



# Basic Printing

# Lost Art of Printing

- Today most photos reside only on local devices (smartphones, hard drives) or social media (Facebook, Instagram, SCSH Camera Club Website)
- Lack of local printing options like Costco has further discouraged printing
- Most home printers are limited to 8.5 x 14, many with questionable quality

# Keys to Successful Printing

- Understanding PPI and the effect on print quality
- Understanding how photo crop and print size work together
- Creating (export) files for printing in the JPG file format and using the sRGB color space

# Pixel

- **Q: What is a Pixel?**
- The word *pixel* is based on a contraction of *pix* ("pictures") and *el* (for "element").
- In digital imaging, a **pixel**(or picture element) is the smallest item of information in an image. Pixels are arranged in a 2-dimensional grid, represented using squares. Each pixel is a sample of an original image, where more samples typically provide more-accurate representations of the original. The intensity of each pixel is variable; in color systems, each pixel has typically three or four components such as red, green, and blue, or cyan, magenta, yellow, and black.
- When referring to a monitor a pixel is 1 point of light

# DPI vs PPI

- **Q: What is DPI / PPI?**
- **A: DPI** refers to **dots per inch** when using an ink-based printer. It is a measure of resolution or image quality. Typically, the higher the dpi count, the better the print quality. This term is still used when discussing digital image quality; however, this is not the correct term.
- **PPI** describes the resolution, in pixels, of an image to be printed within a specified space. For instance, a 100x100-pixel image that is printed in a 1-inch square could be said to have 100 pixels per inch, regardless of the printer's DPI capability. Used in this way, the measurement is only meaningful when printing an image. Good quality photographs usually require 300 pixels per inch when printed.

# Print Resolution

- How to calculate PPI
  - take the cropped photo long edge pixel count and divide it by the print size long edge
  - Example - a 3000 x 2000 pixel cropped photo printed 16 x 20 would yield a resolution of 150 PPI (3000 pixels/20 inches = 150 PPI). The same photo printed 8 x 10 would be 300 PPI (3000p/10inches=300 PPI)
  - Unfortunately, PPI is not shown anywhere and needs to be calculated
  - The photographic metadata standard has a field called DPI however it has no effect on print quality or file size and is just a comment

# Print Resolution “rules of thumb”

- A resolution of 300 PPI or greater is recommended for high quality. The lowest acceptable resolution is typically considered to be 100 PPI
- However different surfaces have different recommended minimum resolutions (I think 100 PPI is too low)
  - Metal prints over 300 PPI and 600+ PPI is better
  - Glossy Paper Prints or Acrylics over 200 PPI
  - Satin paper prints over 175 PPI
  - Canvas over 150 PPI
- A software product like Topaz Gigapixel can be used to increase the photo's resolution if necessary
  - Many club members have Topaz Gigapixel and can help to increase a photo's resolution if needed

# Common Print Sizes

(suggested pixels at 300 PPI)

Print Size	Short Edge Px	Long Edge Px	Crop Ratio
8 X 10	2,400	3,000	4:5
9 X 12	2,700	3,600	3:4
10 X 20	3,000	6,000	1:2
11 X 14	3,300	4,200	5.5:7
12 X 12	3,600	3,600	1:1
12 X 18	3,600	5,400	2:3
13 X 19	3,800	5,700	2:3
16 X 20	4,800	6,000	4:5
16 X 24	4,800	7,200	2:3
20 X 30	6,000	9,000	2:3
20 X 60	6,000	18,000	1:3
24 X 36	7,200	10,800	2:3
32 X 48	9,600	14,400	2:3



# Print Options

- Paper Print
- Matted and Framed
- Acrylics
- Metals
- Canvas Wrap
- Canvas Float Frame

# Why Use Pro Labs

- Things have changed... top quality fine art prints from pro labs are done on inkjet printers, not through a photographic (film) process with 1200x1200 DPI printers
- They assume you have a calibrated monitor and rely that what they see is what you want
- Printers are run by highly trained operators
- They tweak/adjust the photo for the output media (matte, gloss, canvas, metal acrylic, etc.)
- Using the old “Print AS IS” in today’s high tech Pro Labs is bad idea.

# Some Pro Labs

- White House

- [whcc.com](http://whcc.com)
- Minnesota

- Products

- Photographic Prints
- Fine Art Prints
- Canvas
- Metal Prints
- Acrylic Prints
- And More

- Bay Photo

- [bayphoto.com](http://bayphoto.com)
- California

- Products

- Photographic Prints
- Fine Art Prints
- Canvas
- Metal Prints
- Acrylic Prints
- And More

- Pro Prints

- [proprints.com](http://proprints.com)
- Colorado

- Products

- Inkjet Prints
- Canvas Wraps
- Framed Canvas
- Metal Prints
- Acrylic Prints
- Acrylic Blocks

# Crop & Print Ratios

- Printing is easy IF:
  - Crop Ratio and Print Ratio are the same AND
  - PPI is over 200 PPI
- IF NOT (my process in Lightroom)
  - Create a virtual copy of the photo
  - Reset the crop to original sensor size (if possible)
  - Crop to the print size using the crop dropdown
  - Now adjust the “locked” crop ration to fit your

## Demo

# Canvas Wraps

- Print size includes the wrap area
- The actual front facing print size will be smaller by the frame depth times 2
- ProPrints frame depth is 1.25 inches
- Ways to deal with this issue
  - Mirror the wrap (my fav)
  - Make the wrap a solid color using matching print color
  - Create a 1.25 border on all sides (usually a lot of work)

