

#### Herbarium Specimen Digitization: Image processing with Adobe Photoshop Lightroom

#### Kimberly Watson & Michael Bevans 11 December 2013 Mobilizing Small Herbaria for Digitization Workshop



### **NYBG Imaging Workflow**





# **Image Quality Control**

#### **Browse and examine images for:**

- Focus
- Exposure (target values)
- Color balance
- Content
  - All relevant aspects of specimen are visible
  - All labels are visible
  - Color checker and scale bar present
  - Specimens rotated right-side-up
  - Barcode matches file name





#### Plants of the National Colonial Farm

Accokeek, Maryland, U.S.A.

Kalopanax pictus (Thunb.) Nakai Araliaceae

"Umbrella-tree"

Infrequent tree 15 ft tall, apparent escape from cultivation; shaded oak-hickorytulip tree woodland, ca. 300 yds S of creek mouth alongtrail;near Prince Georges Co. line. CHARLES COUNTY

Steven R. Hill no. 13653 10 May 1984



### **Post Capture Processing**

- QC file names, focus
- Input Metadata
  - Creator
  - Copyright
- Image processing
  - Exposure
  - Contrast
  - Color Balance
  - Sharpen
  - Remove Chromatic Aberration







### **Export Derivatives**

#### **Convert RAW file to DNG for archive**

- Open license raw image format
- Preserves metadata in the file
  - XML data in header
  - No sidecar file
- Small file size
- Full bit depth

#### **Export JPEG for access (web, print)**

- Full resolution
- sRGB color space





## Overview

- Image import process
- Create and apply metadata preset
- Quality Control: file name and focus
- Image processing
- Create User Preset
- Image export process





## **Adobe Photoshop Lightroom**

- Cataloging and image editing software
- Edits are NOT made directly to an image (unlike Photoshop)
- Edits saved as a set of instructions in a catalog file (.lrcat)
- Edits applied when images are exported from Lightroom



#### Version 2.7 shown. Other versions may vary in appearance.



## **Library Module**

Import/Export. Browse folders of images. View many (Grid), view 1 image (Loupe). View/ add/edit metadata. Flag/rate/color label. Filter and sort.

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#### **Import Images**

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#### **Import Images**

#### Navigate to and select images to import.





#### **Metadata Preset**

Make a preset of metadata to be embedded in every image: copyright, creator.

Apply preset to batches of images during import.

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#### **Metadata Preset**

#### Name preset. Enter data in relevant fields. Select those fields. Create.

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#### Metadata

Can also add/edit metadata after import. Keywords, title, caption, etc. Can synchronize metadata for 1 image with any other selected images.





## File Name & Image QC

In Loupe view, confirm image file name matches barcode. Edit, if needed. Confirm labels and specimens are in focus. Check every 10-15 images.





### **Batches for Processing**

In Grid view, filter metadata and group images by date, shutter speed, and aperture. Select brightest image.

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## **Develop Module**

Image editing steps include: adjusting white balance, exposure, tone curve, sharpening, lens correction.



#### White Balance

Zoom-in on color checker. Select white balance eye dropper. Move it to a neutral gray square and click.





#### **Tone Curve: Linear**

#### Scroll down to Tone Curve. Select Point Curve: Linear.



#### **Exposure**

Select Exposure. Move cursor to center of white target square. Read histogram. If color target is along perimeter of lightbox, RGB values of 93% preferable for white, otherwise 96%.\*



## **Adjust Tone Curve**

Select Tonal Adjustment Tool. Position it over the light grey reference square, click and drag the cursor down until the value is 63%.\* (X-Rite ColorChecker Mini)



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## **Adjust Tone Curve**

Repeat process for medium grey and black squares, until values are 48% and 20% respectively.\* Press Done. Then change Point Curve: Medium





#### Sharpening

Sharpen to taste. Over sharpening causes visible artifacts. Conservative Adjustment: Amount = 50, Radius = 1.0, Detail = 33



#### **Remove Chromatic Aberration**

Newer versions of Lightroom have a box to check.

Older versions use sliders to minimize color fringing.



#### **Apply Edits to Batch**

With the edited image selected, select all thumbnails (Ctrl+A).

**Press Sync...** 



## **Apply Edits to Batch**

#### Check boxes corresponding to edits made and to be applied to all. Press Synchronize.

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#### **Develop User Preset**

Make a preset of edits to apply to every batch: sharpening, linear tone curve, remove chromatic aberration. Apply preset when importing images.

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#### Image Export

#### Select folder/images for export. Check number of images selected. Export.



#### **Export DNG for Archive**

Choose destination folder. Option to modify file name. Select Format: DNG. Export.

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#### **Export JPEG for Access**

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#### Image Metadata

Metadata embedded in image wherever it goes.

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## For more information...

- Tri-Trophic TCN, Project Documents: <u>http://tcn.amnh.org/documents</u>
- Blog by Michael Bevans, former Information Manager for Digitization at NYBG: <u>http://digitalphotorepro.blogspot.com</u>
- B&H Event Space: <u>http://www.youtube.com/bandh</u>
- Adobe Photoshop Lightroom: <u>http://www.youtube.com/user/AdobeLightroom</u>



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#### Thank you



