

## Cairns made from a Bryce Tree

*Bryce trees are very versatile objects. Wood and leaves are made from metaballs and can be deformed into many ways. Different heap of stones can be made from a Bryce tree using only the wood: trunk and branches.*

### Introduction

A Bryce tree consists of two parts: the foliage and the wood (trunk, branches). Each part can be used separately because the wood can be made transparent and there can be zero leaves. Inspiration to investigate the Bryce tree wood came from example renders made by David Brinnen for our set *Environments — Beneath the Waves*.



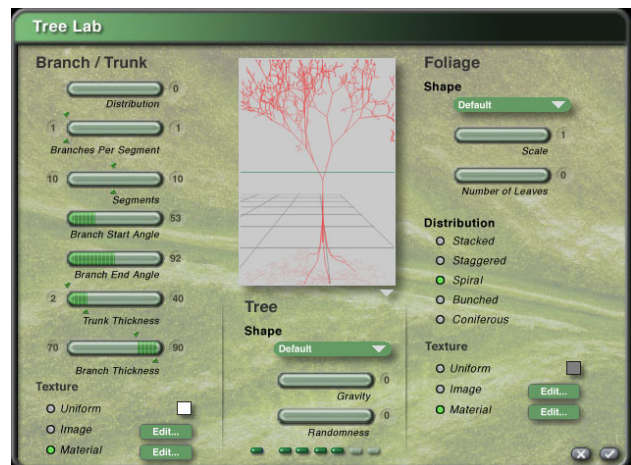
The left picture is a cropped render from the set mentioned (Shallow fast); the right one is the stripped down result of my first experiment using almost the same settings (Round Stones).

### Tree Lab (TE) Settings

At right Tree Lab settings for a Default tree, well, not quite. Some settings are already modified and those should be left that way.

#### Foliage

No leaves are used here so it does not matter how the settings are, except **Scale** must be at 1, the lowest value, and **Number of Leaves** 0. Never mind **Shape**, **Distribution** and **Texture**. They can be left at whatever they are.



#### Tree

**Shape** will be discussed later — it has a profound impact on the form of the stones.

**Gravity** would be at 0 most of the time because we make use of the upper or top part of the tree; but **Gravity** can be used later to fine adjust how the cairn appears.

**Randomness** should be kept at zero so we get some consistent results when experimenting. If the final tree is saved as a tree, whenever it is loaded it will appear different if **Randomness** is not at 0. A better idea is to save a successful stone heap in the Objects Library. Nevertheless, **Randomness** can still be used to modify the form of the heap. If you start at 0 and move it to another value later, you can always get back to 0 to restore what you had.

## Branch / Trunk

Everything concentrates on the wood part of the tree. It is difficult to give general purpose settings because most controls have also an effect on other controls. Here is an overview.

**Distribution** compresses branches; values between 0 and 10 are often a safe bet.

**Branches Per Segment** should be kept at 1 / 1 otherwise there may be too many stones but do not take this as a firm law; much depends on other settings and also what the artist wants to accomplish. The recommended 1 / 1 is a good start, though.

**Segments** determine the number of stones. 8 to 12 is a good start; you can keep the lower and higher amount the same or make them different for some variations.

**Branch Start Angle** would usually be set to 90 degrees and this is a good start. However, it depends on the *Trunk Thickness* and it might have to be increased up to 180 degrees. The preview is not always helpful and a quick render may be necessary.

**Branch End Angle** can be kept at 0.

**Trunk Thickness** changes the appearance profoundly. Start with about 50, both values can be the same or a bit different. There is no fit-for-all value. The lower value runs from 1 to 99, the higher from 1 to 200.

**Branch Thickness** is the percentage of the *Trunk Thickness* and both, the lower and higher value can usually be left at 0. The difference when changing them is marginal, if there is a difference at all for this application.

**Texture** use *Material*. The material applied on the wood makes a big difference how the stones will finally look.

## Scaling

The tree must be scaled down vertically, compressed in height (Y) and then buried in the ground. How much depends on whether round or flat stones are needed. Left of the three rightmost trees are the same trees but compressed and the trunk buried.



At left a default tree that was created with the TE settings shown above. Only the *Foliage* and *Tree* settings were changed. The other three trees are copies with the following changes; *Branch End Angle* 0 and *Branch Thickness* 0 / 0 for all three.

Second tree: *Branch Start Angle* 90, *Trunk Thickness* 60 / 60, Y for heap reduced to 32%.

Third tree: *Branch Start Angle* 180, *Trunk Thickness* 60 / 60, Y for heap reduced to 47%.

Fourth tree: *Branch Start Angle* 180, *Trunk Thickness* 50 / 150, Y for heap reduced to 46%.

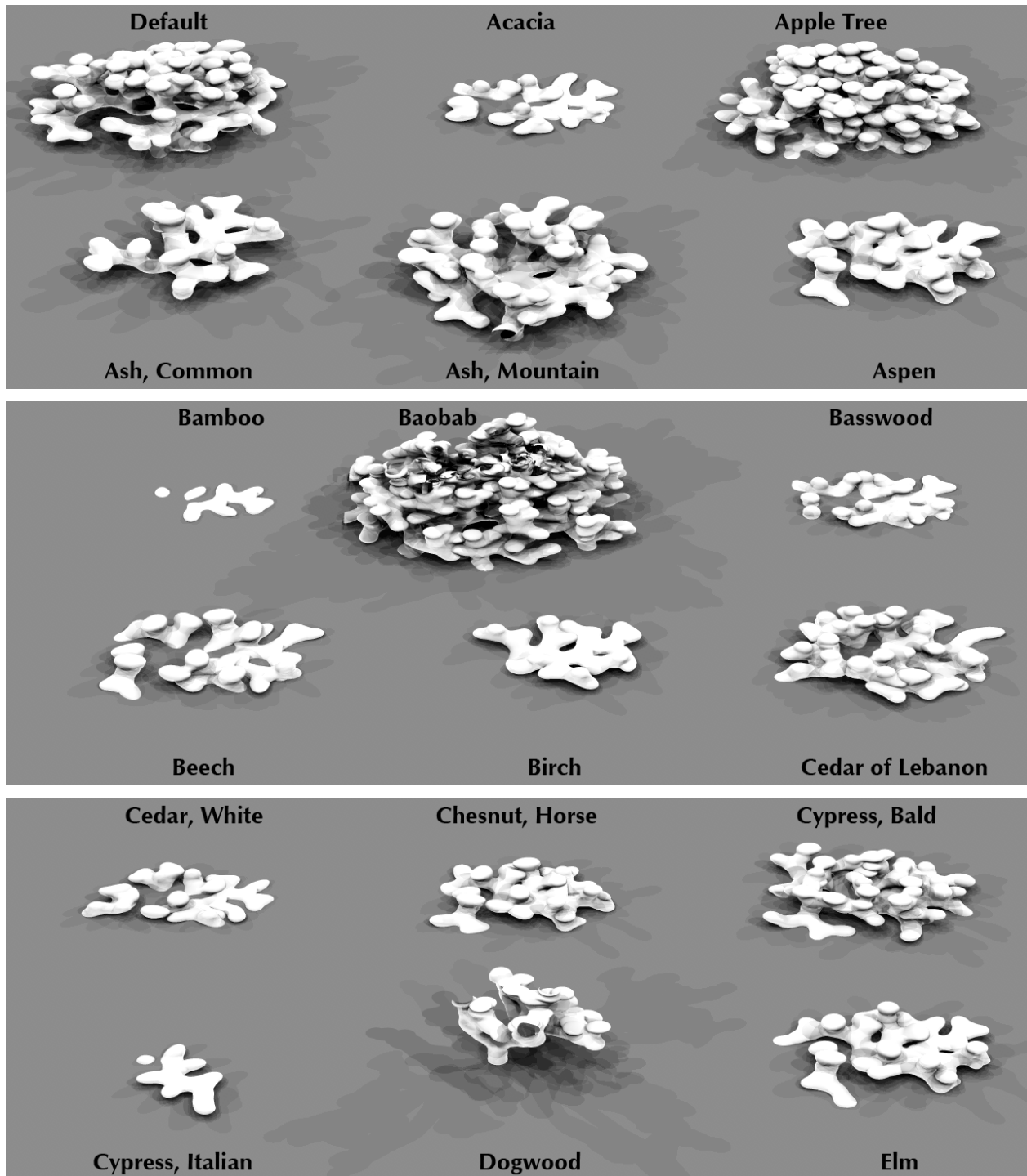
As the three examples above show, just rendering the tree does not give a good idea how the cairn will look. The height of the tree must be compressed and the tree buried.

## Shape

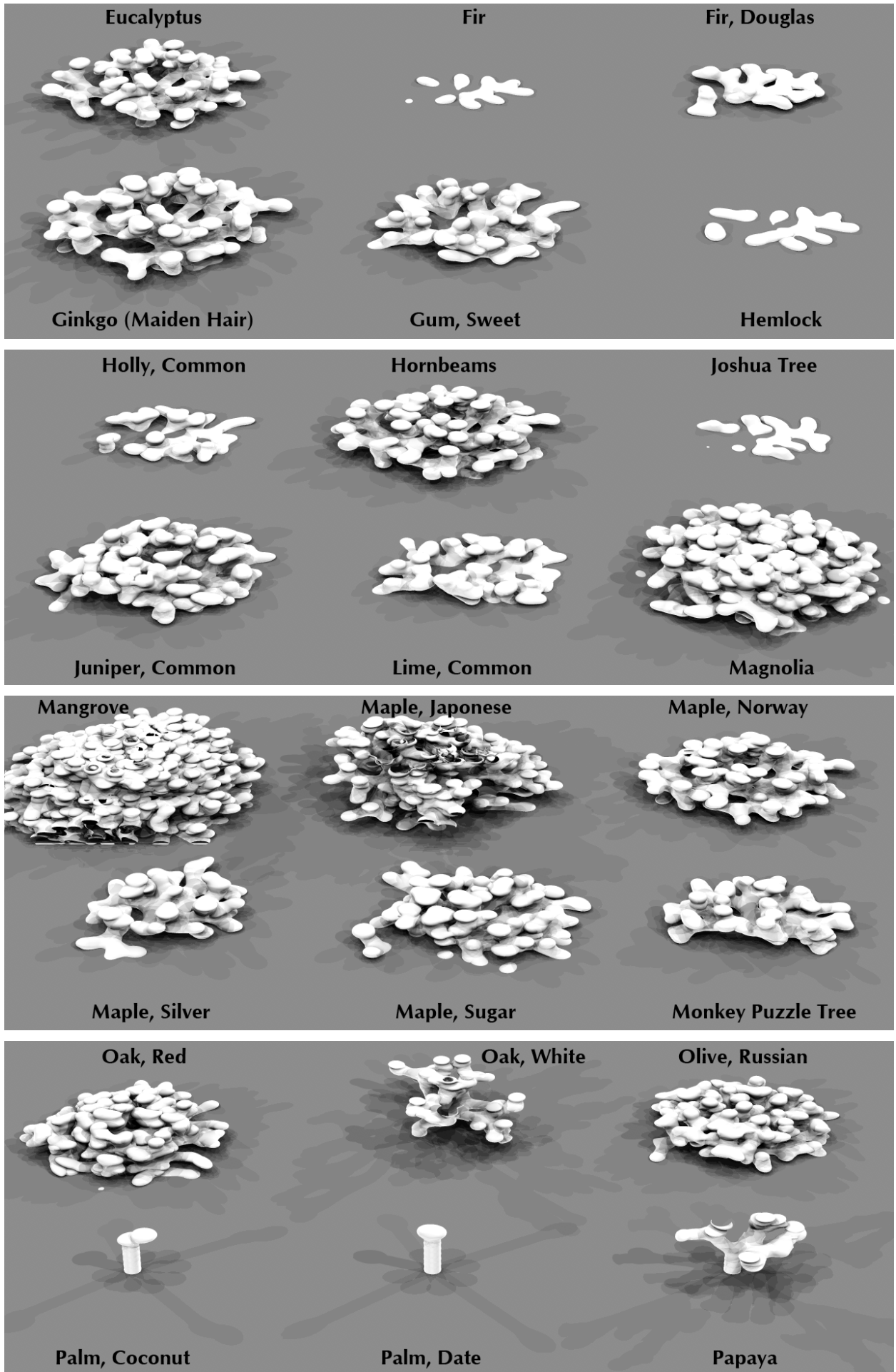
So far we looked at the default tree which is useful but not always the best option. The 67 rendered trees below all use the same settings as the default tree above, second from left with the same height compression. This does not give always the best result but this is the only means to compare the tree shapes.

Nevertheless, look closely at the example renders below (enlarge in your viewer). Even though the topic here is cairns, heap of stones, some forms suggest that several of them can also be used as mushrooms or corals in an underwater scene.

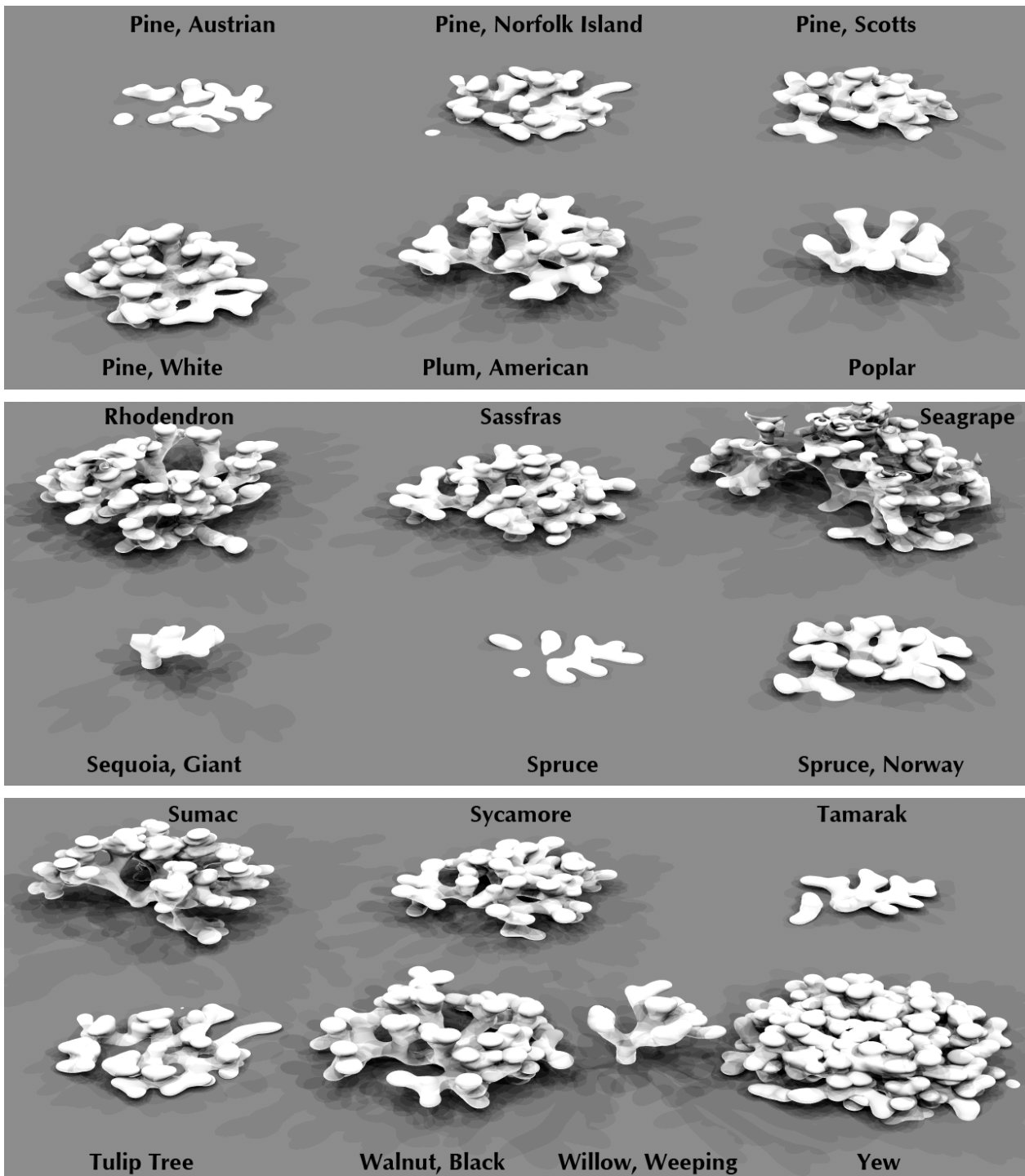
The shape will change again if the height of the tree is less or more compressed, and how much of the crown is visible above ground can change the impression as well.



Bryce 7.1 Pro — Cairns made from a Bryce Tree



*Bryce 7.1 Pro — Cairns made from a Bryce Tree*



Again, remember that the resulting tree will look completely different if the *Branch / Trunk* parameters are changed. Depending on the material applied, such trees can be used for many scenes, even for some abstracts.

## Links

The product *Environments — Beneath the Waves* mentioned on page 1, picture at left:  
<https://www.daz3d.com/bryce-7-1-pro-environments-beneath-the-waves>.

There is an old Bryce 6.1but still valid 12 pages Tutorial how to create plants, ecosystems and abstract shapes using a tree: [https://horo.ch/raytracing/tuts/pdf/minitut20\\_en.pdf](https://horo.ch/raytracing/tuts/pdf/minitut20_en.pdf).

May 2017/horo