

VSU Bryophyte Imaging Protocol

Equipment/components

Camera: Nikon Dx3 camera with 24–120 zoom lens and MC-30 remote shutter release.

Software: Capture NX 2, Camera Control Pro 2, ABBYY FineReader 11 Pro or Corporate.

Camera Stand: Kaiser Copy Stand RSX with RTX Arm.

Lights: Kaiser RB 5000 Daylight Copy Light Set with Two 36 Watt 5400K Fluorescent Tubes.

Extras: bryostand, black flannel, marking tape.

Camera Settings (to be done once, checked for consistency, thereafter)

Adjust settings:

Exposure 1

Mode: manual

Shutter speed: 20

Aperture: F13

Exposure Comp: 0

Exposure 2

ISO: 100

white balance: Auto

Storage

NEF

JPEG Compression: optimal quality

Type: lossless compression

NEF bit depth: 14

Image processing

Picture control: standard

color space: sRGB

Tools/download options

Set download folder to ABBYY FineReader 11 hot folder

Next file name to be used: edit and set to next bar code

Prefix: V

Suffix: none

Between prefix and suffix: use sequential number

Starting number: 1

length of number: 8 digits

When a new image is received: sent to Capture NX 2

Camera custom settings

AF-C mode: release + focus

Pre-processing

1. Affix barcode to each packet, oriented 180° from horizontal, being careful that the barcode is

perfectly aligned (barcodes may be applied in bulk as a separate operation, or affixed just prior to exposing each image).

2. Install “bryostand,” covered with black flannel as background.
3. Affix alignment tape to outline at least one corner or one margin of the packet to guide packet placement.
4. Install 24–120 mm zoom lense to camera.
5. Start Nikon D2X camera.
6. Open Capture NX2.
7. Open Camera Control Pro.
8. Activate Live View from Camera Control Pro.
9. Position and align first packet using guide tape and the lens zoom ring, ensuring that the packet is straight and that the camera is zoomed sufficiently to provide the tightest crop; a narrow black border is acceptable.
10. Using AF and Shoot, shoot a couple of test images and examine them carefully for clarity.
11. Procure next box of specimens from cabinet.

Imaging

1. Affix bar code, if specimen is not previously barcoded.
2. Place specimen packet on black flannel bryostand, aligned with the alignment tape.
3. Inspect placement in Live View.
4. Take image using MC-30 remote shutter release (or mouse with AF and Shoot option).

Image Post-processing

1. In the Capture NX2 browser, navigate to the NEF temp folder.
2. Select one image and double click it.
3. Click Adjust->Light->Autolevels.
4. Click Batch->Save Adjustments.
5. Select a name to save the batch as: as adjustlight.
6. Browse to MyDocuments, press OK.
7. Click Batch->Run Batch Process.
8. Ensure that you are applying settings from your settings file, that the file format is JPG, and that your destination folder is your JPG temp folder.
9. Click Start.
10. When complete, close the Processing Queue dialog.

Post Processing (if using FineReader Pro edition)

1. Open FineReader 11 Pro {options should be set to open without analyzing or reading}.
2. Ensure that barcode detection is checked in the options dialog.
3. Open files by navigating to the JPG temp folder and selecting all files.
4. Select all files (Cntrl-A).
5. Once all files are loaded, click Document->Analyze Layout.
6. Once the analysis is complete, click Read from the main toolbar, or Document->Read.
7. Once all files have been read, click Save.
8. Select Text (*.txt) as “Save as type:” and “Name of source images” as “File name:”.
9. Navigate to the OCR temp folder, click Save.
10. Once all files are saved, run BCRename from the Desktop.

11. Select/confirm source folders as indicated: OCR, Raw, JPG, and Errors.
12. When all are selected or confirmed, click the Process button.
13. If errors are reported in the Error count field, navigate to the Errors folder and inspect the offending files.

Post Processing (if using FineReader Corporate edition)

1. Run BCRename from the Desktop.
2. Select/confirm source folders as indicated: OCR, Raw, JPG, and Errors.
3. When all are selected or confirmed, click the Process button.
4. If errors are reported in the Error count field, navigate to the Errors folder and inspect the files.