

# S&E Media

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How will the images primarily be used?

- Public -

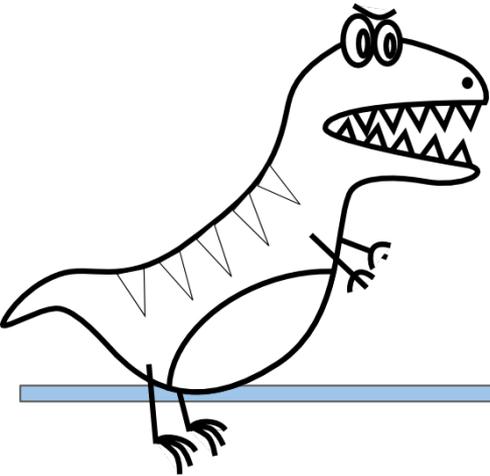
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- Research -

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- Both -

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# Archiving S&E Imagery

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- DPI - set to 300dpi
- ICC Color Profiles - AdobeRGB (& sRGB for Web)
- Dimensions - < 10,000 x 10,000
- Compression - None

# 16-bit vs 8-bit

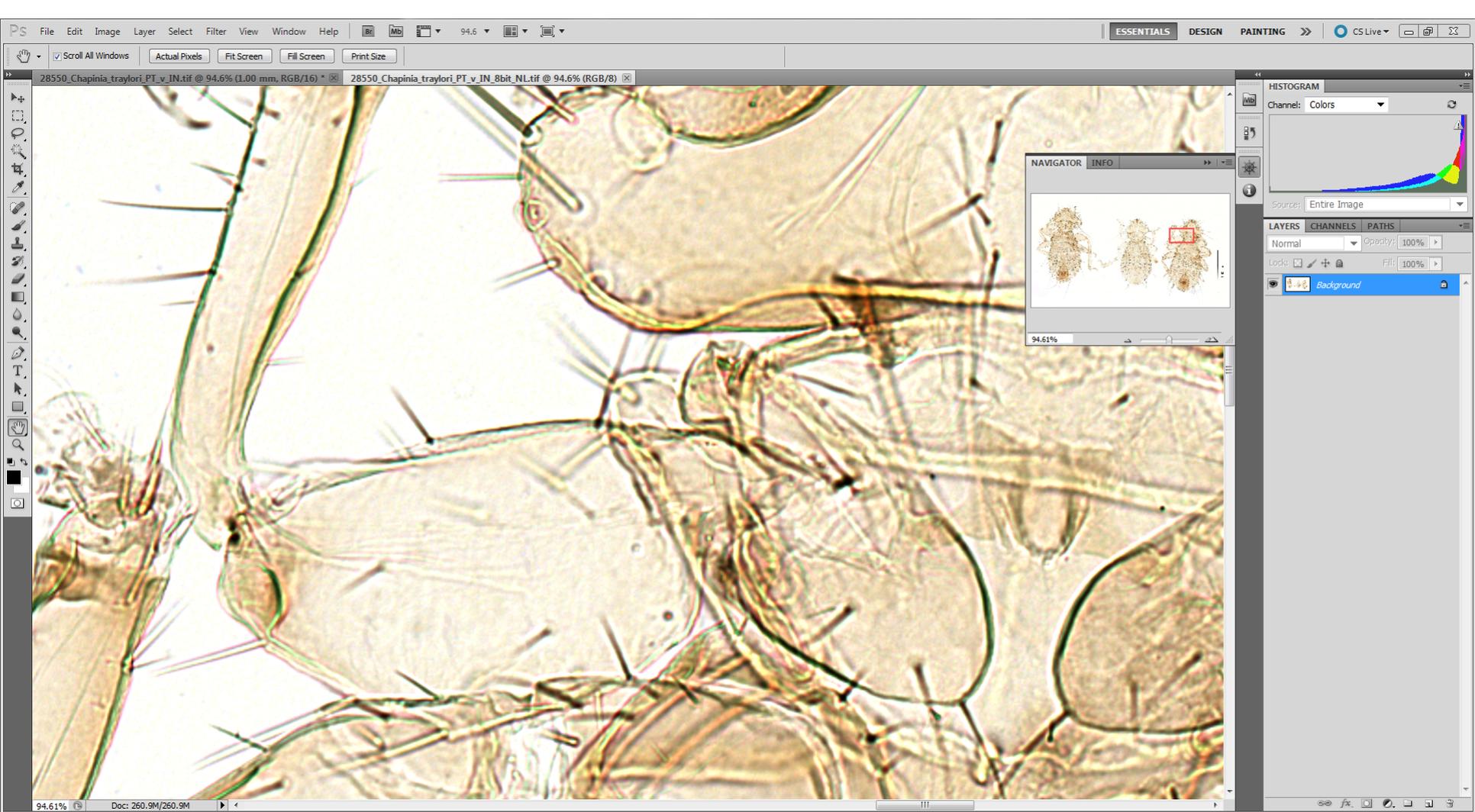
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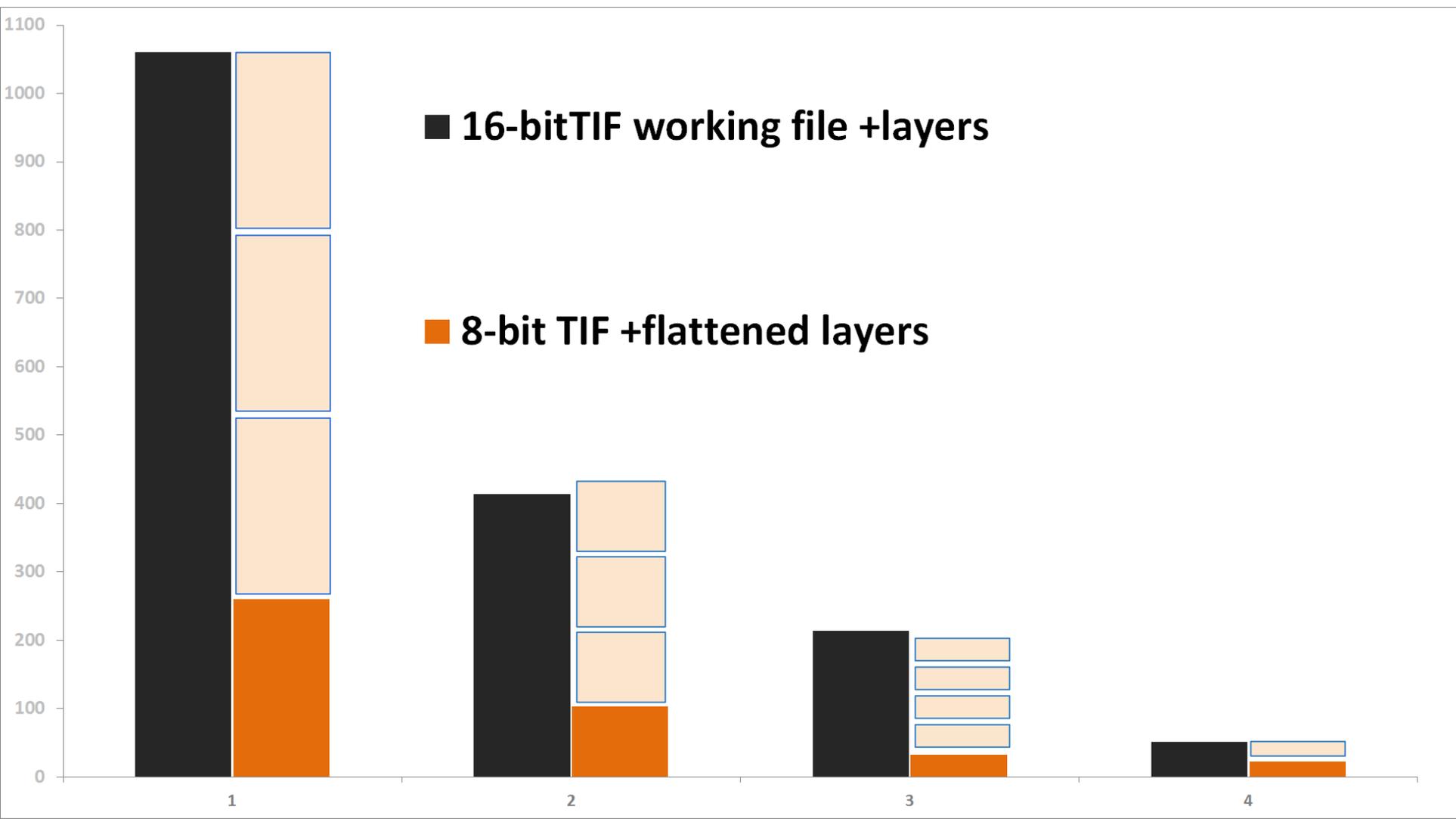
## 8-bit

- Approximately 16 million tone variations

## 16-bit

- Approximately 281 **trillion** tone variations





# Archiving S&E Imagery

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	8-bit	16-bit	
	Color (bit-depth)		
- Layers	x MB	4x MB	x 2
+ Layers	2x MB	8x MB	

# DNGs vs TIFs

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- TIFs -

Readily editable

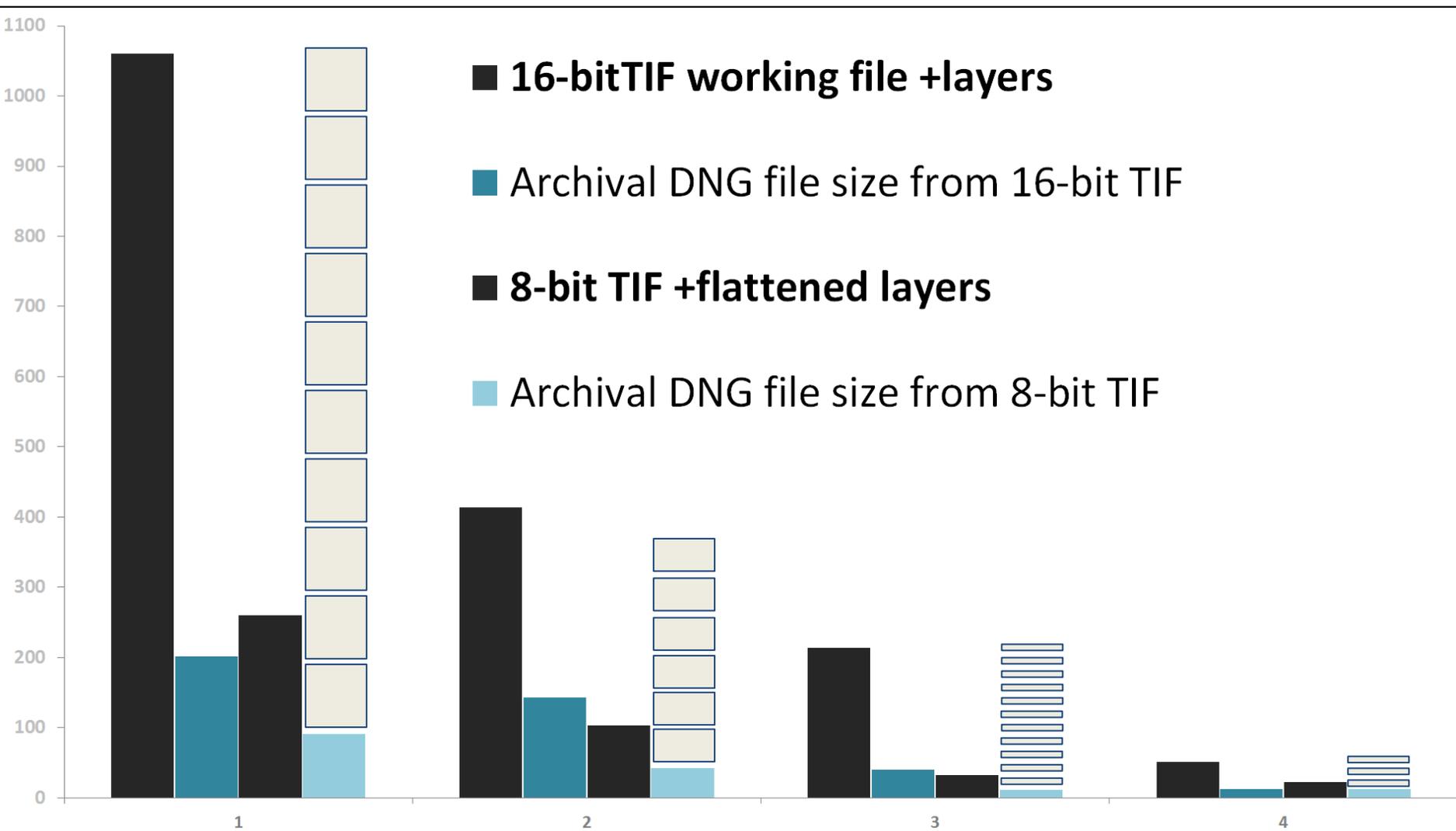
Large file sizes

Variation is problematic

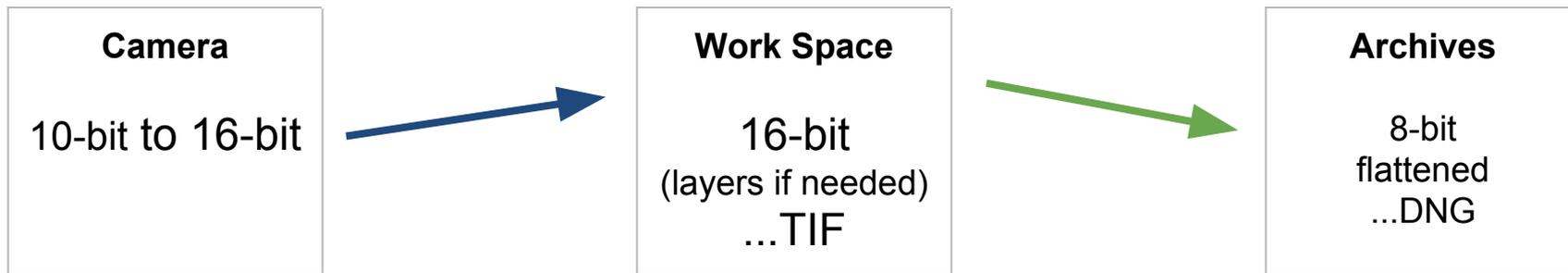
- DNGs -

Smaller file size  
lossless compression

IT, NHM, Lib of Congress all  
recommend this as archival  
standard



# Suggested Workflow



When you open an image in Photoshop, check:

Color Bit-depth:

- 1) Go to **Image** → **Mode**
- 2) Choose **RGB** and **16-bit** before editing

Color Space:

- 1) Go to **Edit** → **Color Settings**
- 2) Make sure Working Space RGB is either:
  - **Adobe RGB** (for general purpose)
  - or **sRGB** (for web optimized)

Before saving final output, readjust Bit-Depth:

Color Bit-depth:

- 1) When done editing, return to **Image** → **Mode**
- 2) Keep **RGB** selected, but switch to **8-bit**

(Color Space: No need to readjust)

# Workspace Setup for Photoshop:

The image shows a Photoshop workspace with several key elements highlighted by red boxes and numbered callouts:

- 1**: A red box around the 'Color Settings...' menu item in the Photoshop menu.
- 2**: A red box around the 'Color Settings...' menu item in the Photoshop menu.
- 3**: A red box around the 'Settings' dropdown menu in the Color Settings dialog, showing 'FMNH\_GDI\_ColorProfile' selected.
- 4**: A red box around the 'Image' menu in the Photoshop menu.
- 5**: A red box around the 'Mode' menu in the Photoshop menu, with a red arrow pointing to the '8 Bits/Channel' option.

The Color Settings dialog is open, showing the following settings:

- Settings: **FMNH\_GDI\_ColorProfile** (3)
- Working Spaces: **RGB: Adobe RGB (1998)** (3)
- CMYK: U.S. Web Coated (SWOP) v2
- Gray: Dot Gain 20%
- Spot: Dot Gain 20%
- Color Management Policies: RGB: Preserve Embedded Profiles, CMYK: Preserve Embedded Profiles, Gray: Preserve Embedded Profiles
- Profile Mismatches:  Ask When Opening,  Ask When Pasting
- Missing Profiles:  Ask When Opening
- Conversion Options: Engine: Adobe (ACE), Intent: Relative Colorimetric,  Use Black Point Compensation,  Use Dither (8-bit/channel images),  Compensate for Scene-referred Profiles
- Advanced Controls:  Desaturate Monitor Colors By: 20%,  Blend RGB Colors Using Gamma: 1.00,  Blend Text Colors Using Gamma: 1.45
- Description: FMNH\_GDI\_ColorProfile: Field Museum Archival Color Profile Settings

The Photoshop menu is open, showing the following options:

- Mode: **8 Bits/Channel** (5)
- Adjustments
- Auto Tone
- Auto Contrast
- Auto Color
- Image Size...
- Canvas Size...
- Image Rotation
- Crop
- Trim...
- Reveal All
- Duplicate...

[download Photoshop GDI Color Preset here](#)

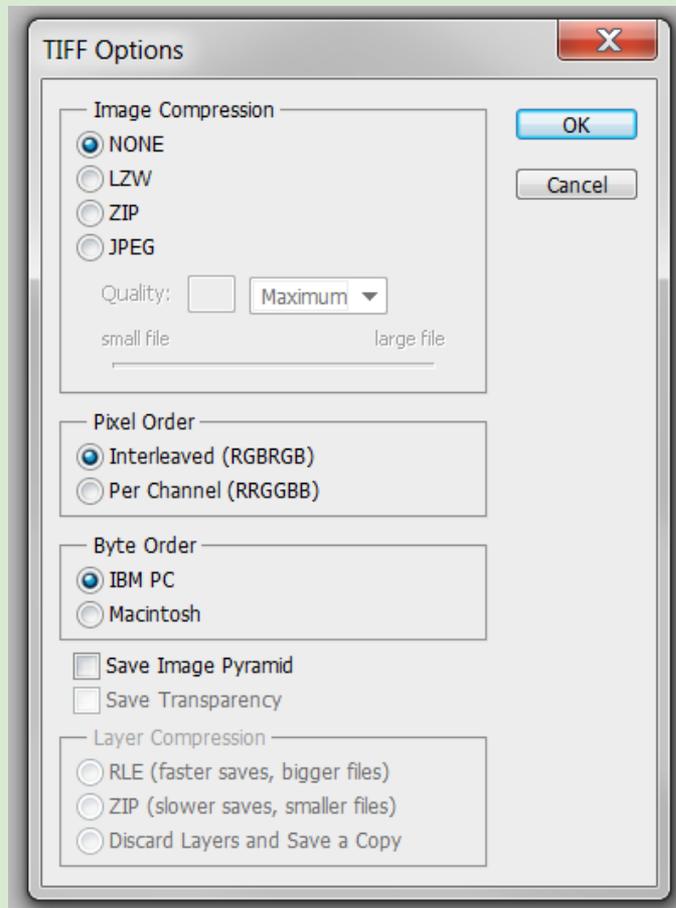
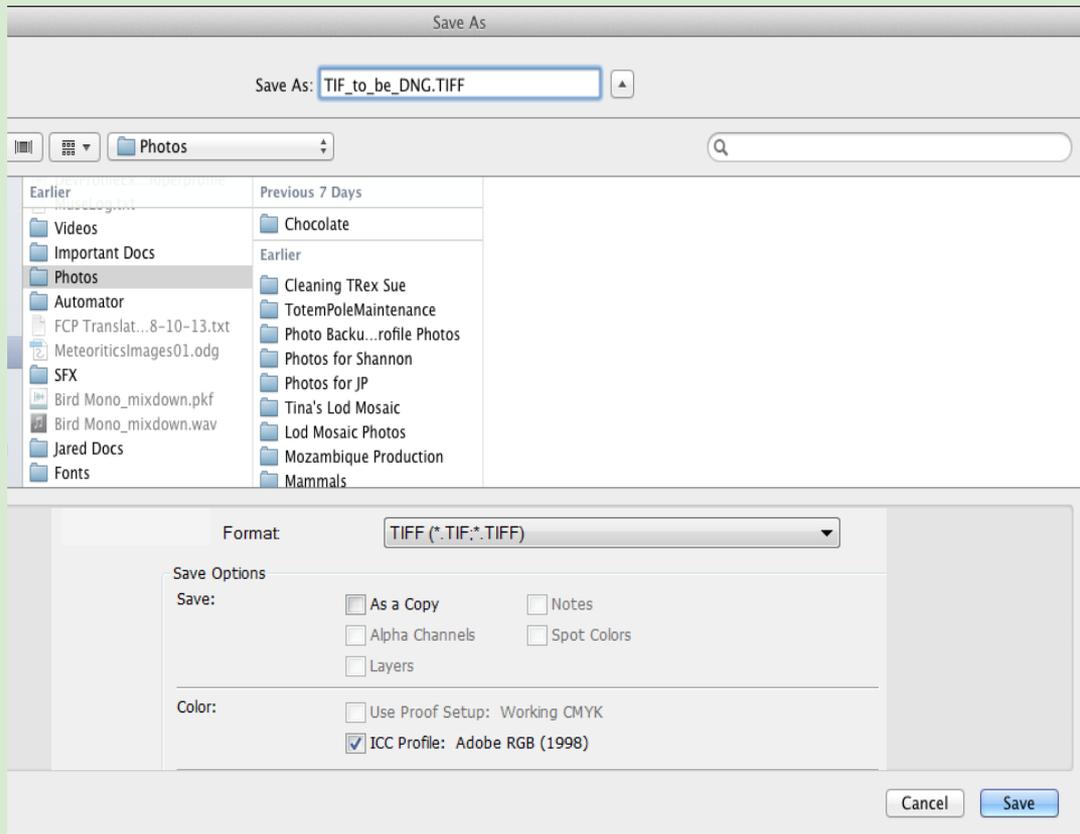
## How/When to set the color depth of your workspace (1-3) and your final output (4):

- 1) Open your image file in Photoshop
- 2) Go to **Edit** → **Color Settings**
- 3) Choose **Adobe RGB**  
(or **FMNH\_GDI\_ColorProfile**)
- 4) Go to **Image** → **Mode**
- 5) Choose **RGB, 16-bit** before editing
- 6) Edit your image as needed
- 7) Choose **8-bit** before saving final image
- 8) File → Save your final image

In Photoshop, after editing, how to save/prep TIFFs for conversion to archival DNG:

After going to Image → Mode → **8-bit** (and **Layer** → **Flatten Image**),

**Go to File → Save As... Choose TIFF:**



# Converting TIFs → DNGs using **LightRoom (3)**

In Lightroom,

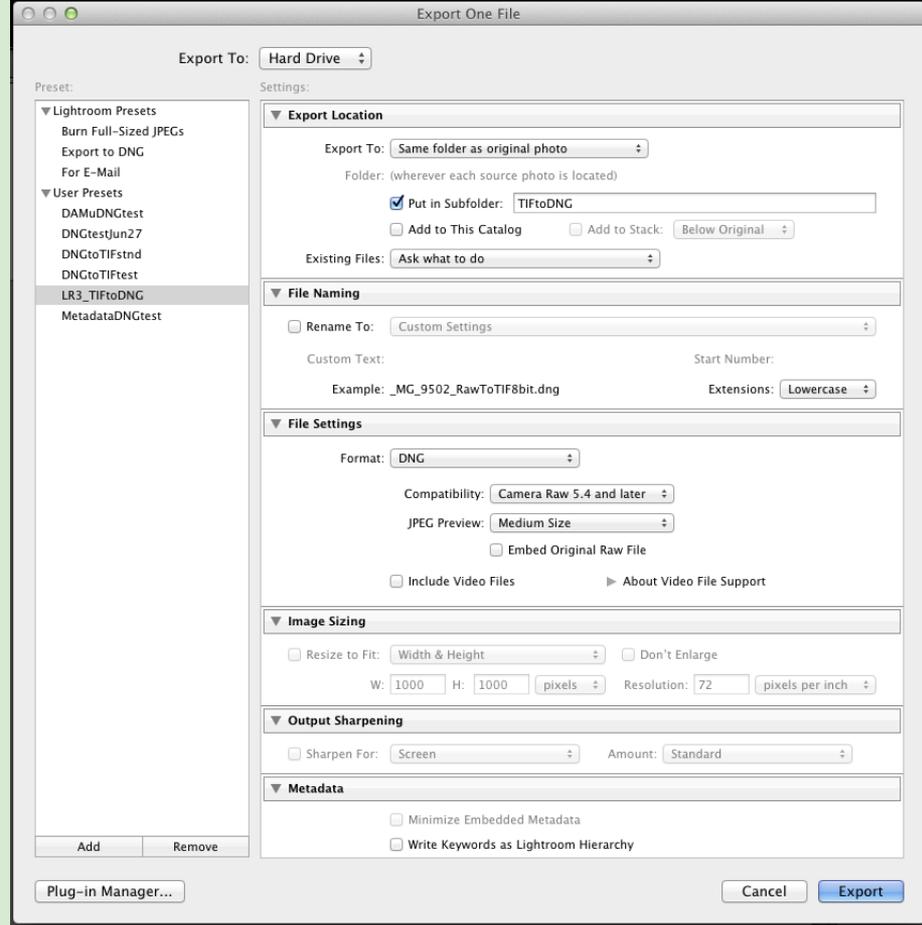
- Select your TIFF images
- Go to **File** → **Export**
- Use the settings as shown:

- pick **“LR3\_TIFtoDNG”**  
in the preset menu

or manually pick:

- “DNG” format
- Latest/Highest Camera Raw
- Medium JPEG
- No “Embedded Raw”

(Preset and Instructions online here:)  
[intranet.fieldmuseum.org/emu/node/5970](http://intranet.fieldmuseum.org/emu/node/5970)



# Some Recap/Questions

...Lots of different workflows currently in practice across S&E

## Questions

### If some projects/workflows are not currently producing flat 8-bit TIFs, why not?

- “Soft Light” gray layers:
  - Why do some of the insects images have this layer?
  - If that layer gives the image the intended final appearance, can these TIFs be flattened?
- Scale-bar layers:
  - Can these be flattened?
  - Considering the option of moving them without need for layers, can they be flattened?
- Variation in color bit-depth & color-profile:
  - When/Do collections images need 16-bit color depth?
  - How measurable/valuable is that for research purposes, considering the storage cost + color profile variation?

### Why don't DNG previews always look the same as the files they contain?

- Default settings for ImageMagick include some auto-adjustments when making preview pictures
  - we're working on turning these off. In the meantime:
    - For raw files to-be-archived, don't convert directly to DNG; **convert to TIF first, then to DNG**
    - Embed a JPEG preview (medium)
      - (does not currently affect the EMu-generated previews, but might be able to fix that faster)

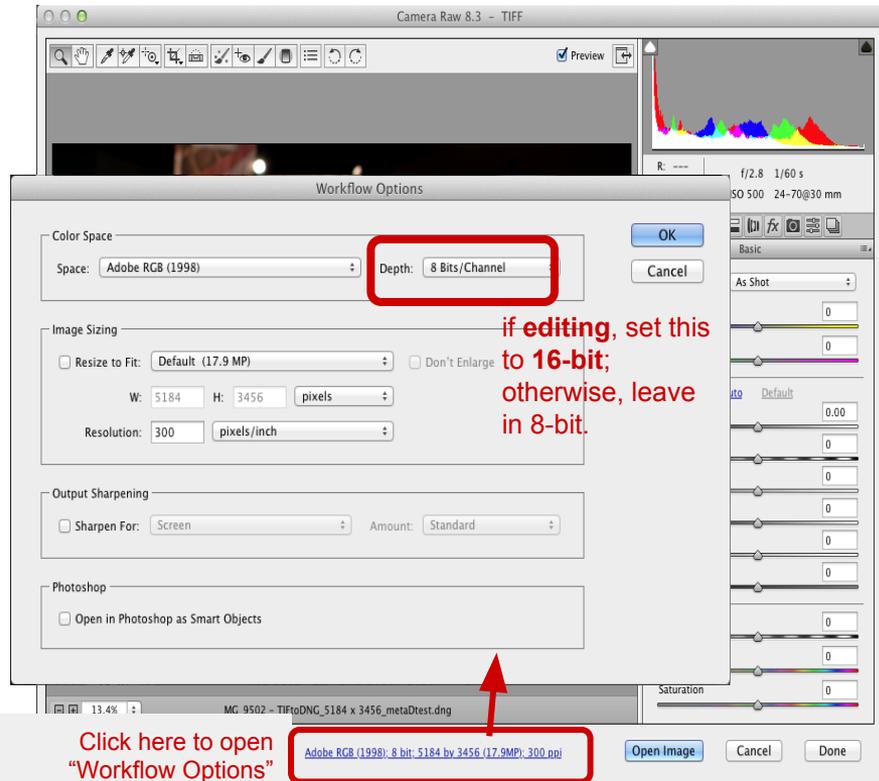
**After images are archived:**

How can people extract TIFFS (or other formats) from the archival DNG?

# De-Archiving Images:

To extract DNGs →TIFs using **Photoshop:**

Open the DNG in Photoshop, and a “Camera Raw...TIFF” window appears:



Note: A third option Adobe DNG Converter ([for win](#) | [for mac](#)) might be available in upcoming years. However, currently, it only converts between DNG and camera-raw formats (not to/from TIFF).

...or **LightRoom:** (v3; [trial version here](#))

Import DNGs into Lightroom, and then export them with these settings:

