

There has been much discussion about "full format" on different forums. Today there are affordable full format cameras like Canon 5DII, Nikon D700, Sony Alpha 850 and Sony Alpha 900.

I would have expected Canon to introduce a "dumbed" down 5DII in the shape of the 7D but we got a professional grade APS-C camera instead. Similarly Pentax introced their Pentax K7, also a professional grade camera. Here is my take on this developments.

Other writings on these issues

[Thom Hogan has some good points on this, no surprise his points used to be good :-\)](#)

[A nice article by David Kilpatrick discusses the need for full format.](#)

Most important

Using a "better" camera will not automagically make for better pictures. The advantages are marginal. Going from APS-C to full format can achieve either of these two technical advantages:

- It's possible to make 40% larger prints with consistent quality
- Win an fstop in high ISO capability with consistent noise characteristics

It's an either or situation where we cannot have both advantages.

Do we need full format?

No, I don't think we need full format! We need lens/sensor combinations that fulfill our needs.

There is nothing natural about full format. Whatever format we use the lenses we use should be designed with that format in mind. In general, it's both easier and cheaper to build a lens which covers a smaller format. Good full format lenses will work well on APS-C cameras but may be less than convenient because of the crop factor.

Canon has for instance the 24-105/4L IS lens. It's a very good lens both on full format and APS-C. On the other hand the same field of view on a APS-C camera would be provided by a zoom with a focal length range of 38-168mm. So for APS-C a Canon 17-55/2.8IS lens may be more convenient.

How much resolution do we need

It really depends how large you print. I shoot both APS-C and "full format" and print at A2 format as largest. My printing is limited by two factors:

- my printer

DSLR-s APS-C or Full formate

Written by Administrator

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- available wall space

I would prefer to have more of both...

I made a few comparisons on A2-prints between my APS-C and FF and could see little difference in prints even if the FF files were much sharper when analysed on screen.

Prints were made on crops corresponding to A2 from both files and compared visually. I could not tell them apart! I also consulted two friends, one with long experience with one of the leading photo labs in Sweden and another guy with younger eyesight. They could not tell them apart either.

Because prints are hard to share on the net I put my prints in my flatbed scanner and scanned at both 300PPI and 600PPI. The 600PPI images were just too inconvenient but the 300PPI scans show a small difference.

Here are the [the image files](#) and the [scanned files](#) are here.

So my suggestion is that APS-C is pretty good up to A2, if you want to go bigger you probably need "full format". If A2 is OK for APS-C than A1 will be OK for "full format".

A reservation is here in order. Much may depend on your processing pipeline. Raw-conversion, capture sharpening, "uprezzing" and output sharpening may play a significant role.

Benefits of full format Cropping

If a full frame camera has the same pixel density as an APS-C camera it will have a higher resolution in absolute terms. That makes it possible to crop, and still have good enough quality for A2 prints. Cameras that have this capability are essentially:

- Canon 5DII
- Canon 1DsIII
- Nikon 3DX
- Sony Alpha 850
- Sony Alpha 900

The Nikon 3D and 700D have only a small benefit resolutionswise over an APS-C camera, but they have excellent low light performance.

Viewfinder

Full format cameras need longer lenses than APS-C cameras, for that reason the diameter of the aperture will be larger for a given f-ratio. So if opening aperture on an APS-C lens is the same as on a FF-lens t will transmit more than twice the amount of light. Therefore an FF viewfinder will always be brighter.

These problem is worsened because low end APS-C camera have pentamirrors instead of pentaprisms and these are less efficient. The simplest APS-C cameras don't have very good viewfinders while viewing is pretty good on professional level cameras.

Advantages/disadvantages with different formates

- Cost obviously, APS-C equipment can be much cheaper then full frame.
- Regarding depth of field APS-C will give better DOF at the same aperture than full format.
- Regarding resolution, full format will win, at least if pixel pitch is the same
- Regarding noise, bigger is better. Full format wins, at least if same sensor technology is used
- A big camera with a big lens may not be optimal in street photography