

# Backyard Bird Photography

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## Introduction

Bird photography is very difficult because birds move around quickly and are easily startled. Originally, the bird feeder mount was placed at a distance of 20 feet from a residence. When anyone came near the window or back door of the residence, the birds flew away. Consequently, the feeder had to be moved to a distance of 40 feet.

APS-C (crop sensor) cameras are lightweight. However, significant cropping and enlarging will significantly degrade the image. APS-C camera will require longer focal length lenses to avoid cropping and enlarging. Sample photographs are shown at various focal lengths for APS-C and Full Frame cameras. The longer the focal length, the larger the image. However, usually the longer the focal length, the heavier the lens, and the more expensive the lens is. Also, the longer the focal length, the more susceptible will be the photograph to camera shake and will usually require a monopod or tripod. An image stabilized lens will help to compensate for handheld camera shake. A moderately priced image stabilized lens that is often used for birds and wildlife is the Sigma or Tamron 150-600 mm f5-6.3 lens. It costs about \$1,000 and weighs 4.3 pounds.

Teleconverters (1.4x and 2x) are sometimes used to increase the focal length of a lens. However, they increase the focal length while sacrificing aperture and image quality.

A shutter speed as fast as possible will be required to freeze the action. A minimum shutter speed of 1/500 second is recommended. A faster shutter speed is always better. Slower shutter speeds will require the use of a monopod or tripod. However, bird movement may blur the photograph at slower shutter speeds. A telephoto lens with a focal length greater than 300 mm will require a faster shutter speed. A shutter speed of 1/800 second should be adequate for most circumstances. A higher ISO will be required to obtain a faster shutter speed. Modern cameras can use high ISOs without any noticeable image degradation.

The larger the aperture, the better the bokeh. Bokeh is a term used when the image is sharp and the background is blurred. Bokeh is produced by the lens itself and the shorter depth of field. Photographing an image that is sharp with a blurred background gives the impression of depth to the photograph. An aperture of f/5.6 has a larger opening than an aperture of f/8. At 40 feet, a 600 mm lens at f/8 will provide a depth of field of -3.68" and + 3.74" on a FF camera. Apps for smartphones can be used to calculate depth of field.

As can be seen, the 300 mm lens is not quite adequate to photograph sparrows at a distance of 40 feet. A longer focal length lens of 600 mm had to be used. Getting closer to the subject would only cause them to fly away. Then, there is the position of the Sun...

For more technical information about cameras and photography read the book "Introduction to Astronomy and Photography" by Dr. John A. Allocca.

## Bird Feeder Mount

The bird feeder mount shown below was constructed using a heavy duty umbrella base and a 1-1/4 inch diameter powder coated steel closet rod, which was cut down to 80 inches for this project. Four closet rod brackets were mounted using 10-32 / 2 inch stainless steel bolts and nuts though a 1/4 inch hole. A 1-1/4 inch plastic cap was inserted on the top of the pole. Mount either 2 or 4 bird feeders to maintain balance. A squirrel cone is mounted on the pole.



### Ace Hardware:

Mounting Base for  
1-1/4 inch pole:  
many available

John Sterling 96  
inch Length x 1-1/4  
inch Diameter  
Powder Coated  
Steel Closet Rod,  
Item no. 5209689,  
\$14.99

Knape & Vogt John  
Sterling White  
White Steel 12 Ga.  
Shelf/Rod 1 in. H x  
12.4 in. W x 10 in.  
L, Item no. 54724,  
\$5.99

John Sterling Pro  
1-1/4 in. L x 1-1/4  
in. Dia. White  
Plastic Closet Rod  
Support  
Item no. 5209697,  
\$2.99

10-32 / 2 inch  
stainless steel bolts  
and nuts

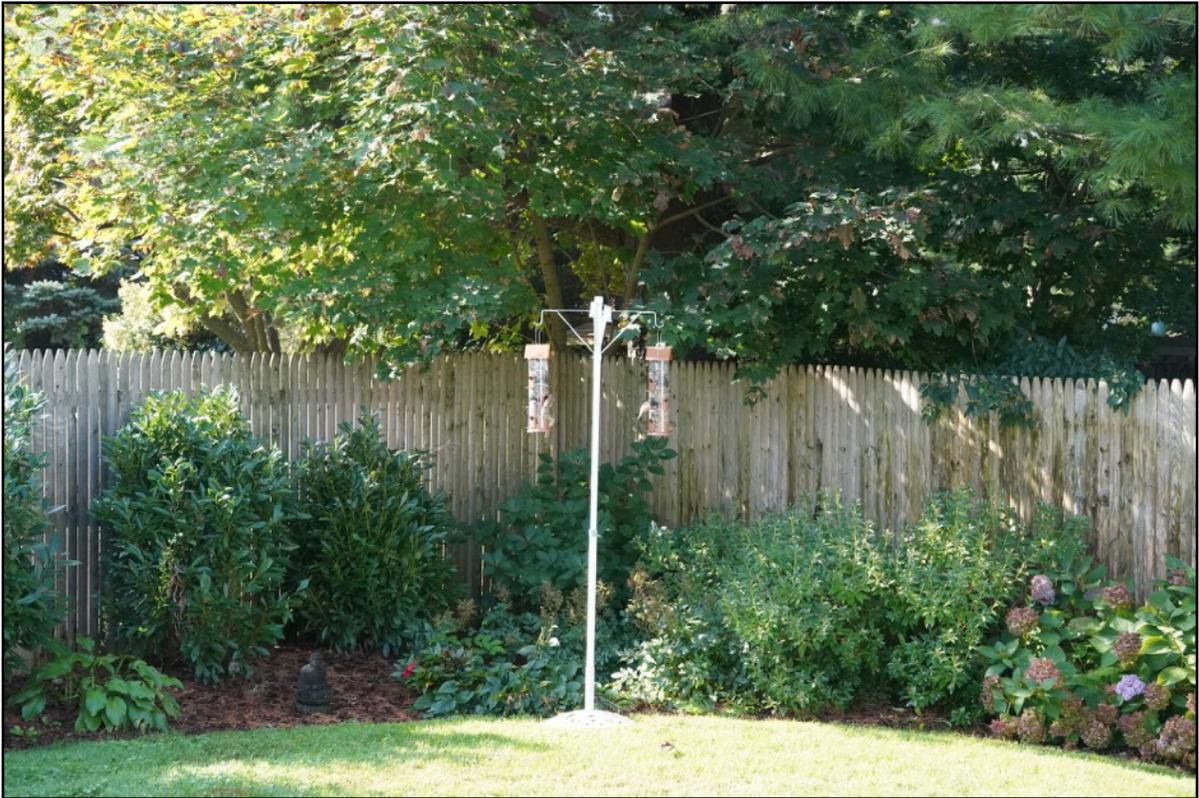
## Sample Photographs



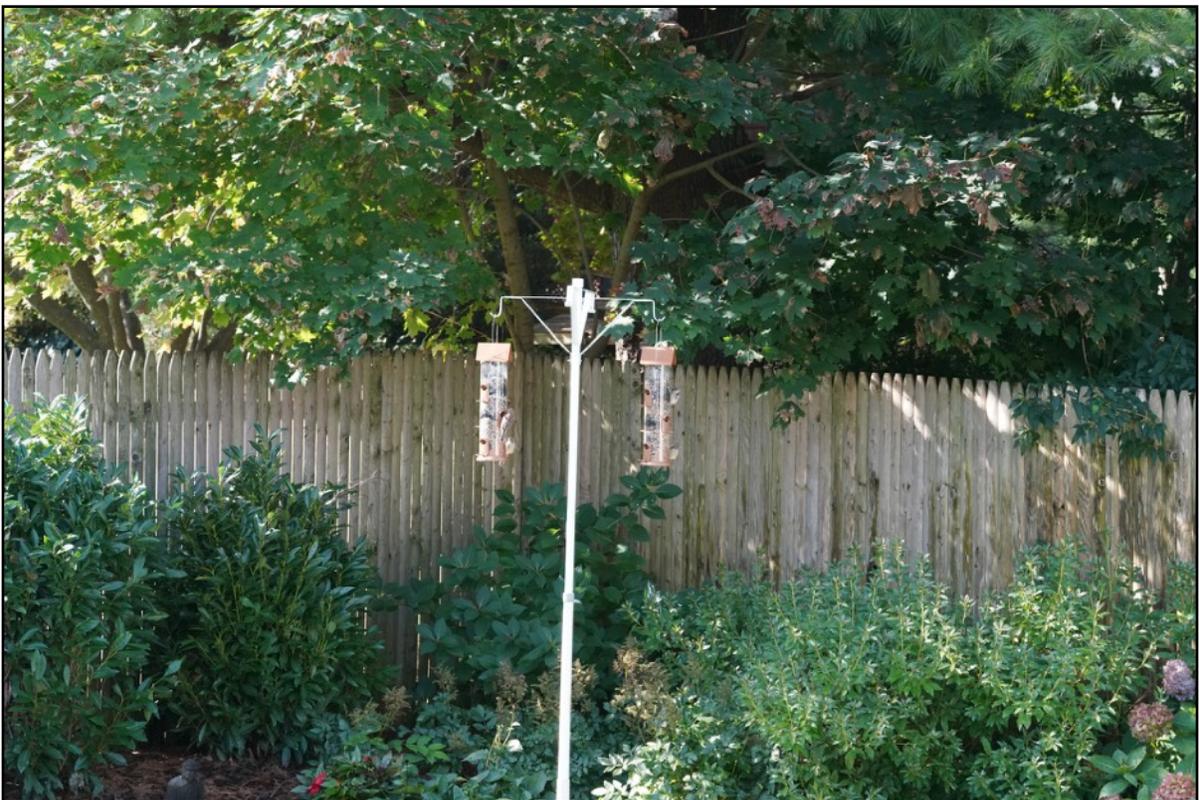
Sony A6300 APS-C, 55-210 mm at 55 mm, f/8, 1/640 sec, ISO 3200, 40 feet, Handheld



Sony A6300 APS-C, 55-210 mm at 210 mm, f/8, 1/800 sec, ISO 3200, 40 feet, Handheld



Sony A7RIII FF, 70-300 mm at 70 mm, f/8, 1/500 sec, ISO 3200, 40 feet, Handheld



Sony A7RIII FF, 70-300 mm at 100 mm, f/8, 1/500 sec, ISO 3200, 40 feet, Handheld



Sony A7RIII FF, 70-300 mm at 200 mm, f/8, 1/800 sec, ISO 3200, 40 feet, Handheld



Sony A7RIII FF, 70-300 mm at 300 mm, f/8, 1/1000 sec, ISO 3200, 40 feet, Handheld



Sony A7RIII FF, 150-600 mm at 400 mm, f/8, 1/640 sec, ISO 3200, 40 feet, Monopod



Sony A7RIII FF, 150-600 mm at 500 mm, f/8, 1/640 sec, ISO 3200, 40 feet, Monopod



Sony A7RIII FF, 150-600 mm at 600 mm, f/8, 1/500 sec, ISO 3200, 40 feet, Monopod



The image above was cropped 1/7th from the 210 mm photo taken with the A6300



The image above was cropped 1/6th from the 300 mm photo taken with the A7RIII



The image above was cropped 1/4th from the 600 mm photo taken with the A7RIII

Notice the higher resolution in the photograph above because the crop was not as significant (1/4th) using the 600 mm lens than the shorter 210 mm (1/6th) and 300 mm (1/7th) focal length lenses.

## Monopod

The following monopod was used for this project:

Manfrotto Xpro Monopod Plus Carbon Fiber 4 Section

Min Height 20.47 in

Maximum Height 64.76 in

Legs Tube Diameter 1.15- 0.98- 0.8- 0.63 in

Safety Payload Weight 15.43 lbs.

Leg Sections 4

Top Attachment 1/4" screw, 3/8" screw"

Weight 1.3 pounds, \$220

XPRO Ball Head in magnesium with 200PL plate

MHXPRO-BHQ2

Load capacity 22 lbs.

200PL-14

Weight 1.1 pounds, \$130

## Bird Feeders and Supplies

### Wagner's 62059 Greatest Variety Blend, 16-Pound Bag

A Blend that attracts the greatest variety of Songbirds.

Loaded with Sunflower seeds, Songbirds' favorite

11 ingredients - A superb blend

For tube, hopper, or platform feeders

Resealable Velcro® closure

Attracts perching and ground Songbirds

Satisfaction guaranteed

Available sizes: 6 & 16 lb. bags

The blend is packed with Black Oil Sunflowers, Striped Sunflowers and Sunflower Chips which are the top food choice for the greatest number of wild bird species.

By offering Sunflower seeds in different sizes, both hulled and unhulled, birds of various sizes can find their favorite food.

White Millet, Red Millet, Cracked Corn, and Red Milo will attract a variety of ground feeders such as Tree Sparrows, Song Sparrows, House Sparrows, Dark-eyed Juncos, and Mourning Doves to your backyard.

Nyjer, Peanut Kernels, Canary seed and Safflower will attract specific species of preferred birds ranging from Cardinals, Chickadees and Titmice to Jays, Finches and Woodpeckers.

\$19.99



### Wide Deluxe Easy Clean Tube Feeder (Model# WMRS-18)

Natures Way Birds

Easy Clean™ technology - simply lift and slide ports and base to remove and clean

Even Feed™ baffles allow for constant seed and birds at all levels

Unique hanger design connects to outside of tube, removing any obstacles for the easiest filling and less seed spilling

4" wide tube enables easier filling with less seed spilling

Durable powder-coated metal roof and ports

2-in-1 seed capability; Thistle inserts included!

Stay-clear, break resistant tube

4 feeding ports

Limited Lifetime Warranty

Dimensions: 17"H x 7"W x 7"D Weight: 1.5 lb Capacity: 3qts

Seed to use: Black oil sunflower, striped sunflower, hulled sunflower, safflower, cracked corn, nuts, mixed; thistle inserts for feeding nyjer

Attracts these birds: Cardinals, Grosbeaks, Titmice, Nuthatches, Chickadees, Juncos, Finches

\$19.95



**North States Village Collection Around Town-Birdfeeder-School House**

Charming school house-themed bird feeder is made of plastic for easy cleaning

Cord attached for easy hanging

Feeder top lifts to fill

Holds up to 5-Pound of seeds

13-1/2-Inch by 9-Inch

\$17.95



**North States Village Collection Around Town-Birdfeeder-Log Cabin**

Complete with windows and doors, the solid resin construction of this log cabin feeder will keep your feathered neighbors happy

Lift removable chimney to fill with up to 8-Pound of seed

Can be used as a hanging feeder or pole mounted

3 year guarantee

14-Inch by 10-Inch by 11-Inch

Seed Capacity: 5 lbs.

\$19.95



**Woodlink NASCOOP Audubon Seed Scoop**

Audubon seed scoop

Made of plastic

Narrow handle at the base for a comfortable grip

A wide mouth with a spout for easy pouring

Last for several seasons

\$10.80



**Woodlink NABAF18 Audubon Wrap Around Squirrel Baffle, 18-Inch**

Made of textured powder coated steel

Defeats squirrels every time

No need to remove bird feeder when mounting

Secure black coupler (included) around any 1/2-inch to 1-3/8-inch pole or shepherd hook

Snaps apart with inward pressure on each side of the seam. Additional pieces that will hold the cover are tapped to the bottom of unit.

\$18.95



## Crop Sensor vs Full Frame Sensor Cameras and Lenses

There is a great deal of confusion when it comes to comparing crop sensor camera lenses to full frame camera lenses. Often the specification of a crop sensor lens may be stated as 10 mm with a comparable 35 mm focal length of 15 mm. This may give the user the impression that they will have a 15 mm focal length. This is incorrect. The focal length doesn't change. Only the field of view changes. Therefore, it should be stated that the field of view is the same as a 15 mm focal length lens.

A full frame camera projects an image onto a sensor or film that is 36 mm x 24 mm in size. An APS-C camera projects an image that is 22.5 x 15 mm in size. An APS-C sensor costs less than a full frame sensor.

What is of primary concern is the field of view that is produced by these two sensors. As seen in the diagram below, the field of view that is seen by the full frame sensor is wider than the field of view seen by the APS-C or "crop" sensor. The focal length remains the same, which is often confused. The only aspect that changes is the field of view, not the focal length.

Lens and the images projected onto a sensor are round in shape, whereas the sensors are rectangular in shape. The diameter of the circle needs to be larger than the diagonal of the rectangular sensor. A full frame 35 mm lens must have an image circle larger than 43.27 mm. An APS-C camera lens needs to have an image circle larger than 27.04 mm. If an APS-C lens is used on a full frame camera, the image circle would not be large enough to cover the corners of the sensor. If a full frame camera lens is used on an APS-C camera, it will cover the corners of the APS-C sensor.

What makes this concept confusing is that when photos are added to a photo software program, they are often enlarged by the software to a specific size. Most people don't pay attention to the enlargement size in the software. Photos are then presented online using the same frame size, which gives the appearance that they are enlarged. But, the photos are not enlarged from the camera, only from the photo software.

