

Painting Shadow Textures with Jungle 3D™

Painting 2D tree textures is simple using Jungle 3D and Painter 6 or 7. With little effort, you can paint a tree that actually resembles a true 3D object. The only problem is the shadow. That's because the 2D-tree texture is mapped to a flat panel when used in 3D. The resulting shadow reflects the flat nature of the panel. That can be a real scene killer because the shadow may not make visual sense within the scene. This tutorial offers a simple and effective solution to the problem.

Two dimensional tree textures only cast accurate shadows when the sun or light source is low on the horizon and facing the panel. When the sun moves overhead, the flat nature of the tree texture is revealed. The resulting shadow depicts the thin line of the flat panel rather than the rounded volume of the tree. So in effect, you don't really need this tutorial if all your 3D scenes use early morning or late afternoon lighting. Your 3D program will cast the shadows for you. If you do sometimes use overhead lighting, you may find the tutorial helpful.

Using a shadow texture to depict the tree's volume is a simple solution to overhead lighting. All you need to do is paint a realistic tree shadow as it would look with the sun overhead. If you not sure what that kind of shadow looks like, go stand by a tree when sun is directly overhead. The shadow is largely circular characterizing the circumference of the tree.

Once the shadow texture is painted, you simply apply it to a duplicate terrain model and position it beneath your tree texture. The nice thing about using a duplicate terrain model is the shadow will follow the contour of the ground terrain. That can enhance the visual effect even further. Plus, the render hit is small.

Jungle 3D comes with an ideal series of tools for painting these shadows. The Shadow Brushes make up one variety. However, these "Brush" libraries are designed to address the shadows cast on tree trunks and limbs. They can paint ground shadows too, but the Shadow Nozzle library offers an even better solution.

The Shadow nozzles depict large leaf clusters from a variety of angles, so they more easily depict the random shadows cast from overhead light sources. They can quickly create lifelike tree shadows that fool the eye into thinking the tree is three-dimensional.

Here's how to paint them. First, copy the New Additions.sea or .zip file from the Extras folder on the CD over to your hard drive. You'll need to expand the compressed file to access the Shadow nozzles library. (Remove the "Read Only" setting if you're on a PC.) If you don't have Jungle 3D, download the Extras file and expand the file as described above.

Window	Help
Hide Palettes	⌘H
Arrange Palettes	▶
Zoom In	⌘+
Zoom Out	⌘-
Zoom To Fit	
Hide Tools	⌘1
Hide Brushes	⌘2
Hide Art Materials	⌘3
Hide Objects	⌘4
Hide Controls	⌘5
Show Color Set	⌘6
Hide Brush Controls	⌘7
Custom Palette	▶
✓ Screen Mode Toggle	⌘M

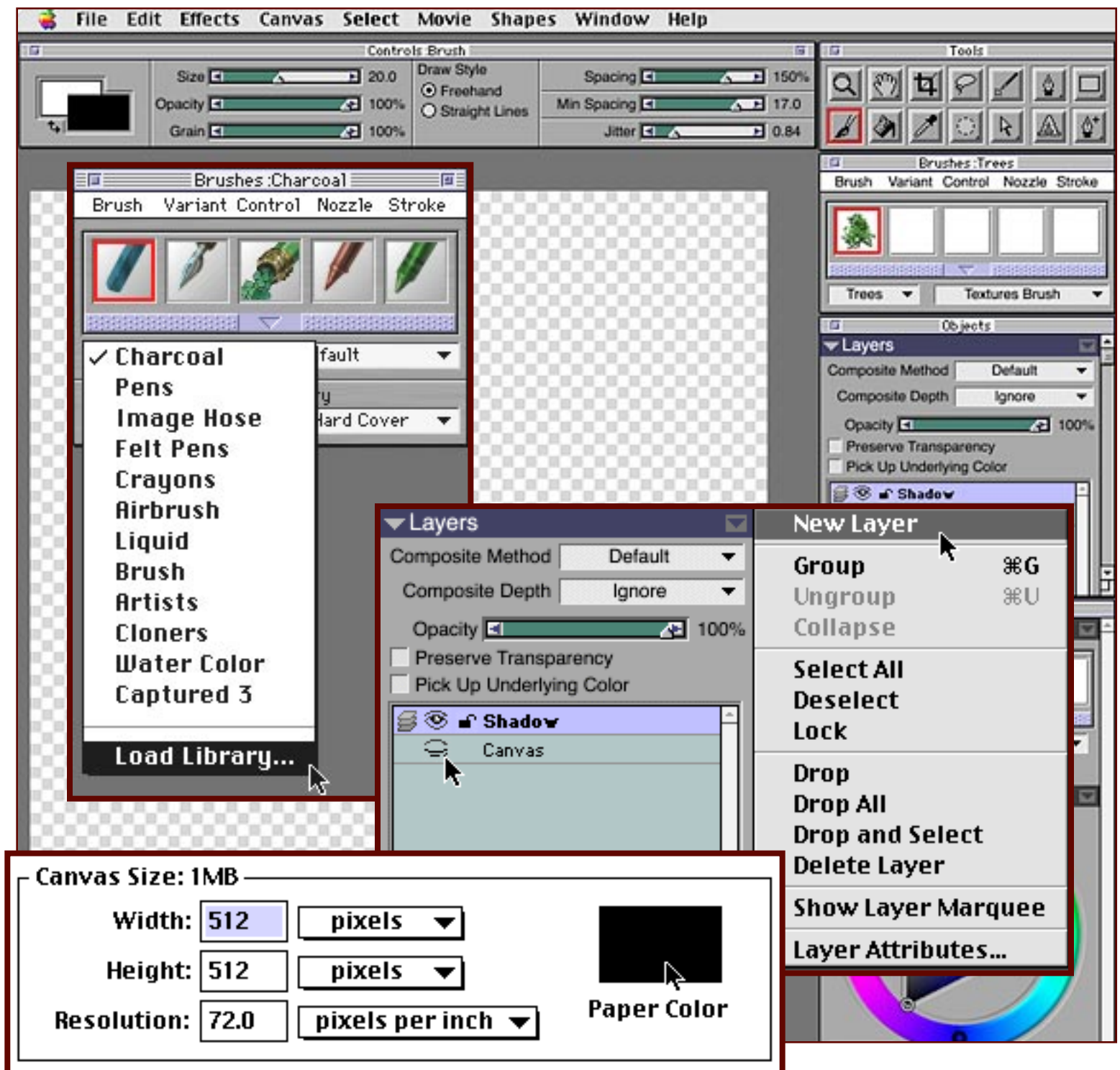
- 1) Launch Painter 6 or 7
- 2) Expand the Window menu and display the Controls, Tools, Brush, Objects and Art Materials palettes as shown.
- 3) Choose the Load Library command on the Brush palette (see above right).

Load the Tree Brushes library from the CD (or use the Tutorial library in the Extras folder). Select the Textures Brush.

- 4) Open a new 512 x 512 pixel image.
- 5) Set Paper Color to black.

Black is used as a paper color to avoid contrasting edges when the shadow and its alpha channel are dropped and selected.

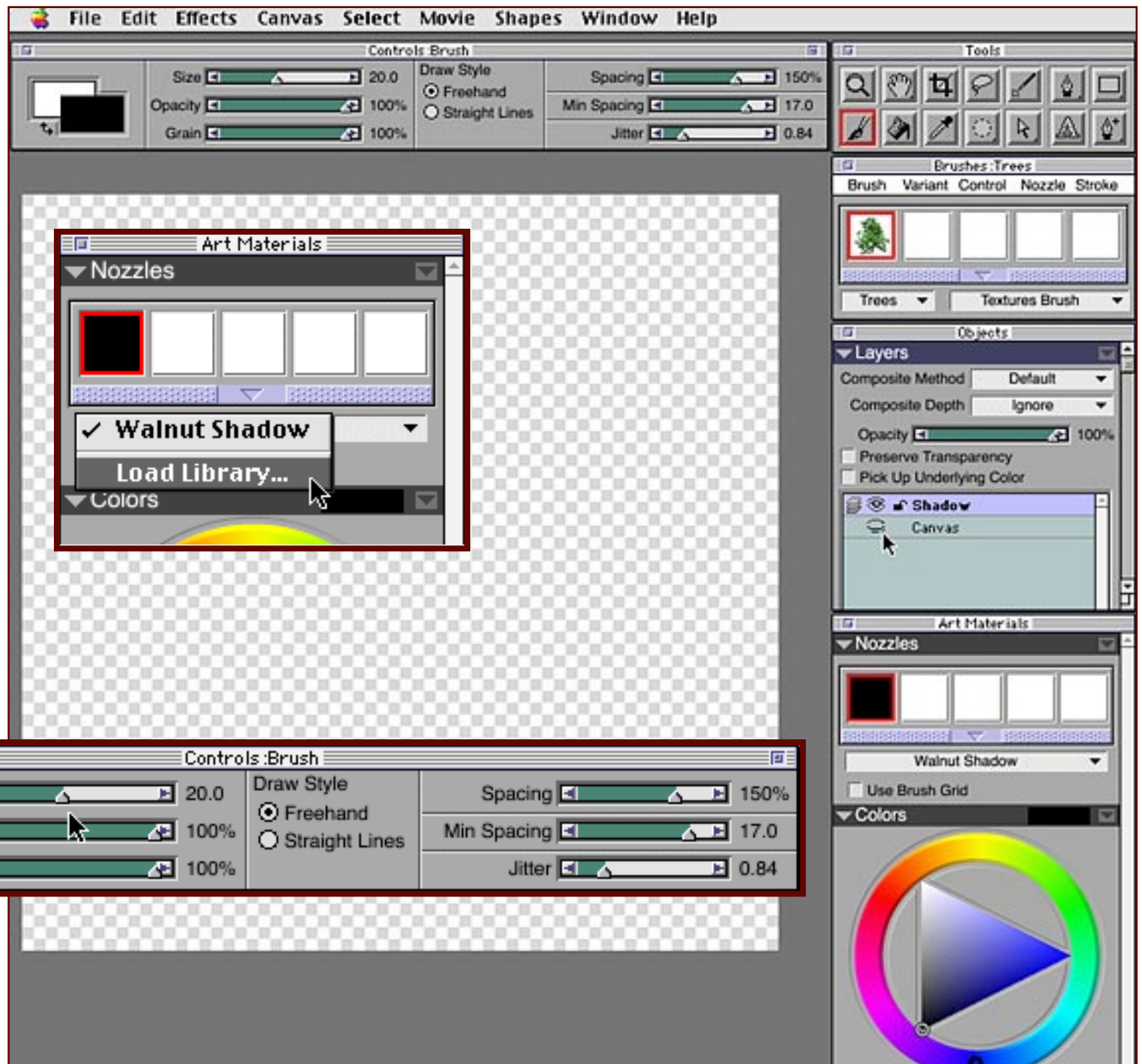
- 6) Create a New Layer from the Objects: Layers menu. Name it shadow
- 7) Close the Canvas eye to reveal the checkerboard image display.



- 8) Load the Foliage Shadows library from Jungle 3D or download the Extras folder and use that Shadow nozzle library.

- 9) The Walnut Shadow nozzle paints with shadows that are too large for the scale of the tree image so the size must be reduced.

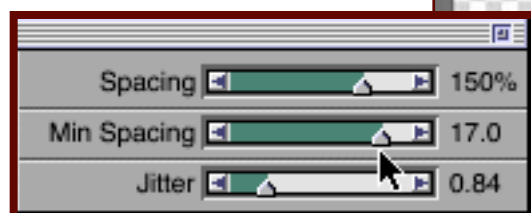
Select the Brush icon on the Tools palette and use the Controls: Brush palette to set Size to 20. Reducing the brush size scales the nozzle. Other controls make the brush spray in a more dispersed or random fashion. Set spacing to 150, Minimum Spacing to 17 and Jitter to .84



- 10) The prep work is done. You are ready to paint the shadow. It seems like a lot of work considering how fast the painting.

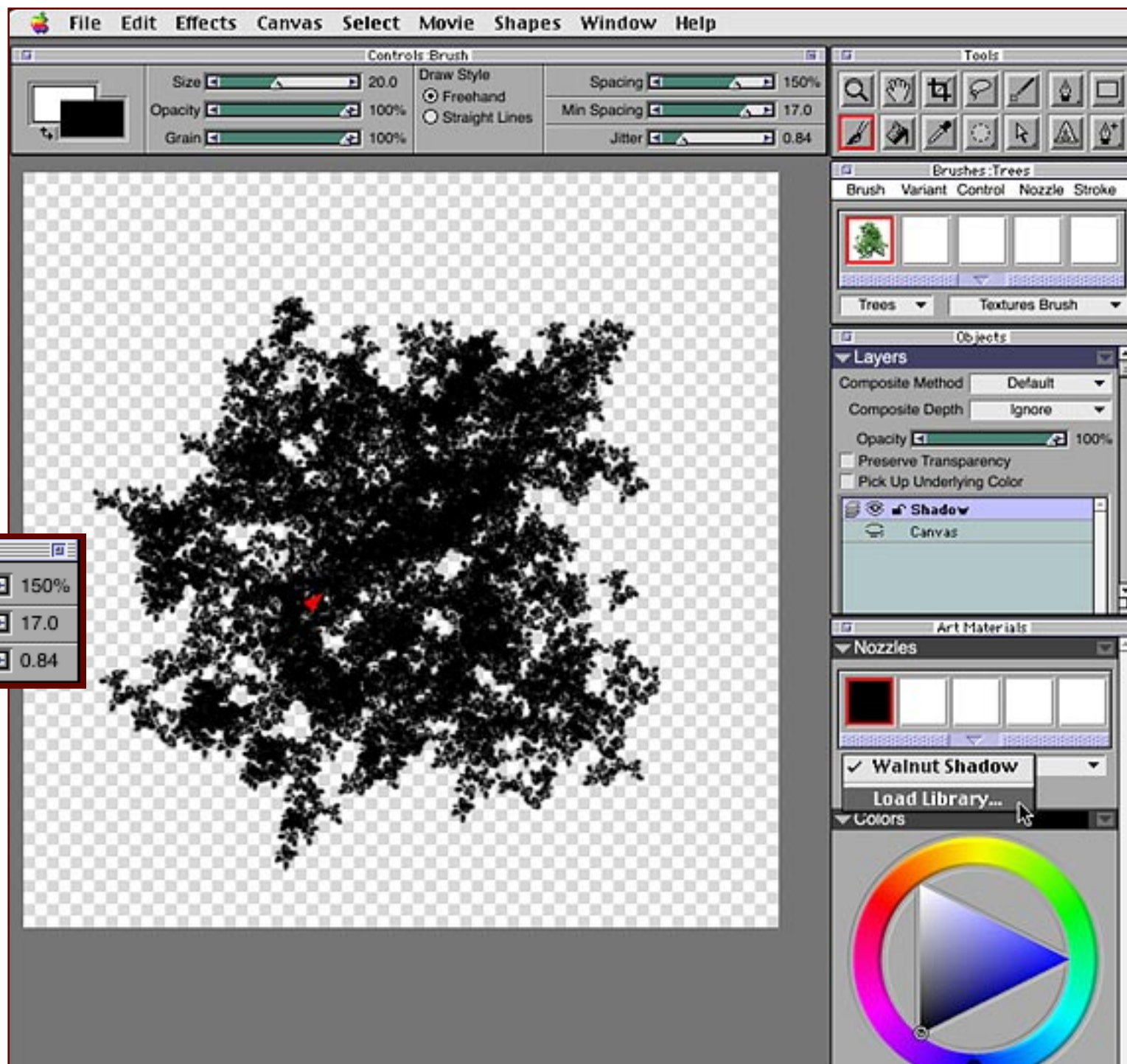
11) Apply a few brief strokes, or use dabs if they prove easier. Remember to keep an irregular edge. Similarly, the area of greatest density is likely to be the center.

Remember too, it's often the negative spaces (the gaps) that make the shadow work so be sparing. If the leaves apply too densely, simply adjust the Spacing and Jitter sliders on the Controls: Brush palette.

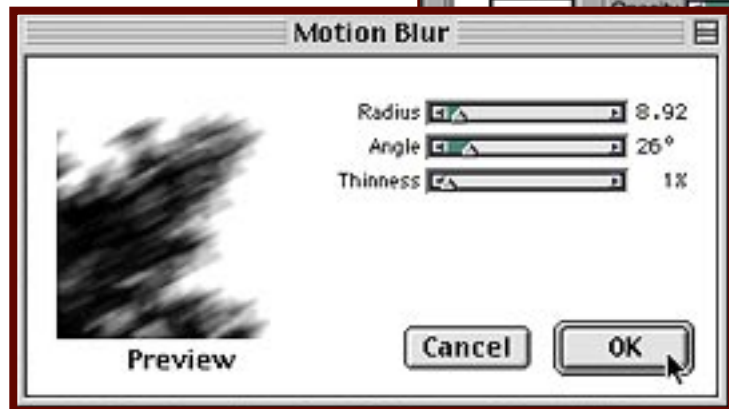


If you make a mistake, use Undo (Cmd+Z or Ctrl+Z). If you don't like the overall look, just start over. Use Select All and Delete to clear the layer.

12) Once you've got a shadow you like, add effects like Motion Blur. (You'll have to fill the Canvas layer with white to see a preview of the filter effect).



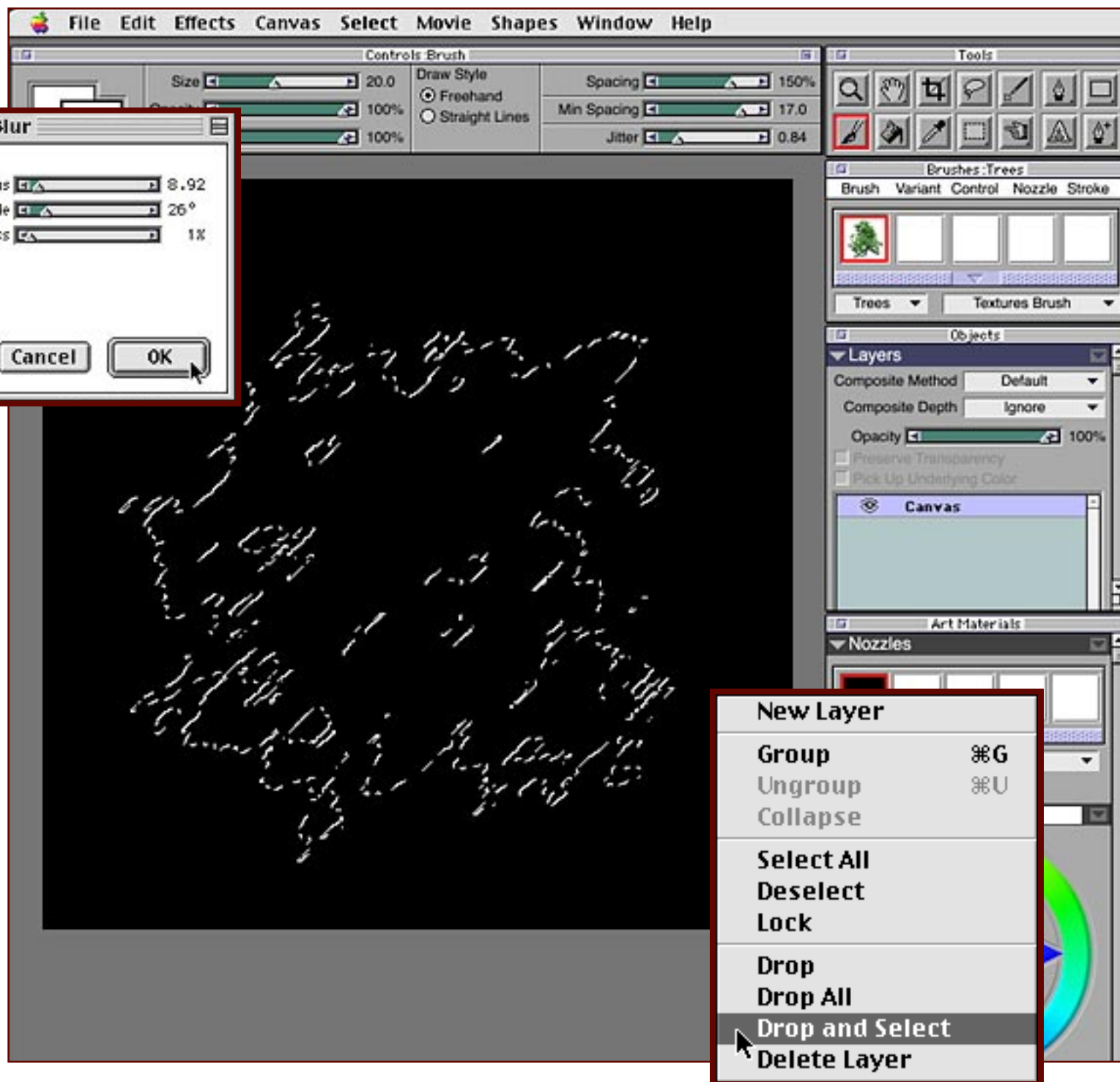
- 13) All that's left is flatten the image and save the alpha channel.



If you filled the Canvas with white to gauge the filter, use Select All and Delete to restore the black Paper Color.

To reduce image overhead, center the shadow in the image and Crop away the empty space.

- 14) Choose Drop and Select to flatten the image.
- 15) Use Save Selection on the Select menu to save the alpha channel.
- 16) Save the file in a format recognized by your 3D program. Use a format that retains the alpha channels (.tif or .psd are common).



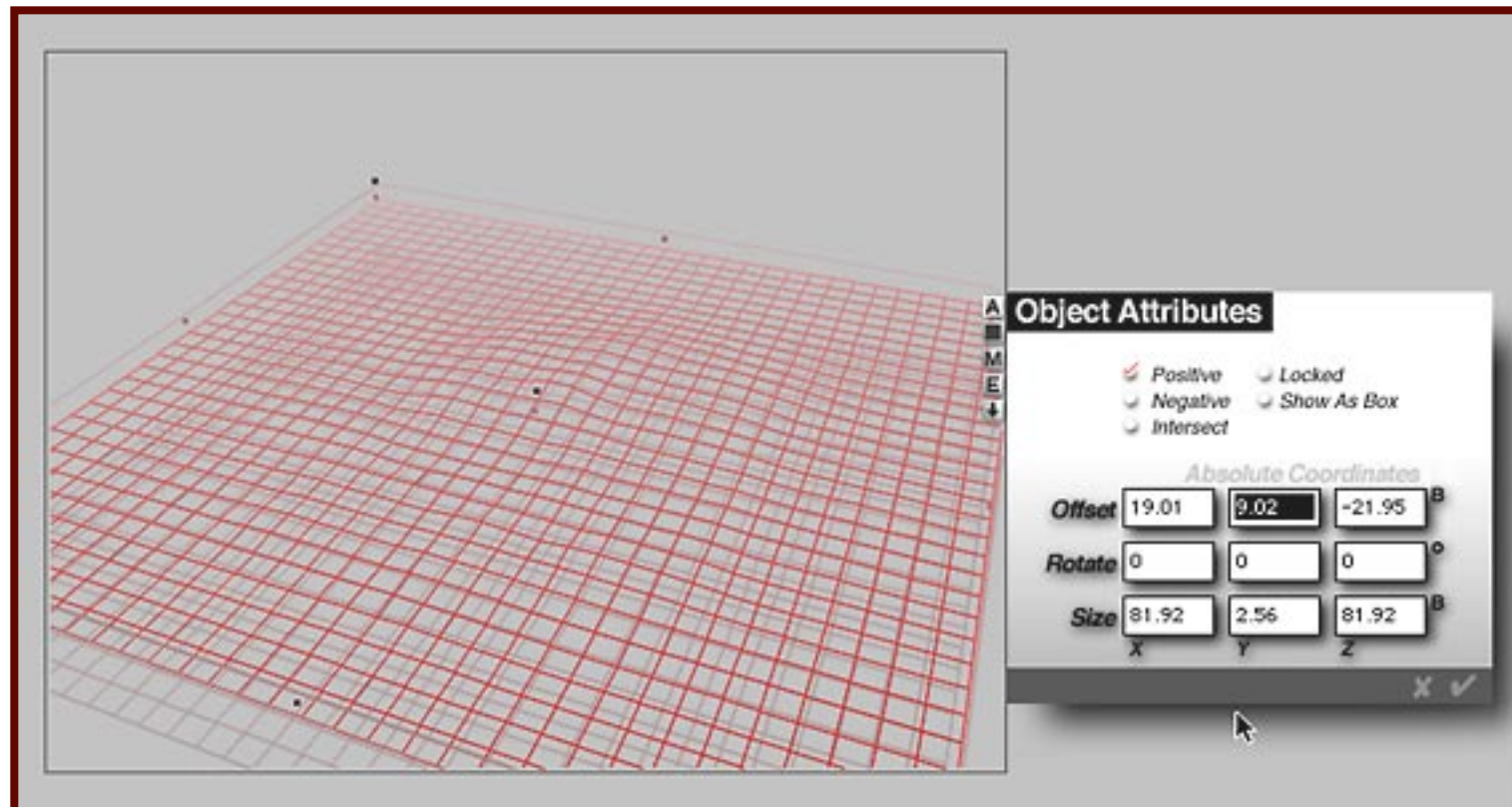
17) Close Painter and launch Bryce or the 3D application of your choice. You're ready to apply the shadow as a texture. (If you're proficient in 3D or Bryce, you can stop here or simply skim the remaining steps if you think it will be helpful.

18) Create an Infinite: Ground or Terrain model if you don't already have a scene created.

19) Copy the ground or terrain and then Paste. This makes a duplicate of the ground model. It's the one you will use to map the tree shadow.

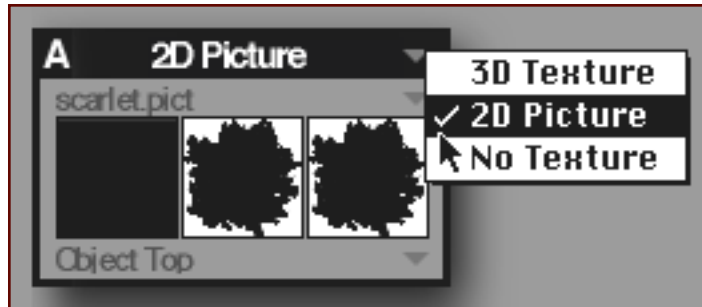
20) Select Object Attributes from the Objects pull-down menu and add 1/100th to the Y Offset number. This raises the terrain copy just slightly above the original. That allows the shadow to be visible on the ground.

21) You now have two identical terrains. One is just slightly higher than the other. You want to work on the "top" one.



22) Choose the Edit Material command from the Objects pull-down menu. This opens the Materials Composer where you'll make the texture mapping settings.

23) Select "2D Picture" from the top of box A. This opens the Pictures window (see bottom right).



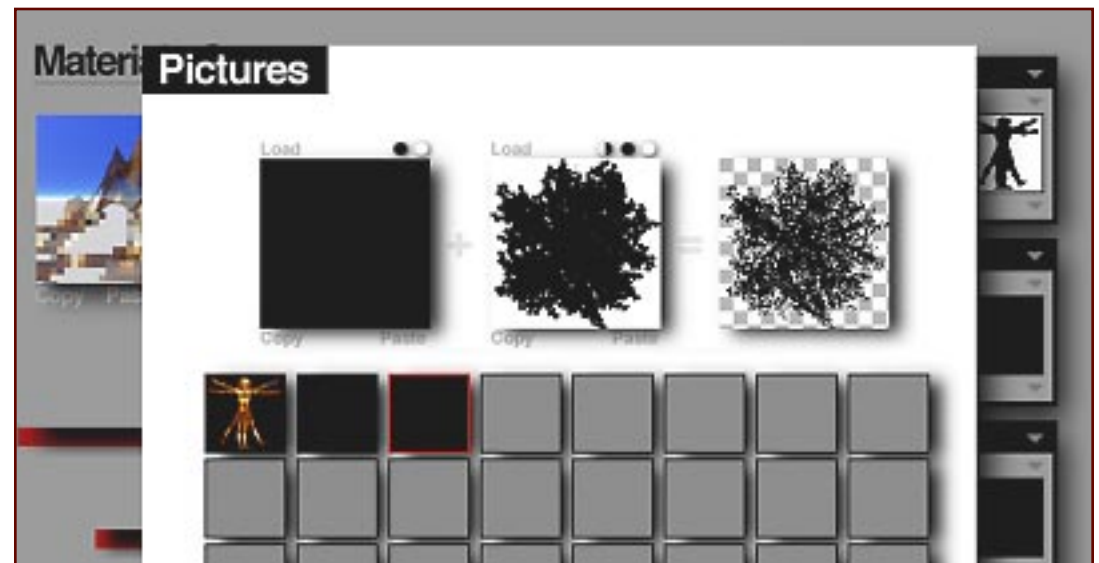
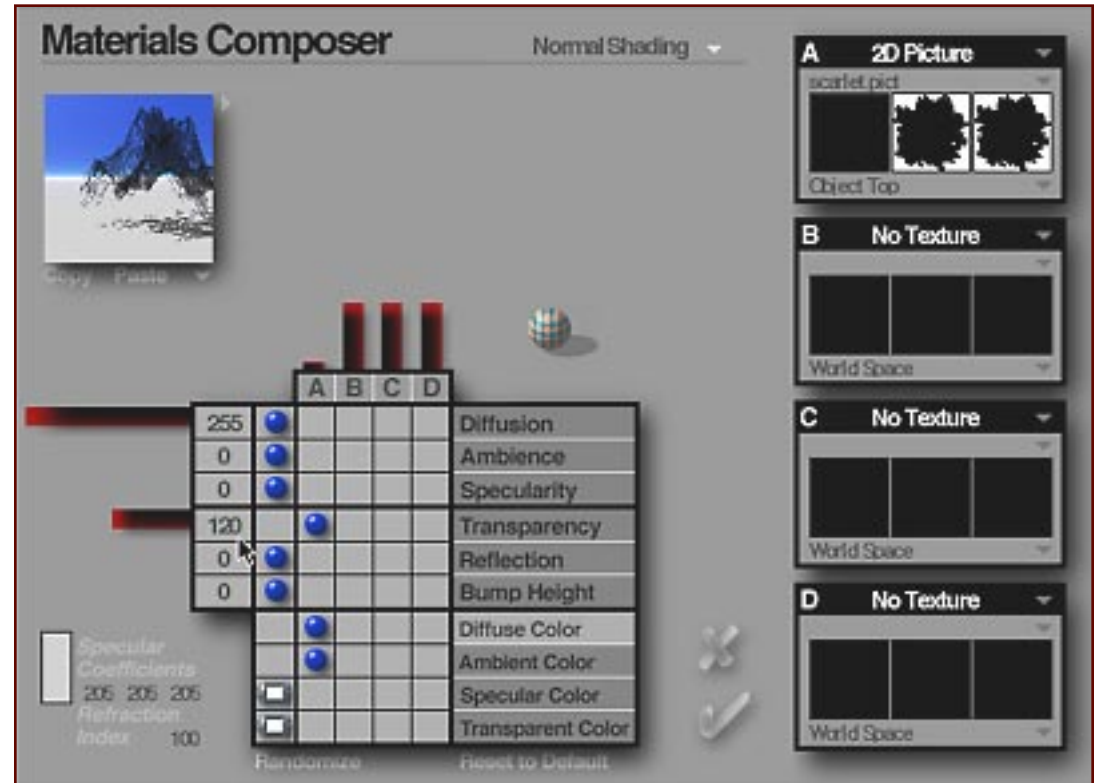
24) Click on one of the gray squares next to the little man, then select the "shadow" file. This loads the shadow texture map.

25) At the bottom of box A, select Object Top from the pull-down menu. This setting makes the image apply once, as it appears in the painting.

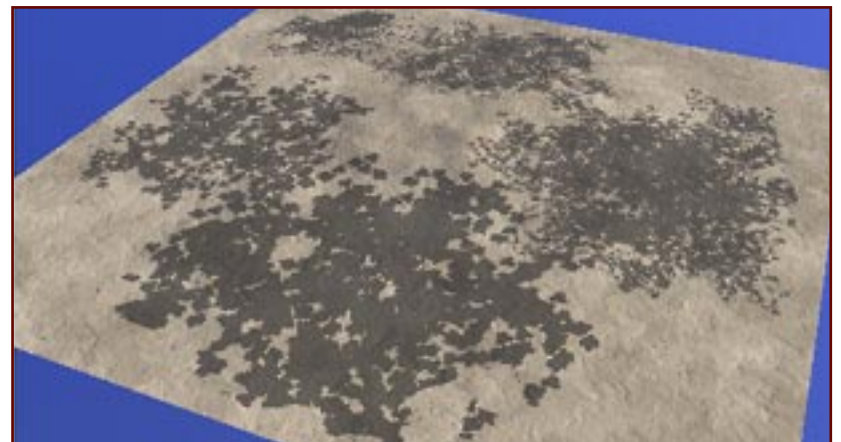
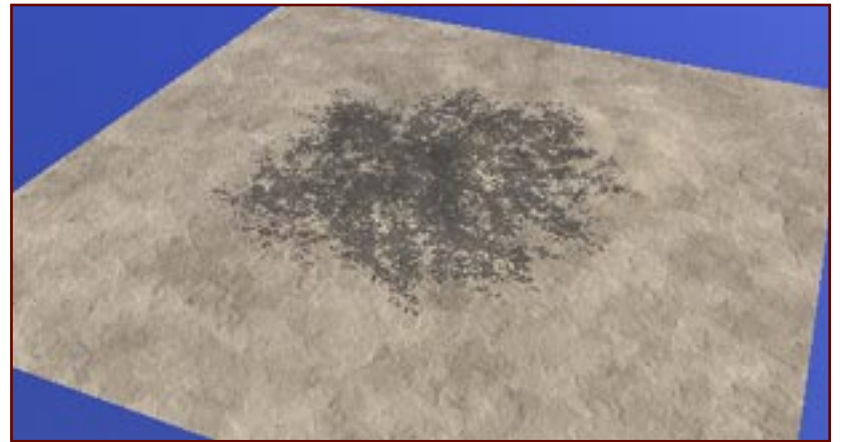
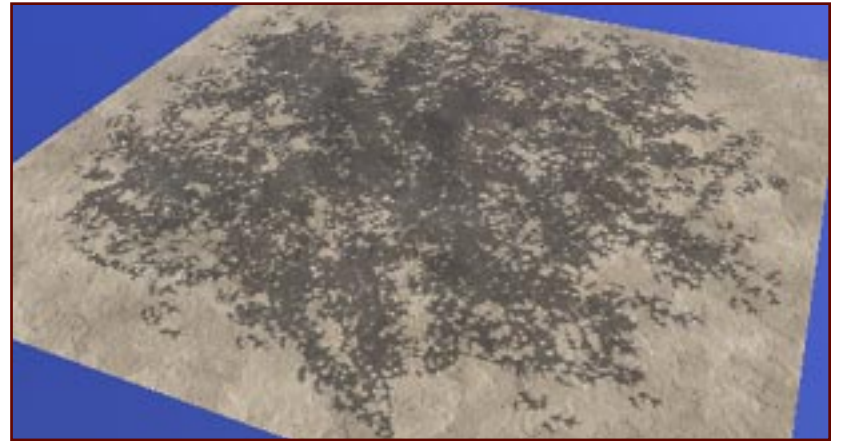
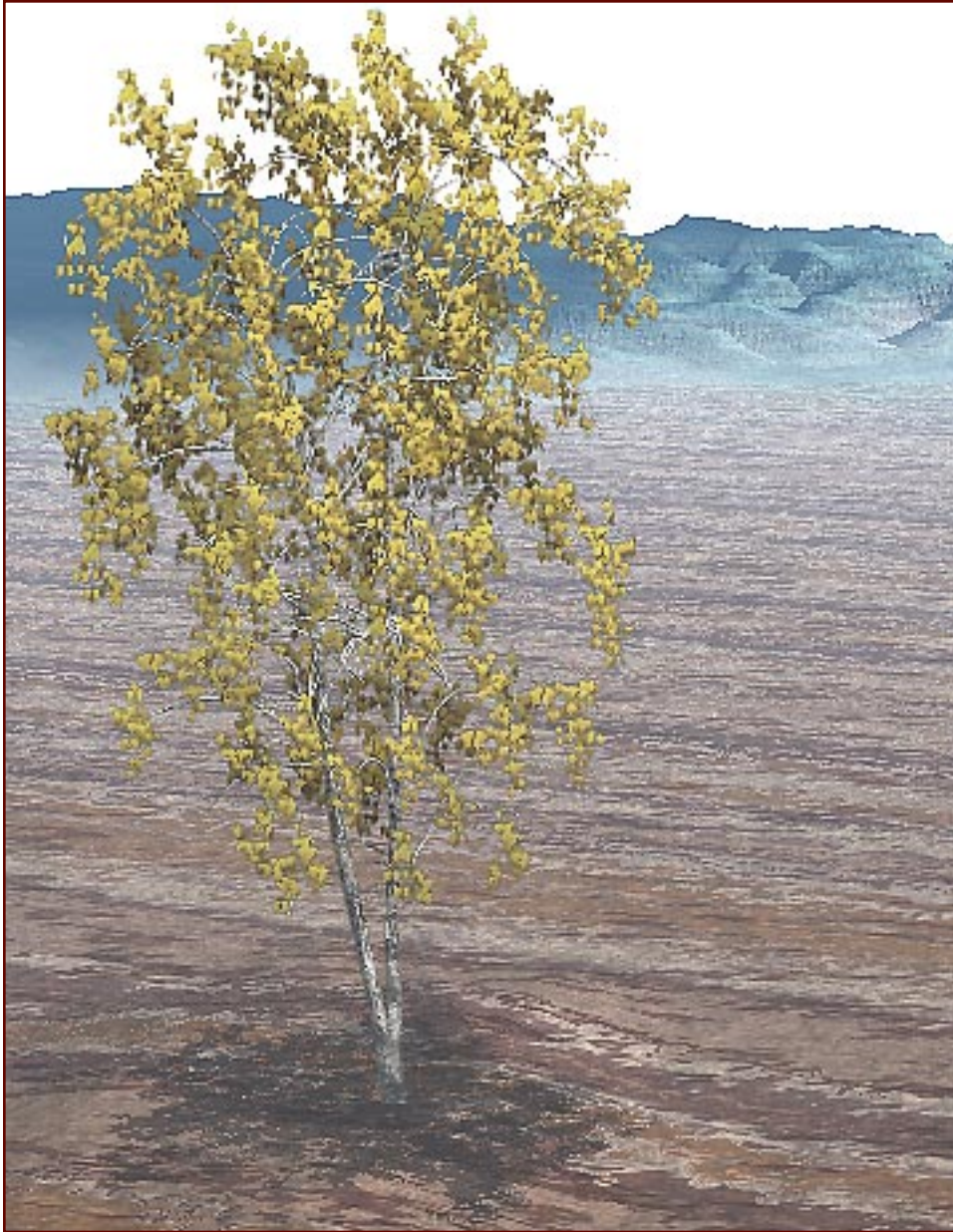
26) Now move the blue Transparency, Diffuse Color and Ambient Color icons into column A.

27) Shadows are semi-transparent so click on the number column in the Transparency row. A number near 120 will make the black shadow semi-transparent and more realistic.

28) If you want to make the shadow image smaller when it maps on the terrain, click on the "A" at the top of the column and enter a number. The larger the number, the smaller the shadow will be.



29) Here are three examples. The top image has an "A" value of 0. The image below it has a setting of 6. You can even paint more than one tree shadow in an image as shown at the bottom. Five different leaf brushes were used to create a single shadow map.



30) Associating shadow textures with trees and other foliage has a lot of possibilities. The shadow tools have other uses as well. They make great Gel Cookies for casting very realistic, soft-edged shadows onto 3D surfaces. The shadows can also be applied as semi-transparent paint to an existing texture used as a wall, pavement, cement or surface for a model.

Painting Tree Shadows for Painter 6 & 7 is the second in the revised series of Jungle 3D tutorials. It compliments the *Painting Trees with Jungle 3D*. Be sure to read that tutorial as well. The last in the series of revised Jungle 3D tutorials demonstrates how Jungle 3D can be used to create “tiling” foliage textures you apply to actual terrain models. Have fun.



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