

# Sigma 150-500mm zoom compared with Canon 100-400mm zoom



Canon EF 100-400mm tele-zoom f/4.5-5.6 L IS USM  
Canon digital camera lens review

## Introduction

We are going to compare two telephoto lenses, Sigma 150-500mm for Nikon, and Canon 100-400mm lens. When you are photographing animals like birds, you need many things to capture a precise moment. But in technical details, you need a professional camera with good ISO, and good shutter speed, and of course a good telephoto lens.

I acquired this Canon EF 100-400mm f/4.5-5.6 L IS USM lens for the same reason most other people do: we seek the convenience of a zoom and want to avoid the expense of two separate lenses: 100mm and 400mm prime lenses.

Or, for me, I wanted to avoid facing reality that I really needed a 500mm or 600mm prime lens.



Figure 1. Sigma 150-500mm. f/6.3 ISO 1000, Speed 1/4000. Photo by Jaime Leonardo.

We got this lens to photograph

- Birds (wading birds and other water birds; in Guatemala: for Mayan ethno-zoology)
- Animals (in situations where it might be impossible, or dangerous, to get close)
- Plants (flowers high up in a tree)

This particular report is about the first application, photographing birds.

The comments on the Sigma lens are by Jaime Leonardo; most of the discussion of the Canon lens is by Nicholas Hellmuth.



Figure 2. These pictures are a sequence of a gull hunting a fish in the Chiquimulia river. FLAAR used the Nikon D700 camera and the Sigma 150-500mm for this images. Shutter speed 1/1600, f/6.3, ISO 800. Photos by Jaime Leonardo.



Figure 3. Canon 100-400mm. Speed 1/500, f/9.0, ISO 640. Photo by Nicholas Hellmuth.

### **Anti-shake, IS (Image Stabilization) compared with using a tripod**

When you use a tripod the results are more predictable. When you don't use a tripod the IS helps but you still really need a tripod.

Downside of a tripod is lack of spontaneity, and you are anchored to the tripod. You would need a sophisticated tripod head made specially for holding telephoto lenses.

When you are out in a small boat, you would eventually fall overboard if you tried to stand up using a tripod. Your camera and tele-zoom lens would also end up in the water.

Plus the boat is rocking up and down in the waves so a tripod is not much help anyway.

This is why many nature photographers work on zoos or nature parks. Here you can get closer to the birds and there are more areas where you can use a tripod.

And a cable release (or in the case of a modern lens, an electronic cable) is useful also, though our Canon cable release did not survive the evaluation of this part of the overall system.



Figure 4. Sigma 150-500mm. Speed 1/6400, f/6.3, ISO 1000. Photo by Jaime Leonardo.

### What lenses are available?

At FLAAR we utilize both Canon and Nikon cameras. We used exclusively Leica initially, but when we moved up to medium format we quickly saw that medium format Hasselblad was even better than any Leica.

As Nikon cameras became better during the 1980's, we obtained one and have been a Nikon-user ever since. About six years ago I tried the Canon EOS 5D (the original) and found it uninspiring at best, and barely adequate at worst. So I switched back to Nikon (three years ago that meant a Nikon D300). It was definitely better than the Canon EOS 5D. I then tried one of the EOS 1D (non-s) Canons about four years ago. It could not focus in dim light so I returned it without even bothering to write an evaluation on how inadequate it was.

But today is 2011, and the top of the line 21 megapixel Canon camera is so much better than earlier Canon cameras I can't even begin to compare them.

This is the advantage of the FLAAR Reports: we know and use both Nikon and Canon. We are not a Nikonian nor are we obliged to suck up to any camera manufacturer. Probably about 75% of the pseudo reviews today are by camera dealers or photographers who are paid by commission. Of course FLAAR also receives cameras for evaluation, but if the camera is a dog we say so and explain what about the camera is inadequate. When I told the Nikonian representative at PMA and then at Photokina how bad the Thailand-made Nikon lenses were, he had no interest in hearing this, and said clearly he would not mention it in any Nikonian report.

Although my favorite 35mm DSLR today is by far the Canon EOS-1Ds Mark III, we still have Nikon cameras and so it is worthwhile tabulating what lenses are available. I would also list Sigma lenses. We do not have time to evaluate Tamron and comparable cheaper lenses. I tried one 25 years ago and it was so inadequate I don't want to waste my time again.

	List price	Street price	comments
Canon EF 100-400mm f/4.5-5.6 L IS USM	\$ 1,499.00		So far we are content
Nikkor 70-300mm AF-S VR	\$ 490.00		
Nikkor 80-400 f/4.5-5.6D VR	\$ 1,599.00		
Nikkor 180-600 f/8 ED			
Sigma 150-500mm	\$ 999.00		

While we are comparing lenses, if you win the lottery you can consider

	List price	Street price	Comments
Nikkor 360-1200mm f/11 ED			
Nikkor 1200-1700 f/5.6-8.0s P ED IF			
Sigma 350-1200mm f/11 Tele-Zoom			

### Canon EF 100-400mm f/4.5-5.6 L IS USM telephoto zoom lens

When I see reviews saying how tack-sharp this lens is while photographing a flying bird, I am dubious about what standards they have.

And shooting anything moving, especially with no tripod, at 125th of a second: forget it unless you just want a cute snapshot at Internet size.

Why do none of the dozens of commercial reviews mention the downsides?

Hmmm, I wonder why? I wonder why all the web sites say everything good about this lens. Not many web sites mention serious faults (other than that the results are not sharp at f/5.6 at 400mm).

All these same web sites send you to resellers. Hmmm, is this conflict of interest? Is this ethical? Is this even legal?

Of course we received this lens from a camera source (Parrot Digi-graphic). But we don't get a kickback on every sale. When you are on the FLAAR websites you don't get hit with blinking advertisements and blatant commercialism at every corner of each web page. On too many sites the text is only to snare you into buying from favored resellers; the main reason for the "review" is to get kickback from sales commission or click-through fees.

Plus the FLAAR Reports openly mention what is weak about Canon lenses (their cheap lens shades). And we mention what is weak about Nikon lenses (their low-bid lenses made in Thailand).

I am content with this lens, but it needs to be used on a tripod. The image stabilization is better than nothing, but if you are out in a boat, the bird is flying, the photo is not going to be flawlessly sharp.



Figure 5. Sigma 150-500mm. Speed 1/2500, f/7.1, ISO 640. Photo by Jaime Leonardo.

### Using the Canon EF 100-400mm tele-zoom lens on other subjects

Since FLAAR is an institute dedicated to everything related to Maya civilization and culture, we have a long term interest in Maya ethnozoology and ethnobotany. Indeed we specialize in zoological and botanical photography, both in zoos, botanical gardens and out in the wilds. And we mean seriously wild, as in the mangrove swamps of Guatemala or the rain forests of the Alta Verapaz and Peten.



Figure 6. Canon 100-400mm. Speed 1/400, f/9.0, ISO 640. Photo by Nicholas Hellmuth.



Figure 7. Sigma 150-500mm. Speed 1/2500, f/7.1, ISO 640. Photo by Jaime Leonardo.

### Comparing the Sigma 150-500mm tele-zoom with the Canon 100-400mm tele zoom

I have used the two lenses and I can say, Sigma is big and that is a good advantage, if you don't want to scare the animals. Sigma will help you a lot. The problem with this lens is the focusing speed compared with Canon. The Canon lens is better, a 100-400mm can focus very fast. The 150-500mm Sigma is not so fast, but you don't need to be so close to the birds.

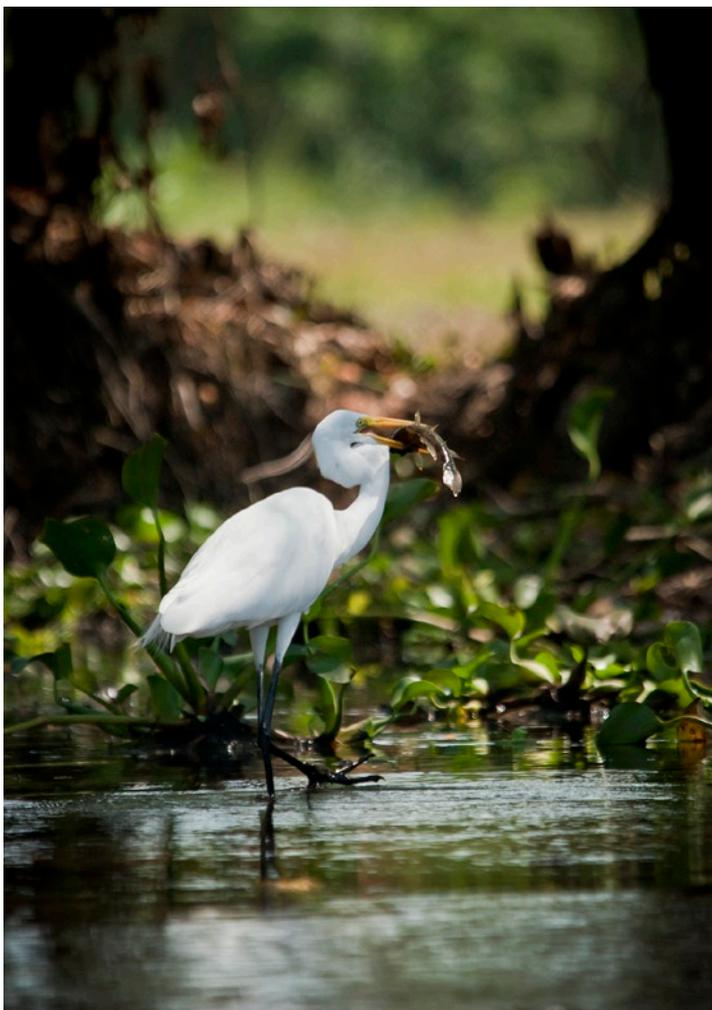


Figure 8. Sigma 150-500mm. Speed 1/2000, f/6.3, ISO 500. Photo by Jaime Leonardo.



Figure 9. Canon 100-400mm. Speed 1/640, f/5.6, ISO 500. Photo by Nicholas Hellmuth.

One of the most important things you need to know when you are photographing birds is: Be patient, and be quiet when you are approaching the object, you need to know this because some birds are easily frightened.

The picture you see below was taken with ISO 1000 and a shutter speed of 6400.

The photo at the left was taken at noon with the Nikon D700 and Sigma lens, and the photo at the right during the morning with Canon Mark III.

The biggest difference between these two cameras is the number of megapixels: Nikon D700, 12.1 and Canon Mark III, 21.1.

The Canon EOS-1Ds Mark III has a little more noise than the Nikon D700. The megapixels of the D700 are cleaner.



Figure 10. Sigma 150-500mm. Speed 1/4000, f/6.3, ISO 500. Photo by Jaime Leonardo.



Figure 11. Sigma 150-500mm. Speed 1/2000, f/7.1, ISO 640. Photo by Jaime Leonardo.



Figure 12. Sigma 150-500mm. Speed 1/8000, f/8.0, ISO1000. Photo by Jaime Leonardo.

**What equipment is still needed?**

We clearly need a 600mm lens for the Canon, and a tripod head made for using such lenses. The Canon booth at Photokina 2010 was using tele-photo tripod heads, I believe they were from Manfrotto. But we do not have any.

**Credits and Acknowledgements**

We thank Hoodman for providing 16GB RAWmemory cards. You can inspect these at the Hoodman booth at major photography trade shows in the US and also at Photokina in Germany.

The Canon EOS-1Ds Mark III and the Canon 100-400mm tele-zoom lens are available to evaluate courtesy of Parrot Digigraphic, jlorusso@parrotcolor.com

We could not achieve our photography in Mayan archaeology without the tripods and tripod heads from Gitzo and Manfrotto, courtesy of Bogen Imaging. Their corporate name in America is currently Manfrotto Distribution, info@manfrottodistribution.us

**To learn more about bird photography, look at**

Birder's World Magazine (birdersworld.com)

Bird Watcher's Digest magazine (web site is too commercial and too interested in your money)

Art of Bird Photography (seem to be two volumes)

The North American Nature Photography Association

- Bird Photography: Pure and Simple by Arthur Morris
- Art of Bird Photography: The Complete Guide to Professional Field Techniques (Practical Photography Books) by Arthur Morris



Figure 13. Canon 100-400mm. Speed 1/800, f/5.6, ISO 500. Photo by Nicholas Hellmuth.



Figure 14. Sigma 150-500mm. Speed 1/2000, f/6.3, ISO 500 Photo by Jaime Leonardo.

- Photographing Wild Birds by Chris Gomersall
- Bird by Andrew Zuckerman (2009)
- Digital Nature Photography: The Art and the Science by John Gerlach
- Creative Bird Photography: Essential Tips and Techniques by Bill Coster
- National Geographic Photographing Birds by Rulon Simmons and Bates Littlehales
- Bird Photography: Choosing the Best Destinations-Planning a Trip-Taking Great Photographs by David Tipling
- Digital Wildlife Photography by David Tipling
- The Birdwatcher's Guide to Digital Photography by David Tipling
- The Bird Photography Field Guide by David Tipling (2011)
- National Audubon Society Guide to Nature Photography: Digital Edition by Tim Fitzharris



Figure 15. Sigma 150-500mm. Speed 1/4000, f/7.1, ISO 640. Photo by Jaime Leonardo.



Figure 16. Canon 100-400mm. Speed 1/1250, f/6.3, ISO 200. Photo by Eduardo Sacayon.



Figure 17. Sigma 150-500mm. Speed 1/3200, f/6.3, ISO 1000. Photo by Jaime Leonardo.



Figure 18. Canon 100-400mm. Speed 1/1600, f/9.0, ISO 250. Photo by Nicholas Hellmuth.



Figure 19. Canon 100-400mm. Speed 1/1600, f/9.0, ISO 250. Photo by Nicholas Hellmuth.



Figure 20. Canon 100-400mm. Speed 1/1600, f/9.0, ISO 320. Photo by Nicholas Hellmuth.



Figure 21. Canon 100-400mm. Speed 1/600, f/9.0, ISO 320. Photo by Nicholas Hellmuth.



Figure 22. Sigma 150-500mm. Speed 1/4000, f/6.3, ISO 500. Photo by Jaime Leonardo.

## Comparing different Nikon models

	<b>D90</b>	<b>D80</b>	<b>D7000</b>	<b>D100</b>	<b>D300s</b>	<b>D700</b>
<b>Sensor</b>	12.3 million effective pixels 23.6 x 15.8 mm CMOS (DX format)	10.2 million effective pixels 23.6 x 15.8 mm CCD (DX format)	16.2 million effective pixels 23.6 x 15.6 mm CMOS (DX format)	6.1 million effective pixels 23.6 x 15.8 mm CMOS (DX format)	12.3 million effective pixels 23.6 x 15.8 mm CMOS sensor	12.1 million effective pixels full-frame sensor (8 µm pixel pitch) 36x23.9 mm CMOS
<b>Sensor cleaning</b>	Image sensor cleaning; Image dust off reference data (optional capture NX2 software required).	Image dust off reference data (optional capture NX software required).	Image sensor cleaning (sensor shake)	—————	Image sensor cleaning (sensor shake)	Image sensor cleaning (sensor shake)
<b>AF Sensor</b>	11 AF Points 1 cross-type sensor	11 AF Points 1 cross-type sensor	39 AF Points 9 cross-type sensor	5 AF Points 1 cross-type sensor	51 AF Points 15 cross-type sensor	Multi-CAM 3500FX 51 AF Points 15 cross-type sensor
<b>Sensitivity (ISO)</b>	ISO 200 - 3200 ISO 100 - 6400 with boost	ISO 100 - 1600 Up to 3200 with boost	ISO 100 - 6400 ISO 12500 and 25600 expansion in H1 & H2	ISO 200 - 1600 Boosted ISO	ISO 200 - 3200 Up to ISO 6400 with boost	ISO 200 - 6400 ISO 100 - 25600 with boost.
<b>White balance</b>	Auto; 6 presets; Color temperature; and Manual preset	Auto; 6 presets; Color temperature; and Manual preset	Auto; 6 presets; Color temperature; and Manual preset	Auto; 6 presets; Color temperature; and Manual preset	Auto; 6 presets; Color temperature; and Manual preset	Auto; Color temperature; and Manual preset
<b>Price</b>	\$900 (with kit lens) \$759 (body only)	\$1,885 (with kit lens) \$1,350 (body only)	\$1,500 (with kit lens) \$1,200 (body only)	In 2005: \$999 Now you can find it for sale (used) from \$250	\$2,059 (with kit lens) \$1,419 (body only)	\$3,150 (with kit lens) \$2,349 (body only)
<b>Video mode</b>	1280 x 720p (24 fps) 640 x 424p (24 fps) 320 x 216p (24 fps)	—————	1920 x 1080p (24 fps) 1280 x 720p (30, 25, 24 fps) 640 x 424 (30, 25 fps)	—————	1280 x 720p (24 fps) 640 x 424p (24 fps) 320 x 216p (24 fps)	—————
<b>Live view</b>	Yes	No	Yes	No	Yes	Yes
<b>LCD Monitor</b>	3.0" TFT LCD 920,000 pixel TFT (RGB x 3 colors). 170 degree viewing angle. Removable protective cover.	2.5" TFT LCD 230,000 pixel TFT. 170 degree viewing angle. Removable protective cover.	3.0" 921k dot LCD screen	1.8", 120,000 dot, low-temp. polysilicon TFT LCD with LED backlight	3.0" TFT LCD monitor 920,000 dots.	3.0" 922,000 pixel LCD monitor.
<b>Memory format</b>	SD memory card and SDHD memory card	SD memory card and SDHD memory card	SD memory card and SDHD memory card; twin slot	Compact Flash memory card. Type I & II	SD card and Compact Flash (1 slot for each one).	Compact Flash memory card.