

**Idyllic Island - Game Design Report**

CSC299

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## **Change Log:**

### **23/05/16 – Initial Concept of the game**

Idyllic island is an island ecosystem simulation game where the player controls the climate of an island in order to attract new species to the island. Kids are told from a young age that climate change affects nature but they are rarely able to see the effects of climate change on an ecosystem directly. Through playing idyllic island, students in grades 4-6 who are learning about ecology, climate change and the interactions between species will be able to see the effects of climate change on an ecosystem that they control themselves.

Players will start off with an island full of grass that they have to keep alive by regularly activating rain on the island. As time passes, they will earn biodiversity points which they can use to buy new features on the island such as lakes, rocks, caves and more. The player can also control the temperature on the island by sending sunlight onto the island. As certain features are added, the temperature of the island changes differently to the same amount of sunlight. For example, if there is a large lake on the island, temperatures will be more moderate on the island.

Seeds will randomly blow onto the island and by reading the information on each seed, players will know what conditions the plant can survive in and adjust their island accordingly. As more plants grow, insects and animals will be attracted to the island in random events depending on whether or not what they need is available on the island. As the number of species grows, the proportions of species becomes very important. For example, too many herbivores will destroy the plants and too many carnivores will devastate other animal populations. The player must make decisions on the climate in order to save as many species as possible. If an invasive species gets onto the island, the player may decide to change the climate in order to drive it off of the island or risk an imbalance of species. To keep students interested, there will be a book of species that players fill up each time they attract a new species (almost like the pokédex in Pokémon). Certain animals are rare and will require special customizations in order to attract them.

Students in elementary school love making things and the idea that they can customize their own island should be much more appealing than just reading about biodiversity in their science books. This game also gives them a sense of control and power in the game (just like in popular games such as Minecraft and Sims) that will hopefully keep them interested in the game. Filling up the Through watching their island thrive, students will learn how big of an impact the climate has on living things and how fragile an ecosystem can be.

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### **25/05/16 – Ideas/Initial Plan for the Game**

Idea for secret level: Modern humans arrive on the island and the player's controls don't even work anymore because the humans are destroying the climate

### For each bug/animal:

- Name
- Scientific Name (If Applicable)
- Adaptability range for precipitation
- Adaptability range for heat
- Diet
- Niche (if we have time to research them)
- Fecundity
- Population of the species on the island

### For each plant:

- Name
- scientific name (if applicable)
- Adaptability range for precipitation
- Adaptability range for heat
- Diet
- Niche
- Population on the island

### Types of tiles

- Grass
- Feature
- Plants
- Insects
- Herbivores
- Omnivores
- Carnivores.

### Controls:

Rain: Click-at-a-certain-point strength bar



Like this →

Heat/sunshine:

-Click like a crazy person until your heat bar is at the level you want. Heat slowly diminishes if you don't click.

Clouds:

- 2 finger tap?
- prevents photosynthesis

Focus on Canadian wilderness

Unlimited grass seeds

Random wildfires?

4 seasons:

- Each season has different presets
- Adjust how hot things get for each click in every season

Ways to make it more interactive:

If we make it a smartphone game we can make shaking the phone activate rain and maybe flipping the phone can be sunshine

Things to ask people when testing:

How big should the island be?

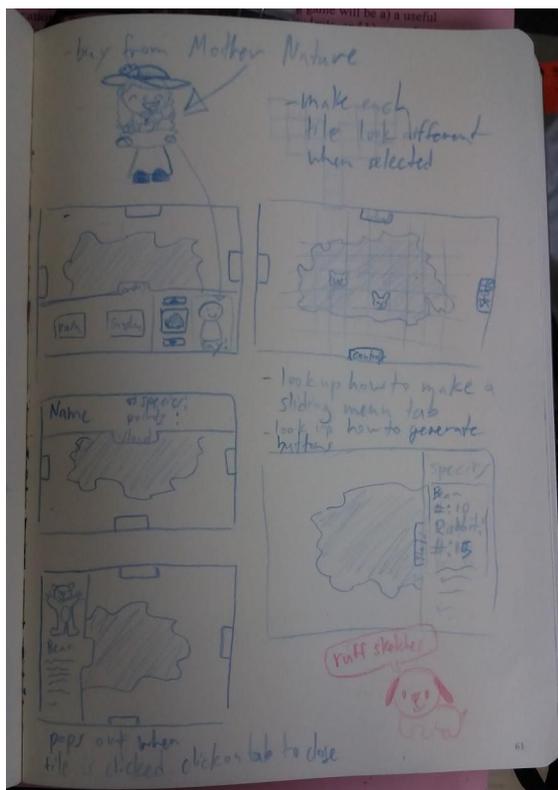
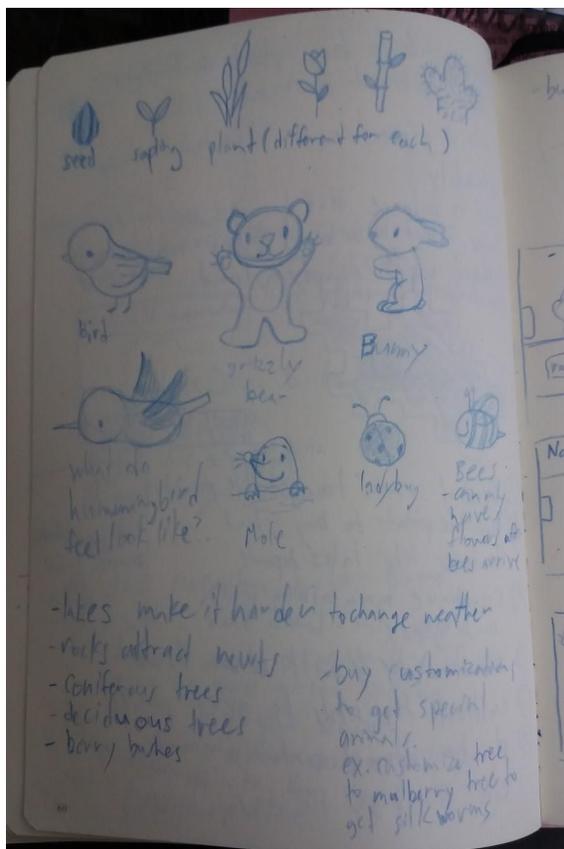
What should the controls be?

How long should the seasons be?

Implementation notes:

- Alter camera angle on 2D in the 3D view so that the gravity works
- set box collider so things don't fall
- Random paths for each animal, after a certain number of collisions with herbivores, grass disappears
- little animal icons (animations if we have time) that wander around the island
- change states for each tile, add colliders for each
- animal dies off after not getting food for a certain amount of time

Below are pictures of rough sketches we had for the art style/layout of the game



## 01/06/16- A more formal game proposal

### Idyllic Island Game Proposal

Ryan Ro and Cheryl Lao

#### Overview:

Idyllic island is an island ecosystem simulation game where the player controls the climate of an island in order to attract new species to the island. Kids are told from a young age that climate change affects nature but they are rarely able to see the effects of climate change on an ecosystem directly. Through playing idyllic island, students in grades 4-6 who are learning about ecology, climate change and the interactions between species will be able to see the effects of climate change on an ecosystem that they control themselves.

Players will start off with an island full of grass that they have to keep alive by regularly activating rain on the island. As time passes, they will earn biodiversity points which they can use to buy new features on the island such as lakes, rocks, caves and more, with an interface quite similar to the to games such as Clash of Clans, and Farmville.

The player can also control the temperature on the island by sending sunlight onto the island. As certain features are added, the temperature of the island changes differently to the same amount of sunlight. For example, if there is a large lake on the island, temperatures will be more moderate on the island.

Seeds will randomly blow onto the island and by reading the information on each seed, players will know what conditions the plant can survive in and adjust their island accordingly. As more plants grow, insects and animals will be attracted to the island in random events depending on whether or not what they need is available on the island. As the number of species grows, the proportions of species becomes very important. For example, too many herbivores will destroy the plants and too many carnivores will devastate other animal populations. The player must make decisions on the climate in order to save as many species as possible. If an invasive species gets onto the island, the player may decide to change the climate in order to drive it off of the island or risk an imbalance of species. To keep students interested, there will be a book of species that players fill up each time they attract a new species quite like the pokédex in Pokémon. Certain animals are rare and will require special customizations in order to attract them.

Students in elementary school love making things and the idea that they can customize their own island should be much more appealing than just reading about biodiversity in their science books. This game also gives them a sense of control and power in the game similar to popular games such as Minecraft and Sims. Additionally the book of species will provide a sense achievement, and possibly even competition, for the students. Through watching their island thrive, students will learn how big of an impact the climate has on living things and how fragile an ecosystem can be.

**Game Platform:**

iOS/Android (and possibly desktop)

**Genre:**

Island Life Simulation

**Target Audience:**

Grade 4-6 students

**Game Features:**

- Terrain creation
  - Players are given the opportunity to shape the island terrain however they want by buying different island features from the “Mother Nature” shop
- Random animal/plant seed encounters
  - Depending on which features/pre-existing wildlife the player has on his/her island, certain animals will be attracted to the island. Plant seed will also randomly blow onto the island
- Control over weather conditions

- Players get to control the rain and sunlight on their island by shaking and swiping on their device. The moisture and temperature on the island decrease with time so players have to actively maintain their island's conditions.
- Invasive species
  - To simulate the real issues that affect island biodiversity, invasive species will sometimes wander onto the island. Players will have to alter the climate in order to drive the invasive species out and restore balance to their ecosystem.
- Resource management
  - Players receive an unlimited number of grass seeds but they must maintain a balance of herbivores and carnivores so that their plants aren't destroyed by the herbivores
  - Players also earn "Biodiversity points" the longer they keep each species alive on their island. These points can be used to buy animal species but this is very expensive to deter players from simply buying all of the species they want.
- Changing seasons
  - Players will have to adapt to changing seasons, so there is no "golden value" at which the students can always set their weather conditions to, providing more active management.

**Game Controls:**

- Rain: a bar moves back and forth on a power meter and the player has to stop the bar at their desired rainfall amount (Like those online golf games)
- Sunshine: players can shake the phone to activate sunrays
- Menus/information: swiping the tabs on all 4 sides of the screen
- Adding new island features: Drag and drop from your island inventory

**User Interface:**



*Above:* Simulated gameplay

*Below:* Basic layout of tabs and island



### **Possible Game Expansion:**

Since it's virtually impossible to include all of the species in Canada in the current game, we will work to add more plants and animals in later versions. Also, we could set the island in different ecosystems with different species and preset climates.

### **Educational Components:**

This game takes place on a small southern Ontario island so players will be introduced to the vast variety of wildlife that is native to Ontario. Students will be able

to recognize some of the common species such as squirrels or robins but they will also be introduced to some rarer species. Players who are learning about the effects of climate change on ecosystems will be able to see how simply changing the rainfall or sunshine on an island can have tremendous effects on the biodiversity of the island.

### Why People Want to Play:

- A sense of building and creating, like how Minecraft and Clash of Clans are fun
- A goal of completing a collection, much like how players try to catch Legendary pokemon in Pokemon
- Icons and animations that are simple, but attractive and enjoyable to players in the target audience, like
- A sense of control, much like the game Sims

### Other Notes:

The size of the island and lengths of each season will have to be fine tuned after testing with real players

### Projected Timeline:

- Alpha
  - Create a basic island
    - Basic scene, with materials
  - Create grass, with the possibility of adding grass to the island
    - Swap the material of the island tile with grass material, adding to an invisible value of grass when added (visible in alpha)
  - Create sun and rain
    - Adding to an invisible value of sunshine and rain (visible in alpha)
  - Make grass depend on amounts of sun and rain
    - Adding a boolean referring to the invisible value, where if it exceeds or does not have enough of either, the grass dies off
  - Add animals (purchasable in alpha)
    - Create a few animals
  - Make animals depend on other animals/grass
    - Similar to the grass, a boolean with a threshold for invisible values, and timers for eating
- Beta
  - Animations for animals on the island
    - Perhaps animations where collisions lead to animals eating other animals, rather than timers
  - Actions for climate controls
    - Such as the powerbar, and different interactions over just touch
  - Random animal appearances
    - Random values, that only happen when certain booleans are met
  - Add invasive species that heavily depend on other animals/grass
    - Skewed timers, or less collisions needed, so that they will “destroy” the ecosystem

- o Different living spaces, such as mountains and lakes for animals/plants
  - Materials, and other things
- o Add seasons
  - Timer where after it expires, drastic changes to uncontrollable weather conditions, that must be adapted to

### 03/06/16 - Potential changes to game concept based off of class feedback

#### Feedback From Class:

- Make levels with special challenges
- adapt animals, not the climate
- make tutorial level with graph

#### New ideas based off of suggestions:

- Travelling around the world
- If we have time: 3D globe with levels on each continent
- Select each animal in your inventory (+- signs for quantity) then click "Run island"
- Each island has a stats panel with the climate
- Add an experience bar
  - lose points each time something dies
- Separate experience and purchasing points
- Save states so you can go back on each level
- offset value so that equilibrium doesn't happen
- you have to be within a certain range in the population of herbivores to get points (to prevent hacking the game by letting them grow to the max)
- different levels have different conditions
- static island, just increase the capacity number
- set of herbivore sprites for aesthetics
- Just give the number of herbivores and carnivores
- Add pokedex-type thing as you progress
  
- add omnivores if we have time
  - take up capacity and also eat herbivores

### 05/06/16 - Tutorial concept

#### Tutorial:

#### Things pop up

- This is your island \*Highlights island\*
- Here are the stats for your island. Use these to determine which animals to add to your island!

- Here are the level goals and rules. Pass these to earn experience points and level up!
- Here are your species stats. Check on these often to keep you island running smoothly!
- Tap on an animal in your logbook (/pokedex type thing) to see more information about it

-Show icons depending on the capacity  
 -show 1 icon for every \_\_ animals (depends on biocapacity)  
 -super sketchy .setVisible(True) for now

### **05/06/16 - New Projected Plan:**

- Create Static Island with borders and animal capacity value
- Create Tutorial level with set amount of Herbivores and visible growth rate
- Create UI object to tell new player to add Carnivores/remove Carnivores
- Create a top UI showing Island Name, Animal Capacity, Animal Point Threshold, Experience Point Threshold, Animal Growth/Diminishing Values
- Create Animal Tab UI

Work to do June 3rd - June 8th:

-Finish the text file reading scripts--also make a checker  
 -Timer that only updates every \_\_ seconds  
  
 -Fix the eat() and birth() functions (addition and subtraction per pair)  
 -Figure out how to generate and remove animals from the UI

### **06/06/16 - Changes to growth rate tracker**

-We're now going to use an integer for the growth and death rates and just make the simulation add or subtract that number every few seconds  
 -New file system where the level file reads in the island file and the animal kingdom file is separate  
 -Nope, we ran into problems with the file system so we're going to abandon that for now.

### **08/06/16 - Class feedback on the initial game**

-Make the text bigger  
 -Give some sort of feedback when carnivores are added (sound, visuals, etc)  
 -use things like highlighting or arrows in order to show the controls  
 -maybe make circles that grow and shrink depending on how many of each type of animal there is

**10/06/16**

-Instead of having tabs that slide out from each side of the screen, we'll have an animal info panel that shows up whenever you hover over an animal in the "Animal Kingdom" list at the bottom of the screen

-This is to avoid cluttering the screen and to minimize the number of controls that the player must learn

-We'll have a horizontal scrolling panel at the bottom to house all of the animal species available along with a + and - button for each animal to add or remove them

-We realized that we neglected the issue of removing a certain species of carnivore so we had to make different removal buttons for each carnivore species

-the colouration of the buttons also makes it easier to understand what each button will do (red-remove, green-add)

**15/06/16**

Playtester Feedback:

Random Guy in Bahen:

-Make the click button more obvious (he tried to right click instead of left click)

-The number of rabbits was confusing because there were too many to count

-Label the experience points as EXP

-Force the player to read the instructions by making it a mandatory part of the tutorial level

Another random person:

-It was too easy to fail the level by adding too many carnivores in the beginning

-Music was good

-Needs to be more dynamic

-Make instructions more clear

-Add more educational components

-Takes too long to complete the level

Feedback from Class:

-SLOW IT DOWN

-Way too many bunnies at once

-At least the music was fun

**16/06/16**

Change: Changed the stats from just numbers to status bars with numbers on them

Reason: The bars add a bit of movement to the game, make it look a lot better and also make it easier for the player to determine the populations are at a quick glance.

The bars also change colour from green to red if the herbivore populations are out of the optimum range to help the player determine when to add/remove carnivores

**17/06/16**

Change: Add a delay to the game when the player unlocks a new animal so that they will read the animal's information.

Change: Added a mandatory instructions screen

**21/06/16:**

Change: Added a line of warning/fun facts text right above the animal selection box in order to make waiting for the population to grow less boring. The warning text also tells the player when there are too many or too few carnivores

Change: Added environments in which each species can live and a penalty for the player if they add the wrong type of animal to the island



Population bars change colour based on whether or not the populations are in the optimum range



### 26/06/16

Animals that we will have in the game:

- Bunny --herbivore
- Wolf --carnivore
- Hedgehog --herbivore
- Raccoon --omnivore
- Deer --herbivore
- Owl --carnivore
- Fox --omnivore
- Bear --carnivore
- Badger --omnivore

### 10/07/16

Game change:

Making a "loading screen" with animal facts on it to force the reader to at least skim over the stats for each animal

Reason: People weren't reading the stats for each animal and were losing quickly as a result. This was the only way we could think of to convey the stats for each animal in a way that the player will actually pay attention to.

Fun facts for the game:

- Biodiversity has steadily gone down in the past 35 years throughout the world
- Coral reefs have the most diversity of all ecosystems on Earth
- Areas near the equator tend to be more biodiverse because of the climate
- A biodiversity hotspot is an area that contains organisms (both plants and animals) that do not live in any other part of the world
- Fecundity describes the rate at which an animal reproduces
- About .1% of species are lost each year.
- The ratio between carnivore and herbivore species in the wild is about 1:10 (depending on the species involved)

- We are currently in a mass-extinction period: the anthropocene!
- Overfishing has reduced some commercial fish stocks by more than 90%.
- Across the European continent, 42% of mammal species are threatened
- Invasive alien species are species that enter an ecosystem. Often, they are taken there by humans.
- “Endemic” means native to a certain area
- Biodiversity reflects the number, variety and variability of living organisms.
- Human activity has increased the extinction rate by at least 100 times compared to the natural rate

### 16/07/16

Game Change:

- Made the background more realistic (It's still very cartoony, it's just not pixel-style)
- Found a sprite set to make all of the animal sprites look like the same style (Actually we did this around mid-June but we forgot to log it)

Reason:

A cohesive art style makes the game look more put-together



### 19/07/16

Game Change: Made a pause button for the game

Reason: Many testers said that the game went so quickly that they did not have time to read the animal info panels before the herbivore population went out of control. With a pause button, the players will be able to read more of the information we present to them, improving their learning and eliminating one of the annoying aspects of the game.

### 20/07/16

Feedback/Suggestions from teachers:

- make some sort of indicator so that the player knows how many herbivores will appear at the next update (to make the spawning seem less sporadic)
- refer to the Ontario grade 6 biodiversity curriculum to look for the keywords we should be teaching

- when the user fails a level, tell them WHY they failed. (i.e. If they put too many carnivores, tell them that the carnivores didn't have enough food and that's why they failed)
- make the animal info panels less intrusive (They block too much of the screen right now)
- make the grass limited
- make the foxes die off naturally when there are too many of them and not enough food
- make an easily accessible glossary of terms
- make new habitats with different challenges (not just ratio balancing)
  - potentially introduce invasive species or natural disaster twists to some levels
- add an indicator that tells players which species is a carnivore and which is a herbivore

### **23/07/16**

Game change:

Make a more interactive instructions/tutorial, teaching more on the game.

There are now large red arrows that point to important game parts in the tutorial that will not let the player proceed until they have clicked the appropriate UI component.

Reason:

Many people simply skimmed through the instructions and, as a result, were very confused about how to play the game properly.

Game change:

Information shown has more relation to Ontario grade 6 biodiversity curriculum

Reason:

Focusing our education for a specific audience, off feedback to make the game usable in lieu to manual teaching in Ontario.

### **02/08/16**

Game Changes:

Added new levels with prey setups that force the user to add certain species of carnivores (i.e. a herbivore that has only 1 predator in the level).

Reason:

This makes the user read all of the information on each animal, eliminates the chance that the player will add animals randomly and, makes the game more challenging (and hopefully more fun as a result).

Game Changes:

Added a new fail when the herbivore population is maxed out.

Reason:

This makes it more realistic that the island itself cannot sustain the herbivore population, also took care of a bug.

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## **Initial Features:**

### **First Plan:**

After receiving feedback from the class on our first game proposal (on page 6), we decided to make levels with different challenges/presets instead of an infinite simulation. With each level, we planned to put the player in a different environment in order to show off the biodiversity of the world. As the player progressed, we were going to have them unlock new animals as well as gain points which could be used to purchase new animal species.

Instead of the original Neko Atsume–like passive gameplay, our new game idea was to give the player more control over the animal species that they saw on each island. The player could choose which ecosystem they wanted to visit and which level they wanted to play. Part of the game’s challenge would be to figure out which animals can survive on an island and then accomplish the level objectives using the animals that the player had unlocked.

To facilitate more involved gameplay, we planned to have an experience bar that tracked the points that each player gained from every game. Players would earn points at regular intervals for keeping animals alive on the island and lose points for killing them (unless they were herbivores being eaten).

### **What we actually made:**

(Features organized by Education, Engagement and Motivation as the goals)

#### *Education:*

In order to teach players about the food chain, each animal had a different diet that the player could view. In the bar that contained all of the animals, each time a player hovered over an animal icon a panel would pop up with all of the animal’s information (scientific name, diet, fecundity, etc.). We expected this feature would almost force players to read and understand more about each animal they saw in the game and improve their ability to strategize in the game. There was also a line of text that would cycle through facts for the player to read.

#### *Engagement:*

To keep young players engaged, we incorporated lots of bright colours and cute animal sprites. The retro-arcade-game-like music accompanied a minimalistic art style that allowed the player to focus on the game without a distracting background. The status bars also changed colour to reflect player progress and to help the player get a general idea of their progress at a quick glance.

#### *Motivation:*

At the end of each level, the player unlocked a new animal that they could use in the next level. We expected this to motivate players to progress through as many levels as possible.

#### *Miscellaneous Features:*

By our first playtesting session, we ended up making a set sequence for the levels in order to ease players into the gameplay. Each level consisted of an optimum herbivore level and a select number of carnivores per level that the player could add to control the ever-growing herbivore population. The player could add and subtract carnivores while monitoring the number on screen the represented the herbivore population. As the player progressed, they were able to unlock new animals.



## **First Playtest Expectations, Results, and Analysis:**

### **Pre-Play & Post-Play Question:**

Expectation:

We expected about 80% of playtesters to get the correct answer after playing our game.

Result:

Initially, 50% of players answered the pre-play question correctly. After playing, 66.7% of players were able to answer the question correctly.

Analysis:

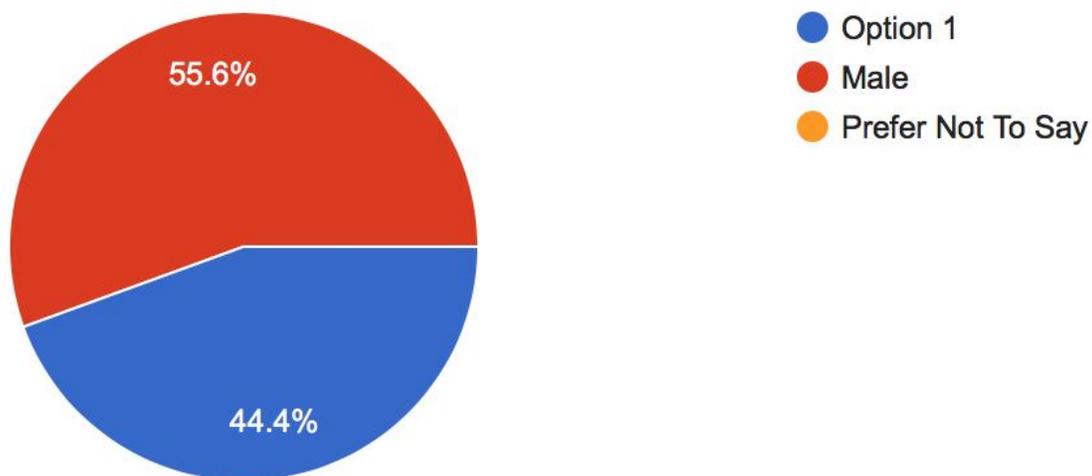
With such a small sample size, the improvement may have simply been due to chance. We did not explicitly include the answer to the question in the game so that players would not look for the answer but this seems to have made the question too difficult.

### 1) Grade/Education Level

University
2nd Year University
3rd year
Done School

Only 1 out of 9 of our playtesters was done postsecondary school while the other 8 were pursuing an undergraduate degree. This was above our target age range (10-13) but we were hoping that they were old enough to have forgotten their grade 6 biodiversity lessons.

## 2) Gender



Our goal was to have roughly half male and half female playtesters, and were pretty pleased with our outcome to not have female or male biases towards our game.

## 3) What do you think the game was about?

Keeping the ideal ratio of prey and predator, by adding each on to the island, to strike equilibrium that mimics the natural equilibrium that occurs in nature.

Biodiversity

Population control

Keeping an equilibrium in an ecosystem to avoid overpopulation or over hunting

keeping the habitat

Predator-Prey Interactions

Prey to predator balance

Animal food chain

Population control

Expectation:

We expected some of the players to be a little bit confused about the goal of the game because we did not explicitly tell them that their goal was to maintain an equal balance of species

Result:

All of the playtester responded with an answer along the lines of population control/equilibrium, food chain or biodiversity. When asked for clarification, they all explained that they knew from the fact that they were adding carnivores to control the habitat. One participant said that she also knew from the facts that were displayed on the top of the screen. In general, all of the players knew exactly what the game was aiming to teach.

Analysis:

Judging by the vocabulary used in the responses, the university students that we surveyed did remember most of the basic biodiversity terms that our game aimed to teach (Which certainly helped them identify what the game was about). Our target audience would also likely be familiar with general biodiversity terms which would help them identify the goal of the game.

#### 4) What was your least favourite part of the game?

Tbh the bunnies shoulda disappeared when they died :P

Everything was great, nothing was bad

Nothing, the game was perfect

THERE WERE SO MANY RABBITS I WAS DISTRESSED (also sometimes the foxes got lost behind the rabbits, it might be better if the foxes went in front of all the rabbits bc there are so few of them in comparison)

watching number of rabbits increasing

Bugs?

Rabbits were off the land sprite

nothing

Cannot stop (As in there is no option to pause)

Expectation:

We expected participants to say that there were too many bunnies on-screen at once or that the game was too fast-paced. Ideally, we were aiming to uncover new problems that we didn't consider earlier.

**Result:**

About half of the participants said that the bug of multiplying bunnies hindered their experience of the game, but some others did not mind this fact. The bunny representative bug needed to be fixed.

**Analysis:**

Unfortunately the majority of the complaints were due to an in-game bug, so we did not get the type of response we were looking for. A surprising number of participants left answers along the lines of “nothing” so none of our responses gave us the feedback we were looking for.

**5) How long did you think you were playing for?**

1 and half minutes
1 and half minutes
5 minutes
5 minutes
5min
20seconds
2mins
2 minutes
5 mins

**Expectation:**

We expected players to think that they were playing for 45 seconds to 1.5 minutes because of the fast-paced and focus-intensive nature of the game.

**Result:**

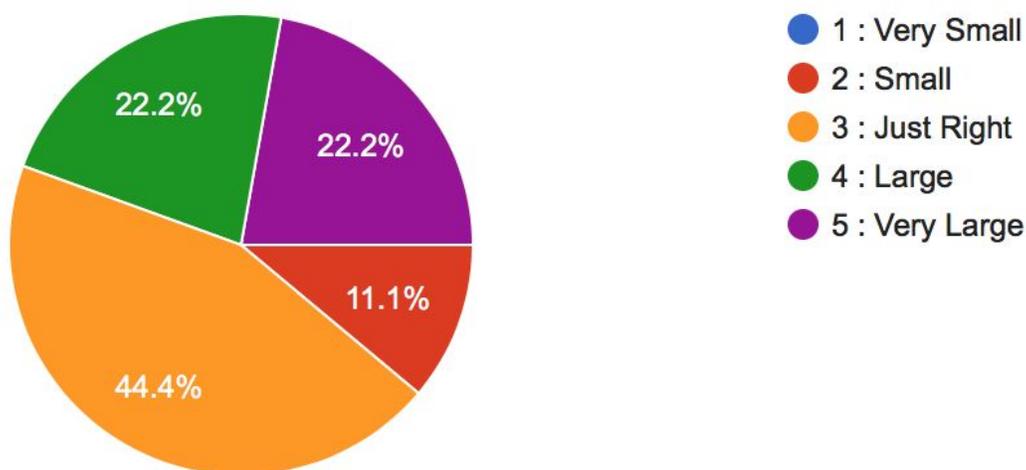
The actual time the playtesters spent playing was around 1 to 2 minutes per playtester. Since the majority of the playtesters thought they were playing for around 2 minutes or around 5 minutes, they were either unable to keep track of time, or thought more time passed than actually did.

**Analysis:**

This can possibly be seen negatively as on the most part, fun games make time seem to pass faster than normal (as opposed to boring games that feel tedious). The results

of this of this question were somewhat against our expectations because we thought that the fast-paced nature of the game would make the player feel as though they were playing for a shorter amount of time.

6) It took a \_\_\_\_\_ amount of time for me to lose interest in a level.



Expectation:

We were actually expecting players to lose interest faster than what they reported because the repetitive game actions designed for grade 6 kids would be boring for university students.

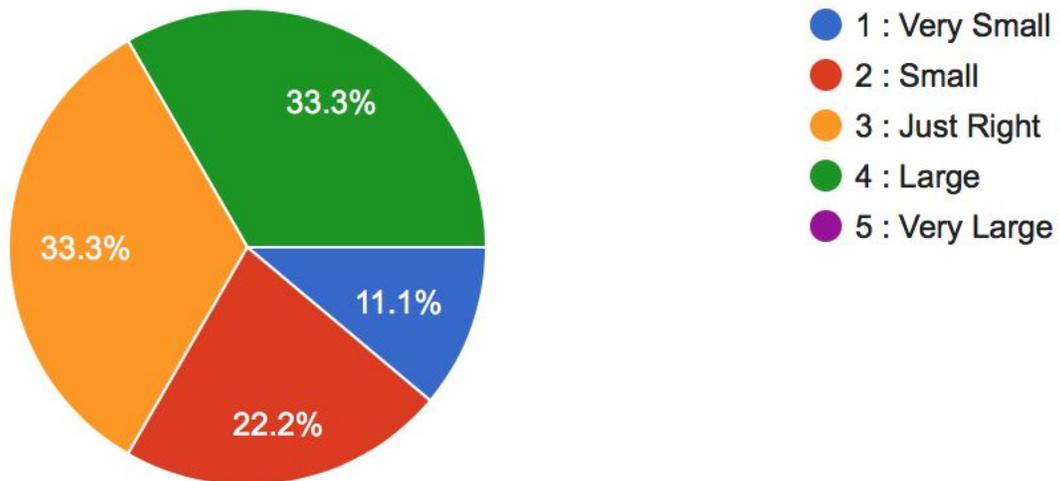
Result:

This question's goal was to get a sense of how engaging the game was to the playtesters. None of the playtesters thought the game was completely disinteresting and only one thought that it was easy to lose interest. The majority thought the game was at least "just right" in terms of engagement.

Analysis:

Surprisingly, the players did not lose interest quickly. We were satisfied with the results that this question brought forward as they suggest that our game mechanics are not too repetitive.

7) I had a \_\_\_\_\_ amount of motivation to unlock a new species.



Expectation:

This question was to get feedback on the reward system our game was based on. We expected university students to be only slightly interested in a new animal (Whereas younger players may be more excited).

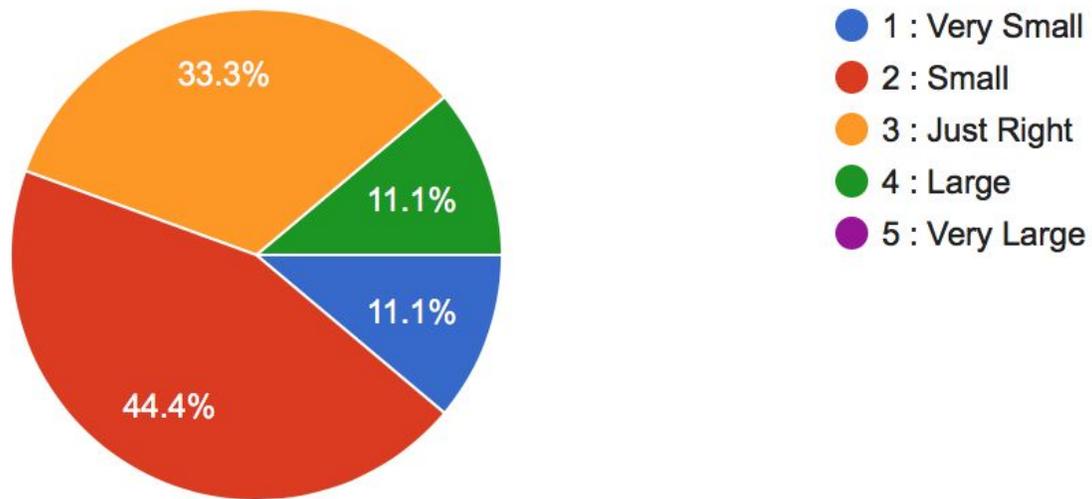
Result:

Unlike the previous question, none of the playtesters had an excessive motivation to unlock a new species and more negative answers were given.

Analysis:

We need to consider a new way or a stronger way to give the playtesters more motivation to continue onto the next level. However we did not consider any other type of motivating factor that may have been subtly motivated the playtesters more than unlocking a new species.

8) I read a \_\_\_\_\_ amount of animal information screens.



Expectation:

This question was to see how often our one portion of our educational facts on the game were being read.

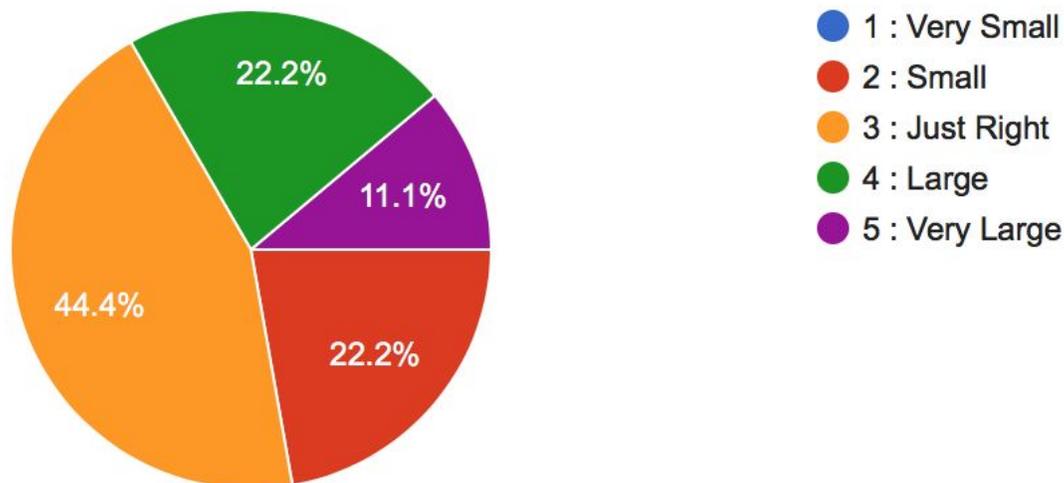
Result:

To our disappointment, this was the first question that the majority of the game testers answered against our goals. The majority either spent a small or very small amount of time to read the information of the animals. However some read them an average to a large amount, but again none of the testers answered that they spent an excessive amount of time doing this.

Analysis:

There was no immediate incentive for the players to read the facts so the players prioritized watching the bars over reading the facts. The facts also probably changed too quickly for the players to read them. We need to make it so that there is more of a chance to read the facts.

9) I read a \_\_\_\_\_ amount of facts that appeared above the animal bar.



Expectation:

We expected most of the players to read the animal information bars because the animal stats are integral to playing the game properly.

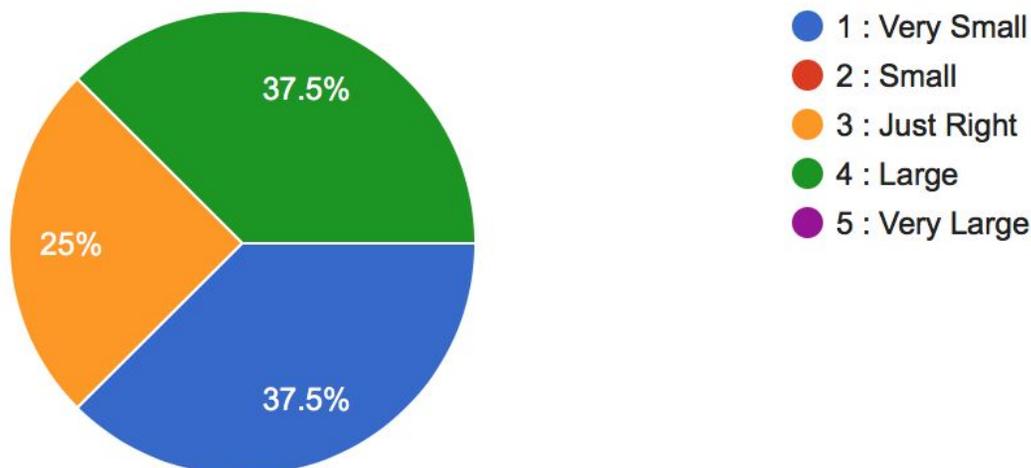
Result:

This question was another portion of our educational facts that fortunately received better answers than the previous portion. The majority of the playtesters responded that they spent over an average amount of time reading these facts. Even some spending an extensive amount of time on them.

Analysis:

The players probably read these information screens more because they contain information that is necessary to play the game. Also, since these screens pop up and block some of the island when the player hovers over an animal icon, players may be attracted by the movement on screen and pay more attention to it than the less eye-catching text.

10) The difficulty of the levels were \_\_\_\_\_.



Expectation:

We were expecting the players to think that the game was too easy because it was designed for grade 6 kids, not university students.

Result:

This question was to see if the levels were too difficult to play or too easy, to add to the motivation or engagement portion of our game. However, our results were extremely inconclusive. Many said they were extremely easy, others said it was hard, and a quarter said that it was a good difficulty.

Analysis:

We think the reason for this response is that the game's basic mechanic is rather difficult to figure out, but once a player figures this out, then the levels start getting a lot easier. We should think of a way to adjust the learning curve of the game.

## Changes After First Playtest:

Note: Though the full changelog was posted above here are the entries to the specific changes made after feedback from the first playtesting.

**10/07/16**

Game change:

Making a “loading screen” with animal facts on it to force the reader to at least skim over the stats for each animal

Reason: People weren't reading the stats for each animal and were losing quickly as a result. This was the only way we could think of to convey the stats for each animal in a way that the player will actually pay attention to.

Fun facts for the game:

- Biodiversity has steadily gone down in the past 35 years throughout the world
- Coral reefs have the most diversity of all ecosystems on Earth
- Areas near the equator tend to be more biodiverse because of the climate
- A biodiversity hotspot is an area that contains organisms (both plants and animals) that do not live in any other part of the world
- Fecundity describes the rate at which an animal reproduces
- About .1% of species are lost each year.
- The ratio between carnivore and herbivore species in the wild is about 1:10 (depending on the species involved)
- We are currently in a mass-extinction period: the anthropocene!
- Overfishing has reduced some commercial fish stocks by more than 90%.
- Across the European continent, 42% of mammal species are threatened
- Invasive alien species are species that enter an ecosystem. Often, they are taken there by humans.
- “Endemic” means native to a certain area
- Biodiversity reflects the number, variety and variability of living organisms.
- Human activity has increased the extinction rate by at least 100 times compared to the natural rate

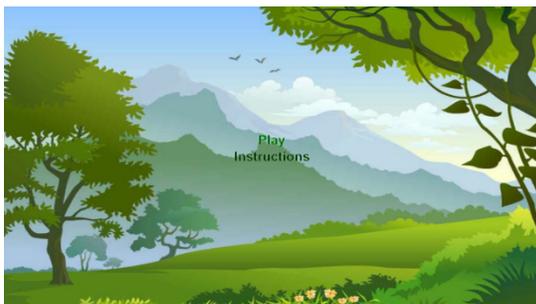
**16/07/16**

Game Change:

- Made the background more realistic (It's still very cartoony, it's just not pixel-style)
- Found a sprite set to make all of the animal sprites look like the same style (Actually we did this around mid-June but we forgot to log it)

Reason:

A cohesive art style makes the game look more put-together



**19/07/16**

Game Change: Made a pause button for the game

Reason: Many testers said that the game went so quickly that they did not have time to read the animal info panels before the herbivore population went out of control. With a pause button, the players will be able to read more of the information we present to them, improving their learning and eliminating one of the annoying aspects of the game.

**20/07/16**

Feedback/Suggestions from teachers:

- make some sort of indicator so that the player knows how many herbivores will appear at the next update (to make the spawning seem less sporadic)
- refer to the Ontario grade 6 biodiversity curriculum to look for the keywords we should be teaching
- when the user fails a level, tell them WHY they failed. (i.e. If they put too many carnivores, tell them that the carnivores didn't have enough food and that's why they failed)
- make the animal info panels less intrusive (They block too much of the screen right now)
- make the grass limited
- make the foxes die off naturally when there are too many of them and not enough food
- make an easily accessible glossary of terms
- make new habitats with different challenges (not just ratio balancing)
  - potentially introduce invasive species or natural disaster twists to some levels
- add an indicator that tells players which species is a carnivore and which is a herbivore

**23/07/16**

Game change:

Make a more interactive instructions/tutorial, teaching more on the game.

There are now large red arrows that point to important game parts in the tutorial that will not let the player proceed until they have clicked the appropriate UI component.

Reason:

Many people simply skimmed through the instructions and, as a result, were very confused about how to play the game properly.

Game change:

Information shown has more relation to Ontario grade 6 biodiversity curriculum

Reason:

Focusing our education for a specific audience, off feedback to make the game usable in lieu to manual teaching in Ontario.

## **02/08/16**

### **Game Changes:**

Added new levels with prey setups that force the user to add certain species of carnivores (i.e. a herbivore that has only 1 predator in the level).

### **Reason:**

This makes the user read all of the information on each animal, eliminates the chance that the player will add animals randomly and, makes the game more challenging (and hopefully more fun as a result).

### **Game Changes:**

Added a new fail when the herbivore population is maxed out.

### **Reason:**

This makes it more realistic that the island itself cannot sustain the herbivore population, also took care of a bug.

## **Second Playtest Results:**

### **Quantitative Data**

#### **Pre-play Question:**

Surprisingly, 100% of the playtesters got the question right to begin with. Judging by the fact that 7.1% of players actually got the answer wrong after playing our game, the information on the top of the screen was not being read and understood as much as we anticipated.

## 1) What do you think the game is about?

Keeping the balance between the population of carnivores and herbivores

Sustainable ecosystems

Maintaining Biodiversity in ecosystems

sustainability and equilibrium

Carnivores and herbivores, controlling populations

understanding how ecosystems work and how if even one part of the system is affected it can create a wave effect throughout, so there needs to be a balance within the entire system.

Exponential growth

ecology biodiversity happenings with the importance of species in keeping an ecosystem good?

Biodiversity and balance in ecosystems

The game was about trying to keep a good balance within the ecosystem

biodiversity and the food chain in wildlife

Balancing herbivore and carnivore population

Balancing the food chain

managing ecosystems

Similar to our first playtest, almost everybody has answered along the lines of equilibrium, population control, the food chain, and ecosystems, all relating to our theme of biodiversity. This time however, one playtester thought the game was about exponential growth, which was not what we were going for. However, the vast majority of players figuring out what we were trying to get across is an encouraging sign that this exponential growth view may be an anomaly.

Compared to our answers from the first playtest, there were no perceptible shifts in player understanding.

## 2) What was your least favourite part of the game?

A bit confusing at some points

The mouse that kept blinking

Too Fast Paced

it was a little fast, the last one was more difficult

It might not be fixable but the cursor was flashing and it was annoying

The shock from failure

there were no bad parts it was difficult to figure out the strategy in the beginning with the speed at which you could lose

The experience bar

I liked all of it

The music

The tutorial, just boring

i dont know

This time around our answers were a lot closer to what we were hoping to get from this question. The most frequent concern was the speed of the game, and that it was too fast paced. Another was that the cursor was blinking, which we think is a Unity bug, but something we need to look into. Another few unique responses were, that the tutorial was a little boring and the music of the game was something they disliked. We think we could tone down the speed for the first couple levels, and perhaps make it dial up in speed increasing the difficulty.

### 3) How long do you think you were playing for?

6 minutes
6 minutes
10 minutes
10 minutes
5 minutes
12 minutes
6-8 minutes
6-9 minutes
ten minutes? maybe?
about 5 minutes
7 minutes
Maybe 5-7 minutes
around 15 minutes
7min

#### Actual times comparison:

8min: -2min

5min: +1min

7min: +3min

11min: -1min

8min: +3min

11min: +1min

5min: +2min

8min: +1min

6min: +4min

9min: -4min

7min: 0min

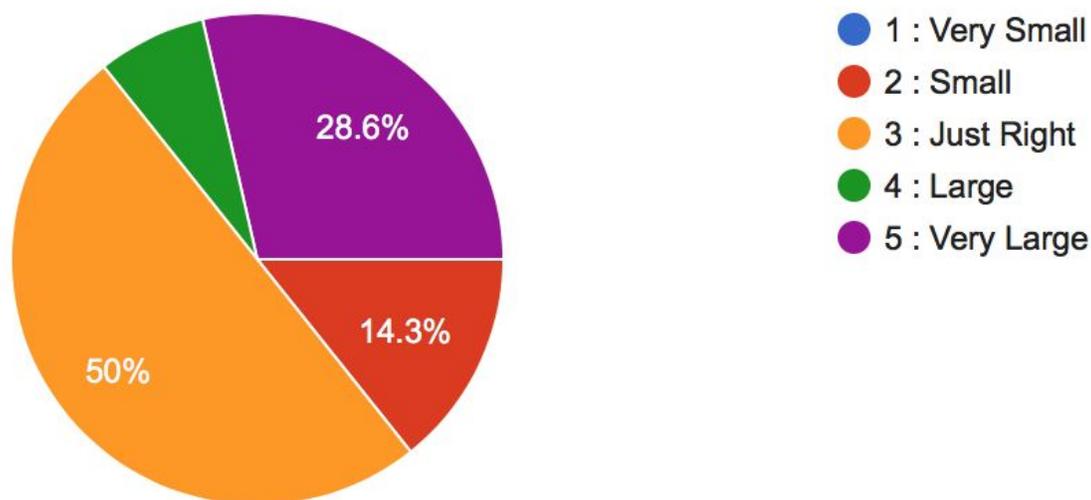
8min: -2min

9min: +6min

7min: 0min

Again the results from this question were more leaning toward the playtesters feeling that they were playing longer than they thought they were playing for, but most of the times were within 3 minutes of their actual time and surprisingly the longer they were playing for the more likely it was for them to actually seem that they were playing for a smaller amount of time, which could in a view be seen as improvement. In the previous playtest, the playtesters were quite close to the actual time, or over by 3 minutes, but this may be due to the fact more levels and a lot have changes were applied to the game for this round of testing. The tutorial also may have affected their perceptions of the play time because our tutorial became much more in-depth in this round of playtesting.

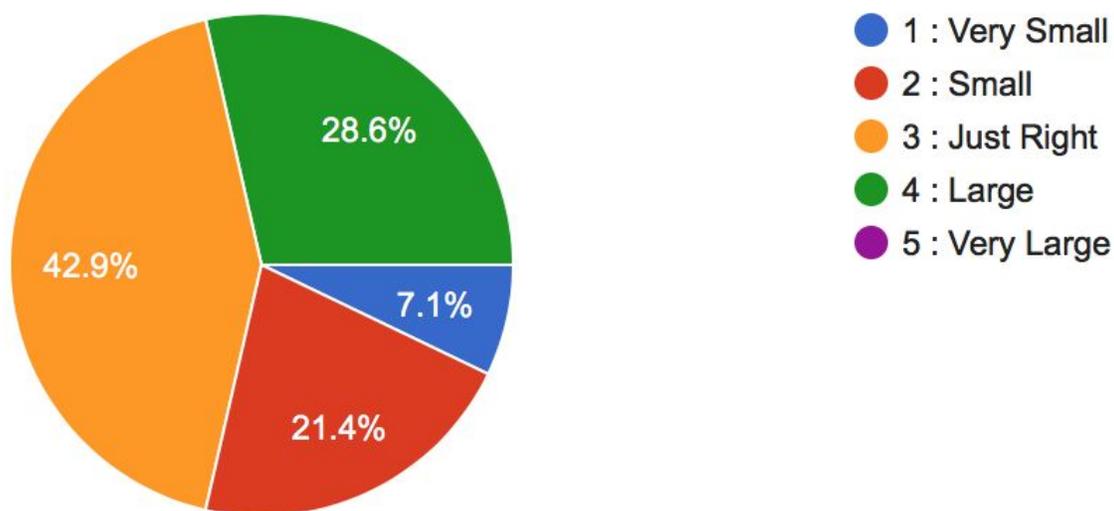
**4) It took a \_\_\_\_\_ amount of time to lose interest in a level.**



The vast majority of the playtesters agreed that it took a good amount of time to lose interest in the game, so it seems our changes did not negatively affect our positive engagement factor of our game. In fact, there was a slight increase in the number of players who thought that the game was “just right”. This slight difference may have been due to the fact that we had different demographics in our first playtest compared to our second playtest. The age range for our first playtest was 18-24 whereas the age

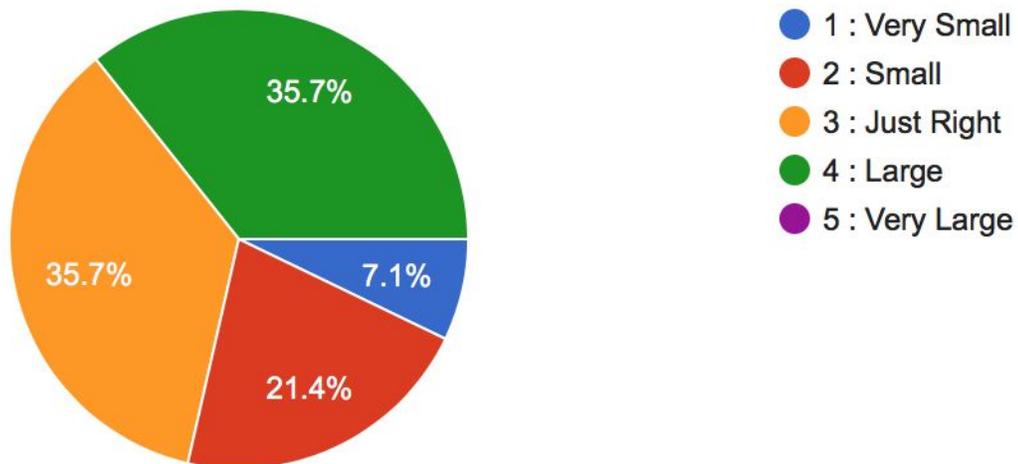
range for the second playtest was 15-17. The older players may have been more easily bored by the repetitive nature of the game.

**5) I had a \_\_\_\_\_ amount of motivation to unlock a new species.**



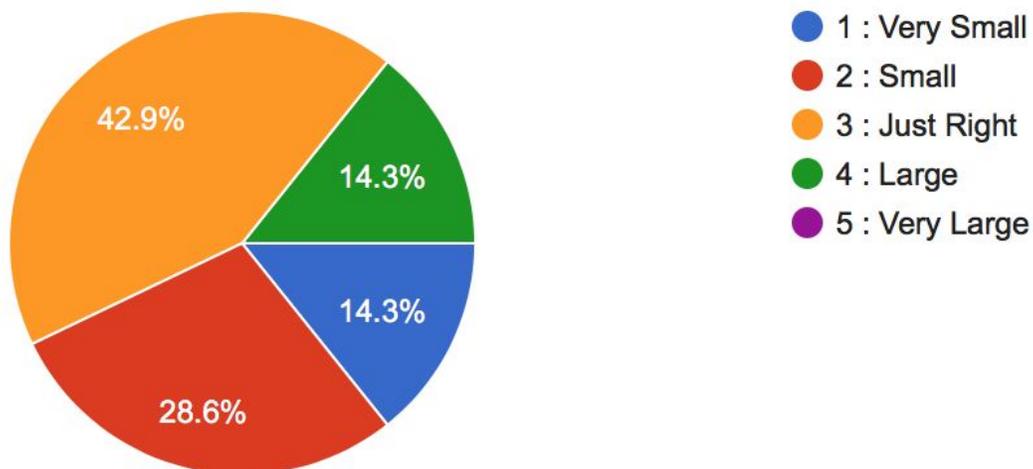
This time the answers improved a little to this question, so it seemed we took a step in the right direction with our changes, however still about half the playtesters did not find our main reward source too motivating. More improvements on making it more rewarding to unlock a species may need to be considered, but again, most playtesters stayed through many failures in order to complete the game, making it seem as if there was a decent amount of motivation to at least beat the level. The increased motivation may have been due to the fact that we added a loading screen in between games where players could read more information on the animal they were unlocking (as opposed to just seeing the icon and name). This could have made the accomplishment seem more concrete and tangible for the players.

**6) I read a \_\_\_\_\_ amount of animal information screens.**



Again, there was an improvement from the first playtest. We think the addition of the pause button and the fact that the levels started paused so the players could read up on them before starting the level helped this to a large extent. However since over a quarter still said they did not really pay much attention to this information, we should probably look a little further into incorporating them more into the game.

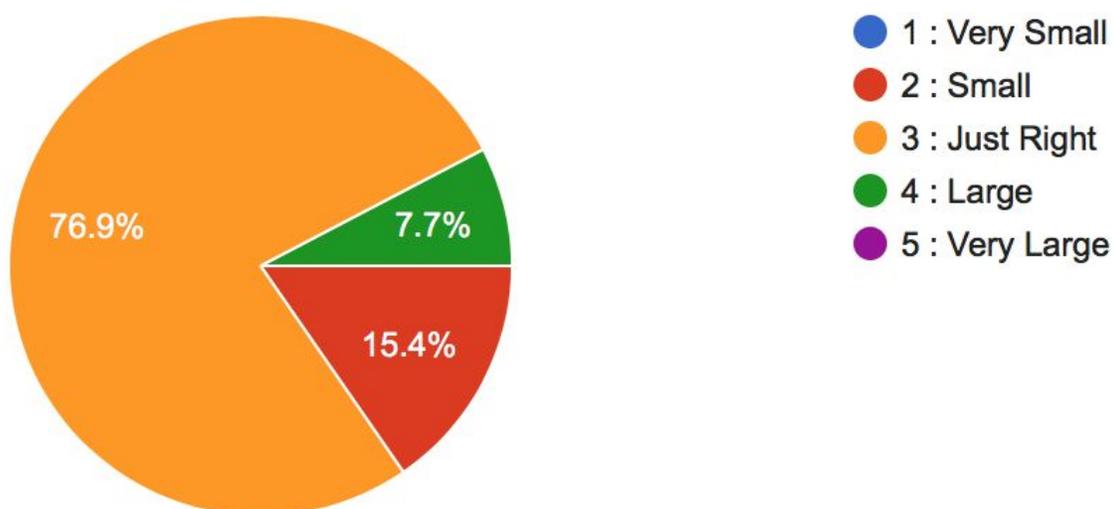
**6) I read a \_\_\_\_\_ amount of facts that appeared above the animal bar.**



This question was the only question that got worse from our previous playtest. We think this may be due to the fact that when the game is paused, the facts do not

update and the fast pacing makes it so it does not leave the players to read the facts unless they achieve equilibrium. We think slowing down the game at least for the first couple levels may help this aspect, possibly adding them to be read while the next level loads. When asked about why they didn't read the facts, most players said that they didn't want to do anything that didn't directly help them towards finishing a level.

### 7) The difficulty of the levels were \_\_\_\_\_.



More improvement here, but this improvement slightly confused us, as a concern in the first playtest was that our game was too fast, making it difficult. Surprisingly, the vast majority in this playtest said the difficulty was at a good level. However, we observed that many of the playtesters were failing some levels continuously, and some really had trouble advancing, so we think that slowing the first levels down would help players get a better sense of accomplishment in the initial few levels.

### Observations from playtesters:

(Detailed notes on each player available in our game log)

One observation that surprised us was that the majority of the playtesters actually read through the tutorial carefully, rather than just clicking where the arrows pointed (which we were afraid of might happen). It is to be noted, however, that the group of playtesters was above the target age group, and that was probably a factor in that outcome. Another fact was that when the players achieved equilibrium at first, they did not know what was happening, and seemed panicked that the game froze and

disrupted the equilibrium, even if it was what they were striving for. Additionally, even though the tutorial states that the play/pause button must be pressed to begin a level, almost all the playtesters struggled to start the first level. This did also lead to them reading the animal information later on, which is a positive result. We also noticed that most playtesters did not want to start off with the tutorial, despite the fact that we strongly recommended it. Additionally, some people never figured out the proper strategy to employ (adding animals slowly) although we are unsure of whether or not they would get it if given more time.

### **Changes that worked the best:**

- The pause button
  - Having no time to read level goals/facts was a common complaint in our first playtest. With a pause button, players were able to stop the game to read the fact or animal stats that helped them win the game much faster and increased learning.
- The animal information loading screens
  - By adding more information to the loading screen between levels and adding a delay, we essentially forced the players to read the stats for the animal they were unlocking. This led to a better understanding of the animals involved in the game and also allowed the players to calm down in between fast-paced levels (even when they thought they didn't need it).
- Making the tutorial more interactive
  - After the first playtest, we changed the tutorial so that you had to click on each major component on the game before you could continue onto the first level. This significantly reduced confusion amongst players.

### **Possible changes:**

- Firstly slowing down the pace, as clearly the most agreed upon concern is the pace being too fast especially early on
- Adding a typewriting animation to the tutorial to delay the spam clicking as this is still a concern for our target age group
- A notifier that equilibrium is not a frozen game and to not disrupt when the populations are at an optimal point
- A more prominent click the play/pause button to start the level to avoid confusion

### **Changes that need more thought to approach:**

- Making the animal unlocking system more rewarding.

- Incorporating the educational component more fluidly into gameplay as opposed to just displaying fun facts.

## **Raw Result Links:**

**Playtesting 1 Survey:** [goo.gl/prJwKC](https://goo.gl/prJwKC)

**Playtesting 2 Survey:** [goo.gl/X7aIMh](https://goo.gl/X7aIMh)

**Playtesting 2 Observations:** [goo.gl/Ztusl5](https://goo.gl/Ztusl5)

## **Current Build:**

**OSX:** [goo.gl/CcEpED](https://goo.gl/CcEpED)

**Windows:** [goo.gl/Jp2yPw](https://goo.gl/Jp2yPw)

**Linux:** [goo.gl/0WtElj](https://goo.gl/0WtElj)

**Unity Folder:** [goo.gl/pjLQUJ](https://goo.gl/pjLQUJ)