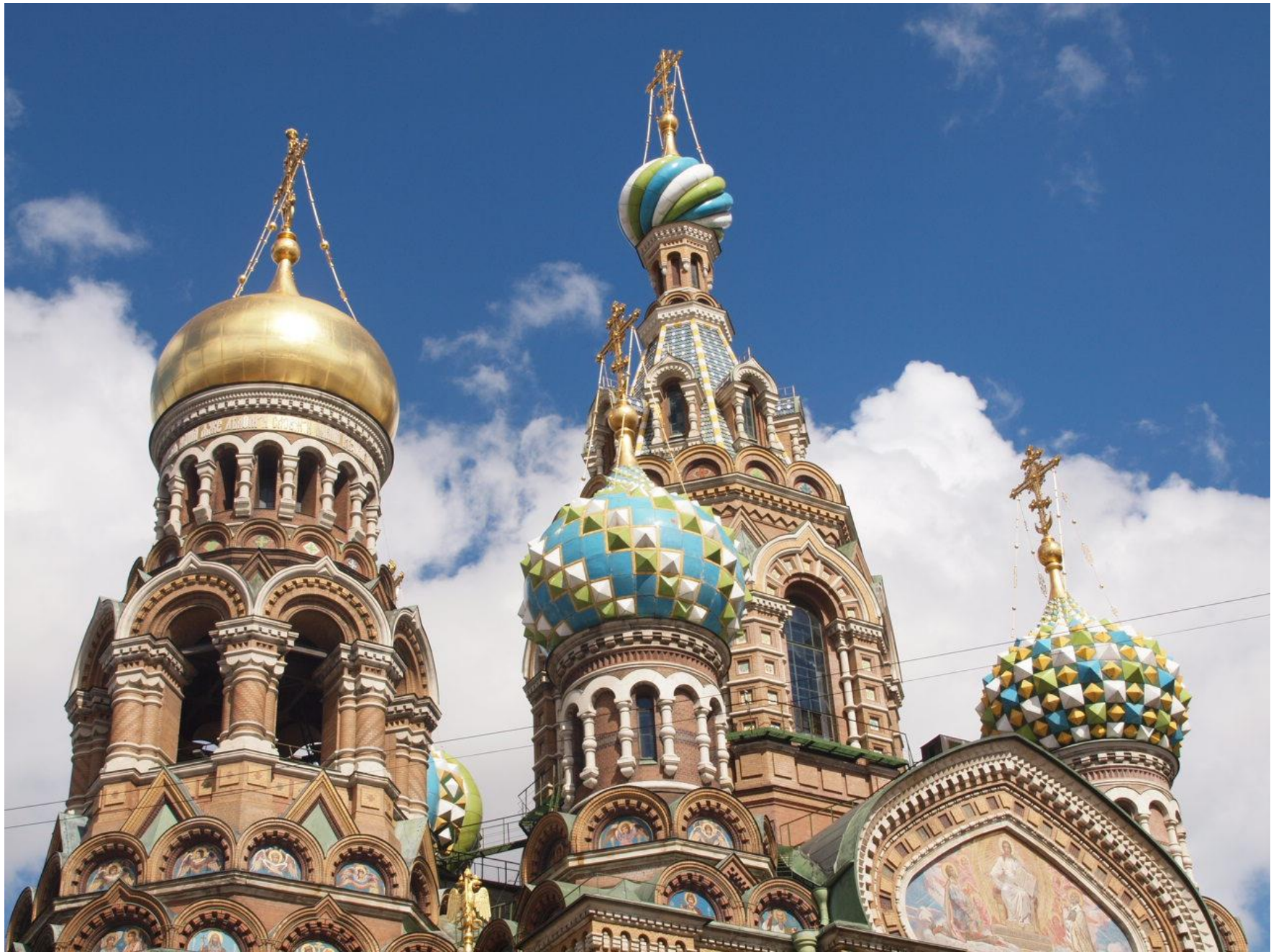
# Windows 10 Photo Viewer Editing

- Demonstration of editing using free Windows 10 software
- We'll take a sample picture and run through how easy it is to fix, or at least improve, your photos.
  - Crop out unwanted elements
  - Resize
  - Enlarge
  - Remove red-eye
  - Add vignette
- Always save a **copy** after editing !!!!!

Demonstration

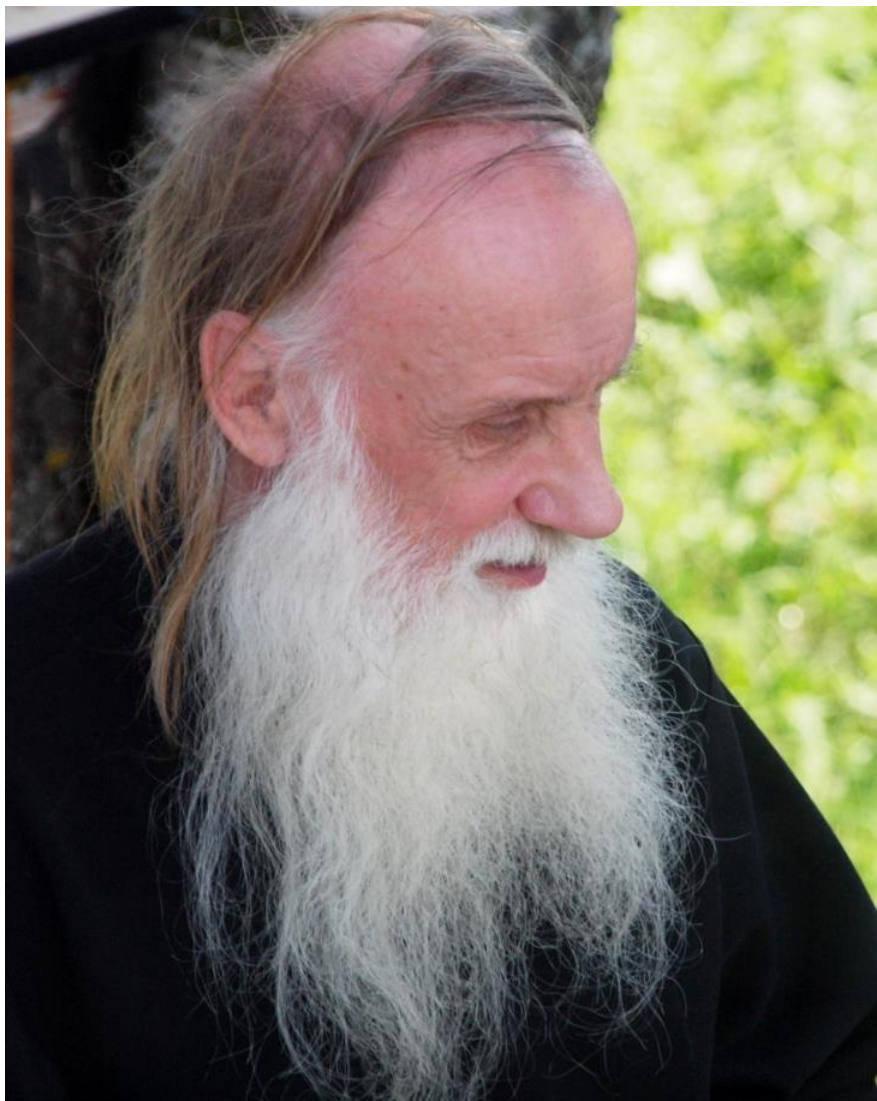
# Sample Photo Presentations Time Permitting

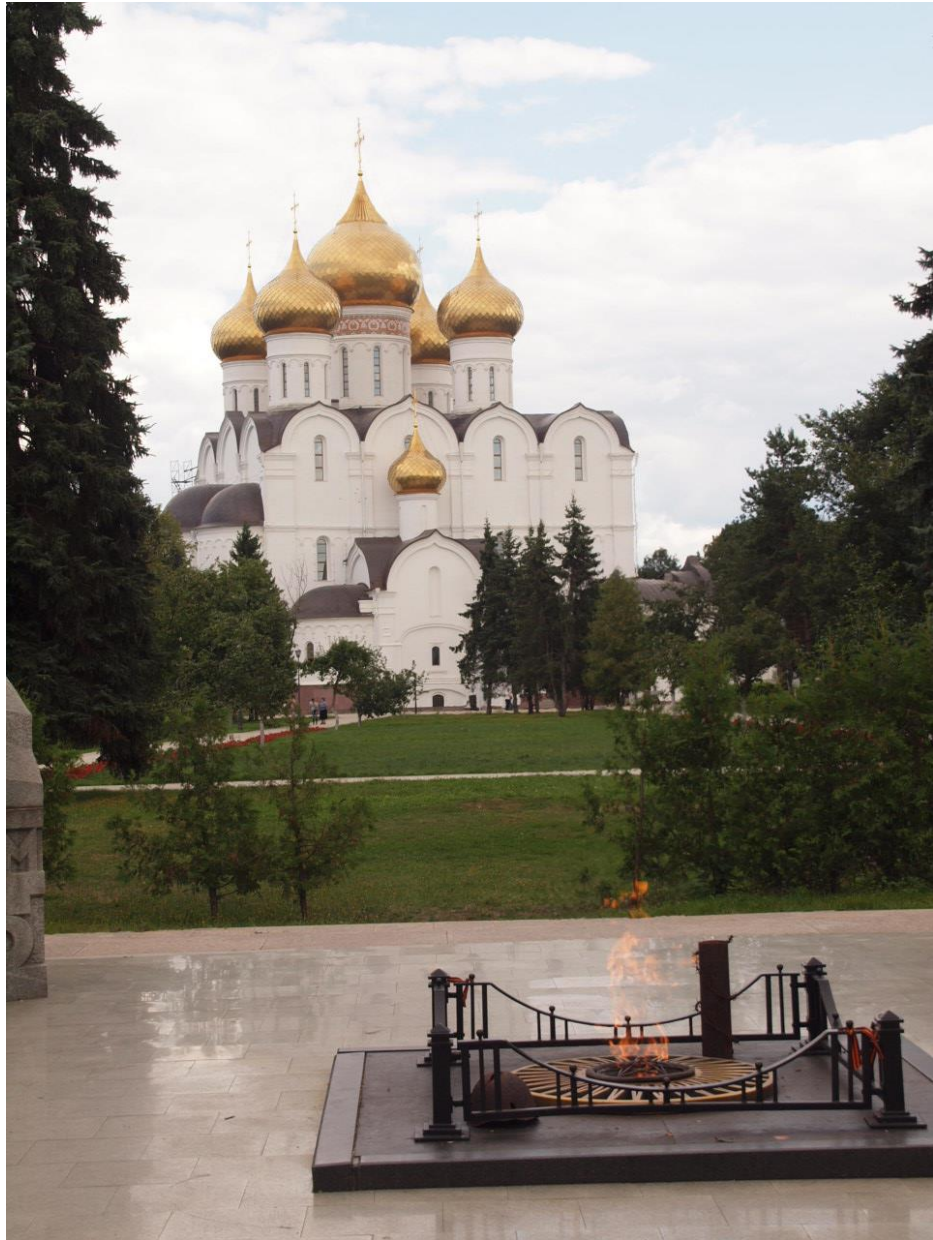
- Sampling of Travel and Local Photos
- Winged Critters at Robson Ranch
- Blackland Prairie Raptor Rehab Center









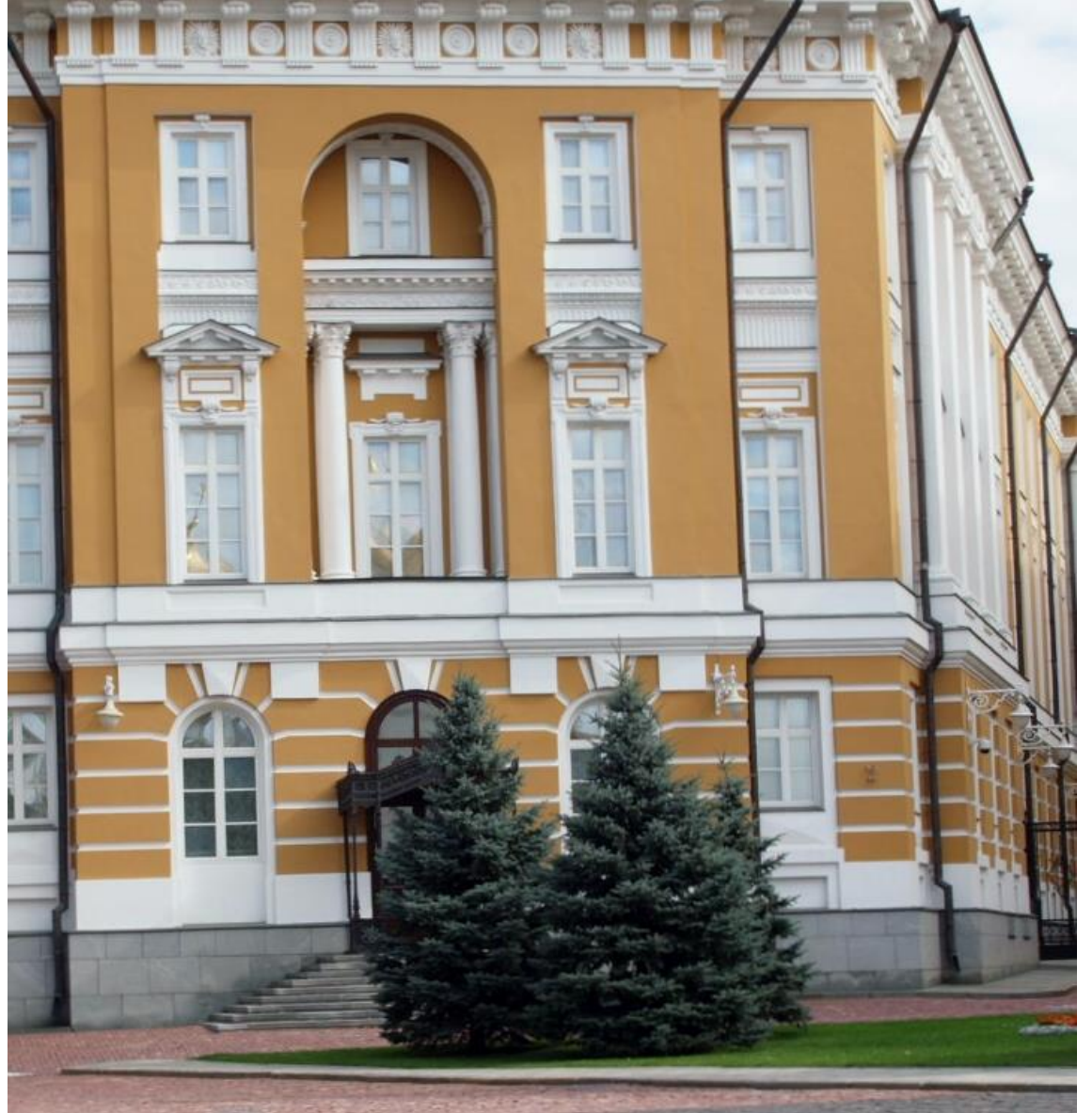




















f/11. 1/1600 sec,  
300 mm

Moon Eclipse  
29 Sept 2015  
f/6.3, 1 sec,  
500 mm



# Support Resources

- Fort Worth Camera Stores: 318 S Park Grapevine TX 76051  
817-421-3187 and 1600 Montgomery Fort Worth, TX 76107  
(817) 335-3456
- Robson Ranch Photo Club – [www.rrphotoclub.org](http://www.rrphotoclub.org) or call  
Dick Remski 940-262-0194
- Adorama Learning Center – [www.Adorama.com/alc](http://www.Adorama.com/alc)
- Prints or photobooks – Mpix.com and Fullcolor.com