

Canon

Canon EOS 5Ds R vs. EOS R Printoff

May 8, 2019



Mount Asahi Trees in Snow (EOS R)

For advice on the best viewing
settings visit <https://mbp.ac/pdf>

One of the biggest things that concerned me about switching to the [Canon EOS R](#) mirrorless camera from my 5Ds R was the reduction in resolution, and how this might affect my large format prints, and I know I'm not alone in this, so I ran some tests, to see if the EOS R could keep up with his big brother.

As I mentioned in my [review of the EOS R](#) back in February 2019, during my Japan Winter Landscape tour I shot a pair of images of exactly the same scene, one with my EOS R and one with my EOS 5Ds R, so that I could evaluate various aspects of these images. I was very pleased to see that there seemed to be a stronger core of sharpness in the 30-megapixel EOS R images, compared to images from the higher resolution 50-megapixel counterpart, the EOS 5Ds R.

Because of the outstanding image quality, I went on to photograph the rest of my landscape tour and both of my wildlife tours almost exclusively with the EOS R body, only reaching for the 5Ds R when I needed to use two bodies at the same time. I still love the 5Ds R camera, but the EOS R has a much wider coverage of focus points as well

as other important features, it's more fun to shoot with, and the lower weight is a welcome bonus.

The thing that I was still not sure about though, is what we're going to look into today. How do the EOS R images stand up to being printed large? One of the major benefits of the 5Ds R is that those beautiful large 50-megapixel images can be printed really big without the need to upsize them using a third party product like onOne Softwares Perfect Resize.

Large prints have played a big part in my business, and there have been some jobs that I've done over the last few years that I thought would not have been possible without 50-megapixel files, so it's really important for me to know the limits of the 30-megapixel EOS R images. I have to add that I do not know how much of my findings would be relevant for a system such as the EOS 5D Mark IV, which has the same sensor, but does not use the new RF lenses, and I think it's the RF mount that has more bearing on my findings than the megapixels, as I'll explain.



Test Parameters

In my tests, my main objective was to compare the EOS R images with the higher resolution EOS 5Ds R images to evaluate mainly the sharpness. The two photographs were shot within a minute or so of each other, using the same tripod, with the same settings. Due to variances in either the camera or the brackets and plates I used to attach them to my tripod, the EOS R image is slightly rotated clockwise compared to the 5Ds R image, and perhaps due to a change in the light between shots, or

more likely just differences in how each camera processes its images, I also had to process them slightly differently, mainly with the Levels slider, and even then, the 5Ds R image doesn't have as deep blacks as the EOS R image, but these things don't really affect my tests.

Print Sizes

I based my tests on three print sizes that I make a lot, both for personal purposes and to sell or display. I started by printing the entire image, without any cropping, at 18 x 24 inches.

This is my regular test print size, and I apply my Fine Art Borders, meaning that the actual print area is 20.4 inches wide. This means if your largest print size is 13 x 19 inches, this first pair of prints are slightly larger than what you'd get printing borderless.

Here is a photo of each print, just laid on a table in my studio, with each side weighed down with a steel rule, to keep them relatively flat. The 5Ds R image is on the following page.



Mount Asahi Trees in Snow (EOS R)

You can probably tell even from these images, that the print from the EOS R image is actually slightly sharper than the 5Ds R image. I made all of the prints directly from Capture One Pro, as that's how I do most of my printing.

On the following page is a screenshot of my settings for your reference. As you can see I have the Sharpening slider set to 25. This is the generic setting

and unless I'm printing a soft image that needs some help, I just always leave that at 25. The resolution is set to 600 ppi automatically when I select the Highest resolution in the print drivers, even if I start off with Auto selected in the Resolution pulldown.



You can also see the width of the cell that holds the image is set to 20.4 inches, as I mentioned earlier. I’m printing with my own ICC profiles on Breathing Color’s Signa Smooth 270 fine art matte media. Matte is generally not as sharp a media as gloss, but it’s what I prefer

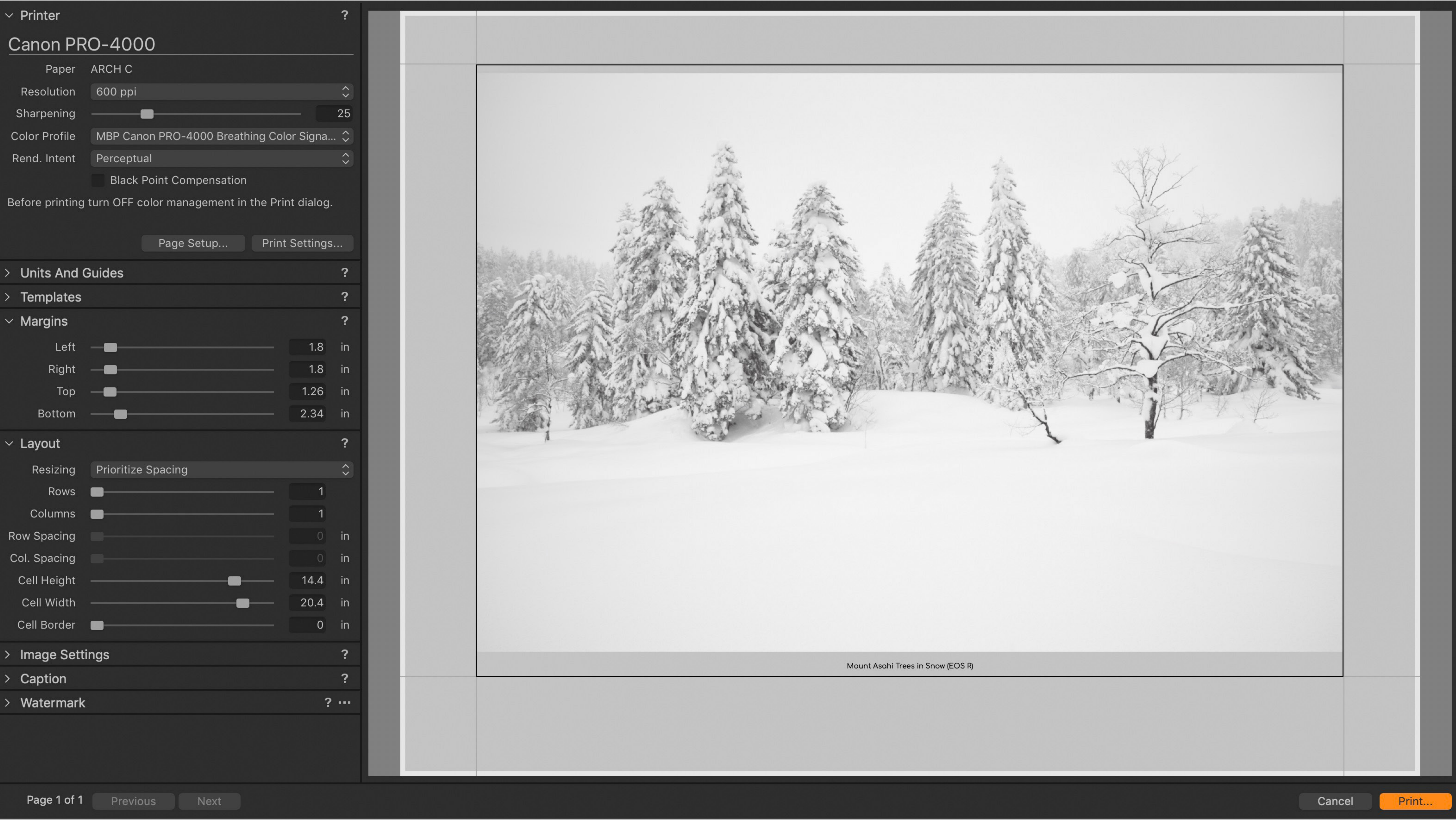
to print on, and in my opinion, the better way to evaluate a print from a fine art perspective, and that is always my ultimate objective.

Native Resolution

From the pixel width of my base images, we can calculate how much native resolution each image has. The EOS R records images at 6720 pixels wide, which means at 300 ppi (Pixels Per Inch)

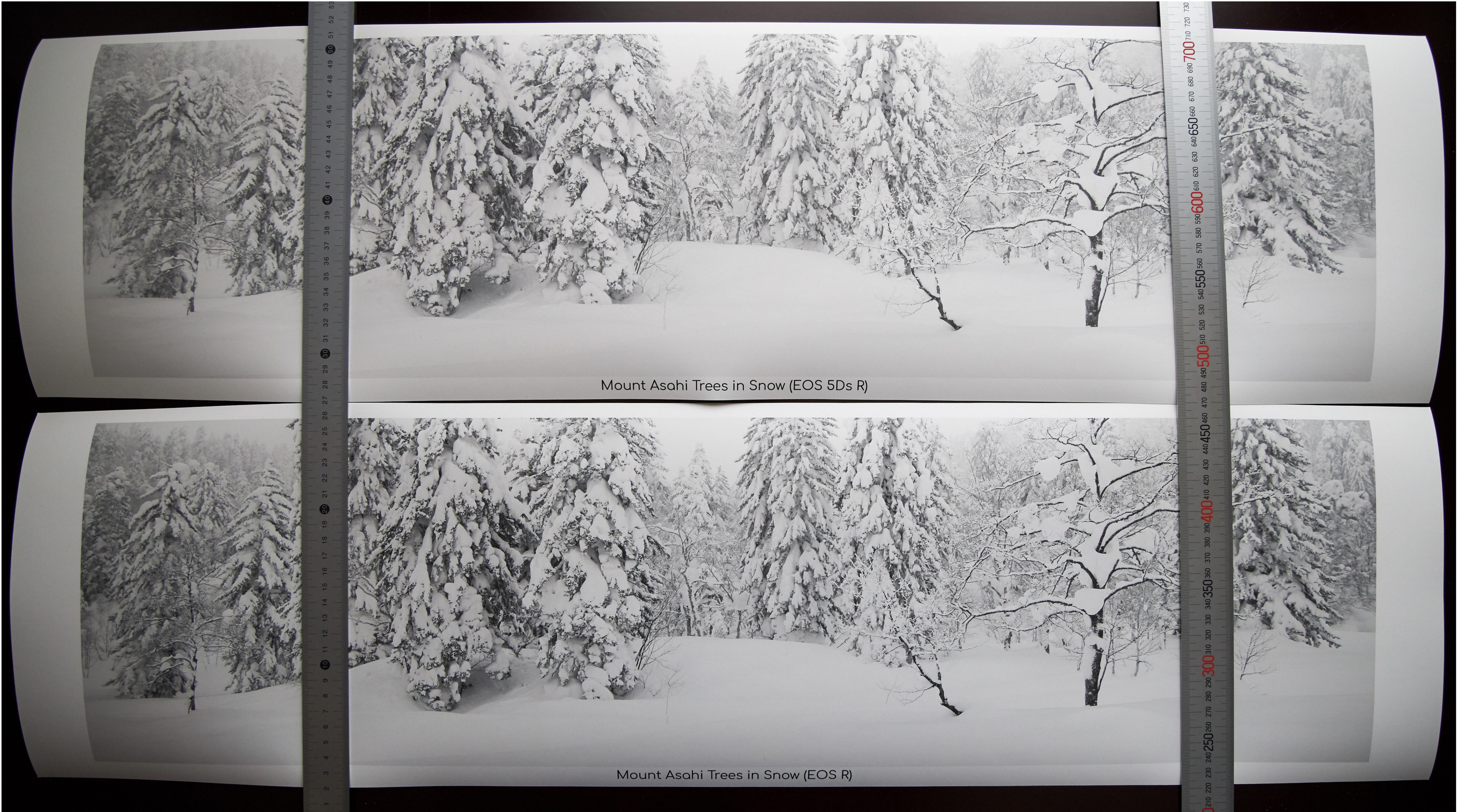
we could natively print the image up to 22.4 inches wide. At 20.4 inches wide, our base resolution that we are working with is 329 ppi. I generally set my printer to the highest resolution it will work with, but I’m looking for 200 ppi or more when possible in my base image.

The EOS 5Ds R creates images that are 8688 pixels wide, which we can calculate gives us images up to 28.96 inches at 300 ppi, and at 20.4 inches, the size of this print, we have 426 ppi, so that’s very respectable. But, the quality of the EOS R image is so much better, that the print from the smaller image is actually sharper. I had pretty much expected this based on visually comparing the base images, but it was nice to see this come through in the print.



24 x 36 Inch Prints

The next size that I make a lot of prints at is 24 x 36 Inches. Again, using my fine art borders, the actual width of the printed area for this size print would usually be 32.6 inches. To save paper, that I could just check the sharpness instead of making two 24 x 36-inch prints, I printed them out at 36 x 10 inches, so of the central band of my images.



Here is a photograph of the twigs to the right of that central large tree, for each print. First, this is the EOS R image print and you'll find the 5Ds R print on the following page.

As you can see, even in a 36-inch fine art print, the EOS R is slightly sharper, and this is without any additional processing. The settings are the same as I shared above, but the page size

has been changed. The Sharpness slider remained at 25 for both of these prints. Resolution-wise, we can calculate that the EOS R image at 32.6 inches wide would have been printed at a

resolution of 206 ppi, whereas the 5Ds R would have 266 ppi at this print size. Of course, Capture One Pro is doing some processing, because it's pushing the images to the printer at 600 ppi,





but that is all happening behind the scenes, and with the same processing being applied to both images. Note too that I shot these images of my prints handheld on an overcast afternoon at

f/4 and an ISO of 1600. Just keep that in mind as you look at the images.

44 x 62 Inch Print Test

The next test I wanted to do was to see how the EOS R would hold up to my largest generic print size, which is 44

x 62 inches. This is the largest print I can make on my Canon imagePROGRAF PRO-4000 printer of non-panoramic, native 3:2 aspect ratio images. With my borders, the actual printed area

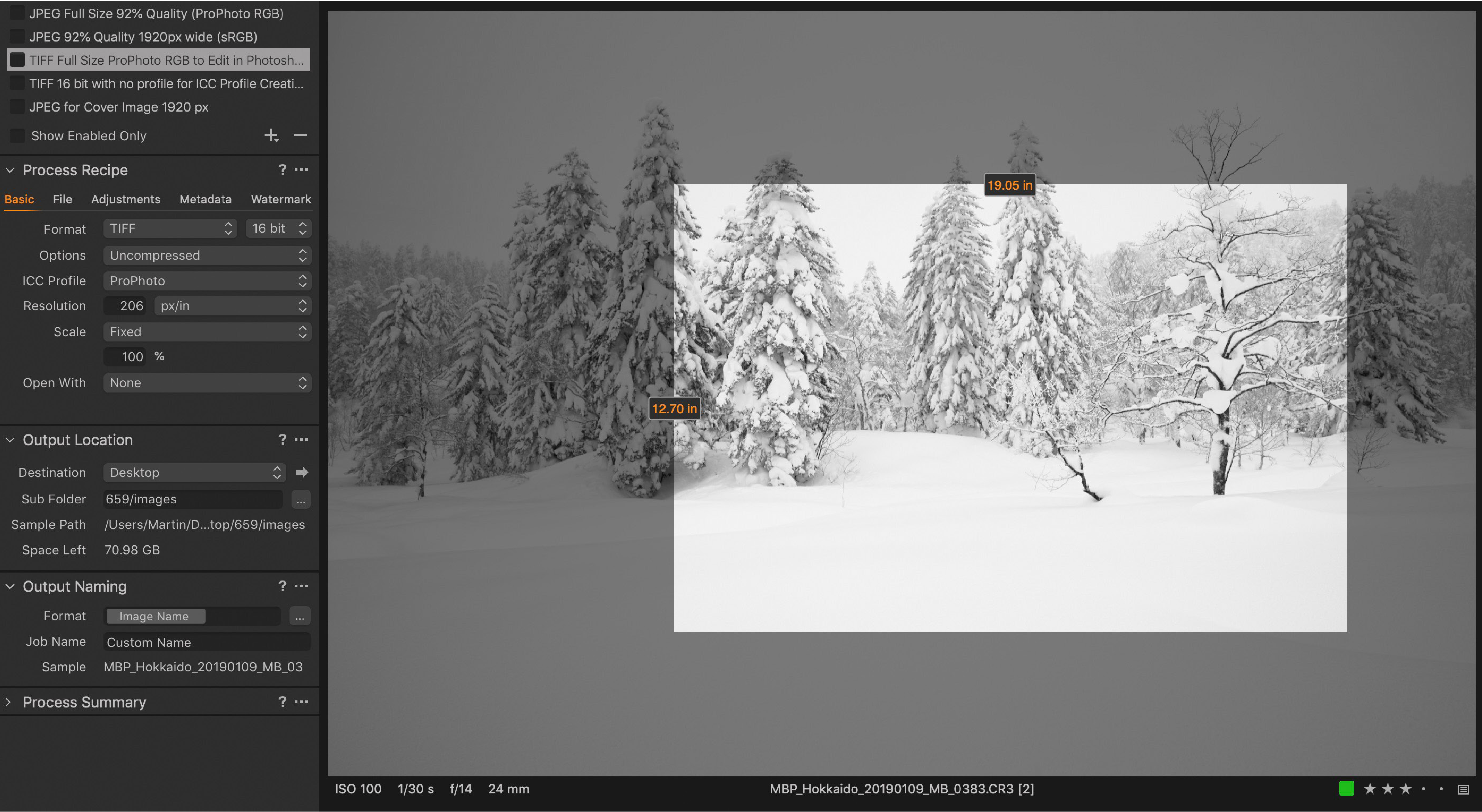
width is 55.8 inches. I really didn't want to make two prints of this size just to check the sharpness, so I did a bit of math to figure out how to do this still printing on 36-inch roll media.

32.6-inches is 58.4% of 55.8-inches, so if we resize our images to 58.4% of 32.6-inches which is 19.05-inches and print them at 32.6-inches, we are essentially printing at the same resolution than we would

be if we were printing the uncropped image at on the full target size of 55.8-inches.

Here's a screenshot of the resize process for the EOS R image. As you can see I

set the resolution to 206 ppi, which I calculated by dividing the pixel width of my EOS R image 6720 by 829.1 mm which is 32.6 inches.



Without setting the Resolution the crop size readout is inaccurate, so the recipe resolution is important. Once set, I just resized the image to 19.05 inches, and we're ready to print. For the 5Ds R image, I did exactly the same but with the resolution set to 266 instead of 206 to compensate for the higher resolution of the base image.

I'm pretty sure this math is good, but let me know if you think otherwise. There may be a better or easier way to do this, but for someone that came bottom of the class in math, if the result is accurate, I don't care how I get there.

From the new sizes, we can also calculate that the base resolution of each image

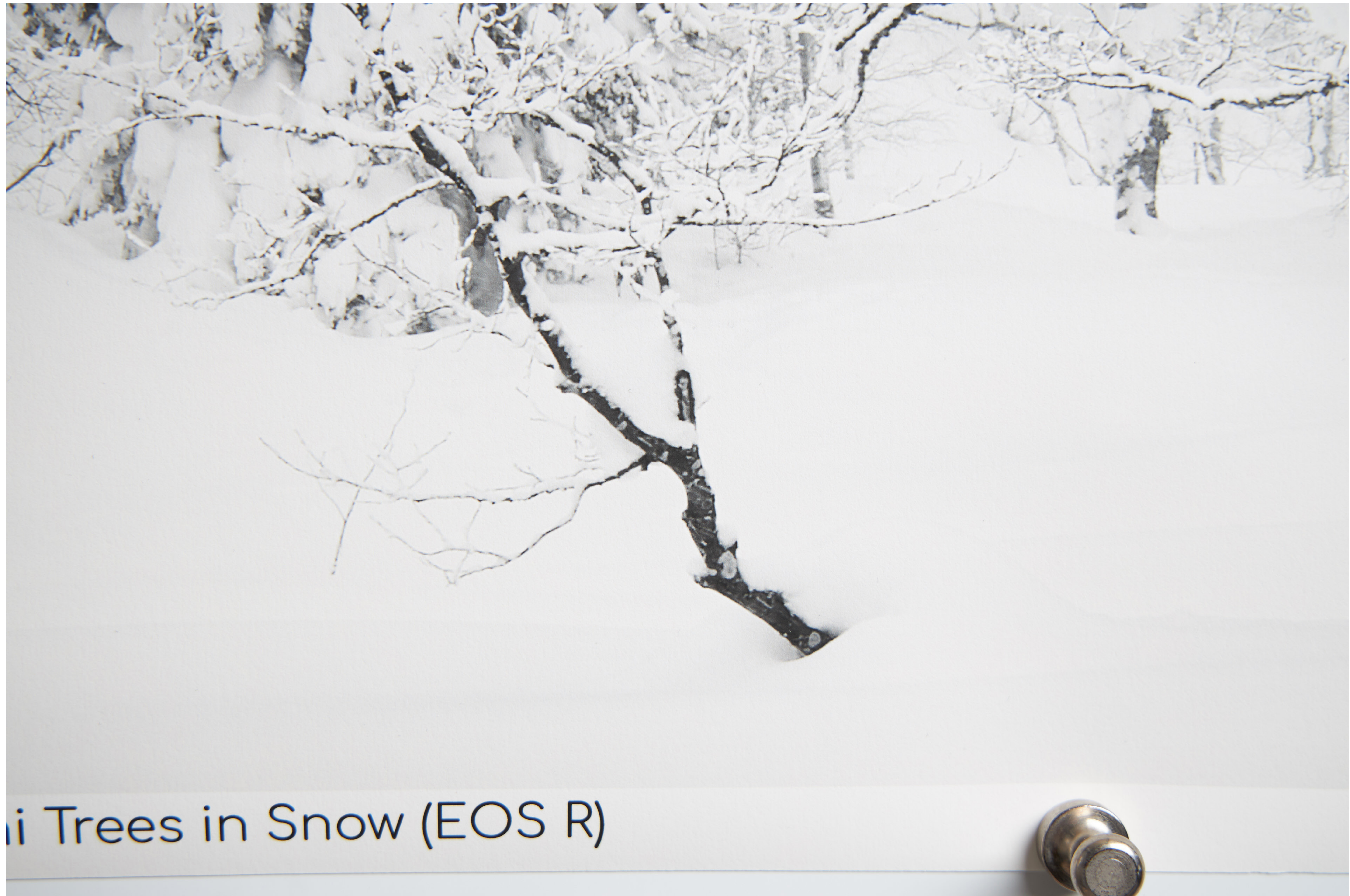
for this largest size print is now 120 ppi for the EOS R file and 156 ppi for the 5Ds R file. In the past, I wouldn't dream of printing something that drops below 150 ppi, but as you are about to see, the EOS R makes that possible.

Here are my two prints from the cropped images. These are the same resolution that I would have got if I had printed the un-cropped images at 55.8-inches wide. By the time I got this far in my testing, it was too dark to shoot my prints by

window-light, so these final images are shot using a ProPhoto studio strobe in a softbox, from camera-right.



Here again is a pair of images for following page. Once again, I think you'll of a 44 x 62-Inch print with borders, the comparison, with the EOS R image on agree that even when pushed to the size EOS R has a slight edge. this page, and the 5Ds R image on the





As I mentioned a moment ago, once I reached for ON1 Software's Perfect Resize, 300 ppi, and I made one last test print, 11x17 size, I will probably still upsize the image to the base resolution of the image I'm using and upsized my image to ensure that you can see here. The quality does not drop in Perfect Resize. When printing drops below around 150 ppi, I don't get a nice crisp print, so I tried one more time to improve slightly, so for a print of this size, I will probably still upsize the image to the base resolution of the image I'm using and upsized my image to ensure that you can see here. The quality does not drop in Perfect Resize. Let's keep in mind that we are looking at photos here that are essentially mimicking the photographer's habit of putting our nose to the print to see if it's sharp. From a regular viewing distance, you really cannot tell the difference between the upsized version and the native resolution print.



hi Trees in Snow (EOS R - Upsized)

Let's do one final comparison before we finish. On the following two pages I've placed a photo of the 55.8-inch print that was not upsized on the following page, and the upsized 55.8-inch print is on the page after that. I think you'll agree that upsizing helps to improve the image quality, but even without it, I am surprised that the EOS R with 30-megapixels, can be printed without upsizing and still be this good.

EOS R 55.8-Inch Print Without Upsizing



EOS R 55.8-Inch Print Upsized to 300 ppi



Other Benefits

Of course, there are still benefits to having more megapixels. Even bigger prints will still benefit from more pixels, but based on what I've found today, this doesn't concern me as much as it did, with the technology we now have in Canon's new mirrorless camera, and its accompanying RF lenses.

The other thing is the ability to crop. Sometimes I make a decision to crop an image to get the framing I want, and although I don't like doing that, when you have 50 megapixels, you can crop away a chunk and still have plenty to play with.

So, I'm still looking forward to the rumored 5Ds R Mark II that will likely also be mirrorless, and at least higher resolution than 50-megapixels. As long as the ISO performance remains good and the frame-rate respectable, I'll be all over that. I am now much happier that I have already shot 16,000 images with my EOS R this year, and having now sold both of my 5Ds R bodies and bought a second EOS R for my upcoming Namibia Tour, I feel much more confident that my images can be used for pretty much anything I can currently create.

Before we start to wrap this up, I should also mention that I am not using the Dual Pixel Raw feature on my EOS R. It not only imposes a number of restrictions on your shooting, but you also have to use Canon's Digital Photo Professional software to develop the resulting images, and neither of these things i acceptable to me, so I won't be using it.

Conclusion

My findings today have far surpassed my expectations and knowing the sort of results I used to get from my 22-megapixel images, I believe the quality that I am seeing in the EOS R images is more attributed to the new architecture of the Canon RF Mount and mirrorless camera system.

The lenses are newer and more advanced, and the back of the lens is much closer to the sensor. With the EF System the lens was 44 mm from the sensor, compared to just 20 mm with the RF System. This must be preventing the light from spreading out as much before it is recorded by the sensor. I haven't found anything from Canon to support this, but I did find a white paper on the RF system

that attributes the shorter distance to improved image quality. Here's a quote:

Now, positioning of large diameter lens elements much closer to the image sensor (especially the full frame sensor) would support an important enhancement of image quality.

From page 41 of the [Canon EOS R System White Paper](#).

I started these tests hoping to be impressed, and I was frankly blown away by what I found. Every time I went to the printer to cut the last print from the end of the roll, the hair on the back of my head stood up, and I found myself chuckling as I held the prints up to the light to study the details. I have been excited about the EOS R since first shooting with it in earnest during my winter tours this year, but as I've mentioned before, it's the RF mount that sold me on the system. The EOS R is a great camera, but it's only the

start of an exciting and entirely new system that I can't wait to see develop.

Now that I know that I can print my images from this system at least as big as I have been with my higher resolution 5Ds R cameras, I'm happier than ever with my decision to move to mirrorless, and even more happy that I decided to wait for Canon to make their move in this field of photography. They have done what I had hoped and taken this opportunity to not just jump on the band-wagon, but to innovate and evolve, or maybe I'd go so far as to say reinvent their interchangeable lens camera system in the process.



This article was published on May 8, 2019 by



MARTIN BAILEY PHOTOGRAPHY K.K.

Notice of Rights

All rights reserved. No part of this book may be reproduced or transmitted in any form by any means without the prior written permission of the publisher.

Check out our Tours & Workshops, eBooks and fine art prints and other products and services, or listen to the audio of our articles on our website!

<https://martinbaileyphotography.com>



Copyright © 2019 - All Rights Reserved