SERNEC – TCN Imaging Station Lightbox Set Up
Draft – 9 April 2015

This document is based on a document that was written at a Herbarium Workflows Workshop in Valdosta Georgia in January 2015. This document is specific to a set up for a lightbox used with a copy stand camera mount.

Task ID	Task Description	Comments and Explanations	Resources
T1	Select and purchase photobox for use with standard herbarium flat sheets	A light box is a photographic lighting device that lights specimens from four sides within an enclosed space to minimize shadows on the specimen. This lighting system is recommended for high quality image capture. The ORTech camera arm mount is not appropriate for herbarium image photography, so you will also need a copy stand (see T2).	For purchasing: Photo eBox Bio photographic lighting system (NYBG-modified, SKU: 777000 ORTech (manufacturer). See http://bit.ly/1OeWtGb for specific suppliers and estimated costs. Note that "NYBG-modified" means that it will come with the legs removed. If "NYBG-modified" is not an option then you can request that the legs are not installed by the manufacturer. These boxes are typically made upon order, so you can specify custom options when ordering.
T2	Select and purchase copy stand	The copy stand (without lights) is necessary for stable and flexible camera-mount height What is necessary is a copy stand that has 1) continuous adjustment for camera height (as opposed to pre-set heights with a locking clip system), 2) flexible (or extendable) horizontal distance from copy	Kaiser--Kaiser Copy Stand RS 1 with RA-1 Arm, 40" Counterbalanced Column, 18x20" baseboard will require an additional (but cheap) adapter spigot [Manfrotto 3/8" + 1⁄4" Adapter Spigot]

		stand arm, and 3) stability on the benchtop.	If you order the same copy stand, but with the RT-1 arm, you wont need the Manfrotto Adapter. It holds the camera more securely and the distance from the upright is adjustable, which allow precise positioning over the center of the light box.
T3	Attach camera to copy stand arm	Make sure your camera is centered over the opening of the lightbox. Test with live-view option on camera. Also, have a target (x or example specimen) to focus image. Before attaching the camera, it may be necessary to insert the camera's AC adapter and USB cord, as the camera battery compartment and ports may be difficult to access later.	Refer to "Imaging Station Set Up Camera" workflow for guidelines on placement of imaging equipment.
T4	Place lightbox on copy stand	If the Photo eBox Bio lightbox is not "NYBG modified," you may need to pry off the center two legs of the light box, as the center feet will raise middle of box if box hangs over edge of copy stand.	
T5	Prepare internal platform of light box for herbarium specimen photography	It is recommended that you cover the shooting surface with a black, light-absorbing material that can be easily cleaned of plant debris and resistant to wear and tear (or is easily replaceable). The background material can be adhered to the shooting surface with gaffer's tape.	For the Photo-e Box Bio, one may want to remove (pry up and lift out) the translucent light-diffusing plastic which covers the platform lights to use as a template for cutting the background paper.

		Background options include: 1. Black velvet material purchased from a fabric store 2. Black velvetine paper background 3. Flat-black poster board #1 is the material suggested on the SERNEC – TCN equipment list.	
T6	Select height of camera above specimens	Use calculator referenced at the right. The camera height should allow you to frame an entire herbarium sheet with minimal extra space around edges of sheet (to eliminate need for later cropping).	http://www.cambridgeincolour.com/tutorials/camera-lenses.htm
T7	Place specimen guide in box	This can be a blank herbarium sheet. NOTE: Use live-view on camera in order to position the specimen guide. This can be as needed, depending upon where you need the ruler and color separation guide. Whenever you decide on the location, use gaffer tape to secure the herbarium specimen guide to velvet.	Another option would be matting material to create a square corner. It is usually a couple of millimeters 'tall'. The un-beveled kind would be better. You would need to trim it to fit, potentially, but it would provide a very obvious physical boundary for your specimen.
T8	Position and affix color separation guide and scale bar	Gaffer tape should be used to affix the guide. NYBG places these at the top of the specimen sheet in the light box. Affixing these should be done with care so that they are squared and flat to create quality images.	Quarter-sized color separation guide: http://www.digitaltransitions.com/product/targets/colorgauge-nano-target
T9	Configure imaging computer and install software	Install camera control and image editing software. Create folder structures to facilitate image organization and processing.	Additional Resources: http://bit.ly/1aOhFow

		Connect camera to computer using USB cord, and test that camera is recognized. Configure camera control software and camera settings. Camera settings (e.g., F-stop, color balance) should be chosen to produce an image that will require no or minimal post-processing. Information from the color card can be used to determine the proper camera settings. It is important to remember that the appearance of an image on a computer monitor may not be reliable.	