

# **Game Design Document**

Flora Forager

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## 1- Design History – Changelog

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2.9	Updated 8.2.1, 8.2.2, 8.3,	04-01-2022	Kevin Tang
3.0	Added 8.2.4 Forest Scene	14-01-2022	Alfred Andersson

## 2- Goals and Vision

The goals and visions for our game are as follows:

- A game that evokes an immersive, relaxing experience in a unique world where the mechanics are fun to interact with.
- A game that has an interesting premise, world design and characters that give better incentive for the player to explore.
- A game that can be played virtually endlessly by the player. The player should be able to play for however long they desire and it only really “ends” when the player has seen and done all things and has nothing left to do. This could be when e.g. the story has been concluded, collected all seeds/items, maxed relations with all NPCs, done all commissions, and/or explored all levels.
  - However, given the current scale of the game, we expect the player to reach this described ending after about 1-2 hours.
- A game that is fully functional with a mostly bug-free gameplay experience.

### 2.1 Gameplay synopsis

#### 2.1.1 Uniqueness

What makes our game unique is the story, characters and setting of the game combined with the type of gameplay. We believe this is a fun mix that makes the game interesting to play.

The story in summary is about finding the forager named Alton who has gone missing on the planet Viror in search of his grandfather, however as the player soon discovers by reading left-behind journals from Alton and his grandfather, Viror contains an old hidden secret.

The gameplay is largely inspired by games such as Stardew Valley, Animal Crossing, Harvest Moon and other games. The player will be able to craft, farm, fish, interact with NPCs, etc. in a relaxing atmosphere.

#### 2.1.2 Setting

The game takes place on an alien planet containing a colourful alien environment with hunks of scrap laying around the place.

#### 2.1.3 Looks and feel

The game is primarily focused on creating a casual, relaxing and stress-free atmosphere for the player. In order to achieve this the gameplay, environment, sounds and story should respectively support that goal. For example: the environment should be experienced as simple, serene and visually pleasing and the story should be experienced as being modest and not too intruding on the player’s experience. Furthermore, given the setting, it should also look and feel alien but still not too distant as to make it overly bizarre.

In Fig 1 you can get an idea of the environment, alien-looking elements that are colourful and visually pleasing in order to promote a relaxing experience.



Fig 1: Screenshot of the current look of the game in the farm level near the river



Fig 2: Concept art for our game

### 3- Audience

We will have no marketing for our game, as such, we will not be focusing on those points.

### 3.1 Target audience

The target audience for our game will be people who like simulation-type games similar to Animal Crossing or Harvest Moon where the player can relax and enjoy the game at their own pace whilst doing fun tasks, collecting things and exploring the world.

### 3.2 Platform

We have chosen to develop the game for PC only because it saves a lot of development time that could be better spent elsewhere. This game is theoretically performative enough to work on mobile and that is something that we still take into account.

### 3.3 System Requirements

Our game will feature quite high GPU requirements to play the game at a comfortable framerate >60 fps. As we have discovered, the game is GPU intensive, sitting at around 95% GPU usage with an RTX 2070 resulting in on average 100 fps running at 1440p in the latest build using ultra settings. CPU usage is otherwise quite low and will not have high requirements.

## 4- Gameplay

### 4.1 Overview

The core gameplay loop will try to evoke a relaxing experience similar to the aforementioned inspired games. In our game the player has their own farm, they can talk to NPCs and perform other tasks in the world. There will be no combat and as such the player can play and explore the world at their own pace without annoying setbacks.

### 4.2 Gameplay description

#### 4.2.1 Movement / Camera

The player has a fixed slightly tilted top-down perspective of the surrounding area with the player's avatar in the centre. The player is able to walk around using their keyboard. The player is also able to run, however, it consumes more stamina as explained later.

#### 4.2.2 Grid System

Some of the mechanics within the game like farming and fishing will use a grid system for interaction. The grid is made up of cells that can be defined as different types e.g. water, dirt, soil, empty, etc. The grid tool we have designed will be used to efficiently create this grid.

#### 4.2.3 Passage of time

The game has a simple time system that keeps track of the date and current time of the day which allows for sleeping, day/night cycle, and other things. The time in the game moves much faster than in real life. Currently set so that one hour in-game time equals 40 seconds in real-time.

##### 4.2.3.1 Bed/Sleeping

To sleep in the game, the player has the option of either colliding with a sleep trigger which prompts the player if they wish to sleep or not or to just simply pass out. This sleep trigger usually sits at the entrance to the farmhouse. E.g. when trying to enter the building the prompt is opened. When sleeping is initiated, the screen fades out slowly and when fully faded out (5 seconds currently) the player's avatar will wake up the next day. Successfully



sleeping replenishes the player's stamina fully and notifies some of the mechanics within the game that a day has passed e.g. the farm to grow.

#### 4.2.3.2 Day/night cycle

The day/night cycle is a visual element that helps give immersion to the player. During morning time the sun is rising and things get brighter and when night time is closing in things get darker. Some objects in the world respond to these changes for better immersion, e.g. a specific plant called Lach inspired by venus flytrap goes to sleep during nighttime.

When the player initiates sleep or becomes unconscious they will always wake up at 06:00 the next day. Unless they become unconscious the same day before 06:00. It is possible for the player to play during the night until 22:00 where the player's stamina drains until empty, making the player faint. It is theoretically possible to play further than 22:00, however, it is extremely difficult to sustain the stamina drain by constantly consuming stamina restoration items such as food. There is also no point to do this in a gameplay sense.

#### 4.2.4 Inventory

The player is able to collect and store tools, seeds, resources and other items in their personal inventory. The inventory is defined by a number of slots where each slot can store a limited amount of a specific item type. The player also has the ability to move/merge items in their inventory as well as to drop them when dragging the item outside of the inventory UI.

##### 4.2.4.1 Hotbar

A hotbar is an extension of the inventory and is a way to quickly select an item from some of the items in the player's inventory. There will always be a selected/highlighted slot in the hotbar that enables that item to be used by the player.

##### 4.2.4.2 Items

An item can be a consumable, tool, seed, journal, etc. and has the following attributes: name, item stack, labels and behaviour. Item stack is used to determine how much of a particular item can occupy a slot inside of the inventory. Labels help identify what type of item it is and how it can be used e.g. axe has a label called tool. Behaviour is used when the player uses the selected item in their hotbar.

Many of the items in the game also have an additional attribute called stars which are used to show the quality of item. Stars sit from 1 to 5 and a higher number of stars means better quality of an item and vice versa. Items with higher stars will work more efficiently in doing its task e.g. axes with higher stars will cut down trees faster, watering can be used more times before having to be refilled, etc.

All of the items in the game are droppable, which includes the ability to drop items from the inventory and resources sources to drop items when destroyed, etc.

##### 4.2.4.3 Tools

Tools are a type of item that are specifically used to enable unique interactions with some of the objects in the world. For example: when a scythe is selected in the hotbar, the player has the ability to harvest certain crops on their farm. Some other tools which will be used in the

game are a pickaxe for mining stone, an axe to chop down wood, a watering can to water plants and a fishing rod to catch fish.

#### *4.2.4.4 Consumables*

Consumables are a type of item that the player is able to use when selected from their hotbar. When used the item is 'consumed' and the player gains some bonus e.g. restore some stamina. An example of this is food such as a plant which the player can grow. Consumables can also contain custom effects such as improved movement speed for a short period.

#### *4.2.4.5 Seeds*

Seeds are used to plant different crops on the farm. Is removed in the same manner as consumables when used. Seeds are one of the most valuable game assets to progress through the game. Gaining seeds unlocks the possibility to unlock a new set of seeds.

#### *4.2.4.5 Journals*

Journals can be found in the world and be picked up. When used the player is presented with dialogue showing the contents of the journal. Journals are used for world and story building, e.g. what Alton has been doing.

#### *4.2.4.5 Fish bait*

Fish bait is used to enable fishing when having an equipped rod. Depending on the type of fish bait it will affect what fish is selected from the fish pool. Better fish bait (more stars) enables new fishes to be caught and also means better chances of getting more uncommon fish. Additionally, only some fish bait can be used in certain types of waters.

#### *4.2.5 Stamina*

The player has a limited amount of stamina from the initial state that is drained by moving/running around or performing actions with tools. During the nighttime, the player's stamina is increasingly drained until the player ultimately passes out which makes sure that the player at least sleeps each night.

#### *4.2.6 Farming*

When having selected a seed in the hotbar, the player is able to plant it on a dirt/soil tile. The seed will then need to be watered in order to grow. Watering is done by using a filled watering can on the plant. Watering can is refilled by interacting with water and can only be used a number of times before having to be refilled again.

Each of the plant's growth is divided into stages that are represented through a change in their appearance. When the next day has been reached by sleeping, all of the watered plants will grow and will need to be watered again. For each day that passes the plants will continue to grow if watered and after some days they will reach their final stage where they can be harvested for their rewards.

When harvested by using a suitable tool, it drops items in the world depending on its type. Different plants yield different rewards that can be used for eating, turning in commissions or crafting unique items.

#### 4.2.7 Fishing

When having selected a fishing rod in the hotbar and has bait in their inventory, the player is able to use it to fish at water. This starts the fishing minigame which is divided into one smaller initial minigame followed by the more extensive one.

##### 4.2.7.1 Fish Pool

Fish pool is used to determine what fish is chosen for the player to catch. Each fish in the pool has a probability weight, higher weight means a higher chance of being selected from the pool and vice versa.

##### 4.2.7.2 Fish Hook

Fish Hook is first presented when trying to fish. The minigame is represented as a bar wherein the player has a small hook area in the middle to hook the fish. The fish spawns in random positions on the bar and moves in one direction at random speeds, bouncing at the edges. The player must time the catch right when the fish is above the hook area, otherwise, the player fails and returns to normal gameplay. For better immersion, the fish may disappear at times and spawn in randomly. When successfully timed, a random fish is selected from the pool and it moves over to the next minigame.

##### 4.2.7.3 Fish Pull

Fish pull minigame is presented after the player successfully completes the smaller fish hook minigame. The game takes place on a bar wherein the player has control over a movable object that occupies an area on the bar and is also affected by gravity. When holding LMB the object moves upwards on the bar and when let go the object falls down. Another object is the fish which can move freely on the bar and has a complex customizable behaviour for its movement. The objective is to balance the moveable object to occupy the area under the fish in the bar.

Depending on if the moveable object is balanced with the fish, the player either gains or loses score. The score is initially set to zero. When the score passes a certain threshold, the player will have successfully caught the fish. If the score reaches below zero, the player will lose and the fish will have fled. Challenge comes from having to actively balance the moveable object with the fish which moves unpredictably. To prevent the player from immediately losing, an invincibility time frame was implemented, during that time the player cannot lose.

The outcome of fishing can yield different types of rewards/fish depending on the fish bait and what level in the world the player is at. Fishes can be used for eating or for turning in commissions.

#### 4.2.8 Resource Gathering

There are multiple different kinds of resource sources (e.g. trees, stones) in the world that the player can gather from. Resource sources have a durability which when zeroed destroys the object and drops the respective resources depending on its type. The player damages these objects by using a tool and hitting the object with it. Only suitable tools can be used to damage a specific resource source, for example, an axe for trees or a pickaxe for rocks.

Resource sources when destroyed may be set to respawn after some period. This was implemented so that the player can not run out of resources. Usually, they respawn after 2-5 days.

#### 4.2.9 Crafting

The player can use stored resources in their inventory to craft specific items (e.g. tools or placeable objects) at a workbench. When having interacted with the workbench a small menu is opened showing all of the craftable items. The crafting method is simple, you select an item in the list and if you have the required resources you can craft the item with a button press.

#### 4.2.10 Dialogue

The game contains a dialogue system which enables for text to be presented at certain states of the game e.g. interacting with an object or talking to an NPC. The dialogue is presented sequentially in paragraphs and the paragraph is shown at a predefined speed letter by letter. Each paragraph may contain an ID to show who is currently dialoguing. Occasionally, the player may also be prompted to select an action to proceed in the dialogue.

The dialogue may contain tags and rich tags to add unique behaviour to the dialogue and make it feel more alive e.g. speed, give item to player, play sound, if audible, play an animation for an actor, change colour of text, etc. Audible is used when actors are “talking” and plays a sound letter by letter.

#### 4.2.11 Points of Interest

Points of interest can be found around the levels and when interacted with presents some unique dialogue. To interact with them the player has to hover their mouse over the object whilst also being close enough to them.

#### 4.2.12 NPCs

NPCs are entities that can be found around the world and be interacted with. Each NPC has a unique personality, backstory and look.

##### 4.2.12.1 NPC Dialogue

The player is able to talk to different NPCs. The NPCs can react positively, negatively or neutral depending on the player's response if given the choice. Dialogue will be used for e.g. learning about the world, NPCs backstory, NPCs problems, etc.

For each NPC, different kinds of dialogue will be presented depending on the current state of the game. For example: first time meeting the player, completed a commission, current relation to the player, etc.

Functionally the dialogue for NPCs is divided into two parts, priority queue and repeatable. Each NPC uses a priority queue for its non-repeatable dialogue. When the player interacts with the NPC the dialogue on the top of the queue is dequeued and presented to the player. If there is no more dialogue in the queue, the NPC will use the repeatable dialogue when interacted with. Priority queue allows for more important dialogue to be presented first.

#### 4.2.12.2 NPC Relationship

Every NPC has their own relation to the player where it is measured in hated, disliked, neutral, liked and loved. Depending on the actions of the player towards this NPC, the relation can be affected in a positive or negative way. Relations are used to gain access to unique dialogue and access new commissions.

#### 4.2.12.3 NPC Commissions

NPCs can have commissions (commission giver) that the player can view and accept. All accepted commissions are stored in the commissions' log where they can be viewed, abandoned or tracked by the player.

Commissions have a set of objectives that the player must complete in order to turn it in at the commission giver for rewards. Rewards can include resources, seeds, consumables, tools and/or improved relations. A common type of objective in our game is the task of collecting a certain amount of an item.

Commissions also have additional attributes such as minimum relations, a time limit or if it is repeatable:

- Minimum relation disables commissions to be accepted by the player if they have yet to achieve a certain relation, for example, some commissions can only be accepted if the NPC likes the player.
- The time limit is initially set to a number of days, and when it runs out the commission is removed and the player is given a penalty in the relationship with the commission giver. However, as we have discovered, this mechanic can easily be avoided, so we decided to make time limit an optional feature for commissions.
- If set to repeatable the commission may be accepted again when completed.

Some commissions will work as challenges for the player in order to progress and access new content. For example, a commission rewards the player with a unique seed that in turn yields a unique reward when harvested which is used as fish bait to start fishing.

#### 4.2.13 Save and load

The game will feature the ability to save the current state of the game and load it from the main menu. This includes saving and loading all plants, NPCs, destroyed resources, commissions, etc. This enables the player to not feel stressed from having to do things over again if the game crashes or for other reasons. Currently, the game is set to save when the player sleeps by either method of passing out or entering the farm house.

#### 4.3 Rules

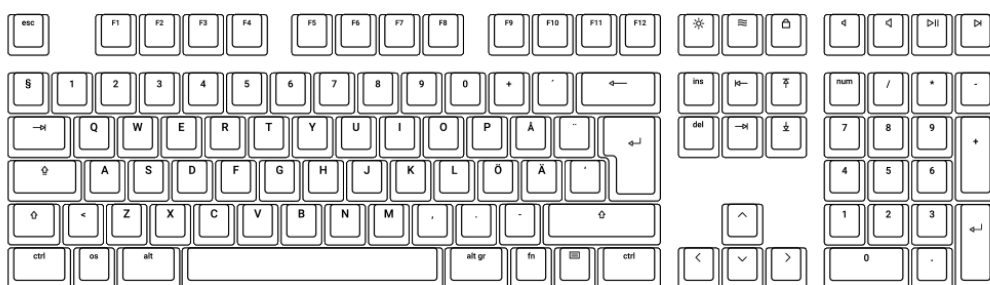
- The player will not have the ability to jump, swim in water or walk up steep enough slopes.
- The player cannot move when talking to an NPC (must finish to leave), fishing, or using an item.
- When the player no longer has any stamina left they pass out and wake up the next day at morning time with replenished but slightly lesser stamina than full.

- Stamina can only be recovered by using certain consumables, sleeping in a bed, or passing out.
- Usable items (tools, consumables, etc.) have a cooldown when used and cannot be used during that time.
- Seeds can only be planted on available/empty dirt tiles.
- Seeds/plants can only be watered by using a watering can.
- Plants can only be harvested for rewards if in their final stage. Otherwise, the plant cannot be removed and the only way to remove it is to use a pickaxe.
- In order to fish the player must:
  - Have a fishing rod equipped.
  - Have bait in their inventory.
  - Select a water tile near them in the direction they are facing.
- Dropped items cannot be added to the player's inventory if it is full.
- When crafting items the player must have available space in their inventory for the crafted item to be added to, otherwise, it cannot be crafted.
- Some dialogue cannot be repeated when completed by the player.
- The player can only accept one instance of a particular commission at a time. However, if the player chooses to abandon the commission, it can be accepted again from the commission giver. However, abandoning a commission results in a penalty which includes reduced relations with the commission giver.
- Commissions have a time limit and must be turned in before it has expired. Otherwise, the player is given a penalty which is the same as abandoning.
- Only one commission can be tracked at a time.
- Some of the objects in the world cannot be interacted with.

## 4.4 Controls

The player will only be able to play using keyboard and mouse. All controls will be predetermined and cannot be changed by the player.

### 4.4.1 Keyboard and mouse



<b>WASD</b>	Movement
<b>LShift</b>	Run
<b>LMB</b>	Use selected item / Select in UI

<b>RMB</b>	Interact with things
<b>C</b>	Open commission log
<b>E</b>	Open inventory
<b>1-8</b>	Select item in hotbar
<b>LMB</b>	Skip Dialogue
<b>LMB</b>	Fish Pull
<b>ESC</b>	Pause
<b>S-Wheel</b>	Camera Zoom
<b>F2</b>	Hide HUD

#### 4.5 HUD / UI / Menus

The HUD and UI is designed to be a combination of steam-punk and a futuristic design while also being easy to read.

##### 4.5.1 HUD

In the HUD shown in fig 3 there is the hotbar, a stamina bar, tracked commission and a panel showing date and time of day. The other UI items shown are the commission log and the commission giver window.



Fig 3: Current iteration of the HUD



## 4.5.2 UI

### 4.5.2.1 Inventory

The player will be able to open/close the inventory which shows each inventory slot of what it contains and the amount of that item.

### 4.5.2.2 Commissions

In the commission log the player will be able to view their accepted commissions and select one of them to view details of the commission. Details include title, description, objectives, rewards, if repeatable, minimum relations, time limit, who gave it out and if completed.

The tracked commission will show the title and its current objective status when in normal gameplay state.

The commission giver window will be shown when interacting with NPCs. In the window, all of the NPCs' available commissions are shown. The player can select a commission to view its details which include the aforementioned content. If the player does not meet the requirements to accept the commission or has already accepted it, it will be greyed out in the window. Depending on the state of the selected commission, the player will be presented with the option to either accept or complete it. When completed the commission is removed from the window permanently if not set to repeatable.

Commissions that have their objective requirements fulfilled will have a green tint added to it in all UI elements.

### 4.5.2.3 Crafting

The UI for the crafting will be a simple list drawn next to the workbench which shows all of the craftable items. There will also be a small panel next to it showing the description of the currently selected item in the list. The description includes name, stars, icon and resource requirements.

### 4.5.2.4 Fishing

The fishing minigame is shown to the right containing the fish, moveable object (yellow area) and progress bar which shows the current score for the player.

### 4.5.2.5 NPCs Info

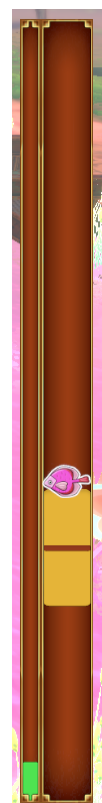
A small window will show when hovering the mouse above the NPC which contains the NPC's name and current relation to the player.

### 4.5.2.6 Flora Info

A small window will show when hovering the mouse above a dirt tile which contains info about the state of the plant, current stage and if watered. If there is no plant the window will show that the tile is empty.

### 4.5.2.7 Item Info

A small window will show when hovering the mouse above an item in inventory or hotbar, it contains the item's name and labels.





#### 4.5.2.8 Message Log

A small log is shown above the player's avatar head containing possible feedback of the player's actions e.g. the tool used is unsuitable, the player lacks any bait to use for fishing, the seed cannot be planted on an occupied tile, etc.

#### 4.5.3 Menus

##### 4.5.3.1 Main Menu

Initial state when the game is opened and presents different options to the player: continue, new game, settings, controls, and quit.

- **Continue:** Loads the save located at "C:\Users\\*\Documents\My Games\Flora Forager\Saves". This results in the game loading the level where the player last saved together with all of the other saved data.
- **New Game:** Deletes the current save if found and loads the game afresh.
- **Settings:** Customizable settings for fullscreen, resolution and volume.
- **Controls:** All of the controls in the game.
- **Quit:** Exits the game.

##### 4.5.3.2 Pause Menu

Available to open during normal gameplay and when opened it pauses the game and presents different options to the player: resume, show controls, and return to the main menu. When closed the game continues as normal.

#### 4.6 Game Procedure

This is a brief summarization of the details of how we expect the player to play the game from beginning to end.

##### 4.6.1 Beginning

When loading the game anew, the player is shown an introduction to the premise of the game. Afterwards the starting level is loaded where the player starts out with a few basic tools in the starting level. In that level, the player will learn how to use their tools. After breaking open a pathway to the next level, they will then arrive at the forest level where the player will learn some additional mechanics related to the inventory system and stamina. After exiting the forest level, the player will arrive at the farm level which will be the player's main hub where they will spend most of their time. The farm will be used for planting seeds, harvesting crops, sleeping, etc. An NPC is introduced here which informs the player of the main hub and its uses as well as they have some commissions for the player. From there the player is free to explore the world on their own accord.

##### 4.6.2 Game loop

Because each day only lasts a certain amount of time until the player ultimately passes out, the player will most likely need to plan in advance what they want to achieve in the current or following days.

At the beginning of the day the player will most likely start with managing their farm by watering, harvesting and planting new crops. However, given the limited amount of tiles available for farming, the player must plan ahead for what specific crops they want to

harvest in the coming days for usage. If the player does not have any seeds to plant at first, they may instead try to complete some commissions to collect some seeds to plant.

Other things the player may do at their farm is crafting new items or managing their inventory. From here the player sets out in the world to achieve their goals which may include:

- Gather resources to upgrade and craft new items in order to:
  - gain access to a new area which is blocked off by an obstacle.
  - more effectively fish.
  - be able to gather a resource.
  - gather a resource faster.
- Fish at a location to get a desired fish for collecting, consuming or for a commission.
- Complete commissions for the rewards or improved relations or both.
  - Rewards to help the player in accomplishing their future goals.
  - Improved relations to access new dialogue and commissions.
- Talk to NPCs to learn more about them and the world.
- Explore new areas, talk to NPCs, interact with points of interest etc.

Towards the end of the day, the player will most likely go back to their farm to sleep which replenishes their stamina fully for the next day.

#### 4.6.3 Completion

As somewhat explained in goals, the game will be designed to not really have an “ultimate ending” to it. Instead, we are aiming for a game that can be played and enjoyed virtually endlessly by the player similar to the inspired games. The player should feel free to decide on their own accord how they wish to engage in the world and what goals they want to achieve using the tools they have been given. We decided on this in order to promote the casual, relaxing, stress-free experience we are aiming for. The game can be said to be completed only by the player’s decision whenever they have completed some “ultimate” objective. Ultimate objectives in our game include:

- Collect all of the seeds.
  - Some seeds will be locked behind doing various tasks in the world e.g. commissions, exploring new areas, etc.
- Max relations with all of the NPCs
- Exhaust all possible dialogue with the NPCs
- Complete all non-repeatable commissions

## 5- Game Characters

### 5.1 Character design

The characters that are expected to be in the game are 2 different inhabitants and the player’s avatar. They will have different personalities that reflect on their design. More on the design can be found in Art Style.

## 5.2 Types

### 5.2.1 PCs (player characters)

The player initially starts out with full stamina, an empty farm and an empty inventory with the exception of a basic pickaxe, axe and scythe. From there the player will collect resources, do commissions, farm, fish, craft new items, etc. which progressively gives access to new content e.g. tools, resources, dialogue, levels, story, NPCs, etc.

### 5.2.2 NPCs (nonplayer characters):

The NPCs can be interacted with and have a name, default relation, set of commissions and dialogues.

## 6- Story

### 6.1 Synopsis

The story follows a new *Flora Forager*; interstellar gatherers of everything associated with plant life, including fungi. While taking the route back home, an abrupt notification from *IFFC's* (Interstellar Flora Forage Consortium) rescue department notifies that one *Flora Forager* has gone missing on *Viror*: a deserted planet lost in time from unknown causes. It is up to the *Flora Forager* to rescue the missing person.

The young *Flora Forager* lands on this alien planet and sets up their base for days to come. They soon discover that the planet is in fact not deserted and that the inhabitants of the area have some problems and are unable to help the *Flora Forager* in their goal. With no other choice but to assist the inhabitants to finally uncover the truth of what happened to the missing person and *Viror's* fate.

### 6.2 Complete story

Fiona just got back from a seed collecting mission on the moon Twarsh-3. It was a very long mission and there were times Fiona had trouble keeping calm. Fiona was gladly writing her mission report in her ship, when suddenly she got a message that she was assigned a new mission. The mission was to find the missing forager, namely called Alton. Alton was on a deserted planet called Virror. It was a secret mission that not many workers in the FF knew about, so this mission was exclusively for Fiona. Fiona puts her mission report away and starts rerouting her ship towards the planet Virror. The rerouting system takes Fiona to the place where Alton's ship's communication ceased to respond.

Fiona's mission is then to find the missing forager, Alton. Fiona inspects the world and its surroundings that are brimmed with flora. As she exits her spaceship she finds a journal with the FF insignia on it. As she reads the journal she discovers Alton's intent in coming to this planet. A mystery that needs to be solved by Alton; given by his deceased grandfather. The reason for the IFFC to classify this planet as dangerous and deserted even though it does not seem so.

Fiona thereafter finds a boulder which she assumes she can break through. She decided to break the boulders with her pickaxe to unlock an entrance to another part of Virror. That part of Virror is a very attractive place for farmers. There are a lot of metallic structures around the

place, but Fiona doesn't take note of it all too much. But she does notice that they are very old, probably a few decades.

Eventually, Fiona finds an abandoned farm next to a purple river. Close to the farm lies an old dusty journal that also has the FF insignia. However, the design seems to be out of date by a couple of decades. As she reads the old journal, the journal reveals that something terrible has gone wrong and to fix their wrongdoing they will live the rest of their life there in an attempt to protect the inhabitants of Viror.

She is greeted by what seems to be an inhabitant. Fiona isn't able to communicate with them as they were speaking another language. However, Fiona's auto translator turns on so she could understand and speak to them. The inhabitant explained that they saw something landing in the vicinity, so they decided to check it out. Fiona explains that she is in search of a missing person of similar appearance. The inhabitant, who calls themselves Jane, offers Fiona to use the abandoned farmhouse whilst they ask the village elders about the missing person. As Fiona is an outsider, Jane must prohibit Fiona from passing the bridge leading to the village as Fiona is a security risk. Fiona complies and she leaves Jane alone.

As Fiona waits for permission from the elders, she helps out Jane with different things. Through these commissions Fiona learns more about Jane and at the same time about Viror.

*(Scrapped) After Fiona receives countless hints from the inhabitants, she is able to figure out which direction she must take in order to fulfill her mission. Fiona ends up walking to an unknown entrance. After doing so many tasks, Fiona has the right tools to break open the unknown entrance. When Fiona enters, she is able to see particles and god rays. They are directed directly towards some stone structures, with a stone pillar of some sort. Behind the stone pillar lies a grave of some sort. The place felt very dark, sad and empty. Fiona ends up arriving at a Sarcophagus. That is where it says "RIP Grandpa, Flora Forager, 1999".*

### 6.3 Backstory

A rare plant collector voyages through space to find new and exotic seeds to take home. Sailing star to star searching for new never seen life for the world to witness, for a price of course. Fiona is known as a *Flora Forager* or *FF* for short. *FF* are interstellar gatherers of everything associated with plant life, including fungi.

One day on the route back home, Fiona was abruptly notified from IFFC's (Interstellar Flora Forage Consortium) rescue department that one *Flora Forager* of block 14 not far from the current location has gone missing on *Viror*; a deserted planet lost in time from unknown causes. Some sources say that overconsumption and carelessness from the inhabitants are to blame for the social fallout, but the uncertainty mostly comes from an uninterest from the outside. Except for the missing person, no one has, since it became deserted, entered the planet, at least documented. *Viror* was once a prosperous planet famous for its green scenery giving its current name. Its demise happened a few decades before the IFFC founding. Unfortunately, all flora samples have since vanished. Why this *FF* landed on *Viror* is unknown because the current documents label the planet dangerous and prohibited to enter by IFFC with the only exception for critical rescue.

Fiona; one of the youngest *Flora Forager* currently on duty and with no prior experience in rescue missions to save this *Flora Forager* stranded or at least thought to be, changes the destination to the deserted planet. Fiona landed near the location that last captured any signals from the spaceship. At landing, the ship was nowhere to be found, only the tracks left by its body. No sign of being dragged nor dismantled. What could have happened to it?

The realisation that this rescue mission would take longer than initially anticipated, finding a place to settle for the time being where necessary. To Fiona's surprise, the landing spot now overgrown by the forest was once a farm left by an outsider. How long since its usage is unknown more than it could not be more than a few decades old. Fiona had luckily seeds left from the last mission that is useful to start a small farm for the time being because the current supplies intention were never to be used for a prolonged stay. Documenting whiles on *Viror* could potentially help to discover new clues and to figure out its dark and mystical story. You were after all, Fiona; the *Flora Forager* whose stories were told all over the galaxy, or at least that is your dream.

## 6.4 Narrative devices

The story will be told linearly and there is no requirement to follow it if the player so chooses. You will miss out and not be able to unlock certain things but nothing that is needed for someone only seeking to play a fun farming game. The story unfolds from the players perspective and from dialogues. Everything is present but you can uncover old documents and recordings made from the past.

## 6.5 Characters Backstory

### 6.5.1 Monica

Monica is the team leader of the village. Monica is known for being the strongest individual of the village. Monica is very direct, decided and strict. Monica wants to always make sure she does what is right for her people. She especially enjoys weight lifting and also finds joy in learning how to become a better leader. Monica also likes all types of sports activities. Everything from swimming, running and more. Monica doesn't always seem like the most approachable person, but once you get to know her – she completely opens up. Monica has a secret lover which is not known of, which is who she really would like to open up to. The inhabitants of the village don't see Monica as someone who is aggressive or mean, but rather a well fitted leader. Monica despises when people aren't listening to her as she feels like her leadership role is completely unfitting.

### 6.5.2 Jane

Jane is known for being a seed collector. She obviously enjoys exploring and finding new seeds. She doesn't mind sharing them around, as long as her efforts are rewarded. She mostly shares her seeds with Carl (Scrapped) since he is the one who farms for the village. Jane is an adventurous person who likes discovering new places and things throughout the planet Virror. Jane is considered the "funny one" of the group and doesn't mind being the centre of attention. Jane likes making jokes about serious topics to make sure that everyone stays in a positive mood. This isn't always liked by everyone but is understood by others. Jane

wishes to start her own show where she can display her comedy to a wider audience. Jane dislikes awkward silence and doesn't like being told exactly what to do.

### 6.5.3 Sylvia

Sylvia is the fisher of the group. She was taught by her old granddad, who died many years ago, how to fish. Sylvia is very cautious and reserved. She doesn't like being in social settings unless she absolutely needs to. Sylvia enjoys doing things by herself as much as possible. She despises asking for help even when she needs it. Sylvia knows that her fishing helps the village and continues to do so, as it is her duty. Sylvia has once thought about leaving the village and living on her own. But her friends in the village convinced her to stay and even so, she was convinced. But that idea never leaves Sylvia. Sylvia is very much a mysterious person who has a lot of leaves to unfold. Sylvia is Jane's friend and usually hangs out with her, sharing her catch of the day with her.

Currently no future plans to develop this character as an NPC except for in-game mentions in others' dialogue.

### 6.6 Story ending (Scrapped)

Concluded the rescue mission by finding the missing forager and getting him to willingly leave the planet of Viror to go back to HQ.

## 7- Art Style

### 7.1 Original Vision

The initial style of the game took inspiration from Animal Crossing and Harvest Moon. We decided to use chibi characters to make it possible to create different variants (the design still ended up being too complex for this type of project). The theme of being on an alien planet in the future created challenges on how the future should resemble. None of us had worked on a game or other media set in the future, making it extra challenging to create an appropriate style for this theme. Well made science fiction takes years to develop and builds on our reality of understanding and how the future predicts; this is something that we are incapable of achieving. To make the future space look closer to how it resembles today and aliens with similar styles to ours was both for convenience and narrative reasons. We can relate to others that act and behave akin to ourselves and that also means we do not need to think outside of the box.

Our original concept art (as shown in fig 2) of the overall feel for the game has stayed persistent during the development and even the UI has a close similarity to the current version. Our original plan was to make the game fully grid-based and use premade tiles to build the world. We had no time to implement this and did not find any substitution for this mechanic. Because of this, we changed the tile-based levels to a more dynamic terrain using the built-in Unity terrain tool. This change had a significant effect on the style of the game. We moved away from Animal Crossing New Horizon's terrain system to a more realistic environment.

## 7.2 Current Style

The style of the game has gone through multiple iterations since the initial concept art. Everything from the characters to items has seen one or more iterations during the development to be more consistent with newer content or an overall improvement. Because of the limited development time and having only one artist in the group, some inconsistencies are unavoidable. The icons, for example, even after an art style shift, has inconsistency in complexity compared to the newer items that are more detailed and have more layers of shader than the earlier ones. There was also a lack of concept art to go by, making each implementation slower and more prone to inconsistency from other content in the game.

The final style is a blend between detailed chibi characters with a more textured appearance placed in a semi stylized environment. Making rusty textures that look cartoonish is difficult. The rest of the game needs to be adjusted to accommodate this change and is also more convenient when using smart materials inside of Substance Painter.

Our initial concept art displayed a more vibrant and greener environment than the current one. This change was not our original plan but became convenient when fixed to use the grass shader on the terrain. The grass is a vertex shader and not placeable on non supported materials. It is possible to fix this, but because we are using the terrain tool to more conveniently paint the grass, any other object would not be as customizable. This limitation resulted in a more sandy/rocky environment that does fit in the post-apocalyptic setting. We had ideas of another level placed in a desert-based location, but this downgrade happened before the implementation. Instead, we moved the desert idea to other parts of the game.

## 7.3 Items



Porock plant was the first food-related resource that we designed and implemented. Multiple changes have been made to it and are a good representation of changes made to icons during development. The first iteration played around with the idea with more sporadic strokes. The final result is realistic from a distance and did not fit with the more cute style that we were aiming for. We used the middle version for most of the development and changed it to the latest one after a change in icon art style. We wanted to clarify that this stone is edible and instead changed Porock from a simple crack to a full wrapper.



Icons have two different functionalities: informative, to give the player as much information both in what it represents but also similarities to other items that fit in the same group, and attachment, just because the icon has a clear tenor, it does not mean it will immerse the player to the setting. An item should make sense in just that setting. For example, a toilet sign can universally be understood and has its own subgroup such as man, woman, disabled etc.; this does not mean it would make sense in a game placed in the stone age. Maybe for comedian reasons, but even if you would understand that this has to be related to relieving yourself, it might be off-putting to the player. Every item implemented needs to follow these two criteria.

Items have a cartoonish style in comparison to the rest of the game. The reason for the cartoonish style is to speed up the content process. Simpler shapes and colours are also more distinguishable and stand out.



Concept for Fiona, the main character and Jane.



Change made to Fiona during development to fit with the new character, Jane's style.





Change made to make the trees more detailed and better fit in with the rest of the assets (New in this context in comparison to the upper image. The game has seen multiple visual revisions since this comparison was taken).

## 8- The Game World

### 8.1 Overview

The game takes place on an alien planet in a faraway galaxy. Similar to Earth's physics but the flora and lifeforms have chosen a different path. The alien planet should give a homely and calm feeling but also a sense of difference from Earth. There will be flora that is similar to Earth's but also variations that differ enough to understand that it is from an alien planet. The intention is that the objects should feel alien-like, but, with a glance of it, you would understand what it is. E.g a tree is a tree even on this alien planet but no Earth-like trees look like this kind of tree.

### 8.2 Levels

The game is divided between four maps: the start scene, the forest scene, the farm scene and the swamp scene.

#### 8.2.1 Start Scene

The start scene is the first map that the player encounters. It is intended to introduce the player to some basic mechanics such as chopping wood and breaking rocks.



Starter scene illustrated above from above.



East exit leading to the forest scene illustrated above. A black rock (Obsidian) that must be cleared to gain access to the forest map. A book resting on the left side purple rock that when interacted would give you insight into how to clear the obsidian.





Illustration above (Old): A secret area that leads to the intended end map that was scrapped due to deadlines.

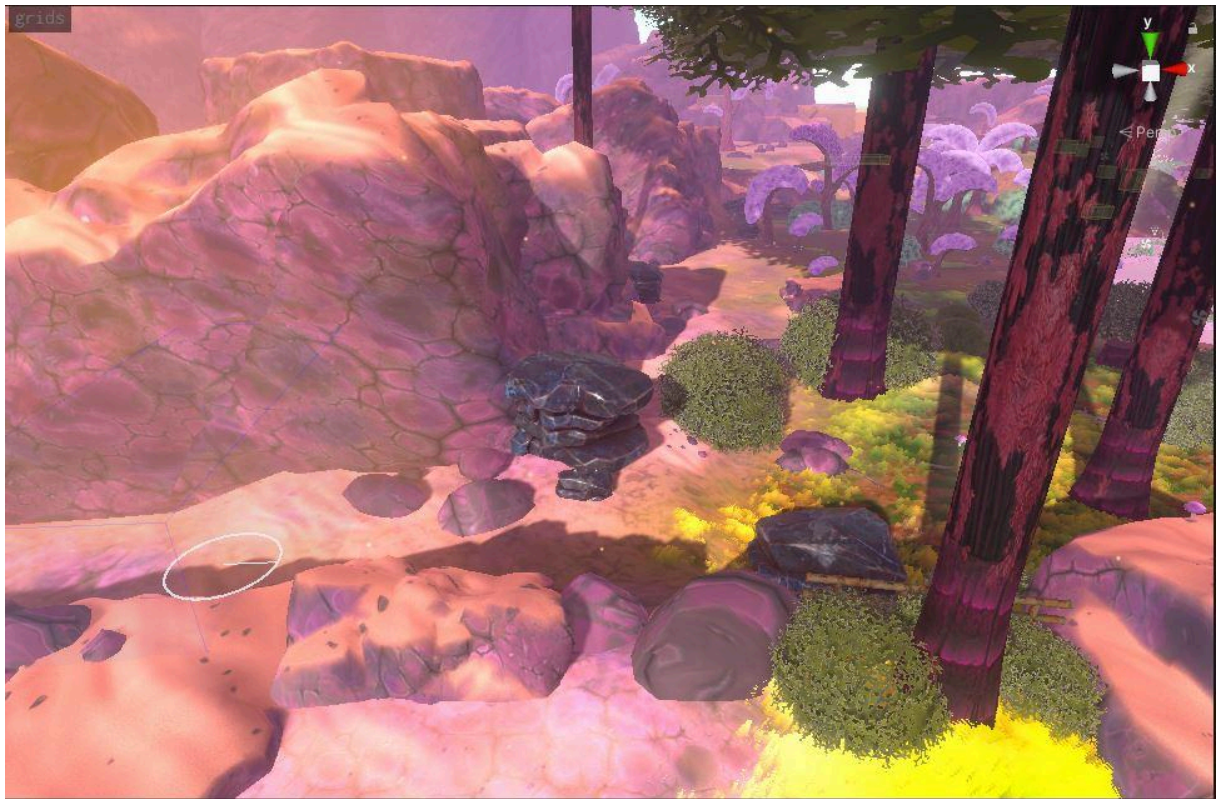
### 8.2.2 Farm Scene

The farm level is the intended main map that the player is going to spend the most time in. All core mechanics that have been implemented such as fishing, farming, crafting and mining are accessible in this map. The player is also given a house in this map where the player can skip the current day by sleeping.

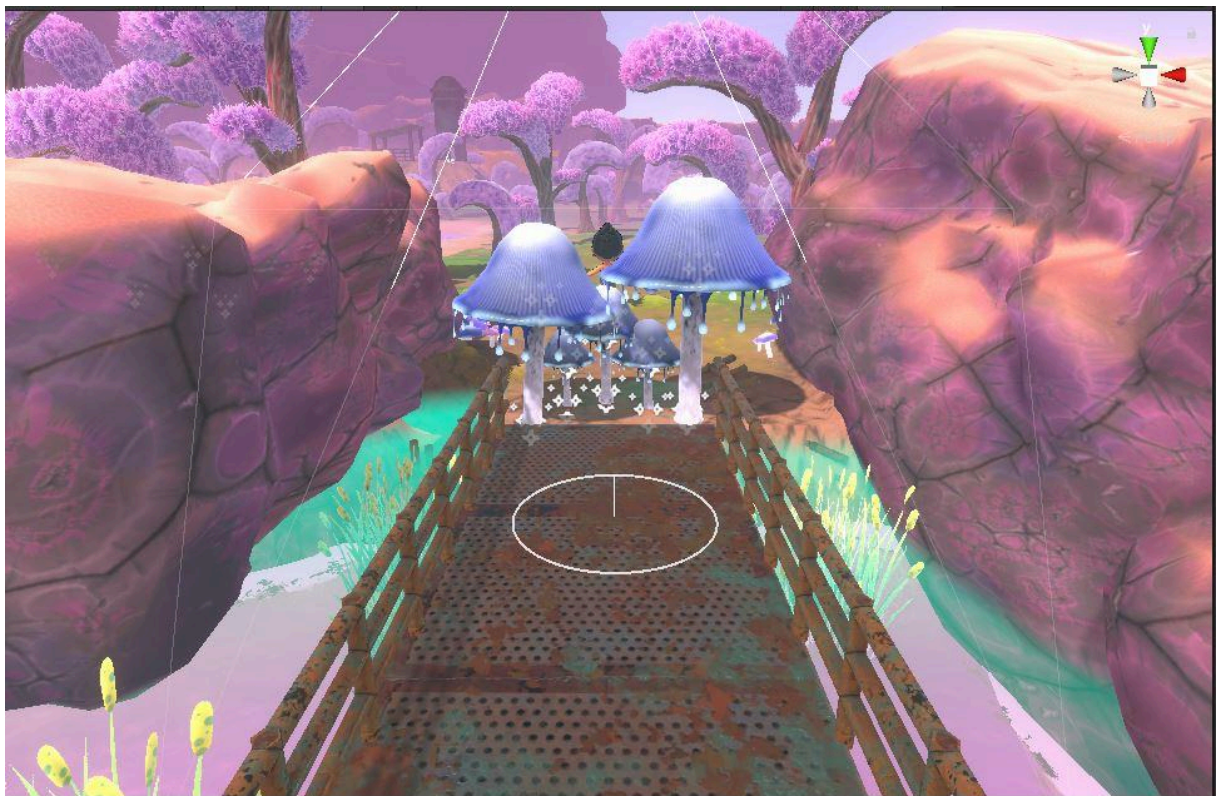


Farm Scene illustrated above. The farm scene without fog in its entirety from unity editor.





West exit illustrated above. The west exit is connected to the forest scene. The white circle in the left indicates where the player will spawn when entering this scene.



South exit of the farm map is illustrated above. The south exit from the farm map was planned to be an exit to a beach area. However, due to scaling down the project to meet the

project's deadline the creation of the beach map was scrapped. However, due to reconsiderations a new map was created called the swamp scene which hosts these weird glowing mushrooms called glowirch. The exit is blocked by these mushrooms and to be able to progress to the swamp scene the player must finish a certain commission by Jane and craft a strong enough axe to cut them down.



East exit (scrapped) is illustrated above. The East exit was planned to connect the farm map to the village map where all the villagers lived. However, due to scaling down the project to meet the project's deadline the creation of the village map was scrapped. This area was designed to hint to the player that there is more to the game, and you need to progress further into the game to discover it. As of now, there is an invisible wall that blocks the player from crossing the bridge. The NPC Jane will stand there to block access to the other side.

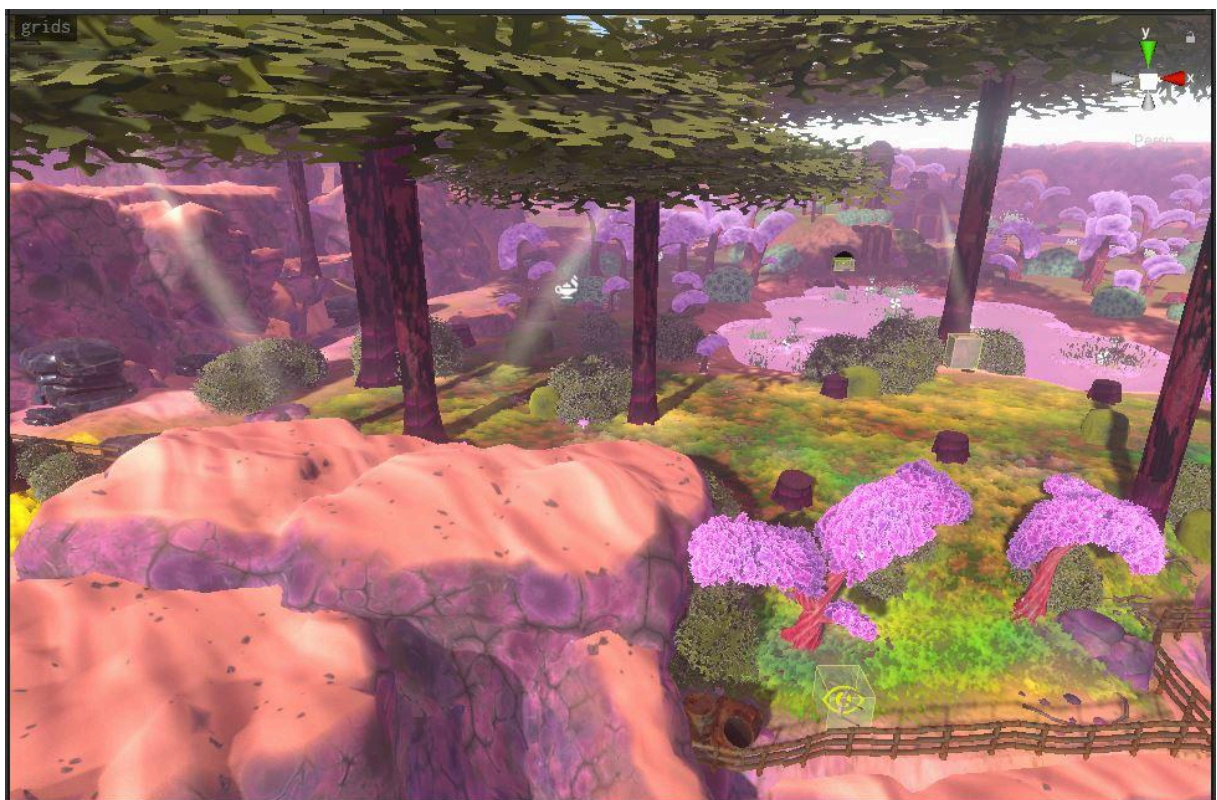




North exit situated right from the quarry and left of the farm illustrated above. The North exit was planned to connect the farm map to another bigger area more dedicated to finding rare minerals and trees. As the other exits, except for the west exit, this was scrapped to meet the project's deadline. The large boulders that block the exit are to indicate that that area is more mountainous and has more rocks.



The farm map's quarry is illustrated above. The quarry is the player's main area for harvesting obsidian shards which you gain by mining the black rocks.



Forest biome from the forest scene transitioning to birow forest illustrated above.



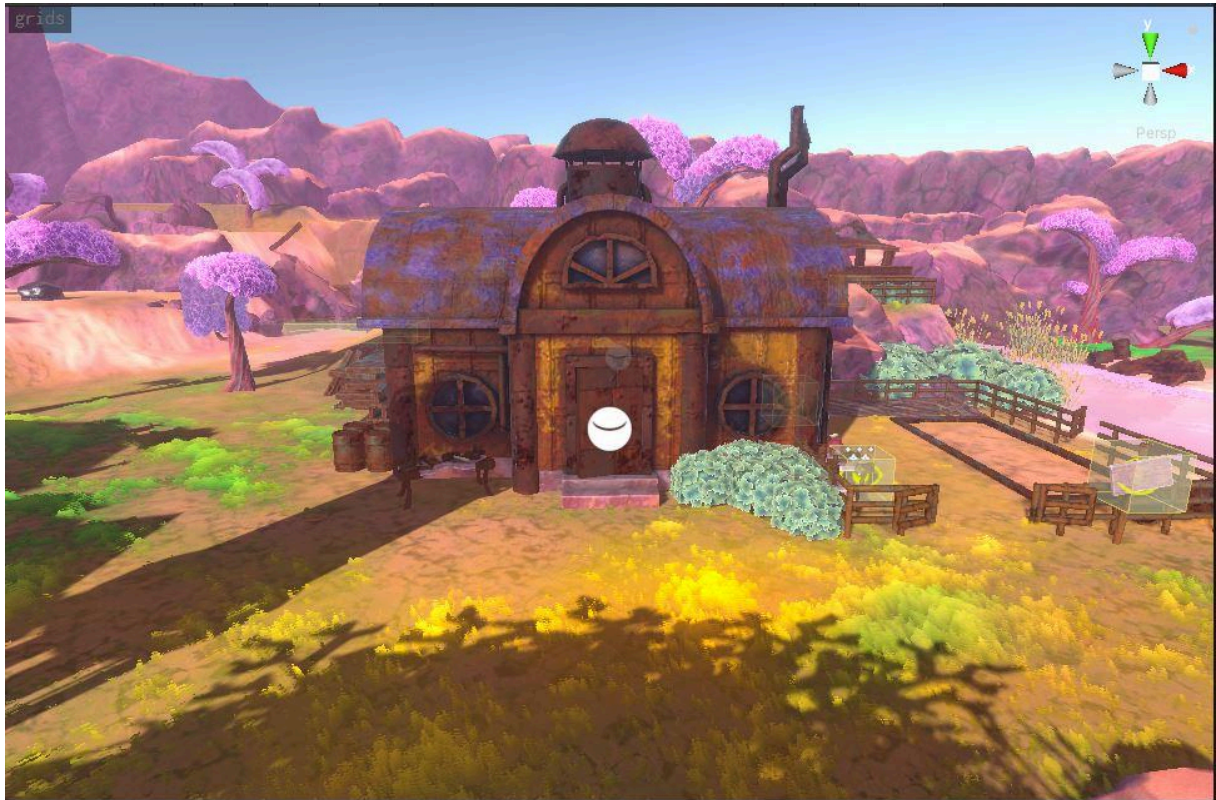


The forest area in the farm map is illustrated above. Intended to be the main area for getting Birow logs by chopping down the pink trees.



The hill left of the farmhouse and right of the quarry illustrated above. Multiple points of interest are centred around the hill which are displayed in the unity editor by the yellow boxes with eyes.





The player's farmhouse is illustrated above. The house itself does not do anything, however, there is a collision box by the door that triggers sleep if the player wants to. There is also a workbench to the left of the door that allows the player to craft different items. To the right is the garden where the player can plant plants.

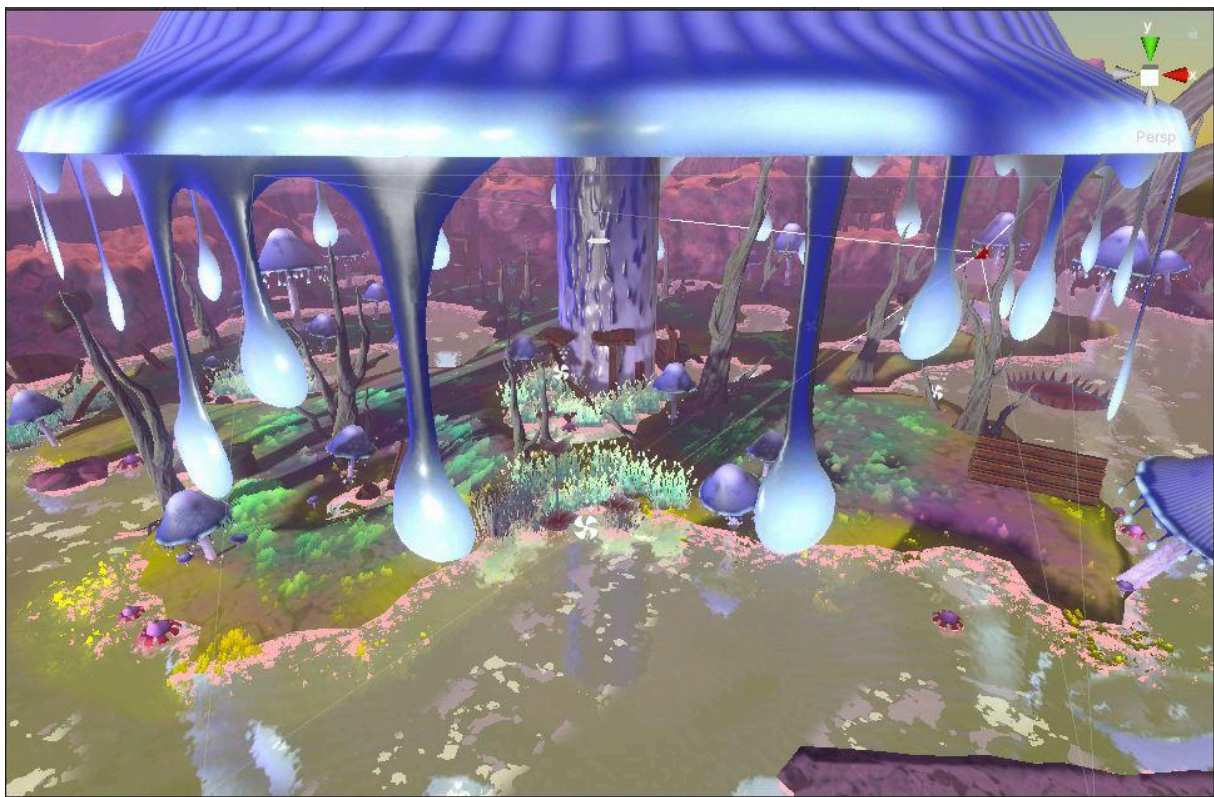
### 8.2.3 Swamp Scene

The swamp scene hosts a whole new look and a deeper insight into the history of this planet. Designed with environmental storytelling in-mind through decorations and feel should give the player a hint that perhaps this swamp was man made or that the toxic look of it was caused by sentient life.

The swamp scene acts as a progression device for the player. The entry point located in the south exit of the farm scene is blocked by Glowirch that must be cut down by using a glow axe. There is one interactable NPC, Monica, that resides here and gives the player commissions to further advance in the game.

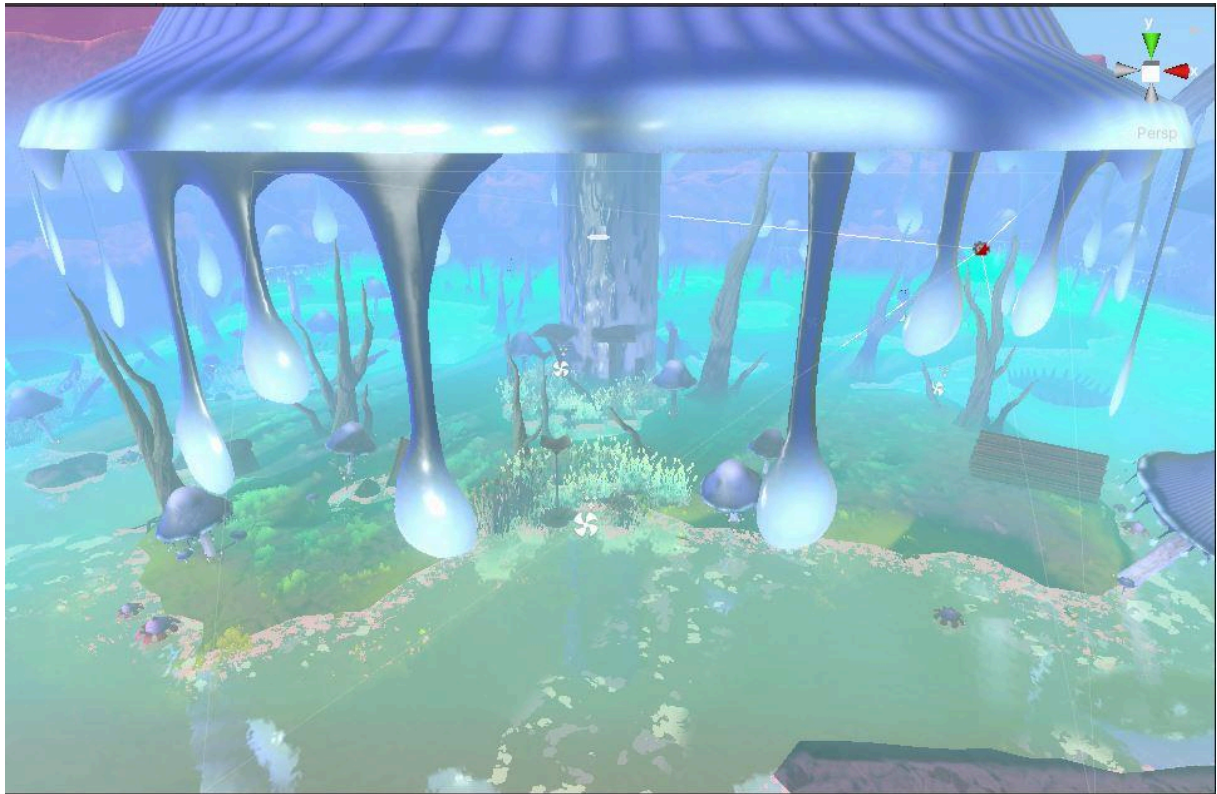


North exit in the swamp scene that leads to the south exit of the farm scene illustrated above.



The farm scene without fog illustrated above.



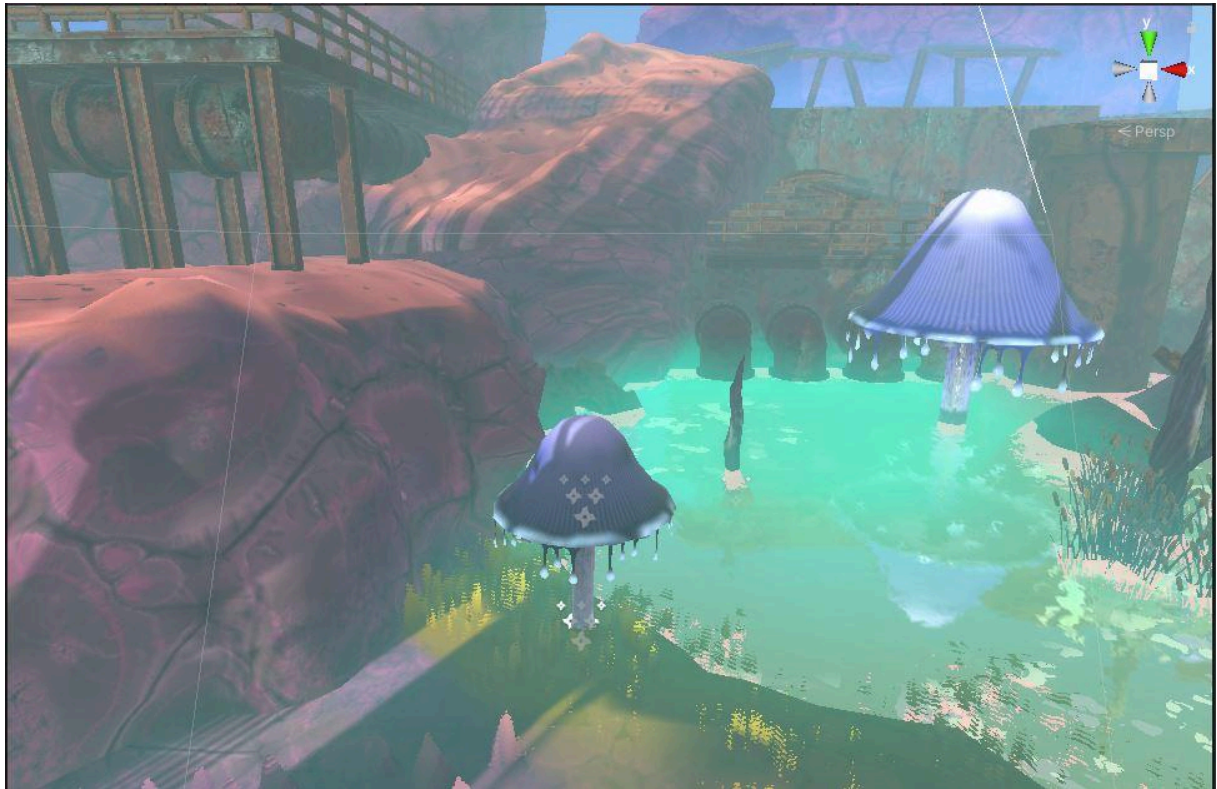


Swamp scene with fog turned on illustrated above.

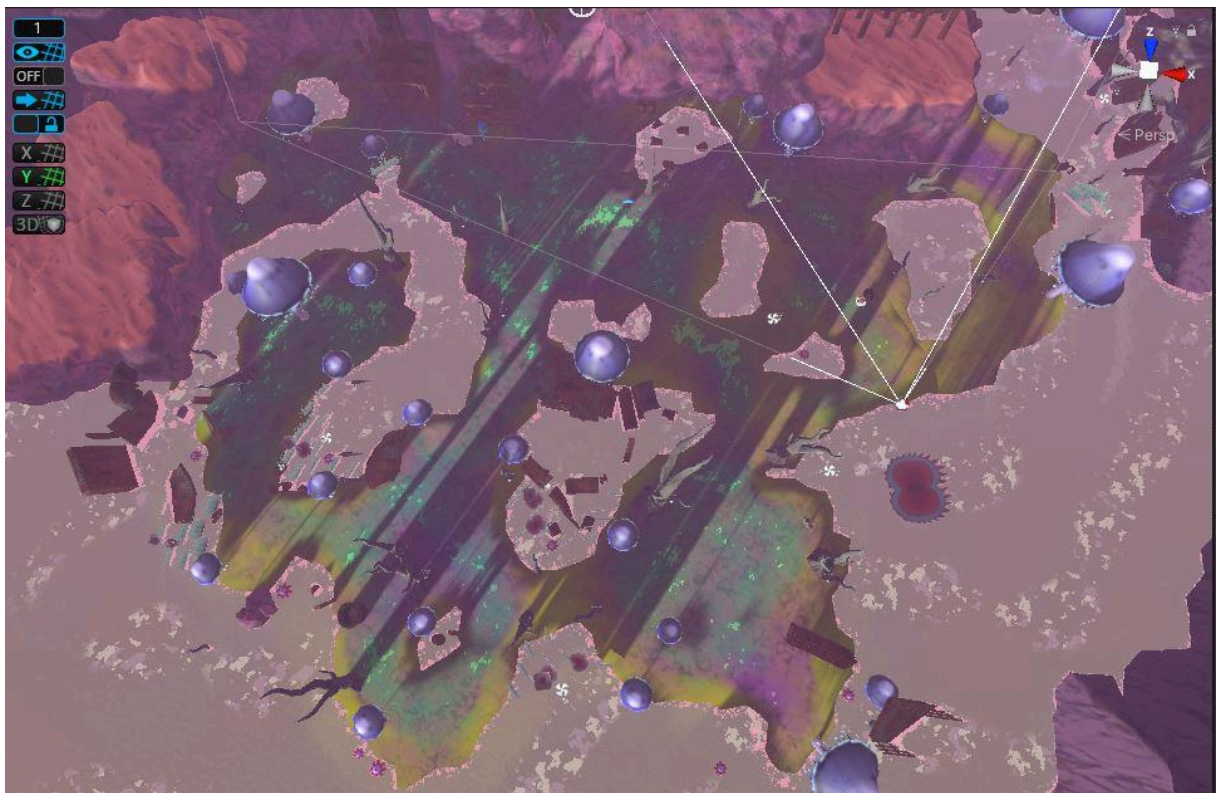


Monica who resides close to the north exit illustrated above.





An inaccessible abandoned facility with a drainage/pump system illustrated above.



The swamp scene from above without fog and the giant Glowirch hidden illustrated above.

#### 8.2.4 Forest Scene

The forest scene exists between the starting area and the farm scene. It fills in a missing gap in the game and creates a better illusion of scale to the world. It consists of multiple different smaller areas, with some being locked behind until further into the game.

The road extends from west to east and is a direct path to the farm scene. You pass through the old forest that has existed for many centuries, unchanged from all outside forces made to the planet. It is dark and has a thick atmosphere, populated by towering Gossal trees. Do not provoke the wrath of the forest! Further down consist of fields that used to contain livestock in the past.



Entrance from the starting area. The old cave system through the sandy hills connects the different locations accessible by the player.



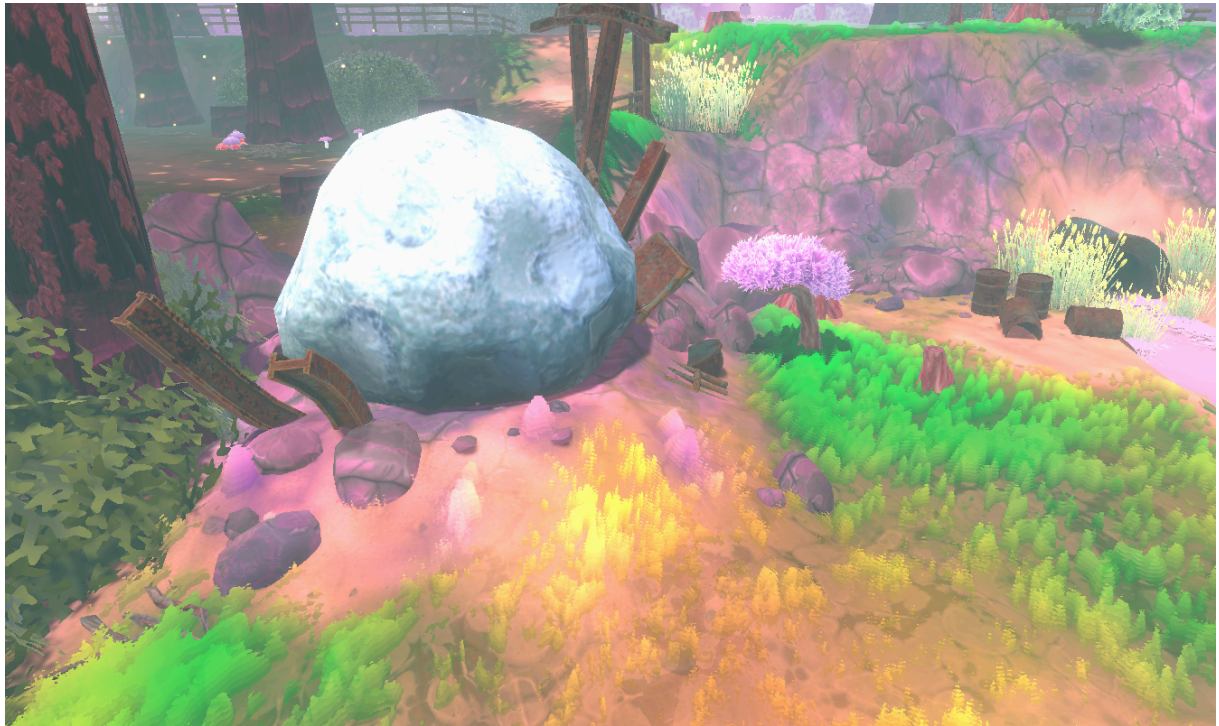


Opening in the middle of the forest, giving a better view of the mountains separating these two regions.

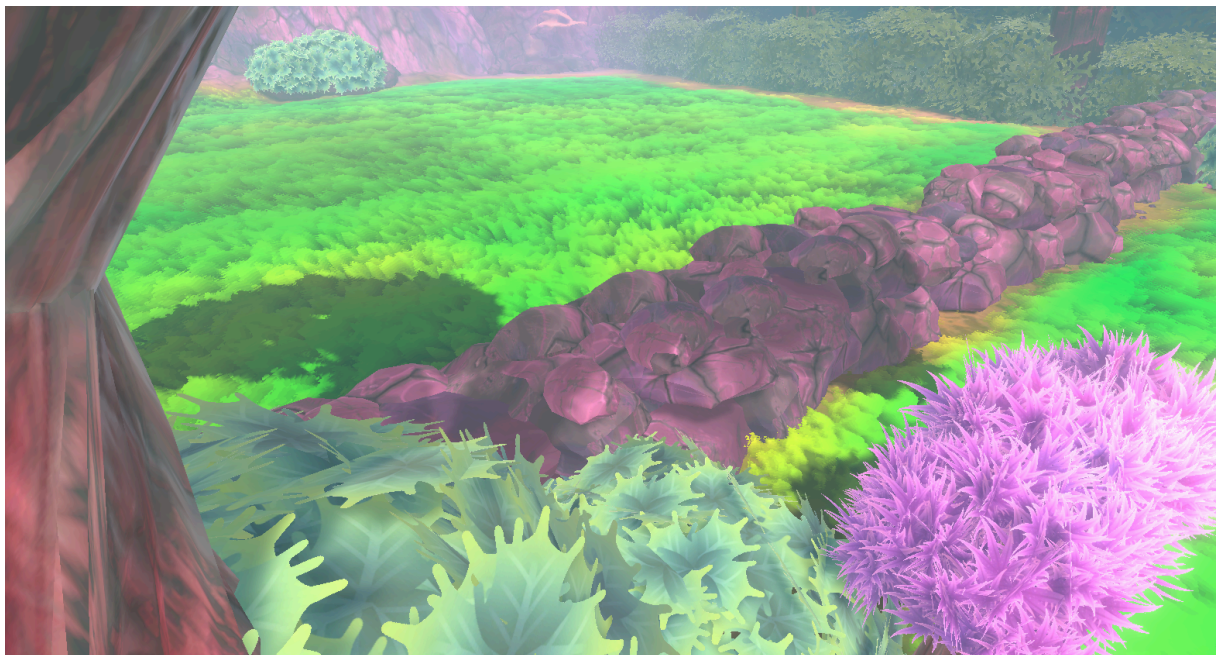


Massive Gossal, even by its kind.





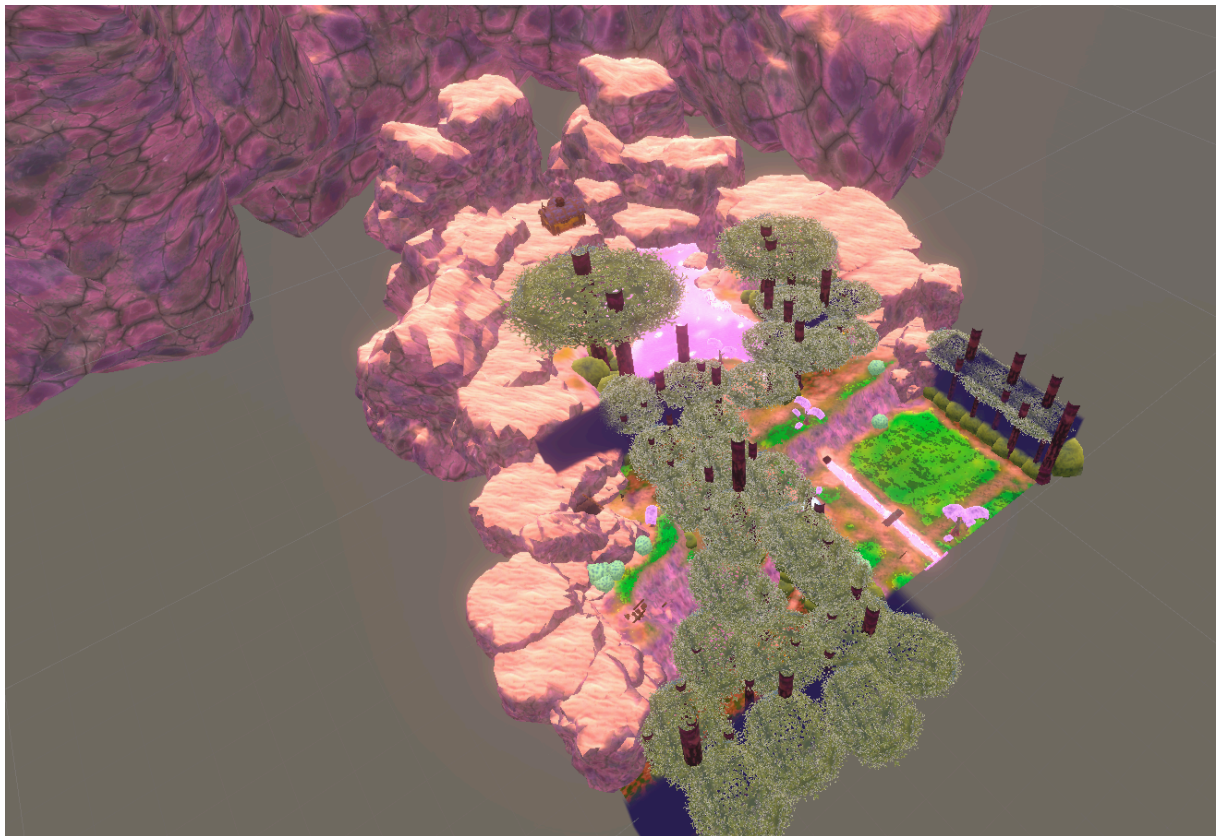
Meteorite conveniently blocking the road.



A grass field that used to retain livestock, but is nowadays a perfect picnic spot.



Deeper inside of the forest.



Bird view over the whole scene.

### 8.3 Key locations

The main map of the game where the player is going to spend the most time is the farm. The player is able to grow plants, harvest different resources and fish in this location. It is also the location where the player has their house where you can sleep.

The second key location is the swamp scene where you will be able to meet a new NPC, Monica, and finish your final challenge by fishing up terrosh. The player gains access to



Monica's commissions which provides the necessary plant that will allow the player to craft lumbait which in turn is used to fish up a terrosh. Terrosh is only found in the swamp.

#### 8.4 Travel

Each map is located in different scenes that are accessible by a game object. When the player collides with these game objects the screen will fade to black to mask the scene transition. When it fades back into the scene the player has been transported to the game objects' respectively assigned scene. The level designer takes into account that the game object that handles scene transitions are invisible and must therefore design the map in a way that the player understands that there is going to be a scene transition.

Starter scene only has one exit which is to the East and is connected to the West exit of the Forest map. The East exit is blocked by an obsidian rock and must be destroyed by the player to access the farm.

Forest scene has two exits. West which is connected to the starter scene and East that is connected to the farm scene.

Farm scene has two exits which are the West exit and South exit. The West exit is connected to the East exit of the starter scene and the South exit is connected to the North Exit of the swamp scene.

Swamp scene has only one exit which is the North exit that connects to the farm scene.

#### 8.5 Scale

The scale of the map is restricted by the material that the project applies to the terrain. This is to ensure that scaling will happen uniformly and without visual inconsistency. As of right now, we have 150x150 and 100x100 sizes for maps.

The farm map is 150x150 according to Unity's Terrain tool. However, the play area, the area that the player can access, is smaller than that due to having a portion of the terrain that acts as a buffer between the empty void and the play area. The play area is approximately 100x90 big, 100 along the x-axis and 90 units along the y-axis.

The starter scene is 100x100 according to Unity's Terrain tool. However, the play area, the area that the player can access, is drastically smaller than that due to having a large portion of the terrain that acts as a buffer between the empty void and the play area. The play area is approximately 50x30 big, 50 units along the x-axis and 30 units along the y-axis.

The swamp scene is 100x100 square tiles. The play area is estimated at a maximum of 60x40 tiles and an approximation of 60x40 - 90 tiles. Difficult to calculate due to the amount of water in the scene.

The forest scene's play area is about 100x50 square tiles.

#### 8.6 Physical objects

Objects are divided into decorative and interactable objects. Most decorative objects have collision and those that do not are too insignificant to have collision like pebbles. The interactable objects can be interacted with by the player.

## 9- Music, Ambient And SFX

Our game will contain music, ambient and SFX to improve the overall feeling and to provide feedback for the player. Music and ambient are played on loop and may differ depending on the level. Some SFX is played to provide feedback to the player, e.g. when hitting an axe on a rock it plays a cling sound, signifying that it did not work.

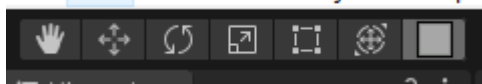
## 10- Tools

### 10.1 Grid creation tool

One of the tools we want to create can be summarised as a grid creation tool. The problems with the earlier iteration of the grid system we had were that it was very static with few parameters to change it e.g. generates a strict amount of tiles specified by width and height, does not support rotation/position changes to specific tiles and is quite performance heavy. As such, the current system is unsuitable for larger levels because it creates a lot of unused tiles (unneeded data) which will affect the performance. Furthermore, it does not support position changes to tiles which makes it more difficult to design interesting levels.

With the grid creation tool, we can place custom tiles anywhere in the world by using the editor. When finished all of the placed tiles will be compiled together to one large grid. This means we can design the world much more freely and much less data will be used to represent the grid making it performance-light. The grid creation tool is divided into two parts: cell tool and grid editor.

#### 10.1.1 Cell Tool



The cell tool can be selected in the toolbar (square to the right) and has multiple functionalities. Its primary purpose is to create new cells easily and assign a type to them. The user can create a single cell by middle-clicking and selecting a type. However, the better way is to right drag where a white line shows how many cells will be created and when rmb is released cells are filled from where you started dragging to where you stopped. The final function is the ability to change selected cells' type by pressing either Q or E or by using the scroll wheel.

#### 10.1.2 Grid Editor

The grid editor detects all cells in the scene and enables them to be compiled or decompiled. When compiled, all cells are used to construct one large mesh and cells can no longer be modified because they are destroyed when compiled. However, all data remains intact for each cell and when decompiled, the vertices of the mesh are used to create the cells afresh and the data is used to reassign its type. Decompile allows for the user to modify the cells again after compilation if the user discovers some flaw with the currently compiled grid. All detected cells can also be viewed and edited in the editor shown in fig 4.

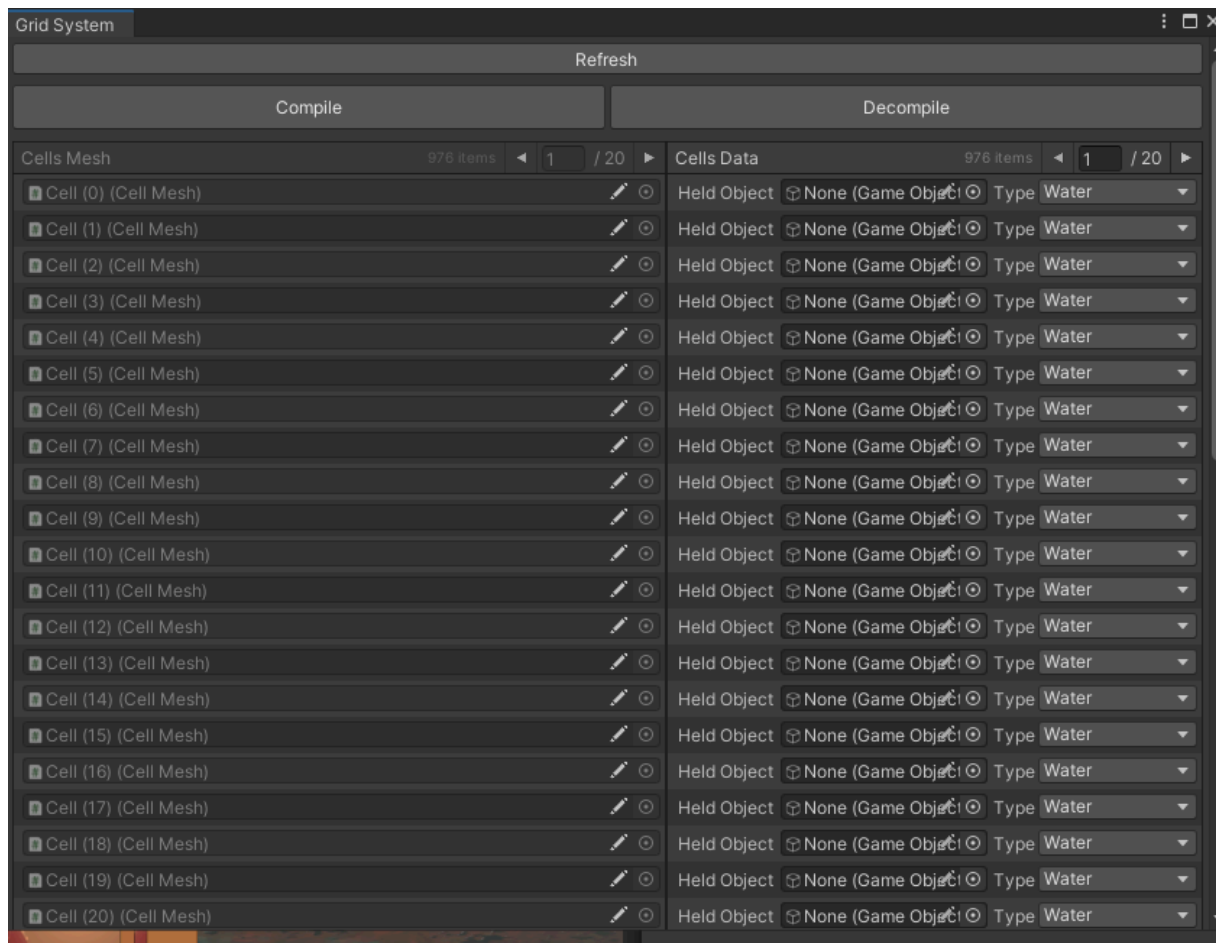


Fig 4: Editor window for the grid editor

## 10.2 Item creation tool

The item creation tool is an editor tool that allows the user to very easily view all items in the game and create new items. In Fig 5 & 6 you can see how the window looks like where all items can be viewed and are categorised by their labels.

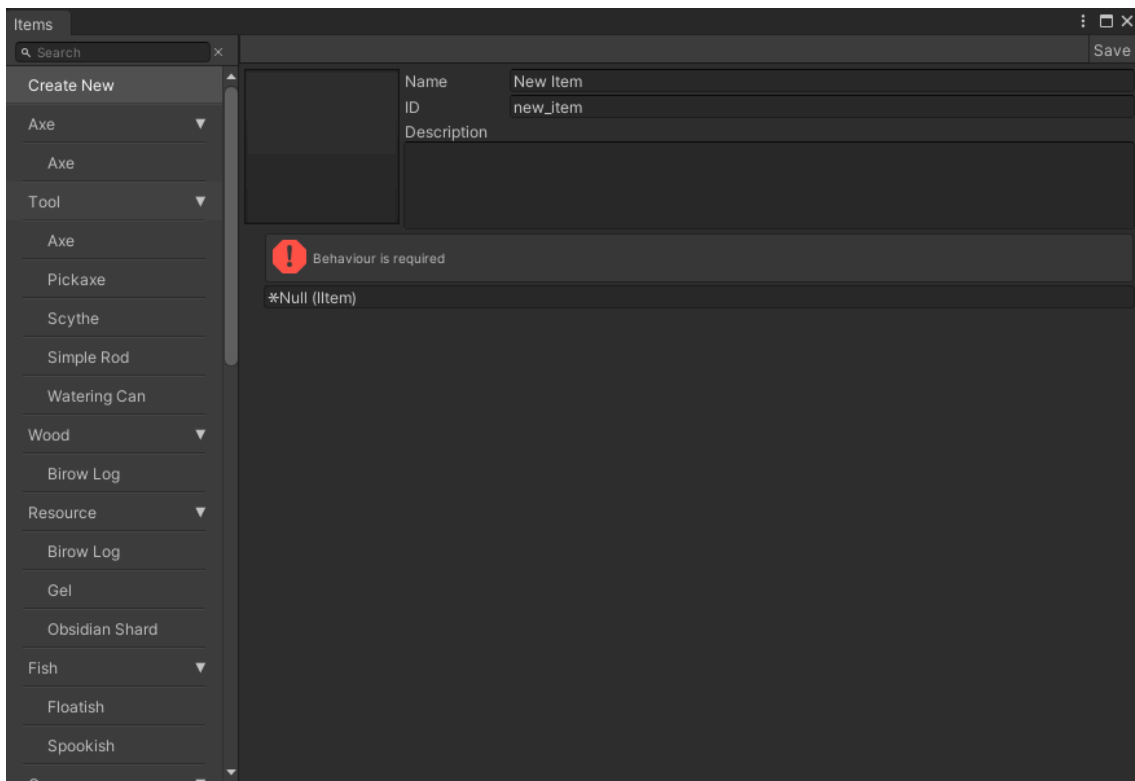


Fig 5: Item editor window

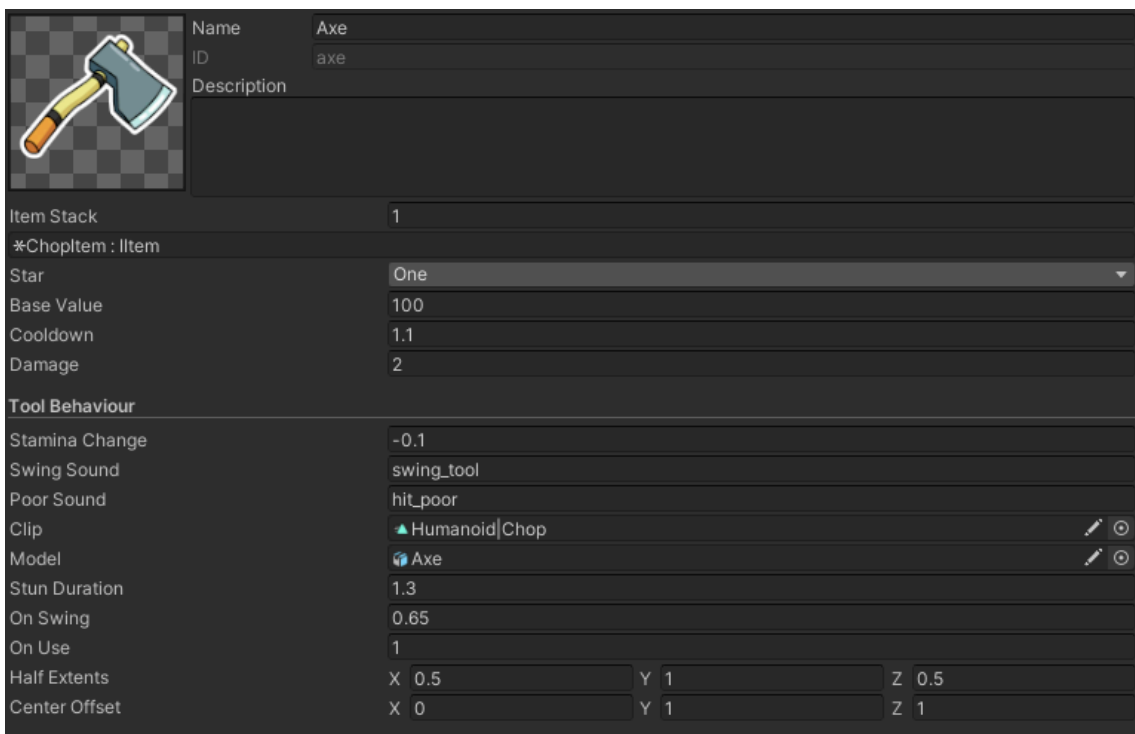


Fig 6: Closer look on an item in the editor