

Creating High-Quality Botanical Illustrations by Using a Flatbed Scanner and Adobe Photoshop¹

*By Christopher Ross, Natural Resource Specialist
BLM Nevada State Office*

Background

Accurate and reproducible illustrations of plant specimens are commonly required for field guides, monographs, reports, posters, and educational materials. Although skilled illustrators remain in high demand, they are increasingly rare, and their products can be expensive and time-consuming to produce. Accurate, reproducible, and artistic illustrations of plant specimens can be created quickly by using a flatbed scanner and image manipulation software such as Adobe Photoshop¹ (Figure). The results can then be printed to paper or exchanged and incorporated electronically into word processing programs, presentation graphics software, and Web sites. Because of the speed with which illustrations can be created, several illustrations of a species in different life cycles or seasons can be combined.

Discussion

The process begins with obtaining a representative sample of the

specimen to be illustrated. The sample should contain as many components as possible, including leaves, buds, flowers, and seeds or fruits, even if the last three must be collected separately. Keep the sample uncrushed and moist between collection and scanning to avoid loss of plant parts. Ensure that both the scanner glass and cover are clean and free of spots. Arrange the specimens in a compact, lifelike, portrait orientation so that both sides of the leaves are against the glass. Flowers may be arranged so that some of them are flattened open against the glass, while others are shown in side view. A small ruler may be included to indicate scale. Close the scanner lid gently to avoid distorting the specimen arrangement. If necessary, a small object may be used to prevent the lid from closing too tightly. Drape an opaque cloth, such as a raincoat, over the scanner to prevent ambient light from entering under the lid. Scan the layout at medium resolution, then import the image to Adobe Photoshop and open it.

Perform the following steps to create a high-quality illustration:

- Crop the image to include only the specimen. Click on the dashed square box on the upper right of the left side tools. Draw a box around the image with the cursor, and then select **Image→Crop** from the top menu bar.
- Convert the image to black and white. Select the top menu bar commands **Image→Mode→Grayscale** and click **OK** to discard color information. (This step may be omitted if color illustrations are desired.)
- Adjust the shading. Select **Image→Adjust→Levels** from the top menu bar. Click on the white eyedropper that appears in the lower right of the pop-up box. Next, place the cursor on a part of the image that is only white background and click. Then use the cursor to move the triangle at the lower right end of the histogram curve inward (right) until you have eliminated most of the flat portions of the histogram curve. If there are flat portions on the right end of the curve, use the right side triangle slider to adjust them inward. You can experiment with the middle slider to modify the midtones.
- Adjust the brightness and contrast. Select **Image→Adjust→Brightness and Contrast** and **Image→Adjust→Curves**. A little experimentation will give quick insight into these commands.
- Save the image. If it is intended for use in text reports or layouts, it should be saved as a TIFF file. If the illustration is for Web use, it should be saved

¹References to specific products or services are provided for information only and do not constitute endorsement or warranty, express or implied, by the BLM, USDOJ, or U.S. Government, as to their suitability, content, usefulness, functioning, completeness, or accuracy.



as a JPEG file. The JPEG file format can be used for e-mail. These choices are available on the drop-down File type menu that appears after **File**→**Save As** is selected.

Editor's Note: During publication of this Resource Note, the author indicated that the technique described also works well for mineral and fossil specimens.

Contact
Christopher Ross
Natural Resource Specialist
BLM Nevada State Office
P.O. Box 12000
Reno, Nevada 89520-0006
Phone: 775-861-6571
E-mail: c1ross@nv.blm.gov

The Bureau of Land Management RESOURCE NOTES, which are posted on this Web site (<http://www.blm.gov/nstc/resourcenotes/resnotes.html>), are early announcements of technical and informational topics for BLM personnel and their customers. Information contained in this RESOURCE NOTE has not been peer-reviewed. Conclusions and opinions expressed herein do not necessarily represent those of BLM. Use of trade names does not imply U.S. government endorsement of commercial products.

Technical Editor - Deborah Harris (Debbie_Harris@blm.gov)
Science Editor - Brian St. George (Brian_St_George@blm.gov)
Graphic Designer - Ethel Coontz (Ethel_Coontz@blm.gov)

If you would like to prepare a RESOURCE NOTE for electronic distribution, or if you have an idea or can suggest an author for a RESOURCE NOTE, contact the Science Editor (e-mail: Brian_St_George@blm.gov; phone: 303-236-1930) with the TOPIC and the NAME of the writer, including MAILING ADDRESS, phone number, and e-mail address.

Thank you for your interest in RESOURCE NOTES.



 National Science & Technology Center 
Bureau of Land Management

Figure. Illustrations of mountain mahogany, *Cercocarpus ledifolius* Nutt. (left), and western juniper, *Juniperus occidentalis* Hook (right), were created by using a flatbed scanner and Adobe Photoshop.¹

