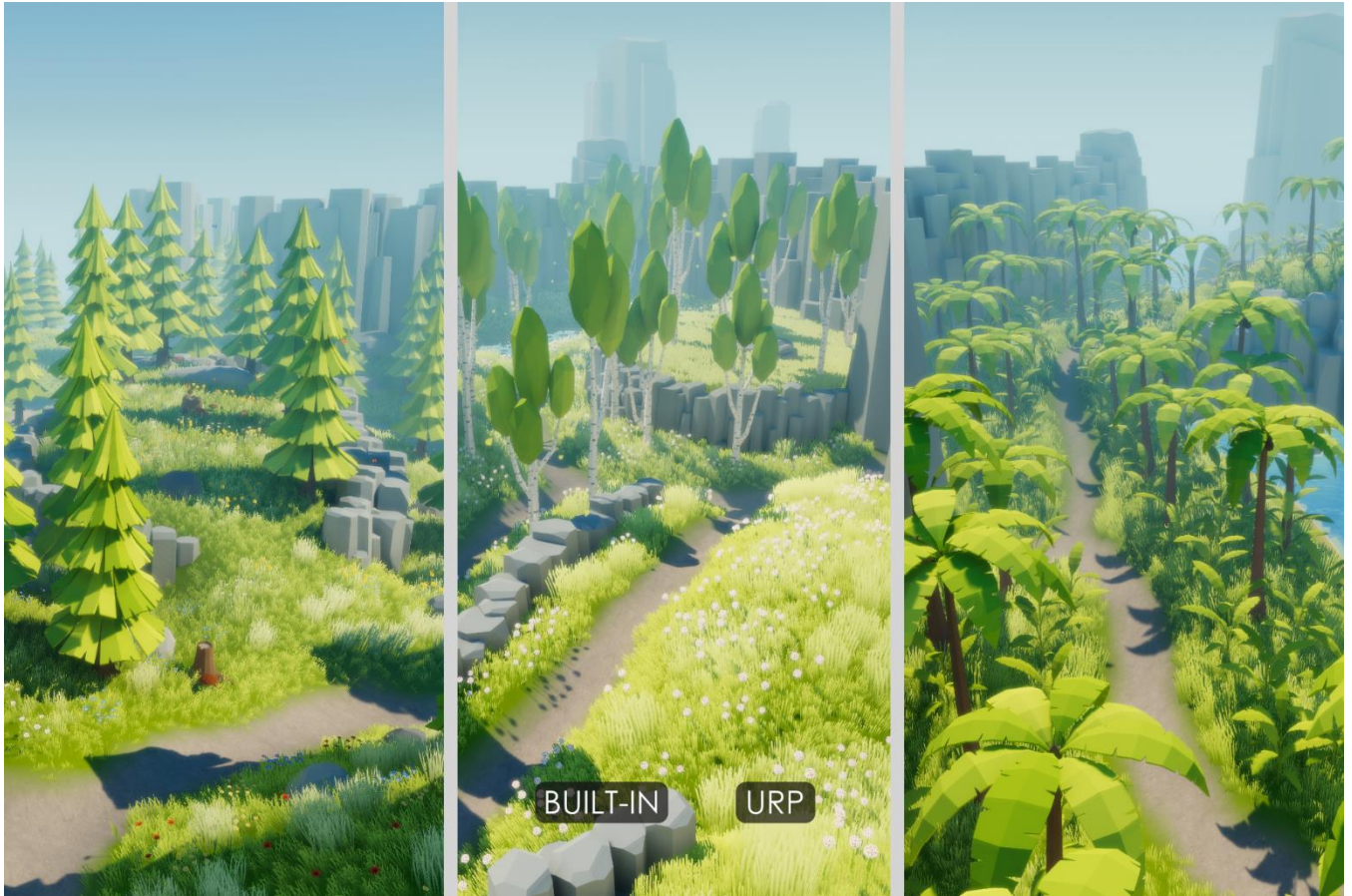


Nature - Hybrid Pack



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1. Introduction

Thank you for purchasing **Nature Hybrid Pack**. I hope this art pack will allow you to create game worlds that are colourful and full of life.

If this art pack was useful to you, when you have a spare minute, please come to the asset store page of this art pack and leave a review.

2. URP/HDRP Upgrade

The project you download from the Asset Store is configured for the **Build-In** pipeline. If you are using **URP/HDRP**, you need to upgrade the NHP materials and shaders.

To upgrade the shaders and materials, go to *Nicrom/3D_HybridArt/Nature/UpgradePackages* folder and import the **NHP_URP_2021.3.0** if you are using **URP** pipeline, **NHP_HDRP_2021.3.0** if you are using **HDRP** pipeline.

3. Rules

- The models that use the NHP shaders must not have **Batching Static** enabled.
- The grass, stylised flowers, reed mace and lily pads must not have **Lightmap Static** toggle enabled.

4. Using the NHP Shaders with Custom Models

To be able to use your own custom models with the NHP shaders you will need to make some modifications to the models. These modifications depend on the shader you plan to use.

4.1. Low Poly Vegetation

This shader can be used on Low Poly trees and flowers. In order for this shader to work correctly you need to store some data in the vertex colors of the model. You also need to modify the UVs of the first UV channel. A vertex color has 4 separate channels. We need to store data in 3 of these channels.

- **The Green channel** – Stores the position of a branch/leaf pivot point on the Y axis (Y is up in Unity. In Blender this will be the Z axis). The data stored in a vertex color can only be a number

between 0 and 1. Since the models can have a height of 10m or more, we need to convert our data to a value that is between 0 and 1. Let's say that all our trees have less than 20 meters in height. In this case, if we take the position of a branch pivot point on the Y axis and divide it by 20 (This value is called Unit Scale in the NHP material properties) we will get a value between 0 and 1. For flowers I recommend you use 1 or 2 as a Unit Scale value.

- **The Blue channel** – Stores the rotation axis of a branch on the XZ axis (XZ is in the Unity coordinate system. In Blender it will be XY). Since we can store only a single number per channel, we will store the rotation axis as an angle value. In Figure 1, you can see that the angle between the X axis and the tree branch is approximately 68 degrees (blue line). If we add 90 to 68 we get 158 (green line). The green line is the rotation axis represented as an angle value. Next we divide 158 by 360. This will give us a value between 0 and 1 that we can store in the Blue channel. If after adding 90 you end up with a number that is bigger than 360, subtract 360 from that number before performing the division.
- **The Alpha channel** – Stores a random value between 0 and 1. This value is used to add some variation to the branches/leaves bending by performing a phase shift.

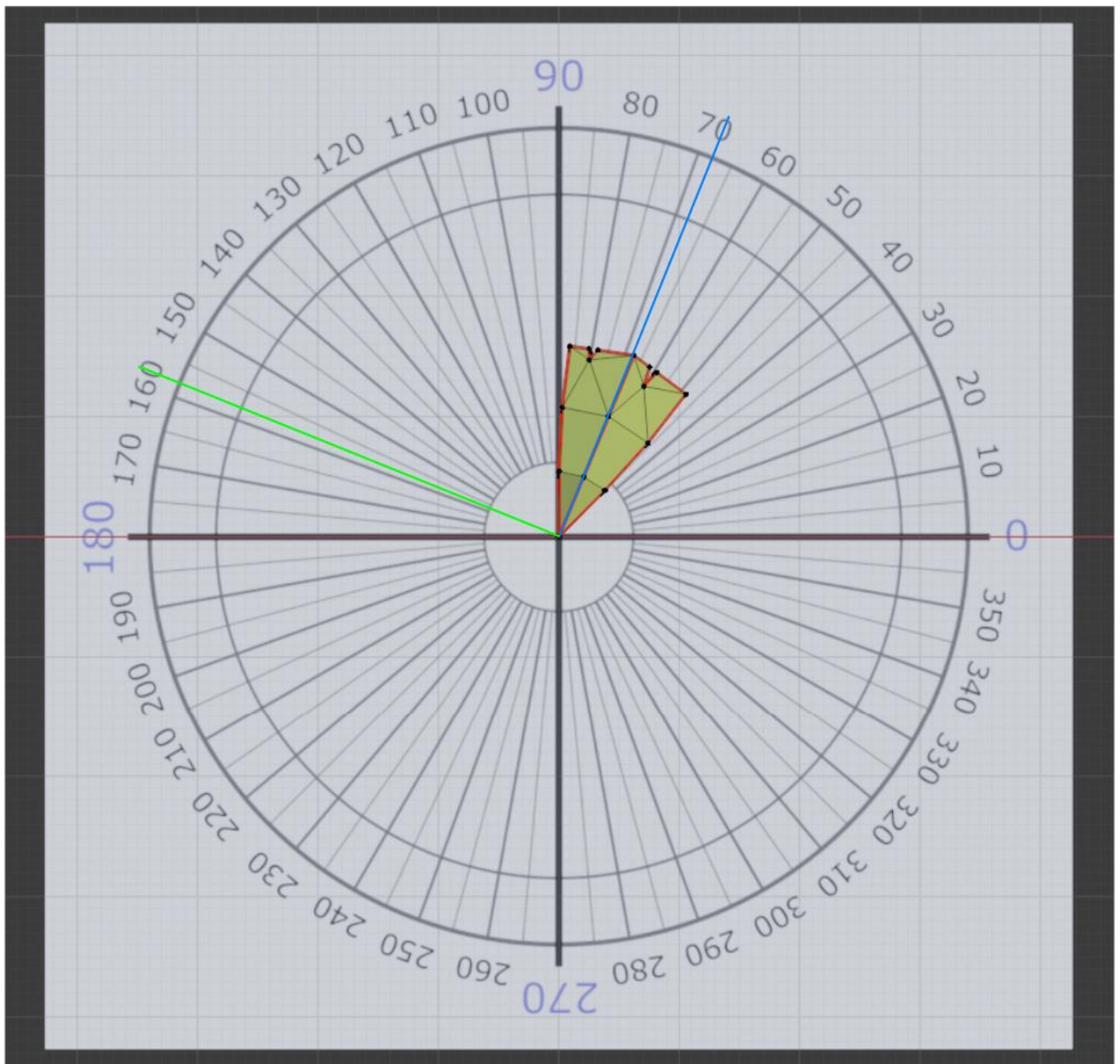


Figure 1

If you are using Blender, I recommend you to install Vertex Color Master Add-on ([link at the end](#)). This add-on will allow you to change the set the values of the vertex color channels, individually.

After setting the vertex colors we need to update the first UV channel UVs. The Low Poly Vegetation shader has 3 core features: the main bending applied to all the vertices, the vertical detail bending and the horizontal detail bending applied only to the branches/leaves. Which bending should be applied to a particular vertex is determined by the UVs of this vertex.

- **Vertical Detail Bending** – If you want the branches/leaves to be affected by this bending, select the UVs of the branches/leaves and move them on the Y axis so that their value on the Y axis is bigger than 2, Figure 2.
- **Horizontal Detail Bending** - If you want the branches/leaves to be affected by this bending, select the UVs of the branches/leaves and move them on the X Axis so that their value on the X axis is bigger than 2, Figure 2.

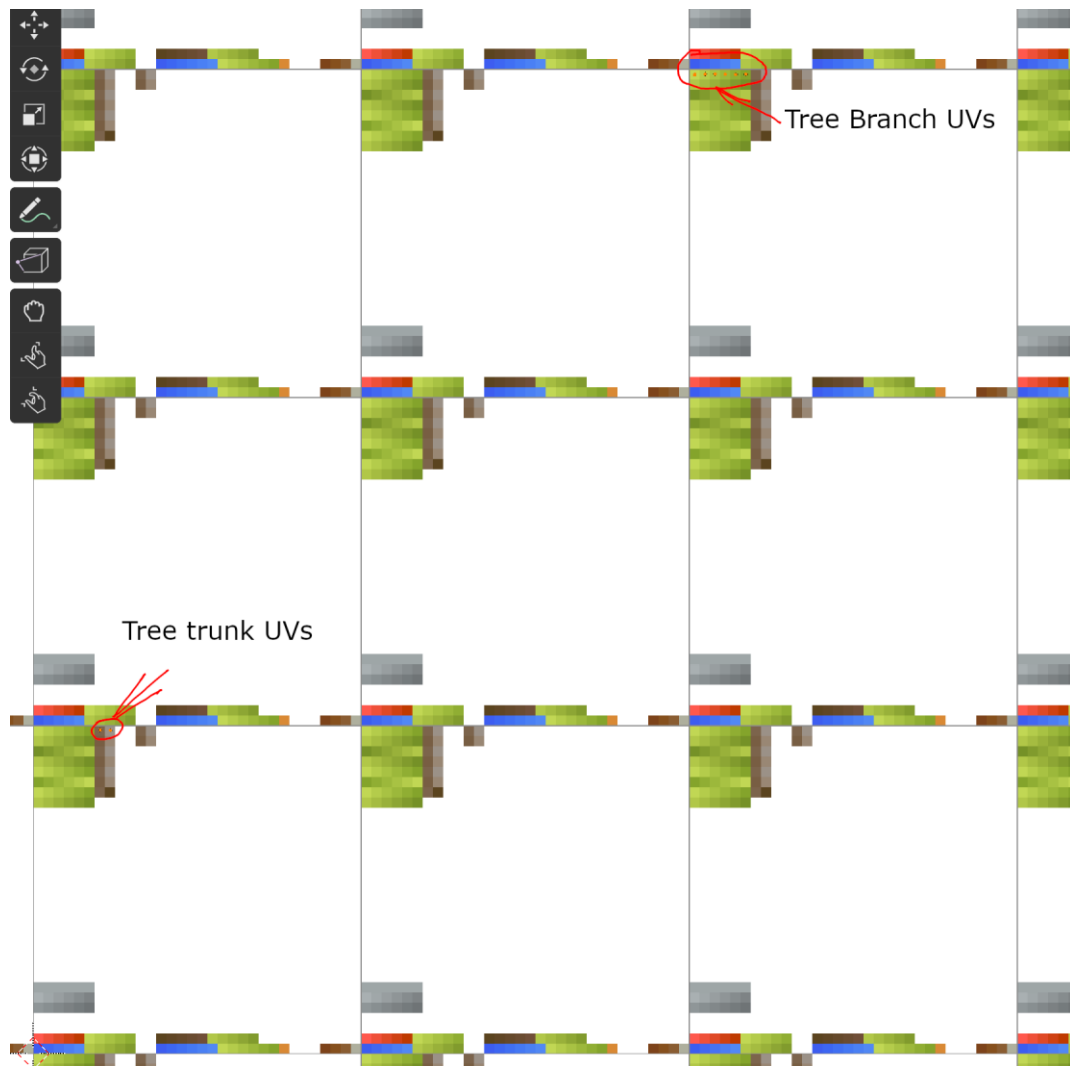


Figure 2

4.2. Low Poly Tree with Patterns

This shader is used by the birch trees. The vertex colors store the same data as the Low Poly Vegetation shader. Follow the instructions described in the Low Poly Vegetation shader to bake the vertex data.

For this shader the UVs that have a value bigger than 2 on the X axis will be affected by both the vertical and horizontal bending, Figure 3.

The UVs that belong to the tree bark and use a texture must be placed below -2 on the Y axis, Figure 3.

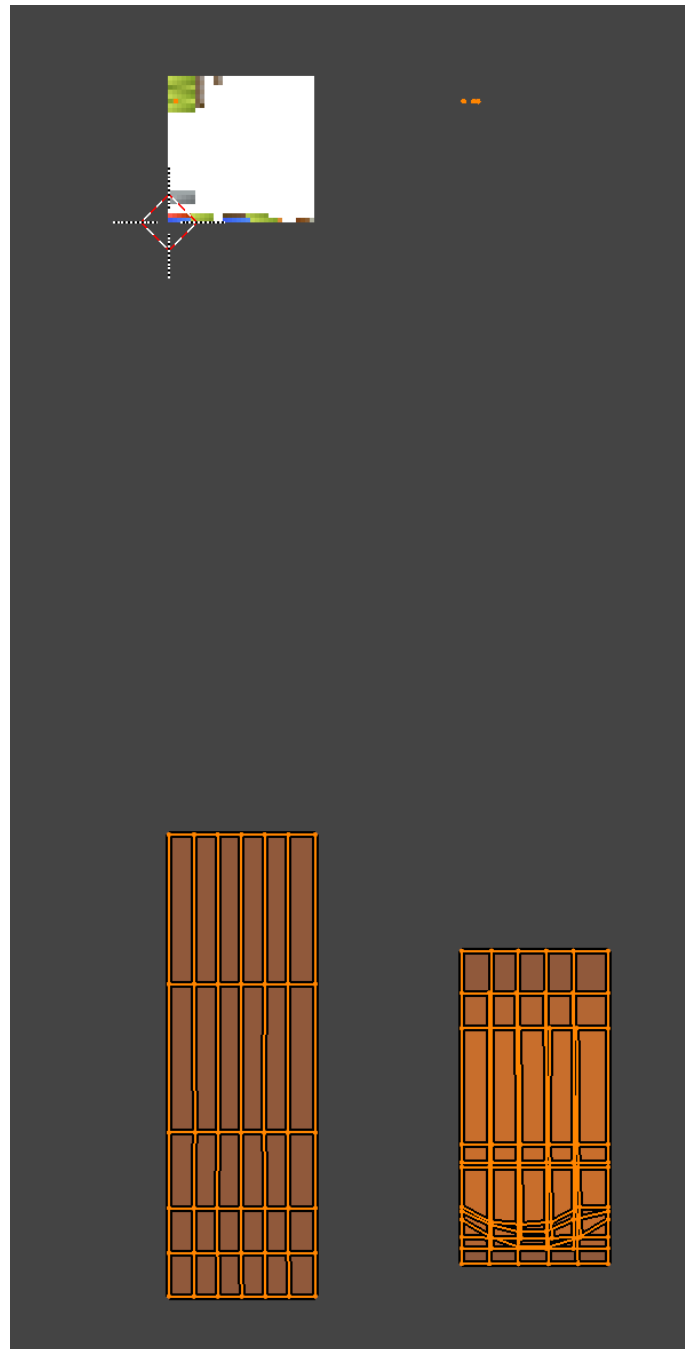


Figure 3

4.3. Stylised Grass

For the grass shader only the Alpha channel in the vertex color will be used. A random value between 0 and 1 is stored in this channel. This value is used to add some variation to the grass planes bending by performing a phase shift.

Next, a second UVs channels needs to be created, Figure 4.

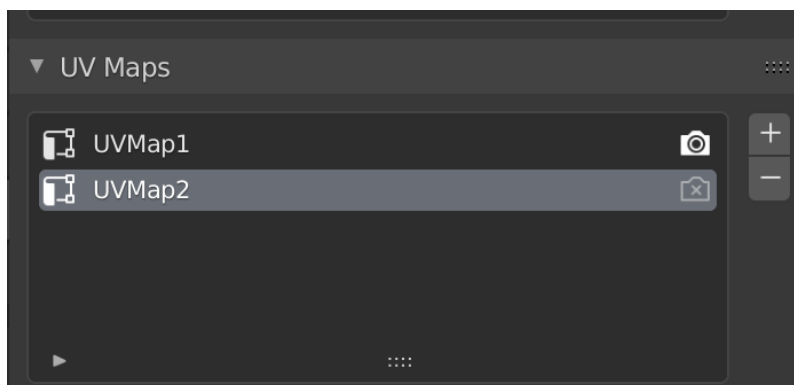


Figure 4

The second UV channel will be used to store the pivot point positions on the XZ (XZ is in Unity coordinate system, in Blender it will be XY) axis of each grass place, Figure 5.

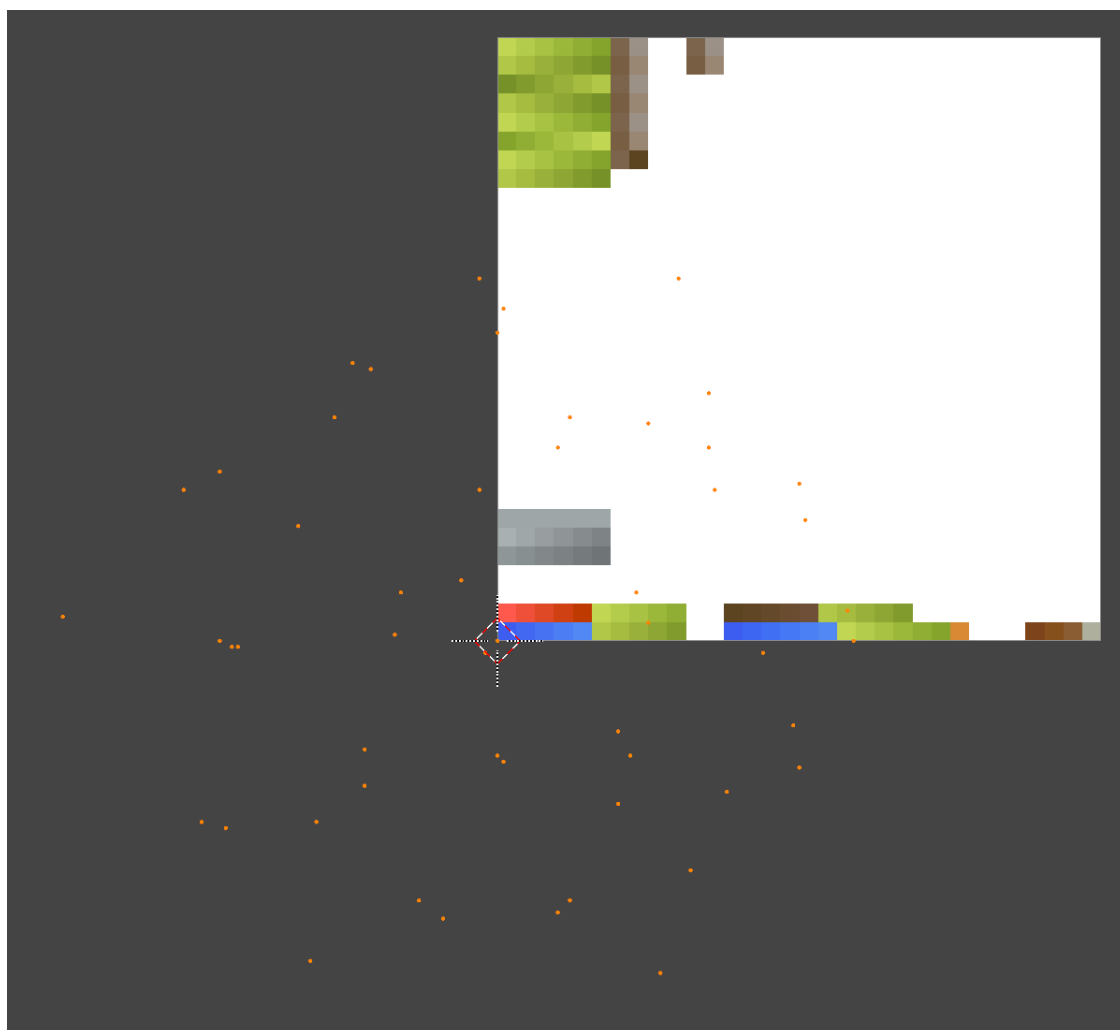


Figure 5

To find the pivot point position of a grass plane, select the bottom edge of a grass plane. The values we need are displayed in the Transform panel, Figure 6. In this case the values we need are (-0.31, -0.53).

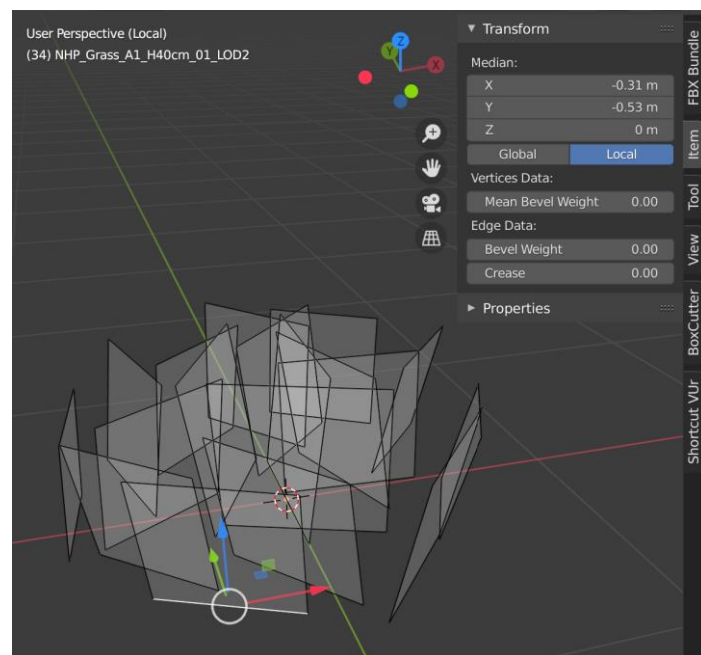


Figure 6

Next select all the vertices of this grass plane and in the *UV Editing Workspace* set the X and Y values to be the same values of those of the pivot point, Figure 7. Before you set the X Y values of the UV vertex, press S key than 0. This will scale down the UV islands and make sure that all the vertices of this grass plane point to the same UV value.

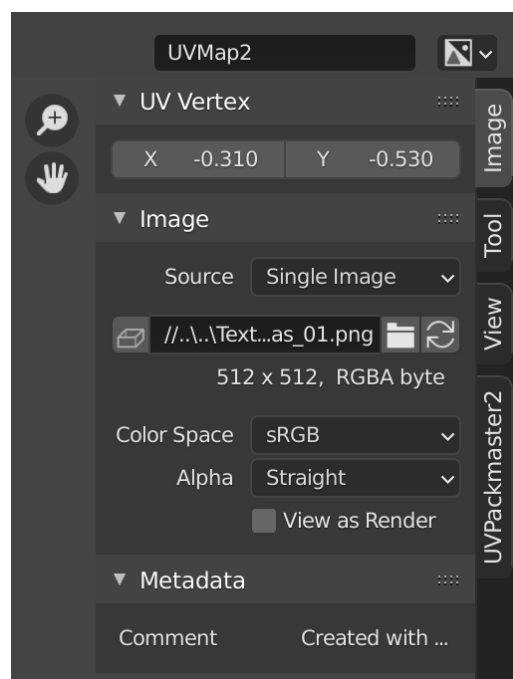


Figure 7

4.4. Stylised Flower with/without Stem

This shader is used by the stylised flowers with/without a stem. As in the grass shader, the alpha channel in a vertex color is used to store a random number between 0 and 1.

In the first UV channel, the stem UVs must be moved to the left so that none of the U values of the stem UV islands are smaller than 1.5, Figure 8. This step can be ignored if you are using the *Stylised Flower Without Stem* shader.

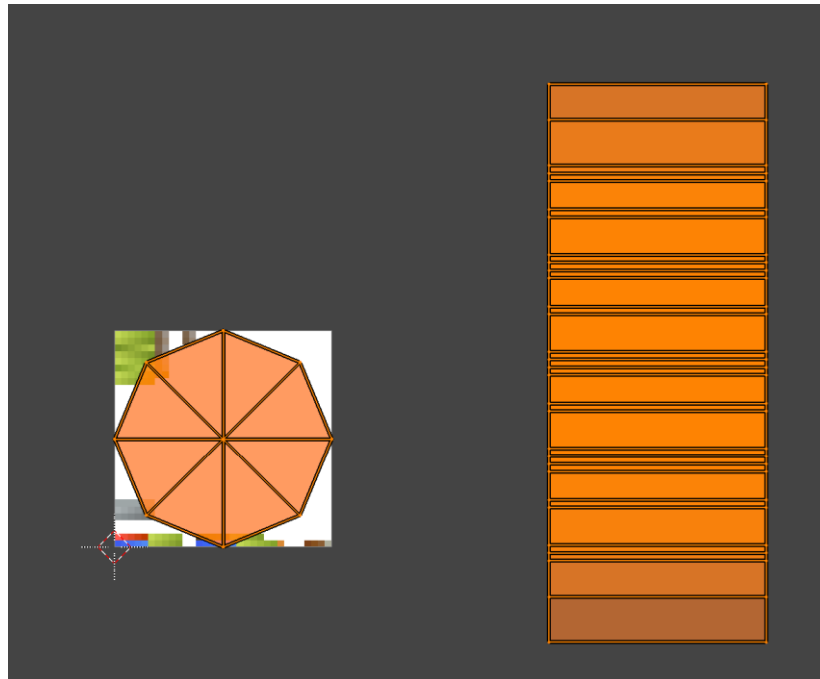


Figure 8

Next a second UV channel must be created. The second UV channel will be used to store the pivot point positions on the XZ (XZ is in Unity coordinate system, in Blender it will be XY) axis of each flower. This step is the same as in the grass shader.

4.5. Low Poly Lily Pad & Reedmace

As in the other shaders, to add movement variation to the model, a random value between 0 and 1 must be stored in the alpha channel of the vertex colors.

The same way as in the grass shader a second UV channel must be created and the pivot positions of each lily pad/reed mace must be store in it.

5. Links

Support Links

- **Discord Channel:** <https://discordapp.com/invite/RCdETwg>
- **Email:** johnq002@gmail.com
- **Facebook:** <https://www.facebook.com/Nicrom3D>

Other links

- **Vertex Color Master:** <https://blender-addons.org/vertex-color-master-addon/>