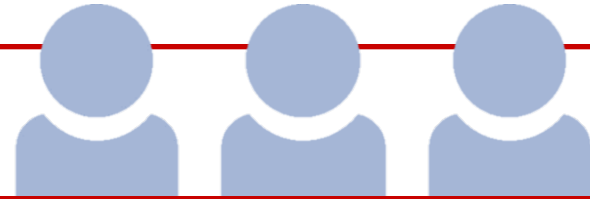
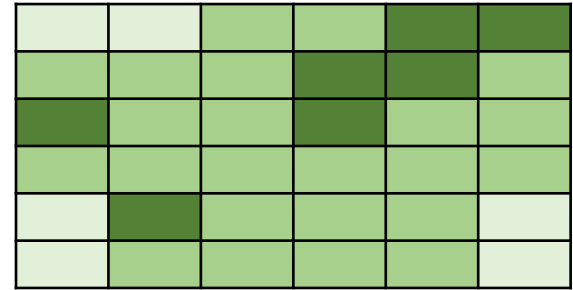


# To get started...

1. Three players per game



2. Choose a game board (wet, dry, or normal)



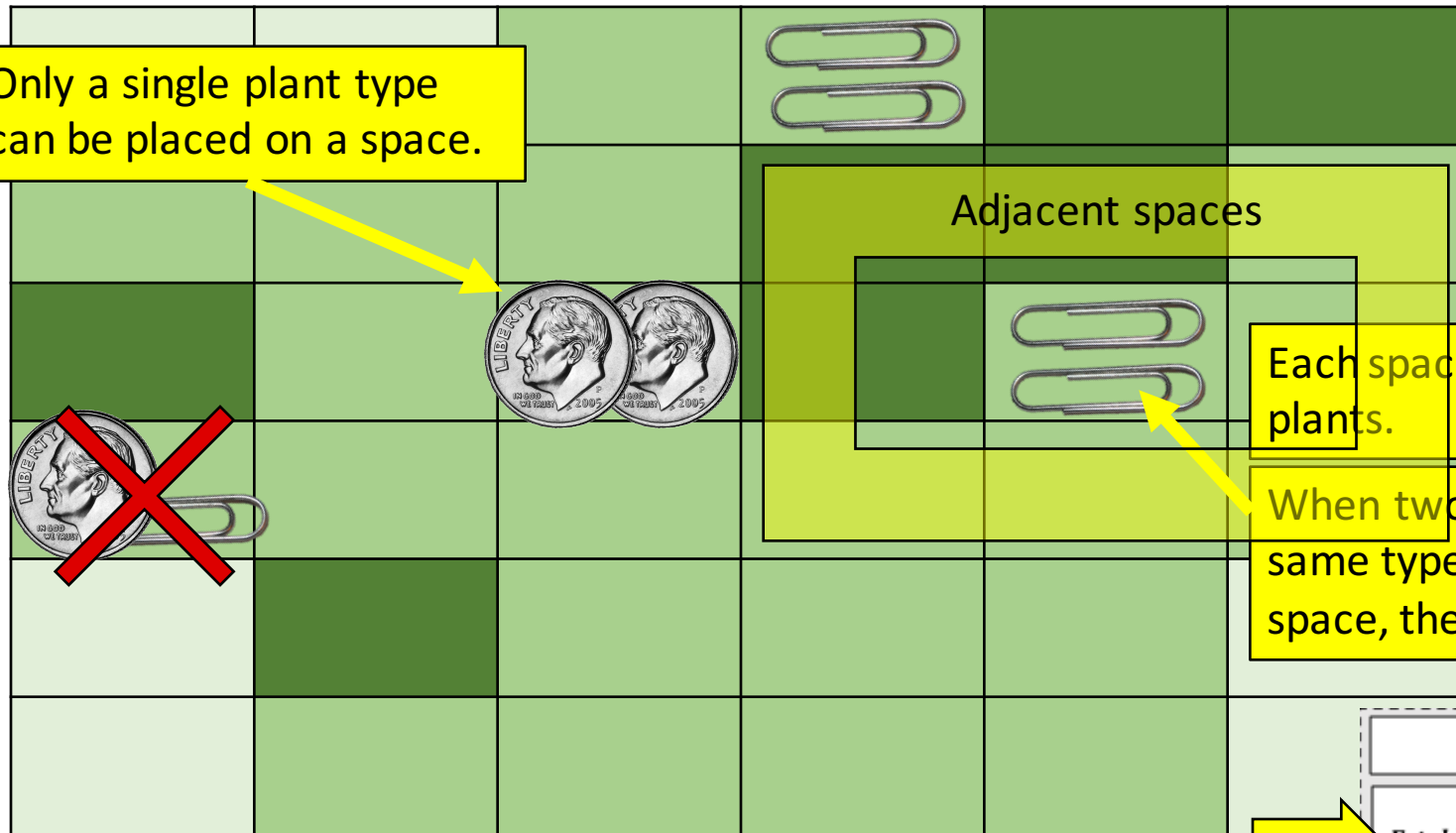
3. Each player randomly selects a plant type card

Native Plant	Introduced Plant	Invasive Plant
<b>Establishment:</b> <i>Habitat:</i> Survives in all moisture conditions (wet, dry, moist) <b>Reproduction:</b> Produces many seeds (gather 2 new plants for each pair) <b>Seed Dispersal:</b> Maximized (place plants on any space on the board)	<b>Establishment:</b> Begin with 2 plants <i>Habitat:</i> Survives in all moisture conditions (wet, dry, moist) <b>Reproduction:</b> Produces many seeds (gather 2 new plants for each pair) <b>Seed Dispersal:</b> Maximized (place plants on any space on the board)	<b>Establishment:</b> Begin with 2 plants <i>Habitat:</i> Survives in all moisture conditions (wet, dry, moist) <b>Reproduction:</b> Produces many seeds (gather 2 new plants for each pair) <b>Seed Dispersal:</b> Maximized (place plants on any space on the board)

4. Each player chooses game pieces (need 24 alike pieces)



## Normal Year



Habitat Spaces Key:

Dry

Moist

Wet

### Native Plant

**Establishment:** Begin with 5 plants

**Habitat:** Survives in moist soil

**Reproduction:** Produces some seeds (gather 1 new plant for each pair)

**Seed Dispersal:** Minimal (place plants on any adjacent space from the reproducing plants)

# Space Invaders Game

## Instructions

### **Objective of the game:**

The object of the game is for your plant type to survive in the plant ecosystem after 5 rounds of play.

### **Number of players:**

Maximum of 3 players per game

### **Rules:**

- Choose one of the three game boards (normal, dry, or wet year) to select your moisture conditions.
- Next, each player randomly selects one of the three plant species cards (native, introduced, and invasive). Each player must follow the rules of his or her plant type for the duration of the game.
- Each plant type is represented by a different type of game piece (these can be paper clips, candies, coins, etc.). You need a maximum of 24 game pieces per plant type.
- Each game piece represents a single plant.
- Each habitat space on the board can hold two plants.

- Once two plants of the same type are placed on a single space, the plants reproduce at the end of the player's turn.
- For every pair of reproducing plants on the board, the player gathers the number of new plants noted by reproduction on their card. These plants will be placed on the player's next turn.
- Only a single plant type can be placed on any space. A space with a single plant in it can be displaced by another plant type by placing two plants on the space.

### **To establish your plant ecosystem (Round 1)...**

1. Play will start with the player whose birthday is closest to Earth Day (April 22) and continue in clockwise direction.
2. Each player will begin the game by placing the number of plants indicated by establishment on their card. No displacement can be done during establishment.
3. All players will place their establishment pieces on game board spaces according to the rules of their plant type. For

example, if your plant does not survive in wet soil, you may not place your plants on a wet habitat space on the board.

4. Players will gather new plants according to their rules for reproduction. For example, for each pair of native plants occupying the same space, the player will gather one new plant to use on his or her next turn.

### **To continue playing (Rounds 2-5)....**

5. Play will continue with each player placing their new plants gathered from reproduction onto the game board. If no plants were gathered, the player's turn is over and play continues with remaining players.
6. After each round of play, record how many plants are on the board for each plant type. Results can be written in the Space Invaders Scorecard.
7. Play ends after round 5 is complete.

**Space Invaders Scorecard**

After each round, count the total number of pieces for each plant type on the game board. Record each population in the table below.

Game board used (circle one):            **Normal**                      **Dry**                      **Wet**

<b>Game 1</b>		Round 1	Round 2	Round 3	Round 4	Round 5
	Native species					
	Introduced species					
	Invasive species					

Game board used (circle one):            **Normal**                      **Dry**                      **Wet**

<b>Game 2</b>		Round 1	Round 2	Round 3	Round 4	Round 5
	Native species					
	Introduced species					
	Invasive species					

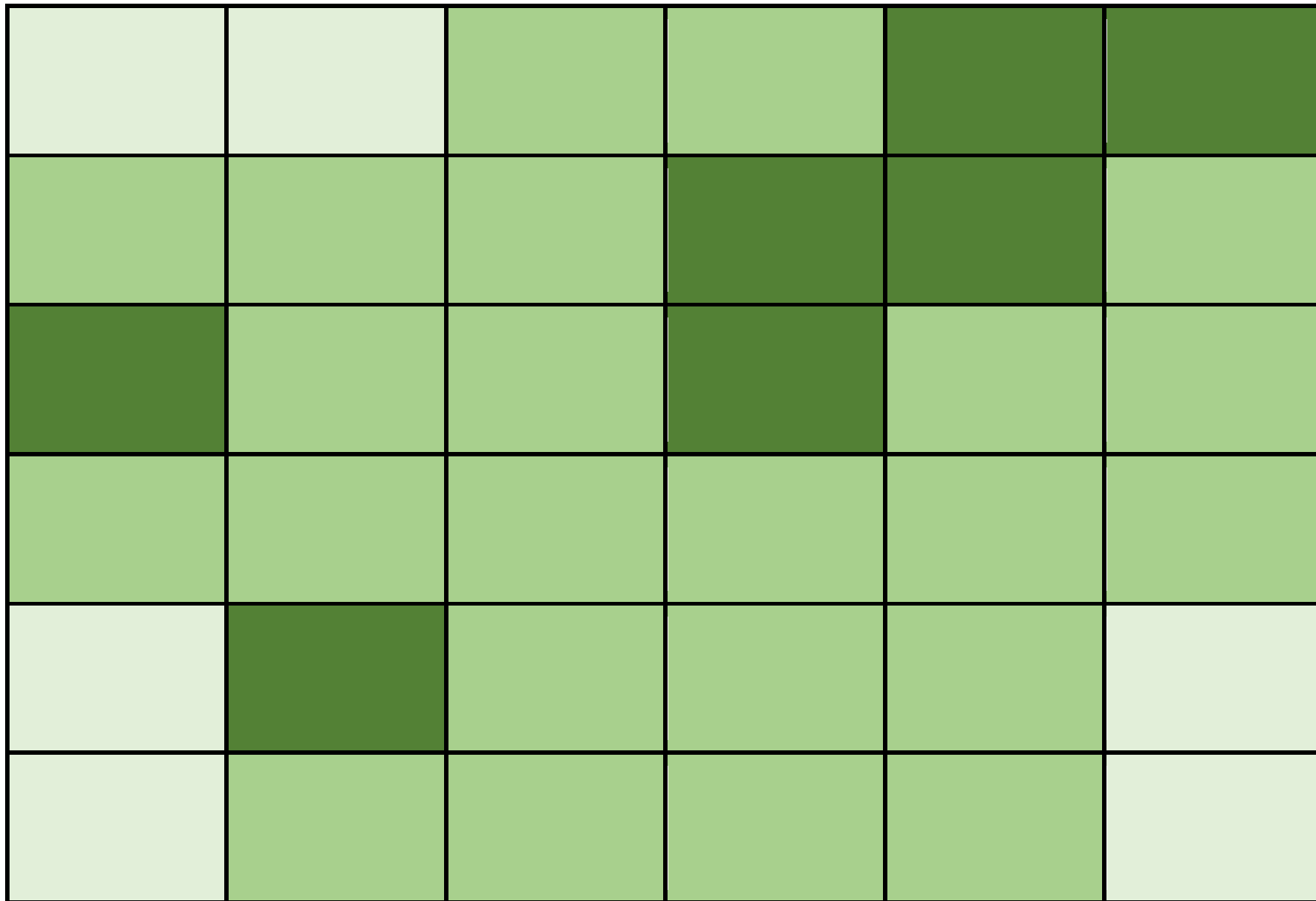
Game board used (circle one):            **Normal**                      **Dry**                      **Wet**

<b>Game 3</b>		Round 1	Round 2	Round 3	Round 4	Round 5
	Native species					
	Introduced species					
	Invasive species					

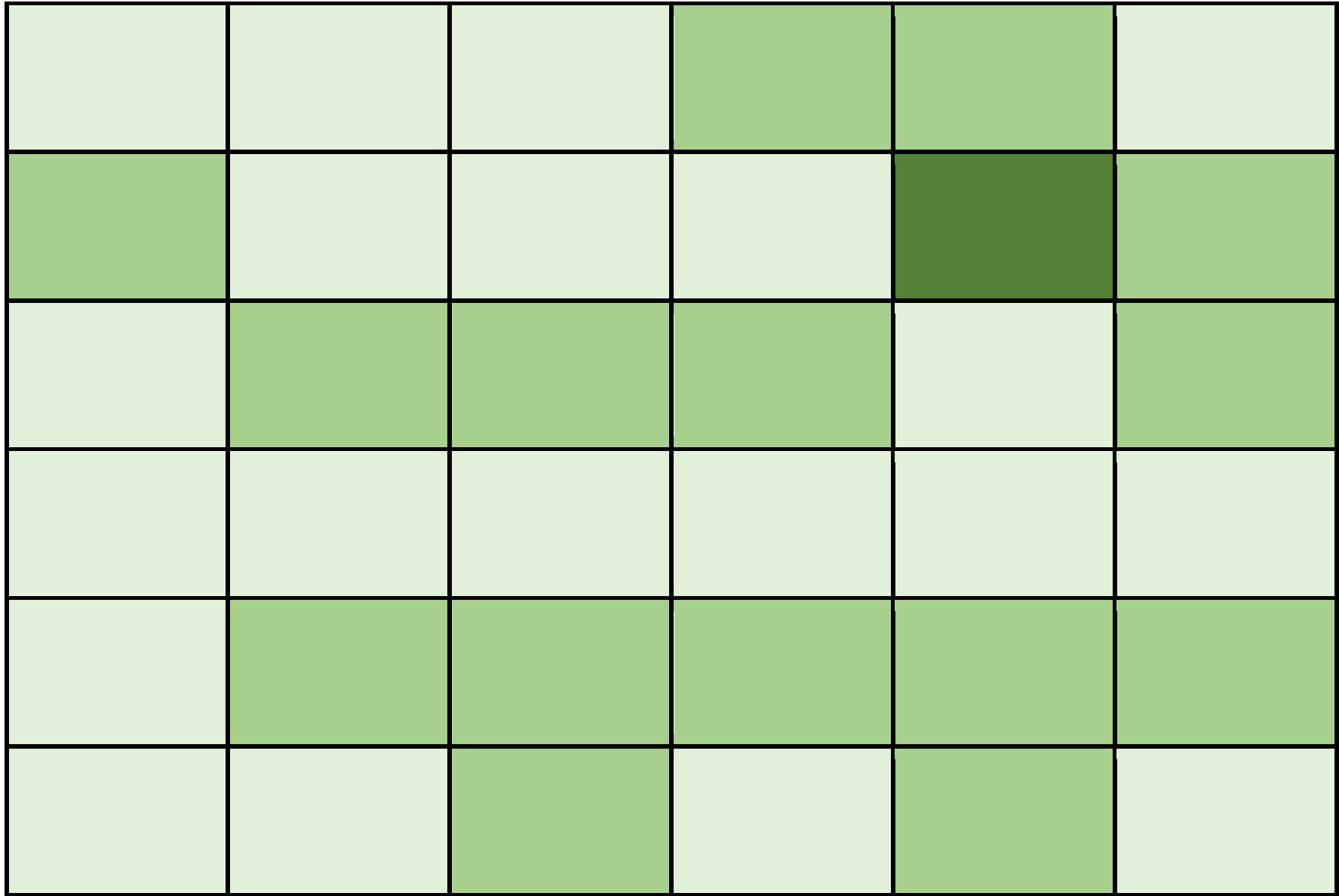
## Plant species cards

Native Plant	Introduced Plant	Invasive Plant
<p><b><i>Establishment:</i></b> Begin with 5 plants</p> <p><b><i>Habitat:</i></b> Survives in moist soil</p> <p><b><i>Reproduction:</i></b> Produces some seeds (gather 1 new plant for each pair)</p> <p><b><i>Seed Dispersal:</i></b> Minimal (place plants on any adjacent space from the reproducing plants)</p>	<p><b><i>Establishment:</i></b> Begin with 2 plants</p> <p><b><i>Habitat:</i></b> Survives in dry soil</p> <p><b><i>Reproduction:</i></b> Produces many seeds (gather 2 new plants for each pair)</p> <p><b><i>Seed Dispersal:</i></b> Minimal (place plants on any adjacent space from the reproducing plants)</p>	<p><b><i>Establishment:</i></b> Begin with 2 plants</p> <p><b><i>Habitat:</i></b> Survives in all moisture conditions (wet, dry, moist)</p> <p><b><i>Reproduction:</i></b> Produces many seeds (gather 2 new plants for each pair)</p> <p><b><i>Seed Dispersal:</i></b> Maximized (place plants on any space on the board)</p>

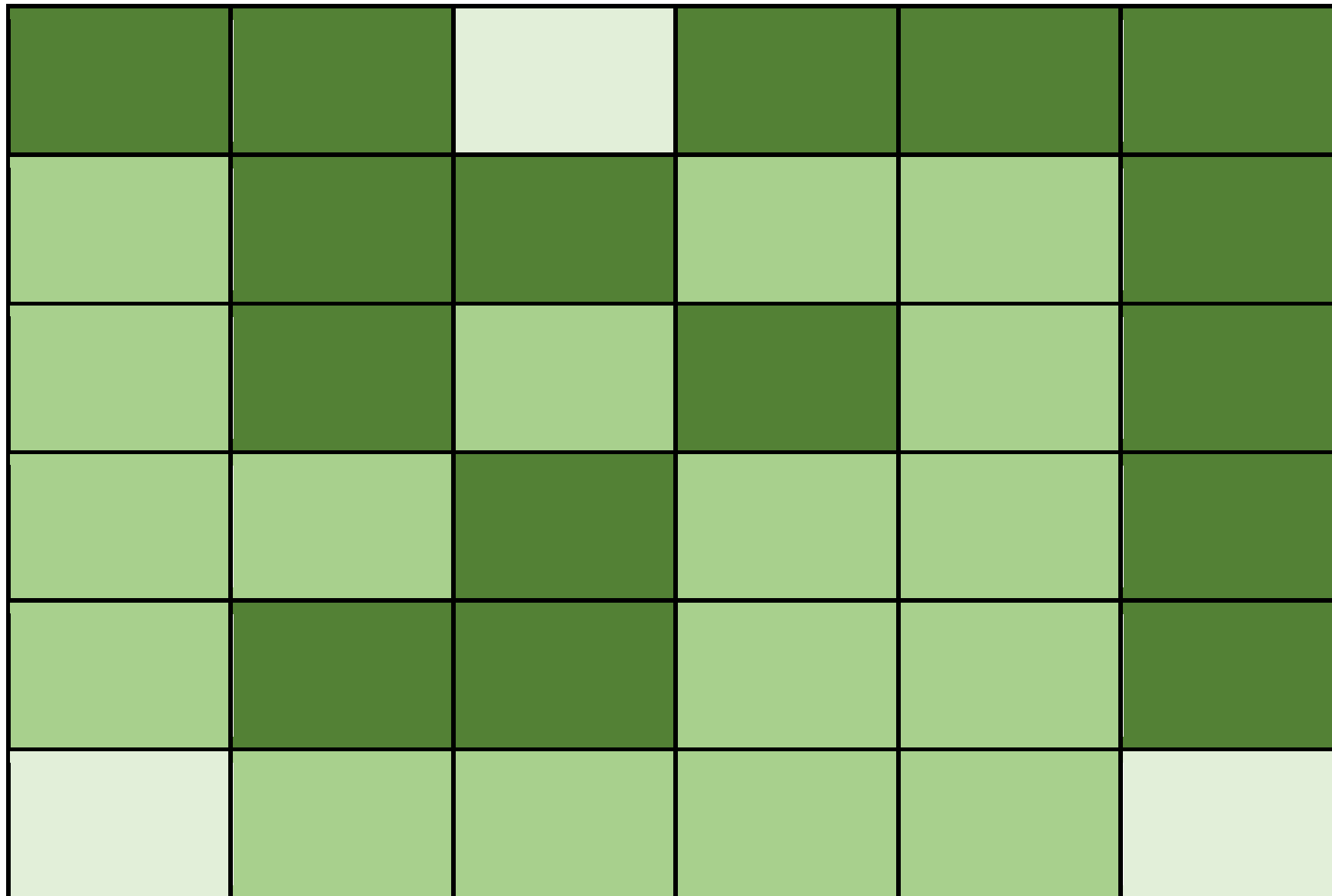
## Normal Year



## Dry Year (Drought)



## Wet Year (Flooding)





## Follow-up Questions:

- Do all introduced organisms become invasive?
- Two non-native species were in the game.
  - Were they both successful?
  - Why do you think this was?
- How did the invasive plant species outcompete the other plants?
- How might climate change impact the reproductive success of the different plant types?