Version 1.5.4

User Guide

Contents

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This manual is intended as a user guide for the Verdant plug-in. Although reasonable care has been taken in preparing the contents of this manual, it may contain omissions, technical inaccuracies or typographical errors. Digital Element, Inc. does not accept responsibility of any damages resulting from the use of this manual or from the Verdant plug-in. Product specifications are subject to change without notice.

Verdant

Digital Element's Verdant™ is a revolutionary plug-in for Photoshop, which gives you the power to add real 3D plants to your image without the complexities that are normally associated with 3D packages.

Verdant allows you to create, edit, save and place 3D foliage, either singly or as a group. When used in conjunction with Photoshop's Layer tools, Verdant offers a high degree of control over individual plant objects.

Each plant object built in Verdant is actually a complex mathematical formula that can be edited easily in great detail by the user. Most of the individual characteristics of each plant, such as its age, height, fullness, etc. are editable and can be controlled by very simple, intuitive sliders.

Setting Up

Verdant is easy to install. Regardless of the version you have purchased, two steps are involved: (1) Installing the software and (2) Registering the product. Follow the instructions below, depending on the version you have purchased.

Installing the PC Version

Verdant runs on PhotoShop 6 or better and works best with any system that meets the recommended requirements for PhotoShop 6.0. If you have purchased a CD, insert it into the drive and the program should auto-load. If it does not start automatically, then go to menu Start\ Run... and type in X:\Windows\setup.exe , where X is your CD-ROM drive letter. If you have purchased the downloaded version, go to the directory you downloaded it into and double-click on *InstallVerdant.exe*.

After you click on *InstallVerdant.exe* an installation dialog should appear. Follow the installation instructions. Your serial number is on the back of the CD case if you purchased the retail version or was sent to you in an e-mail if you purchased the downloaded version. Enter the serial number, including the dash, during the installation procedure. If you chose standard pathways for installing Adobe Photoshop, then choose the plug-in directory as you target directory. For Photoshop 6, that would default to: Program Files\Adobe\PhotoShop 6.0\plug-in. If you have a custom path to Photoshop, then make sure you install in the Plug-in directory under PhotoShop. The installer will create a DE folder and within it a Verdant folder.

Installing the Macintosh Version

If you have bought the packaged version, access the CD and copy file Verdant.hqx from the Mac directory on a CD to a temporary directory on your hard drive. If you have the downloadable version, go to the directory you downloaded the software to. Double-click on Verdant.hqx. When the archive is unpacked a folder named “Digital Element” will appear in addition to VerdantUnpack.sea file. Move “Digital Element” folder to the directory where plug-ins for Adobe Photoshop are located (PhotoShop 6.0\plug-in if you chose standard pathways for installing Adobe Photoshop). Remove VerdantUnpack.sea. If you have purchased the CD and inadvertently double-clicked on Verdant.hqx, you can click OK for the error message and manually select the installation directory.

Installing Newer Versions

If you are currently a Verdant user and are installing an upgrade, uninstall the old version of Verdant completely before installing Verdant 1.5.2. After installing, the product should load without requiring registration information. After installing, load the software and click on the About button in the lower left hand corner of the screen. Confirm that it lists the latest version.

Manipulation Controls

The primary working area in Verdant is the Main Viewport. This is a small window where you can see real time updates of the changes you have made to your plant object. This area also contains a number of controls for manipulating your view.

Zoom - The Zoom tool allows you to zoom in or out of your scene. Simply select the tool and click on the area that you want magnified. You can zoom out on your scene by holding down the "ALT" key while you click. Double-clicking on the Zoom tool will reset your image to the default 100%. The Zoom value can also be read and set numerically at the bottom of the Main Viewport area.

Pan - The Pan tool allows you to move temporarily move the scene in any direction relative to the camera. With the pan tool you can look at specific areas of your plant scene without affecting the final render. The pan tools changes appear on screen only; it is essentially a tool that will allow you to inspect your work before rendering. Double-clicking on the Pan Tool will reset your image to its original state.

Move Left/Right/Up/Down - This control enables you to move the currently selected object along its X-axis and Y-axis. Dragging right will move the object right and dragging left will move the object left. Dragging up and down will move the object up and down. This value can also be read and set numerically at the bottom of the Main Viewport area.

Move Forward/Backward - This control enables you to move the currently selected object along its Z-axis. Dragging right will move the object away from the camera and dragging left will move the object closer. This value can also be read and set numerically at the bottom of the Main Viewport area.

> **! What's New in Verdant 1.5 –** The Left/Right and the Up/Down buttons were optimized. Also, when you are in Left/Right/Up/Down mode and holding down the ALT key, you temporarily switch to Forward/Back. When in Forward/Back holding down the ALT key temporarily switches you to moving Left/Right/Up/Down

Rotate X - The rotate x control enables you to rotate the currently selected object around its X-axis. The imaginary axis goes through the center of the object so the rotation will occur in place. Dragging right will rotate the object in the positive direction and dragging left will rotate the object in the opposite direction. This value can also be read and set numerically at the bottom of the Main Viewport area.

Rotate Y - the rotate y control enables you to rotate the currently selected object around its Y-axis. The imaginary axis goes through the center of the object so the rotation will occur in place. Dragging right will rotate the object in the positive direction and dragging left will rotate the object in the opposite direction. This value can also be read and set numerically at the bottom of the Main Viewport area.

Rotate Z - the rotate Z control enables you to rotate the currently selected object around its Z-axis. The imaginary axis goes through the center of the object so the rotation will occur in place. Dragging right will rotate the object in the positive direction and dragging left will rotate the object in the opposite direction. This value can also be read and set numerically at the bottom of the Main Viewport area.

> **! What's New in Verdant 1.5 –**When you are in any of the rotate modes, you can press the ALT key and the rotate your plant or group of plants on two axes simultaneously.

Scale - the scale button allows you to resize the currently selected object. Resizing the object actually affects its appearance and will be reflected in the final render.

Default Parameters - returns the Main Viewport work area to its default values. This button can be used if you ever get "lost" in your scene and need help getting your bearings.

Update - if you have auto refresh turned "off", then you will need to manually make the program update the Main Viewport each time a change is made. Simply clicking the "U" key does this.

Mode Control - allows you to switch the Main Viewport rendering method between the **Wireframe**, **Preview Rendering** and **Production Rendering** modes. You can also use the "M" key to switch between modes.

Wireframe - Shows only the bounding lines of each object but allows for faster manipulation of your scene when you have many objects on screen.

Preview Rendering - Allows you to view basic shading details of your plant object without having to wait for Verdant to re-render the Main Viewport.

Production Rendering - This is a realistic representation of your objects suitable for use when you really need to see the details of each object.

Single Tree Mode / Groups Mode - if you have enabled the Groups feature of Verdant you will have two separate views, which you can use to inspect your scene: the Single Tree Mode and the Groups Mode. The Single Tree Mode will show only the original plant in the Main Viewport while the Groups Mode will show the entire forest in the Main Viewport. You can also use the "S" key to switch between modes.

About – Displays information about Verdant's version number, its authors, and the installed copy's registration status.

Variator – Opens the plant Variator interface. *See 'Section 5 – Variator'.*

Preferences – Enables/disables Auto Refresh and Confirm Deletion options.

Reset – Restores Verdant to its default settings. It will reset all camera and light settings as well as return to the default plant preset.

Preview – Opens a full-resolution preview of your Verdant object(s), using Production Rendering mode.

OK – Applies Verdant settings to the current Layer in Photoshop.

Cancel – Closes the Verdant interface. Settings are **not** applied in Photoshop.

Presets

Verdant has a multitude of pre-made plant objects that make it easier for you to create truly beautiful plants for your project. **These are called Presets.** It is important to point out that each preset is not merely a picture which you can bring up on screen but rather it is a very well planned out set of parameters that actually make up the object. As such, all presets can be edited or customized in fine detail to suit your needs. To use a particular preset, simply double click on it and it will appear in the Main Viewport.

Preset Categories - Verdant contains many preset plant objects broken into a number of

broader categories such as trees, plants, flowers and grasses. These categories are accessible through the Presets pop-up menu. These categories are also customizable so you can rename, delete or create you own category.

Add to Presets – use this feature to add the current tree settings to Verdant's presets group.

Delete Preset – you can also easily delete presets by simply highlighting the preset and hitting the delete button. Deleting a preset is permanent, so use this button carefully!

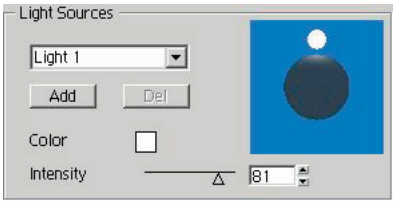
Load Preset – Verdant's presets are portable so you can trade presets with your friends or coworkers. Verdant 1.5 supports two kind of plants, .tr plants and the new Verdant .msh plants. The plant formats act identically in Verdant. Presets are saved as ".tr" files and can be imported by clicking the "open" button and locating the .tr file you would like to import.

Save Preset – you can easily save new presets by clicking the save button. The current settings will be saved as a preset into the currently active category.

! What's New in Verdant 1.5 – Verdant 1.5 includes a new plant format which allows users to have flowers, flowering bushes and more. Plants witht he .msh format are created with the Verdant Plant Mechanic, a new product in development for the easy creation of custom plants.

Lights

Light Sources – Lights are an important aspect for creating trees that look realistically placed in a picture.



Light Placement – The sphere is a graphical interface that allows you to select and move your lights around your plant objects. The large black sphere represents the picture and the small white spheres are the light sources. The perspective on the interface is identical to that of the preview window. Simply click and drag on a light to reposition it. The top of the sphere is the top of the map.

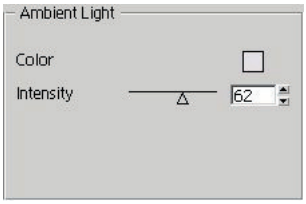
Add – Creates a new Light Source which is added into the Light pulldown menu. This will also create a nother small selectable sphere above the Light Placement sphere.

Select– A pulldown menu that lets you select a lightsource for manipulation or deletion. You can also click on the light ball in the sphere selector.

Delete – Removes a selected Light Source.

Intensity – This is effectively the strength of theselected light. The higher the setting, the stronger the selected light color will affect the image.

Color – Click and hold on the colored box to select the color for your light. You can also bring up the platform specific color picker by double-clicking on the box.



Ambient light represents a (usually colored) light that permeates the scene. In the real world, light bounces off of objects and is often times a colored light. Ambient light cannot cast a shadow since it is omni-source and omni-directional. It is radiating from every directiona nd directed every direction.

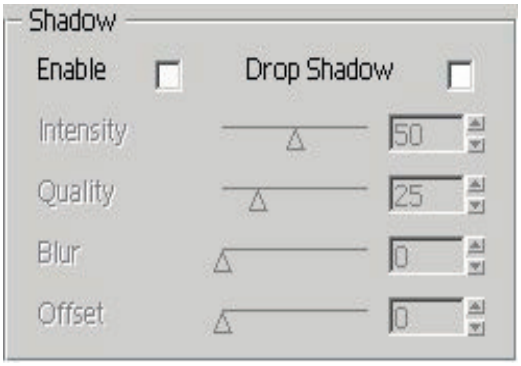
Ambient Light – The ambient light is a global light source, which affects the overall color of the lighted and shadowed colors of your plant object. It is a very subtle setting and can be used to really make the plant “fit” into your scene.

Ambient Color – As with the Light Color picker, simply click and hold on the colored box to select your ambient light color. You can also bring up the platform specific color picker by double-clicking on the box.

Intensity – Causes the selected ambient color to become more pronounced or less pronounced. Set to zero to turn off Ambient Light.

Shadows

Shadows – There are two kinds of shadows: object shadows -- highlighting on the leaves of the plant, and Drop Shadows, the shadow cast on the ground.



*Verdant creates shadows by using a special image map known as a **shadow map**. A low Quality setting creates the shadow map at a lower resolution, and the map's individual pixels may become visible, although Verdant will try to minimize this by blurring the shadow. Additionally, the amount of detail that the map can support will be reduced if the map has fewer pixels to work with. Ideally, the best shadow balances sufficient resolution with appropriate rendering times. Shadows are only previewable in **Production Rendering.***

Shadows/Enable – If you'd like Verdant to create a cast shadow for your plant object, make sure this boxed is checked. It is important to note though that this is a processor intensive parameter so its best to leave it off until you are ready to render your final image.

Drop Shadow/Enable– When enabled, the plant will cast a shadow on the ground. If shadows are enabled but Drop Shadow is not, then shadows will only be rendered on the plant.

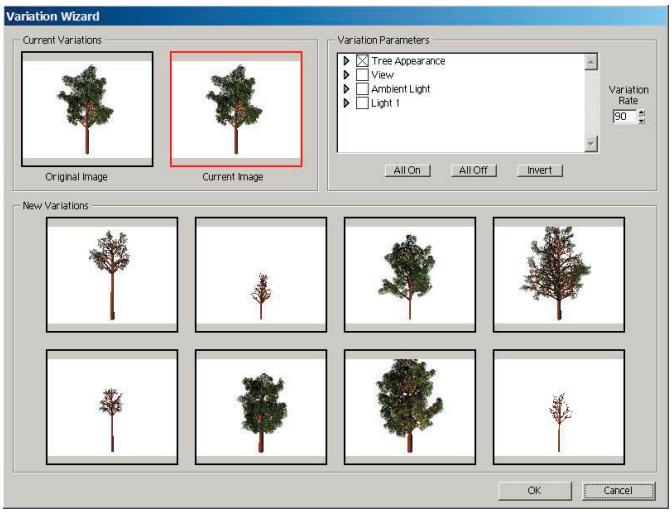
Intensity – This controls the darkness of the shadow created by Verdant. A low number will result in a very faint shadow and a high number will result in a very dark, black shadow.

Quality – Controls the amount of detail and 'pixelization' visible in the shadow. Lower settings produce less detailed shadows that render quickly; higher settings create shadows with more detail that can take much longer to render.

Blur – Softens the edges and the definition of the shadow. Higher settings increase the blur.

Offset– This is the distance of the beginning of the shadow to the base of the plant. The higher the offset, the more of the base of the shadow is not created.

The Variator feature is a powerful and versatile tool for editing your Verdant objects. Similar in nature to the 'Mutate' settings in the Appearance controls, Variator allows you to try out entire sets of changes. These changes can be endlessly combined and re-combined, and finally saved out as a new preset.



Original Image – This is the state of your Verdant object in the Main Viewport, represented by a thumbnail image. Double-click on the image to start the variation process. If at any time you wish to restore your Original Image settings without hitting the 'Cancel' button, double-click on this thumbnail, and Current Image settings will be reset.

Current Image – Initially, this is identical to the Original Image thumbnail. Double-click on the image to see eight variations of your plant object below, in the New Variations area.

New Variations – This is where you can view and select variations to your plant object. Eight new thumbnail images are generated each time the Original Image or Current Image is double-clicked. Additionally, double-clicking any one of the eight thumbnails in the New Variations area will assign that setting to Current Image. This action will also re-generate all eight of the New Variations settings.

Variation Parameters – Allows you to tag the major parameter groups (as well as their sub-sets) to be affected by the Variator. Click once in each group's checkbox to include it; click a second time to exclude the group. To view and individually select the group's sub-sets, click on the Expand/Collapse arrow next to the checkbox.

All On – Selects all groups.

All Off – Deselects all groups.

Invert – *Inverts* the group selection (deselects what was selected, and selects what was deselected).

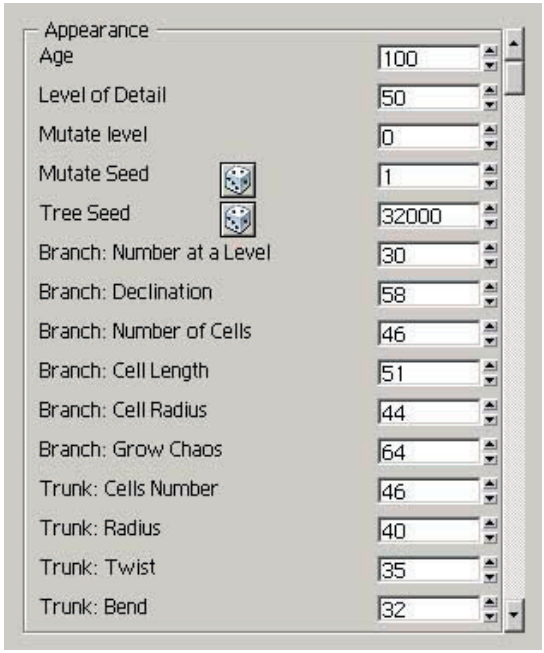
Variation Rate – Controls the amount of change in all eight of the New Variations settings. A lower value produces similar Variations, while a higher value produces markedly different Variations.

OK – Applies Variator settings to the current Verdant session.

Cancel – Closes the Variator interface. Settings are not applied in Verdant.

One of Verdant's most powerful features is its **Appearance Control** set. By adjusting these settings, you will be able to selectively customize your plant objects with a very high degree of control and flexibility.

Note that the controls listed here represent the most commonly shared parameters among Verdant's Presets. These controls will vary in order or nomenclature, depending on the Preset plant data that you may be working with at a given time. For example, Palm Tree presets will share ***some*** *controls with Pine Tree presets, but each preset will also contain entirely unique controls.*



Age – Controls the time-based growth characteristics of a tree. Settings range from 0 to 100, with lower values creating a younger tree, and higher values creating an older tree.

Level of Detail – Changes the resolution used to represent each plant object. A higher number will result in a much more dense Wireframe or shaded model, but may also require more redraw or rendering time to manipulate.

Mutate Level – Sets the amount of randomization for a tree's features. Settings range from 0 to 1, with little variation occurring with lower numerical values, and greater variation resulting from the maximum setting. A Mutate Level of 0 will cause Mutate Seed and Tree Seed settings to have no effect. *See also: Random Seed and Variator.*

Mutate Seed – Generates a tree type. Discreet values can be entered numerically, or generated randomly by clicking the Random button. Settings range from 0 to 32000. Changes to Mutate seed will have no effect if Mutate Level is set to 0. *See also: Random Seed and Variator.*

Tree Seed – Creates a randomization within the parameters set by Mutate Level and Seed values. Discreet values can be entered numerically, or generated randomly by clicking the Random button. Settings range from 0 to 32000. Changes to Tree seed will have no effect if Mutate Level is set to 0. *See also: Random Seed and Variator.*

Leaves/Needles: Length – This setting determines a tree's overall leaf coverage. A value of 100 will give the effect of a tree in 'full leaf'. A value of 0 will produce a more 'budding leaf' effect, or if combined with a low 'Greenery of Leaves' value, a more 'defoliated' effect.

Leaves: Greenery – Controls the amount of green color (chlorophyll) distributed throughout a tree's leaves.

Branch: Declination – Changes the overall angle between a tree's branches and its trunk. A low value will make the branches 'stick out' at an angle closer to that of the trunk, while a higher value will cause the branches to align more closely with the ground.

Branch: Number of Cells – This setting controls the number and density of 'sub-branches' emerging from a tree's regular branches. The number of leaves is not changed. Note that higher values in this control will result in longer redraw and render times. *See also: Recursion Depth.*

Branch: Cell Length – Controls the distance between the point at which a branch emerges from the trunk, and the point where the branch ends. Relative angles and distances between 'sub-branches' are preserved.

Branch: Cell Radius – Alters the 'thickness' of each branch, relative to its length.

Branch: Grow Chaos – Sets the angular variation of a branch, within that branch's length. A low value will produce a relatively straight branch; a higher value will produce a more crooked branch.

Trunk: Cells Number – This setting controls the number and density of branches emerging from the trunk. The number of leaves is not changed. Note that higher values in this control will result in longer redraw and render times. *See also: Branch: Number of Cells and Recursion Depth.*

Trunk: Cell Length – Controls the distances along the trunk's length, between the points from which the branches emerge from the trunk. A lower value compresses this distance, while a higher value expands it. Changes to this setting will also affect the tree's overall height.

Trunk: Radius – Governs the trunk's thickness, relative to its length. *See also: Branch: Cell Radius.*

Trunk: Twist – Creates a torsion effect along the trunk's length, wherein each Stump Cell is rotated around its Y-axis, with the topmost cells receiving the highest amount of rotation. The trunk's texture map will adjust to this twisting effect.

Trunk: Bend – Causes the lower portion of the trunk to curve away from the Y-axis.

Trunk: Part without Branches – Controls the distance between the trunk's base and the Stump Cell with the lowest set of branches. A high value will cause the branches to cluster near the top of the tree, and a low value will allow the branches to emerge from a much lower point on the trunk. *See also: Trunk Length and Stump Cell Length.*

Branch: Number at a Level – Determines the density and distribution of a tree's branches. A zero setting will yield a tree with fewer branches, and the maximum setting of 100 will create very dense branches. As these values are increased, some branches will be shifted around the tree's Y (vertical) axis make room for additional branches. Note that higher values will result in longer render times.

Recursion Depth – Sets the number and density of leaves emerging from the tree's 'sub-branches'. Note that higher values in this control will result in longer redraw and render times.

Groups

See also: Branch: Number of Cells.

Verdant's Groups mode gives you the ability to fill your Photoshop images with multiple plant

objects. Population and variation controls provide power and flexibility for creating virtual groves, bowers or forests.

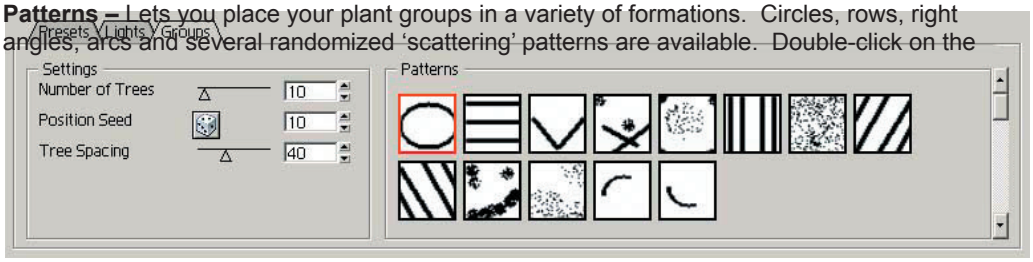
Settings – Includes tools for customizing your plant groups.

Number of Trees – Sets the number of plants in the group, with a range of 0 to 100 plants.

Position Seed – Controls the initial placement of the plants. Settings can be made numerically or with the Random button. Seed range is 0 to 32000.

Tree Spacing – Governs the average distance between each plant. Values range from 0 to 100.

Patterns – Lets you place your plant groups in a variety of formations. Circles, rows, right angles, arcs and several randomized 'scattering' patterns are available. Double-click on the



Verdant also allows you to load **custom image files**, for use as group patterns. Simply create a grayscale BMP image (in Photoshop, or the 2D image-editing program of your choice), 44 pixels wide by 45 pixels in height, and save it to this directory on your hard drive:

Photoshop/Plug-Ins/Adobe Photoshop Only/Digital Element/Verdant/patterns

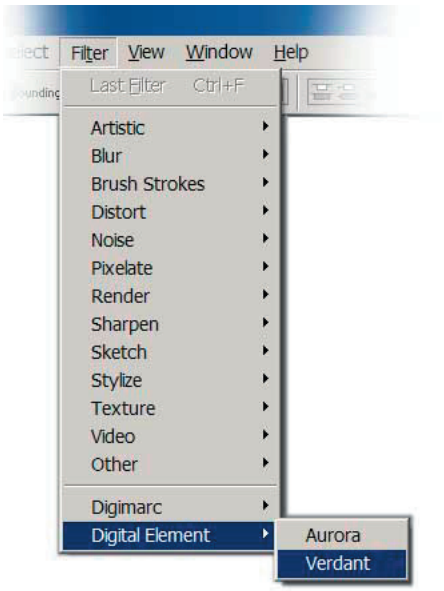
The saved image will appear as a new Pattern icon, the next time Verdant is launched.

appropriate thumbnail to assign it to your group.

Note: due to the inherent increase in redraw and rendering resources, it is recommended that you first edit your plant groups in Wireframe mode until you've attained the desired settings.

Once that's done, view your results in Preview Rendering or Production Rendering mode.

Now that we've familiarised ourselves with some of Verdant's powerful toolsets, let's try them out with a simple exercise.



1. Make sure Verdant is installed in the appropriate folder on your hard drive.

2. Launch Adobe Photoshop. Open a new file and make the dimensions 640 pixels wide and 480 pixels in height. To make our actions easier to view, set the Contents option to White.

3. In the Filter pull-down menu, select Digital Element, and then Verdant.

4. Select a preset tree object (for this exercise we'll use 'Maple 3').

5. Let's view our tree in Wireframe mode.

6. Select the Rotate Y tool and drag your mouse cursor through the Main Viewport. Observe the change to your view of the tree.

7. Now let's view our tree in the shaded Preview Rendering mode. Rotate the tree again.

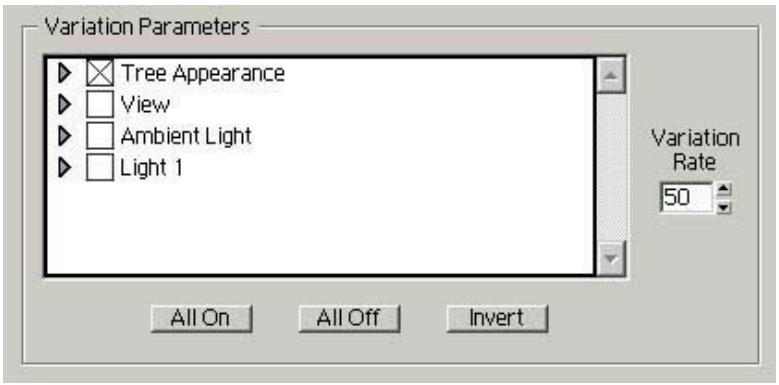
Notice the redraw is a bit slower. This is due to the additional calculations that Verdant must perform to update the shading data.

8. Change the view mode to Production Rendering.

9. Our tree is looking good, but the leaves are a bit too yellow. Let's restore a little of their

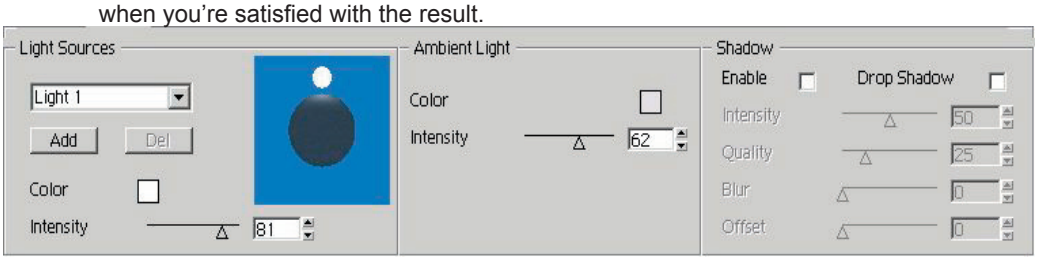
green color.

10. In the Appearance controls, select Leaves: Greenery.
Increase the default setting to 100.



11. Now let's open Variator. Make sure the Variation Parameters are set to affect only the Tree Appearance settings. Double-click on the Original Image and observe the eight new versions of our tree that appear in the New Variations area below.

12. Increase the Variation Rate to 80. Notice that the trees generated in New Variations show a greater degree of variety. Double-click on one to assign it to Current Image. Repeat the process if you wish to choose from new versions of your tree. Click OK when you're satisfied with the result.



13. Click on the Lights tab. Move the default light around in the Placement interface, and observe the changes to the tree image in the Main Viewport.

14. Enable the Shadows feature by clicking on its checkbox. Enable the Drop Shadow as well.

15. To conserve render times, temporarily reduce the Shadow Quality setting to 5 or so. Move the light so the shadow falls more or less within the image boundaries. Once you're satisfied with the result, restore Shadow Quality to a higher setting.

16. Click on the Preview button to view our tree and its shadow at full resolution. Close when you're ready to return to the main Verdant interface.

17. If you're happy with the appearance of our tree, click OK to apply the settings to our Photoshop file.

Notes