



Patterns of Play: Portraits of Plant Wars Players

Annotated Visualizations:
Meet Daniel McBeast

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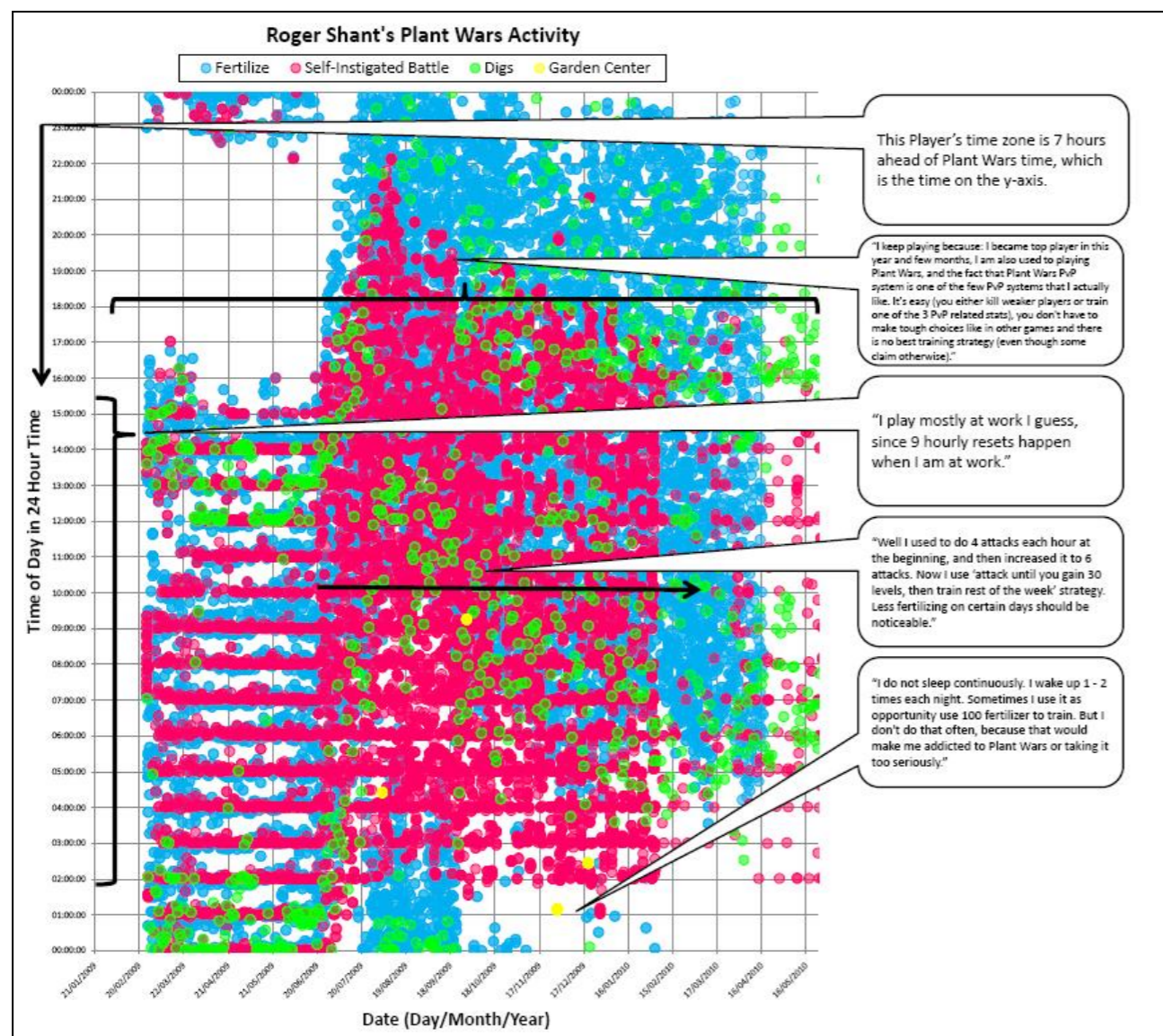
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About Annotated Visualizations



- In this document you will find a series of annotated visualizations showing game play in Plant Wars.

- Each set of visualizations corresponds with a single player.

- Each visualization was discussed with the player during an in depth interview.
- Direct quotes from player's interviews have been augmented with the research team's knowledge and correlated to specific features or patterns in the visualizations.

Making the Visualizations

Each visualization began with a Plant Wars log file:

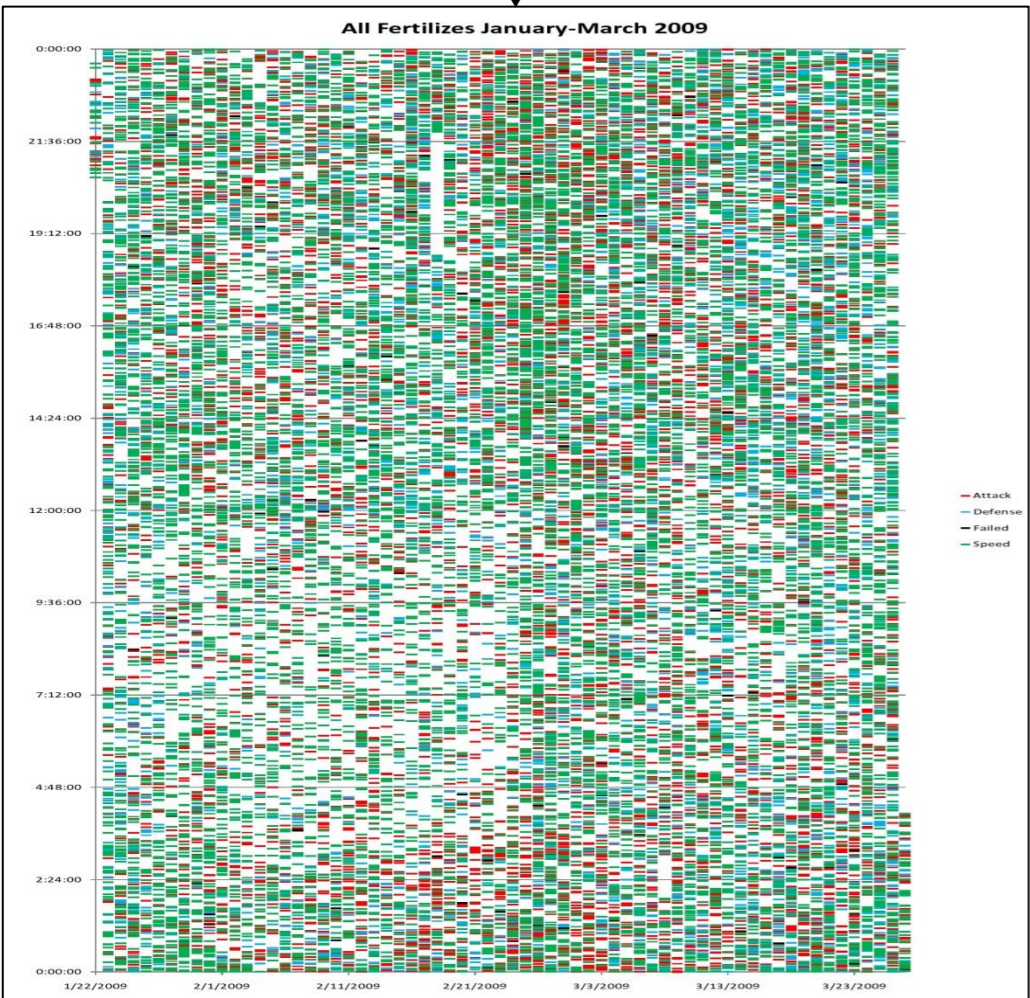
```
[2009/01/22 08:39:37] 4 trained Speed, gaining 0.75 stat points (no captcha)
[2009/01/22 08:46:34] 788 trained Speed, gaining 3.75 stat points (no captcha)
[2009/01/22 08:51:02] 151 trained Speed, gaining 7.5 stat points (no captcha)
[2009/01/22 08:53:57] 115 trained Speed, gaining 3.75 stat points (correct captcha)
[2009/01/22 08:53:58] 137 trained Attack, gaining 7.5 stat points (no captcha)
[2009/01/22 08:58:46] 698 trained Attack, gaining 0.75 stat points (correct captcha)
```

Group Visualizations

```
Date,Time,User ID,Skill Trained,Points Gained,CAPTCHA,
01/22/2009,20:39:37,4,Speed,0.75,No,
01/22/2009,20:46:34,788,Speed,3.75,No,
01/22/2009,20:51:02,151,Speed,7.5,No,
01/22/2009,20:53:57,115,Speed,3.75,Yes,
01/22/2009,20:53:58,137,Attack,7.5,No,
01/22/2009,20:58:46,698,Attack,0.75,Yes,
```

Microsoft Excel

	A	B	C	D	E	F
1	Date	Time	User ID	Skill Trained	Points Gained	CAPTCHA
2	1/22/2009	20:39:37	4	Speed	0.75	No
3	1/22/2009	20:46:34	788	Speed	3.75	No
4	1/22/2009	20:51:02	151	Speed	7.5	No
5	1/22/2009	20:53:57	115	Speed	3.75	Yes
6	1/22/2009	20:53:58	137	Attack	7.5	No
7	1/22/2009	20:58:46	698	Attack	0.75	Yes



Simple Java Program

For each player, the Java processor outputted a comma or tab-delimited file including only the log data for that player. (right) An additional file including all data in the log was also created (left).

Opening the files as spreadsheets allowed them to be sorted by various values, such as the skill trained.

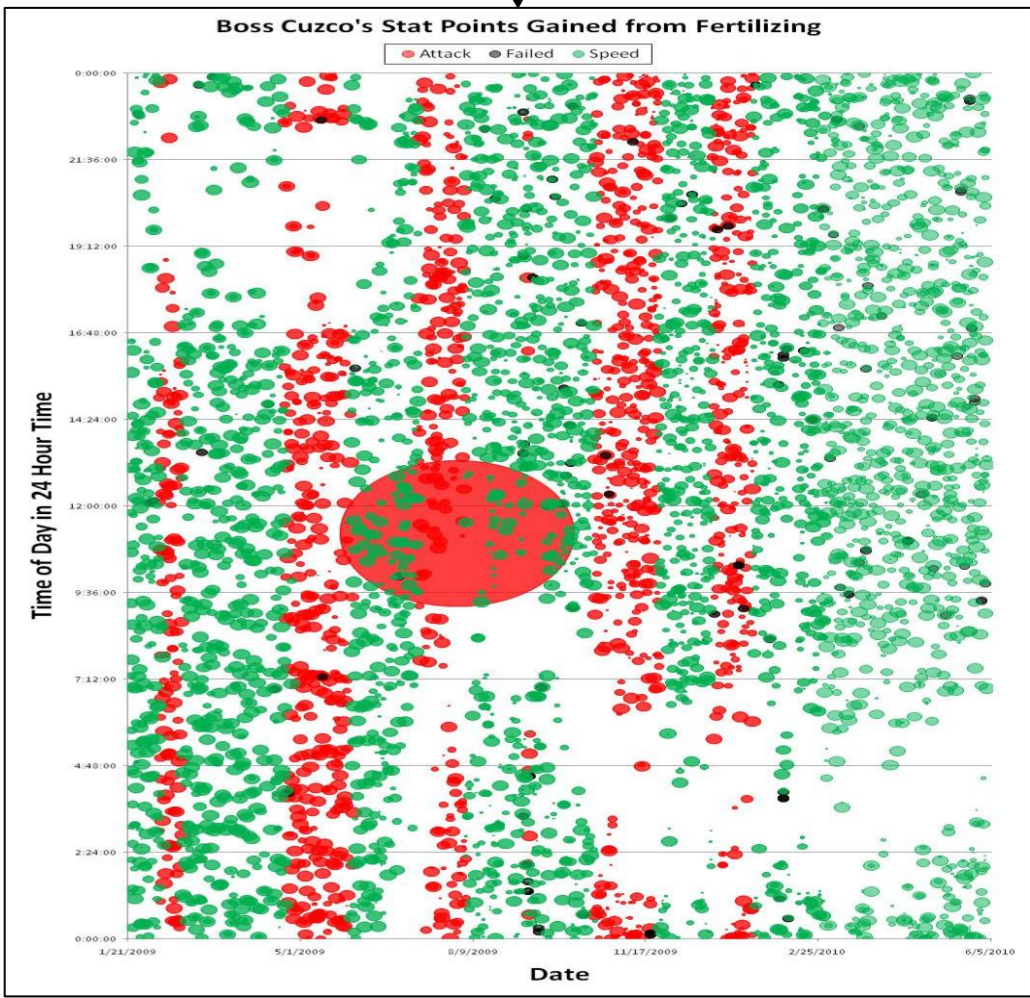
Each visualization was crafted by hand, a process taking from an hour to five hours, depending on Excel's willingness to cooperate. The more data being charted, the longer the chart takes to develop, and the more likely Excel will die in the middle of the process.

Individual Visualizations

```
01/22/2009 21:08:51 75 Attack 6 No
01/23/2009 0:04:21 75 Attack 6.75 Yes
01/23/2009 2:37:53 75 Attack 6.75 No
01/23/2009 5:38:16 75 Attack 6.75 No
01/23/2009 6:16:28 75 Attack 1.5 No
01/23/2009 7:22:24 75 Attack 3 No
01/23/2009 8:00:53 75 Attack 0.75 No
```

Microsoft Excel

	A	B	C	D	E	F	G
1	1/22/2009	21:08:51	75	Attack	6	No	
2	1/23/2009	0:04:21	75	Attack	6.75	Yes	
3	1/23/2009	2:37:53	75	Attack	6.75	No	
4	1/23/2009	5:38:16	75	Attack	6.75	No	
5	1/23/2009	6:16:28	75	Attack	1.5	No	
6	1/23/2009	7:22:24	75	Attack	3	No	
7	1/23/2009	8:00:53	75	Attack	0.75	No	



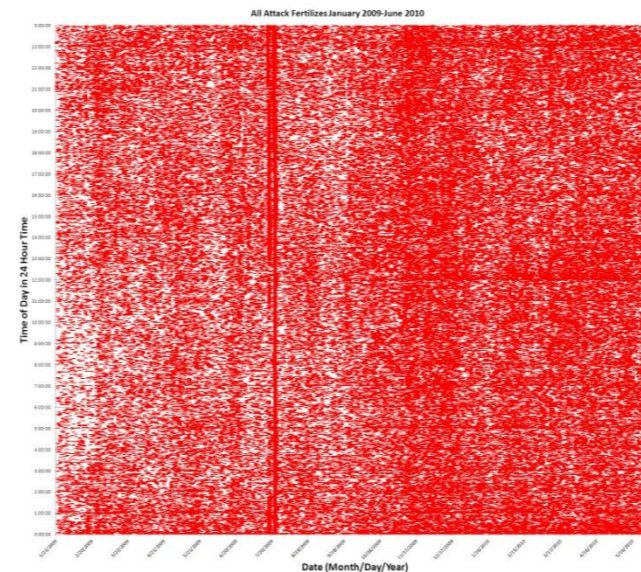
The Future of Visualizations

Interactivity

An ideal system for the visualization process would automatically generate visualizations of the data based on dynamic user input. Users would control which variables are being displayed, turning the static investigation process into an interactive process.

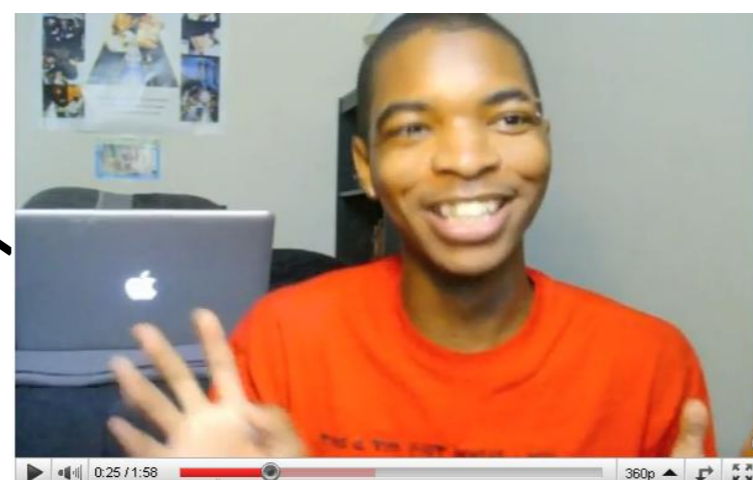
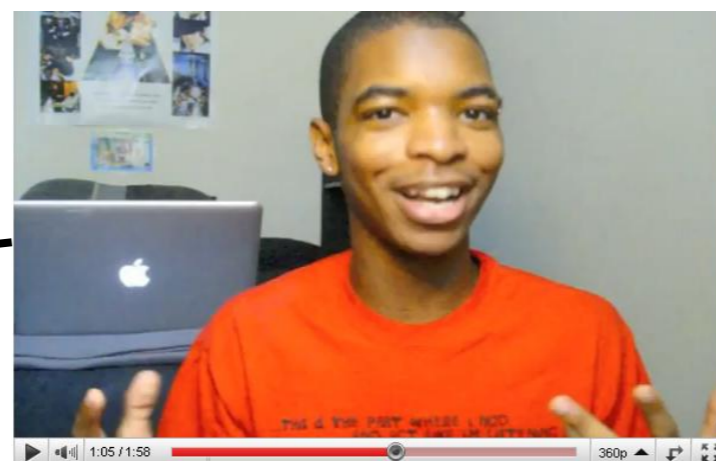
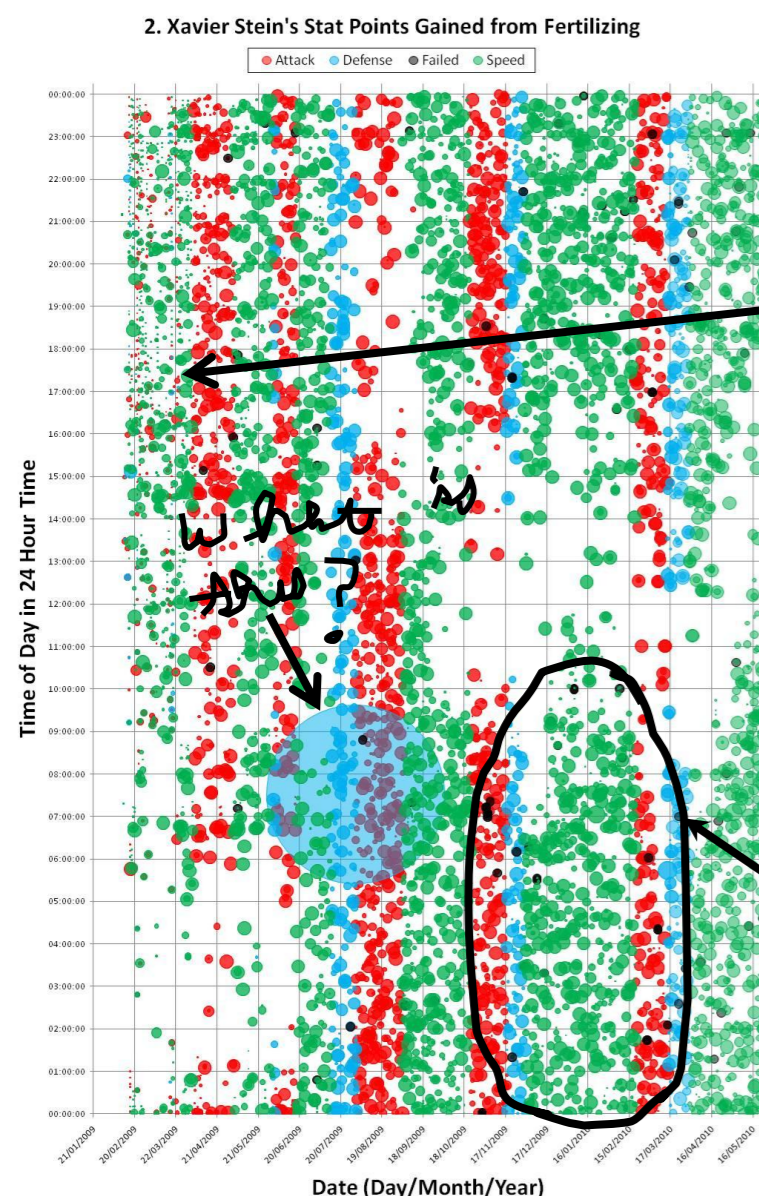
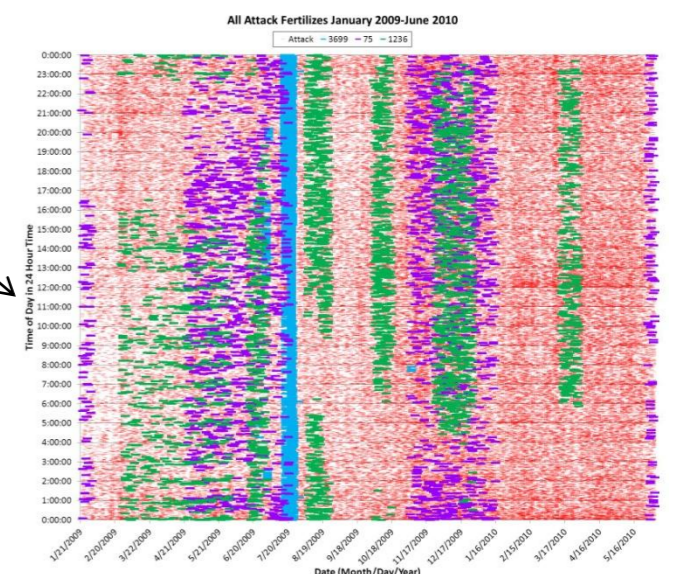
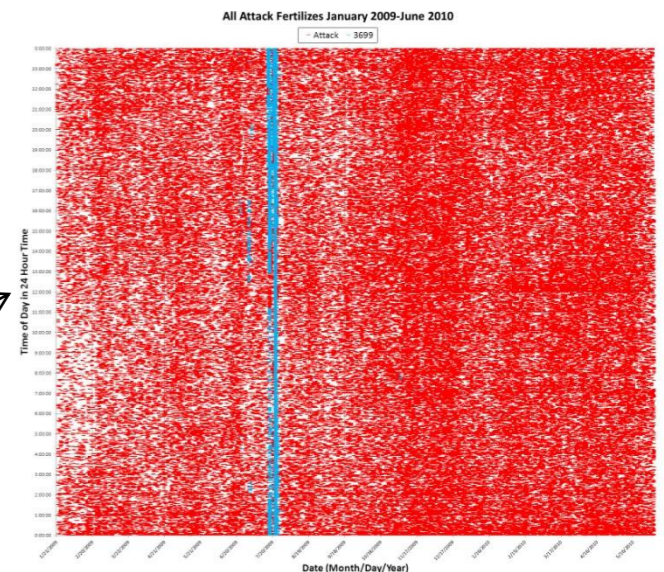
This means that you can select what you want to see, and the program will generate it in real-time, highlighting the information that most interests you and allowing you to interact with your data.

For instance, when viewing a macro visualization, a user could highlight a single user or multiple users from a that visualization, to see those patterns in the context of the macro environment.



Select a single user to highlight

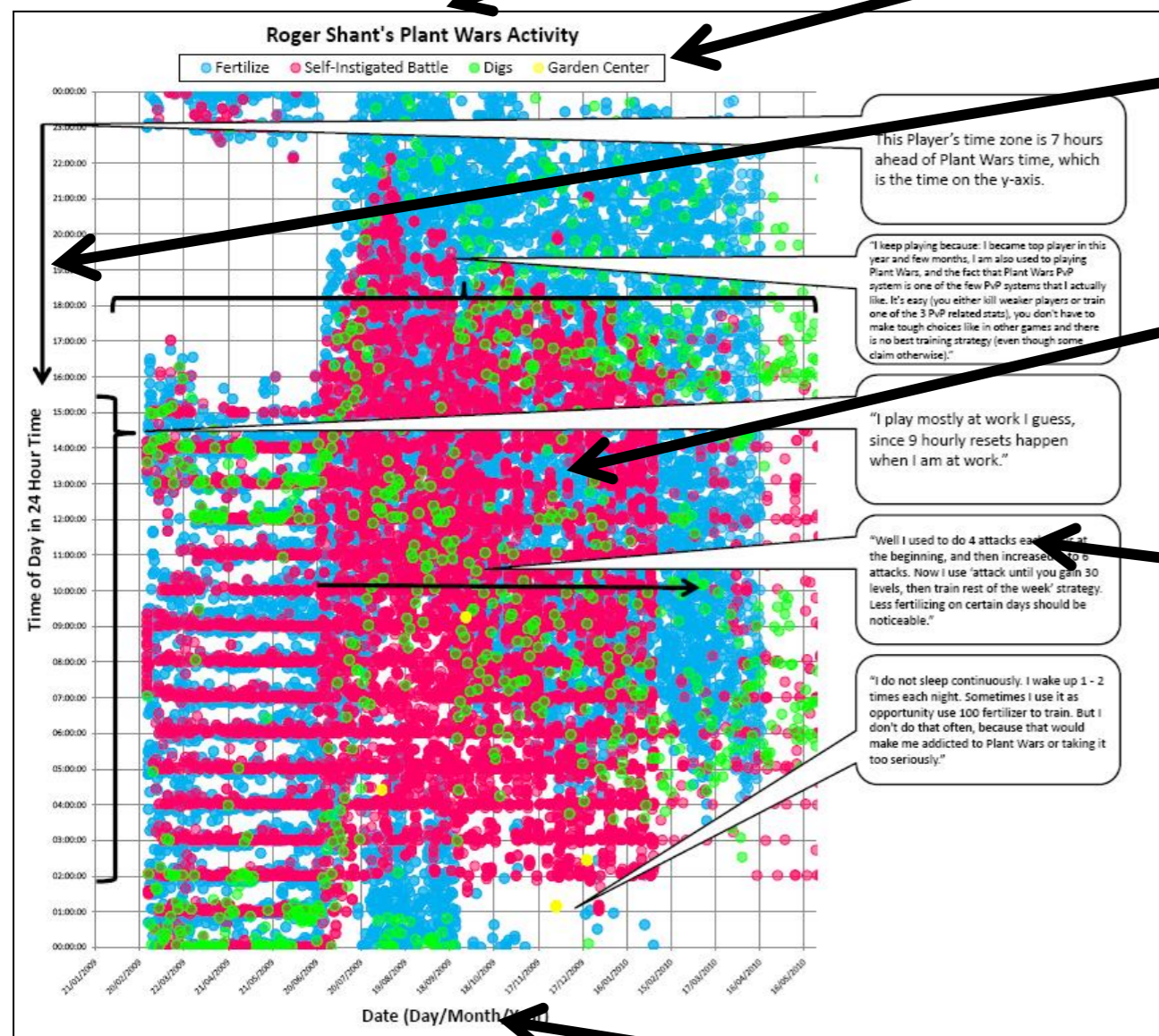
Select multiple users to highlight



Annotation Made Easy

Users would be able to annotate their own charts, by highlighting certain areas and recording audio, video, or text about that particular pattern. Users with a tablet input device could draw or annotate directly onto the visualization.

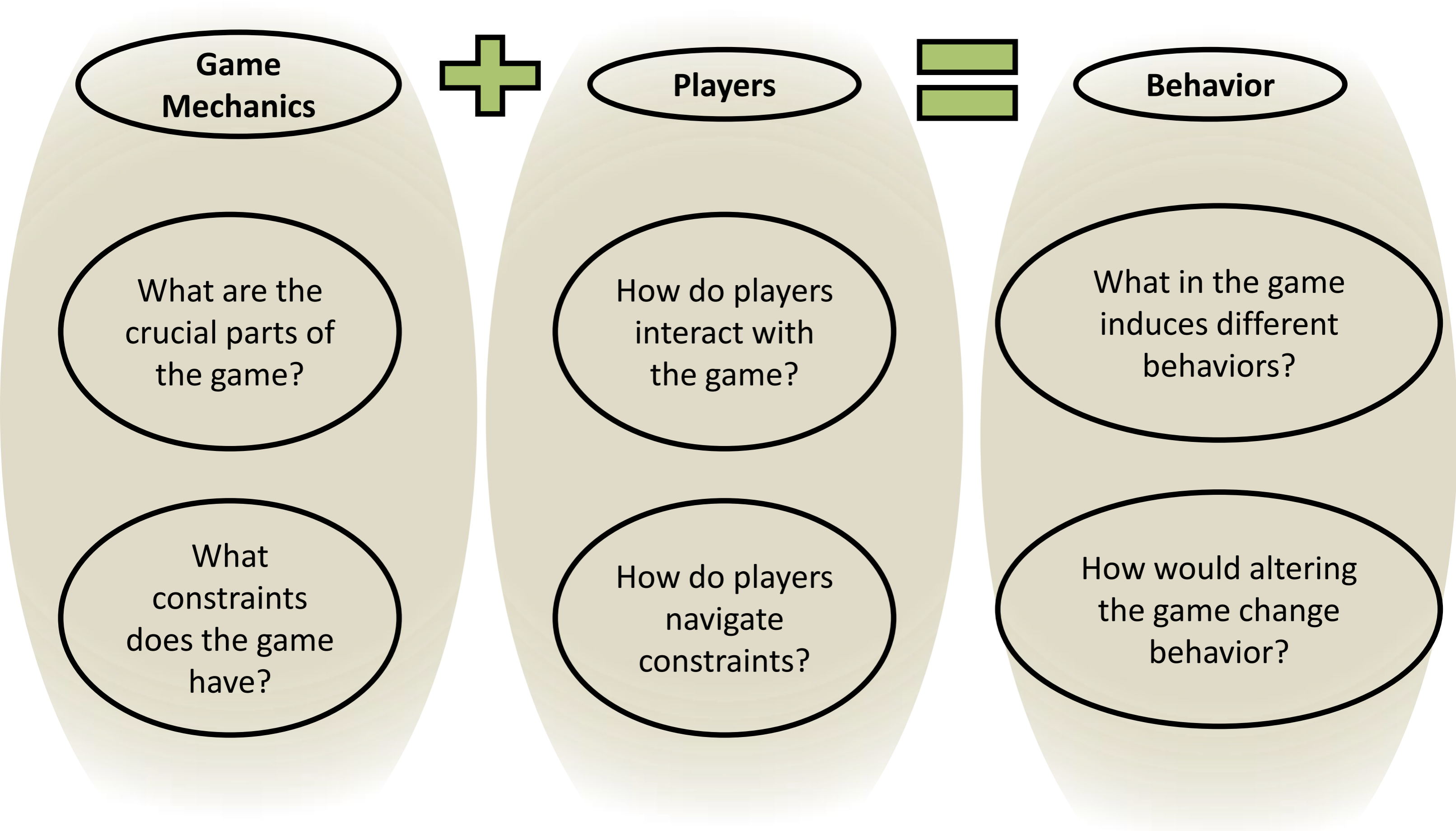
Reading Guide for Annotated Visualizations:



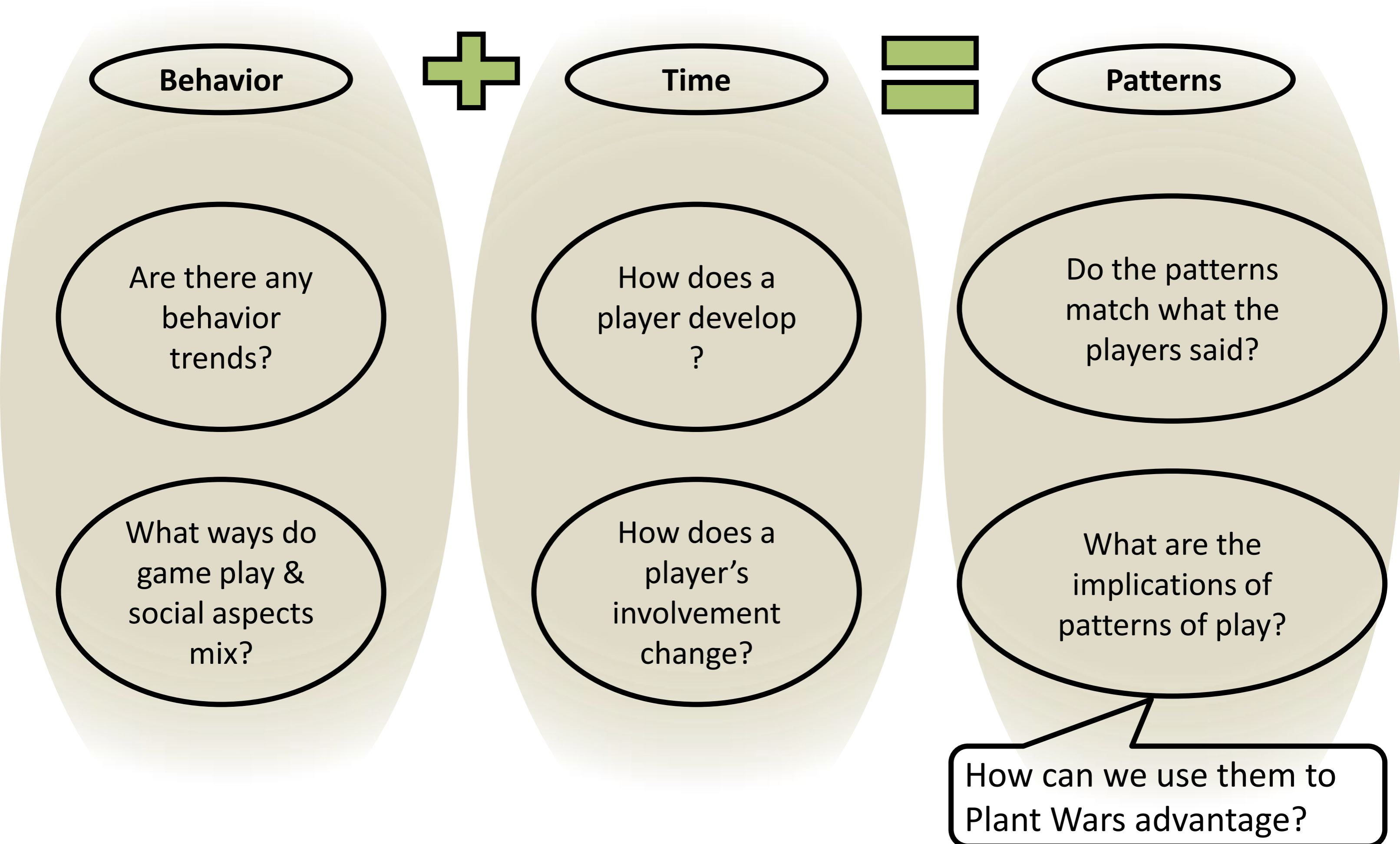
- **Title:** describes which participant and what facet of game play is being displayed
- **Legend:** indicates what different kinds of data points mean
- **Time of day:** the Y-axis is the 24 hour time of day starting with midnight at the bottom and ending with midnight at the top
- **Graphical annotations:** these are used to indicate zones or spectrums of interest that correlate with the written annotations
- **Written annotations:** These are mostly based on direct quotes from participants and linked to the corresponding area of the visualization. Some of them may repeat through the set when one quote is pertinent to two different visualizations. Some of them maybe the researchers notes or interesting ideas.
- **Date:** the X-axis shows the time of year, usually ranging from Jan. 2009 to June 2010 from left to right

Thinking Guide for Annotated Visualizations:

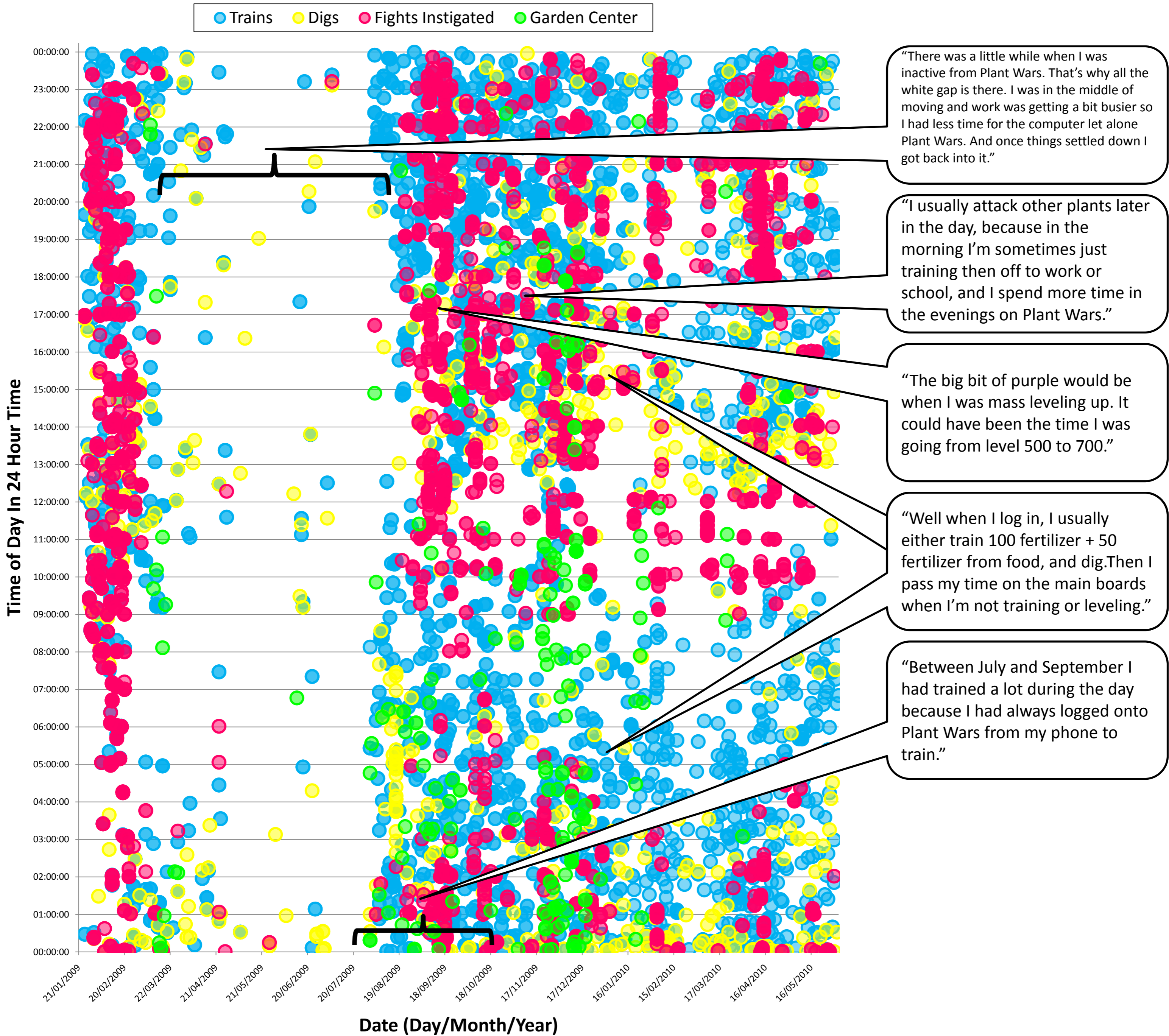
To get the most value out of your annotated visualizations here are some helpful ways to think about what you see and read. You may want to refer back to these pages to help as a framework.



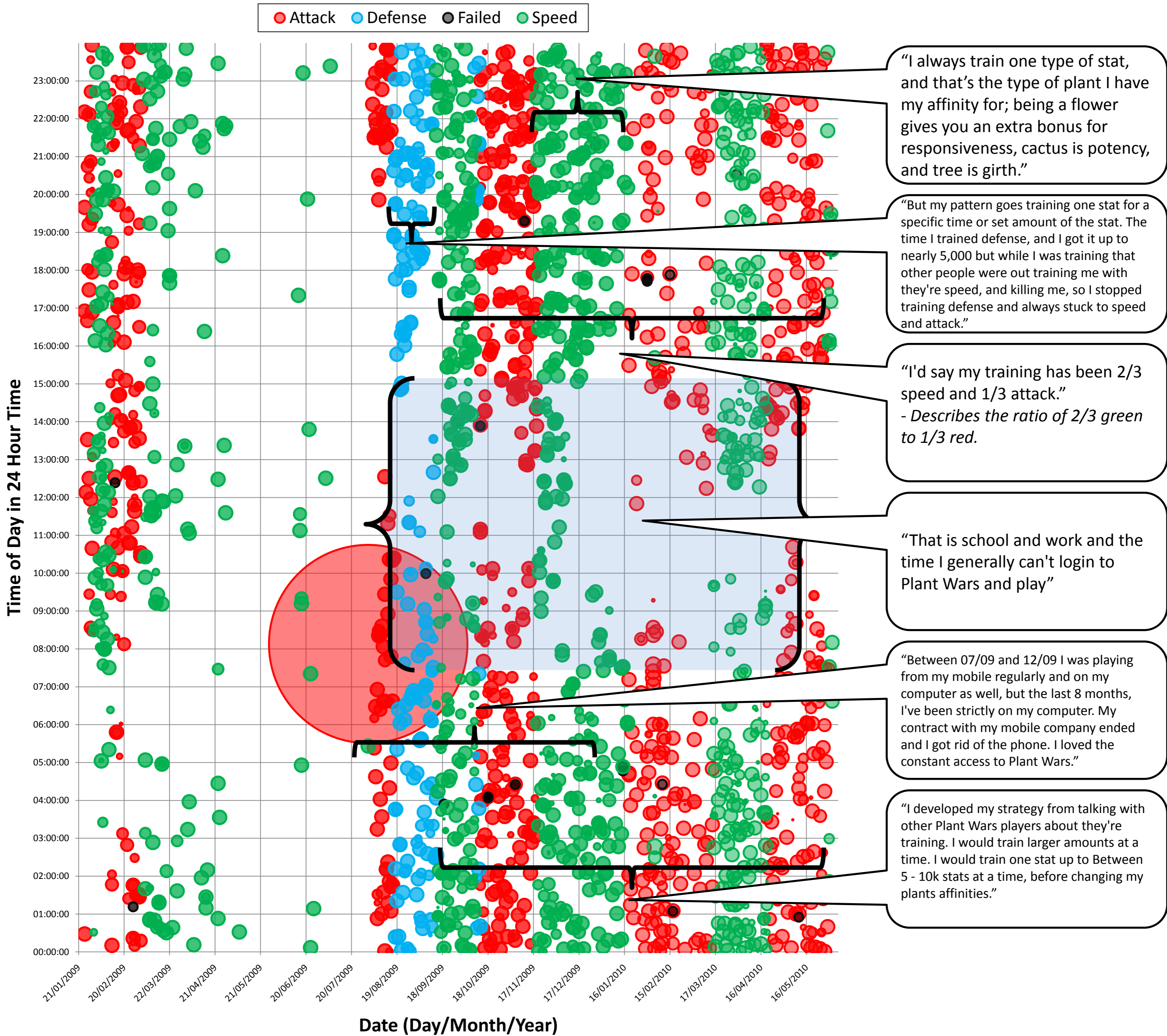
So, we take the game's mechanisms and add players, which resulted in behaviors. Now we add time to the player's behaviors and the result is patterns of play over time. We can use this model as a starting point for understanding the visualizations and brainstorming meanings of actions and improvements for Plant Wars.



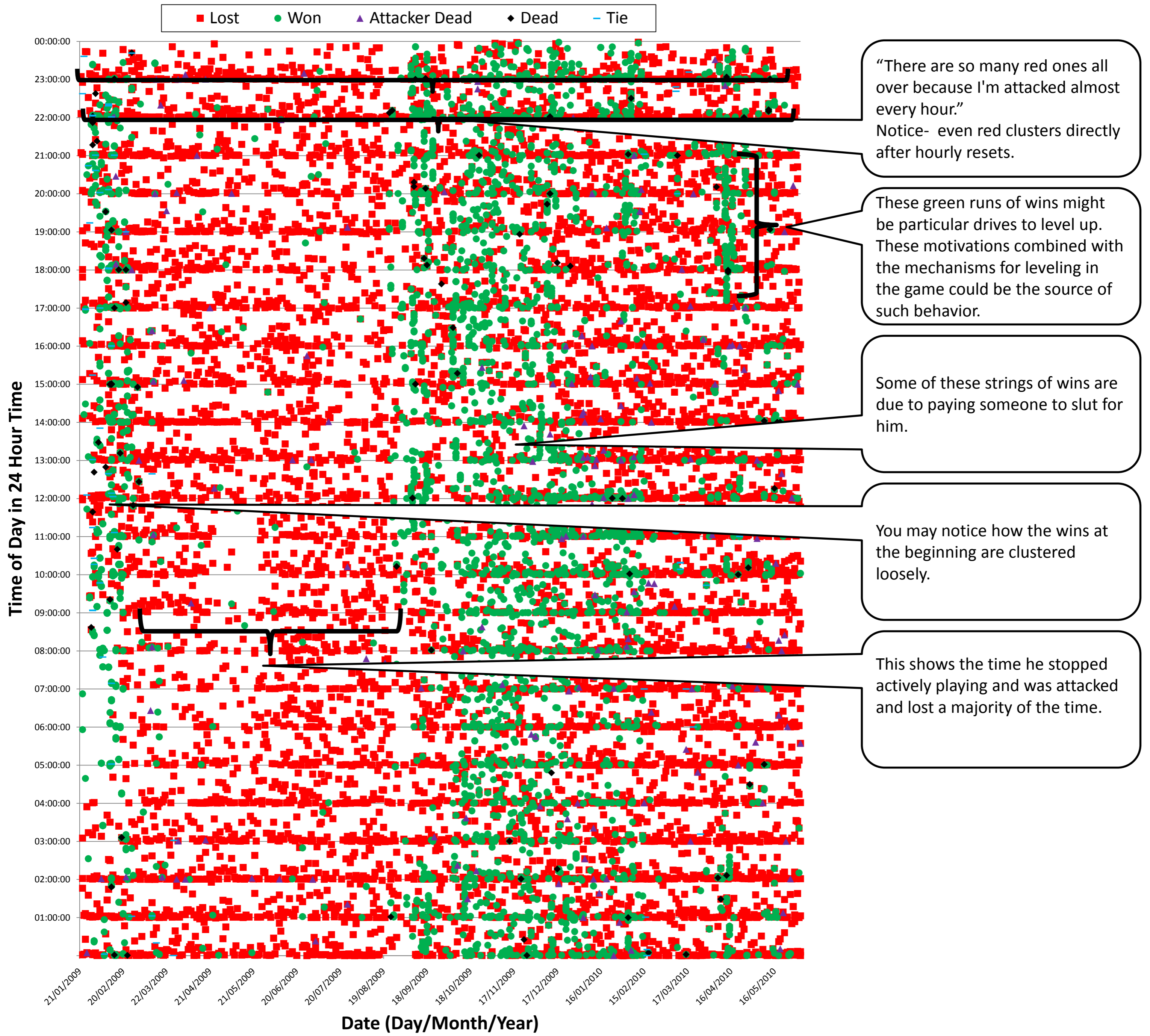
1. Daniel McBeast's Plant Wars Activities



2. Daniel McBeast's Fertilizes



3. Daniel McBeast's Battles



4. Daniel McBeast's Self-Instigated Battles

● Won ■ Lost ◆ Dead — Tie



“The choices in my attack list were only based on their battle ladder standings and their level. So, if there is somebody around my level or higher that I can beat, I will add them to my hitlist and attack frequently.”

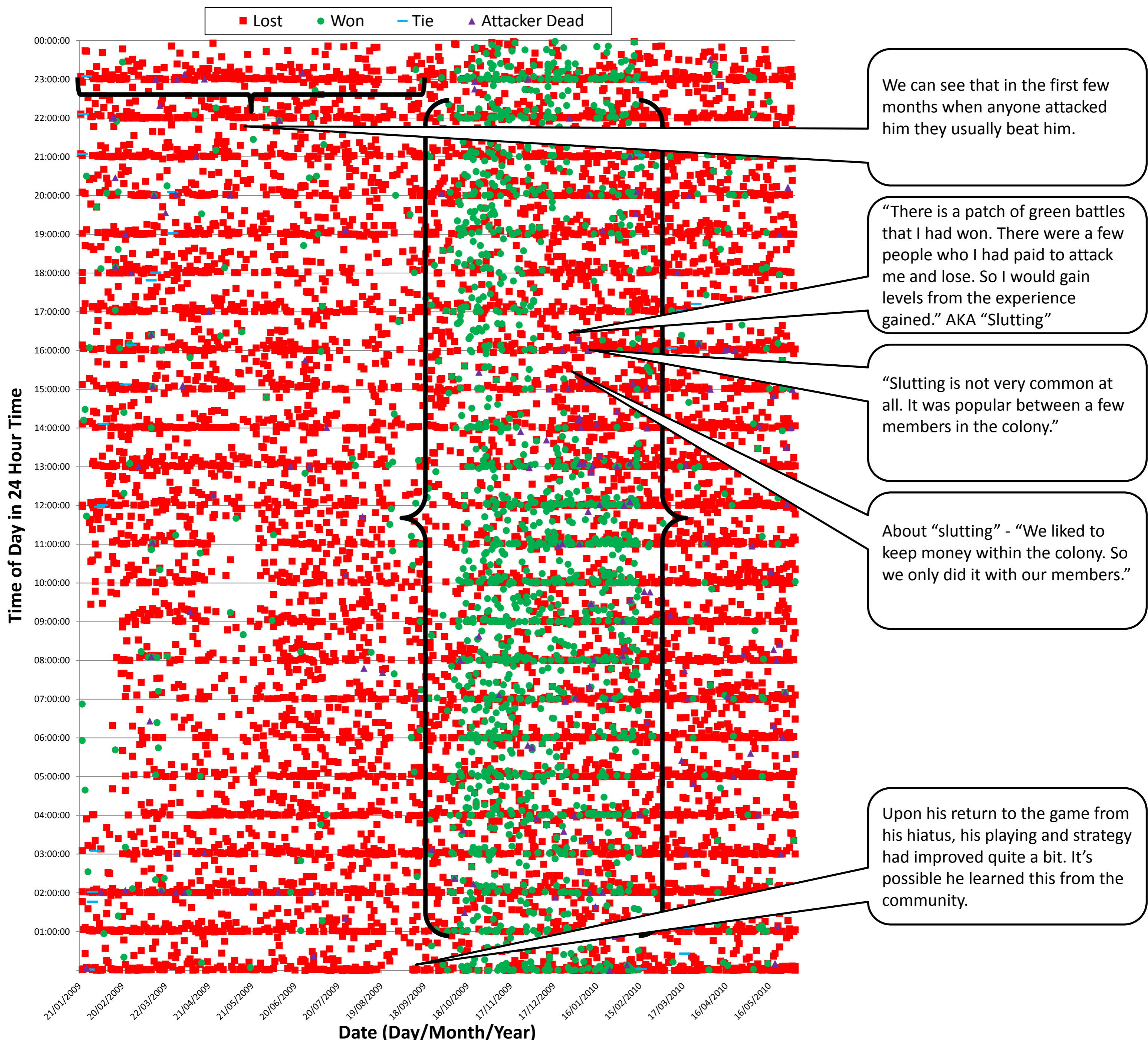
This could have been a heated series of battles or a drive to level up.

“I only added one person to my hitlist because I didn’t like them.”

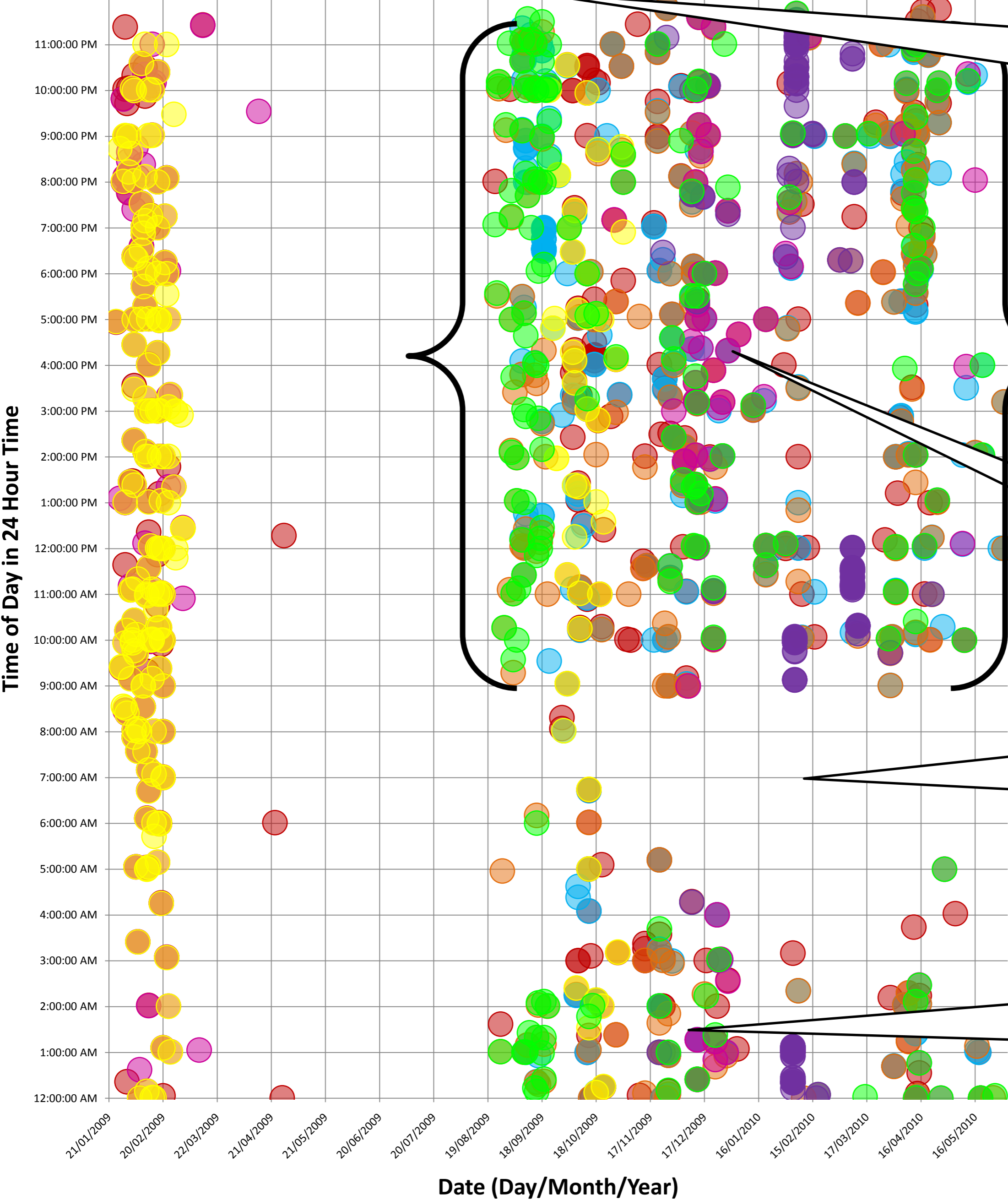
We can also tell that he likes to attack later in the day.

“There was a little while when I was inactive from Plant Wars. That’s why all the white gap is there. I was in the middle of moving and work was getting a bit busier so I had less time for the computer let alone Plant Wars. And once things settled down I got back into it.”

5. Daniel McBeast's Not Self-Instigated Battles



6. Daniel McBeast's Top Partners for Self-Instigated Battles



“The choices in my attack list were only based on their battle ladder standings and their level. So, if there is somebody around my level or higher that I can beat, I will add them to my hitlist and attack frequently.”

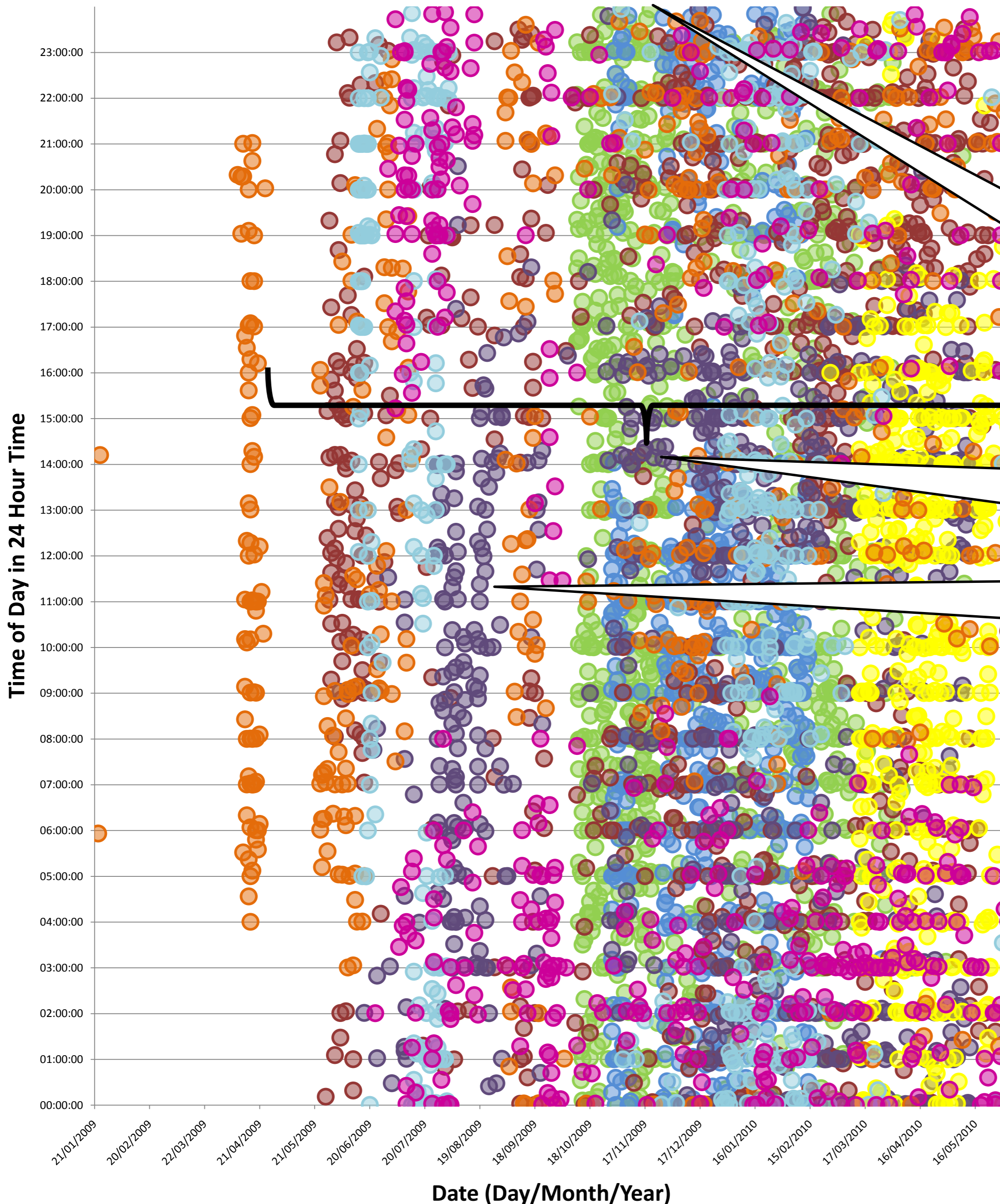
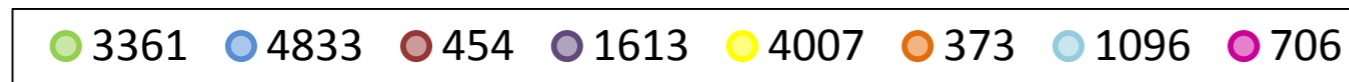
This shows Daniel’s choices as to who to attack most frequently.

We can see Daniel’s pattern of preferring to attack later in the afternoon and evening .

This is the morning for Daniel and he stated he doesn’t usually attack until later in the day.

These attacks in the early AM hours most likely just show the continuation of the previous nights attacks.

7. Daniel McBeast's Partners for Non-Self-Instigated Battles



This chart shows the people who attack Daniel McBeast most often. The white space to the right shows us that early on many plants may have attacked him but we could only chart the top attackers. It illustrates that during the climb up a battle ladder players tend to attack those at a certain level.

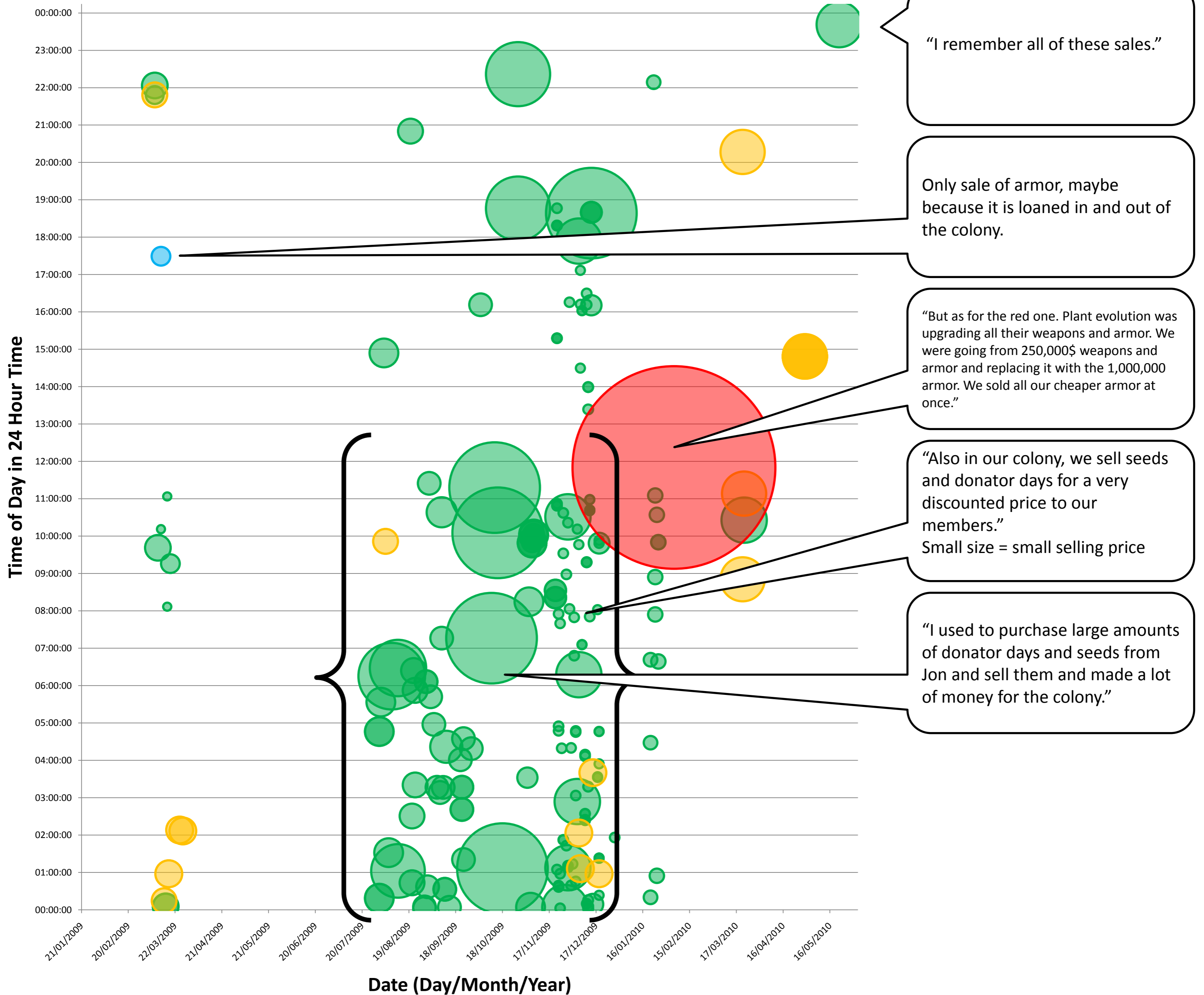
"I see most of these people attacking me all the time."

"People attacking me... It went from a few people at fewer times, to more people at more frequent times."

"It started out slower, but over time I gained more levels, and more people started adding me to they're hitlist."

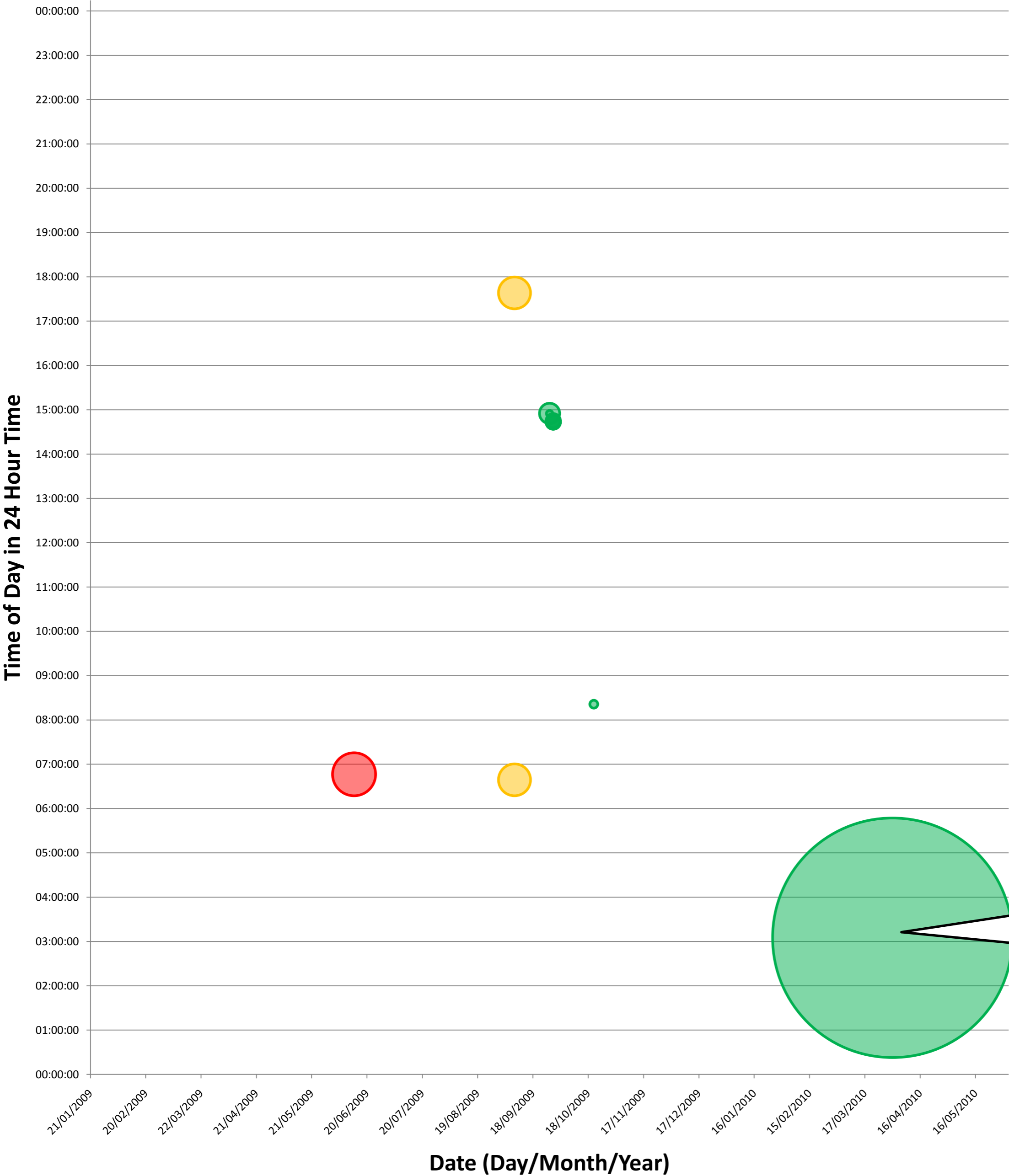
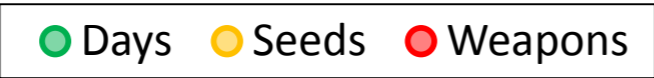
8. Daniel McBeast's Garden Center Sales

(Bubble Size Indicates Item Cost)



9. Daniel McBeast's Garden Center Purchases

(Bubble Size Indicates Item Cost)

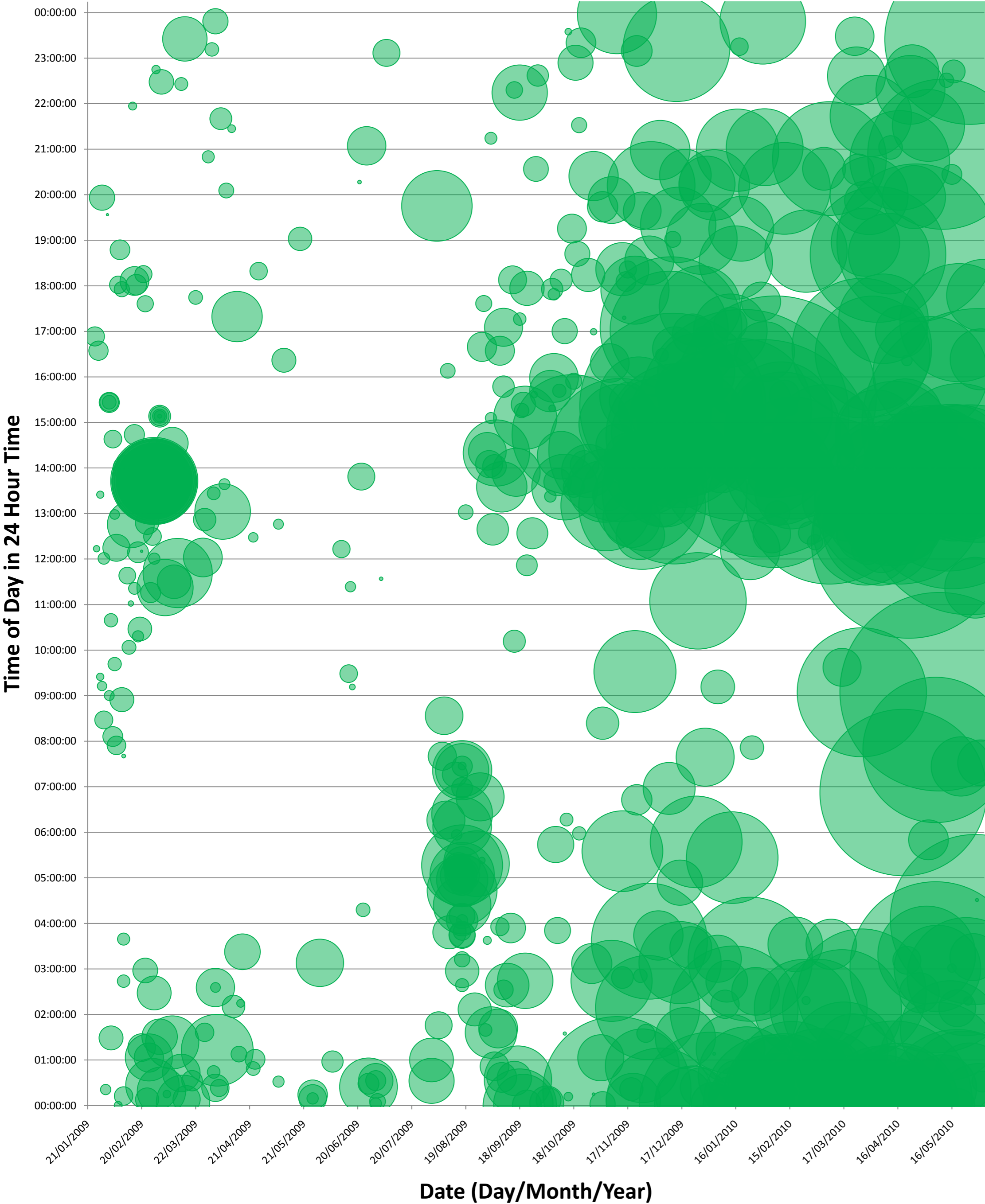


"As for buying from the Garden center, I never really bought much as I purchased my own seeds and donator days from Jon."

"I used to purchase large amounts of donator days and seeds from Jon and sell them and made a lot of money for the colony."
Notice: these purchases are outside of the Garden Center

"To be honest, I don't remember purchasing them."

10. Daniel McBeast's Money Received from Digs



This shows Daniel McBeast's money gathered via digging, which is the main way to obtain money in the game.

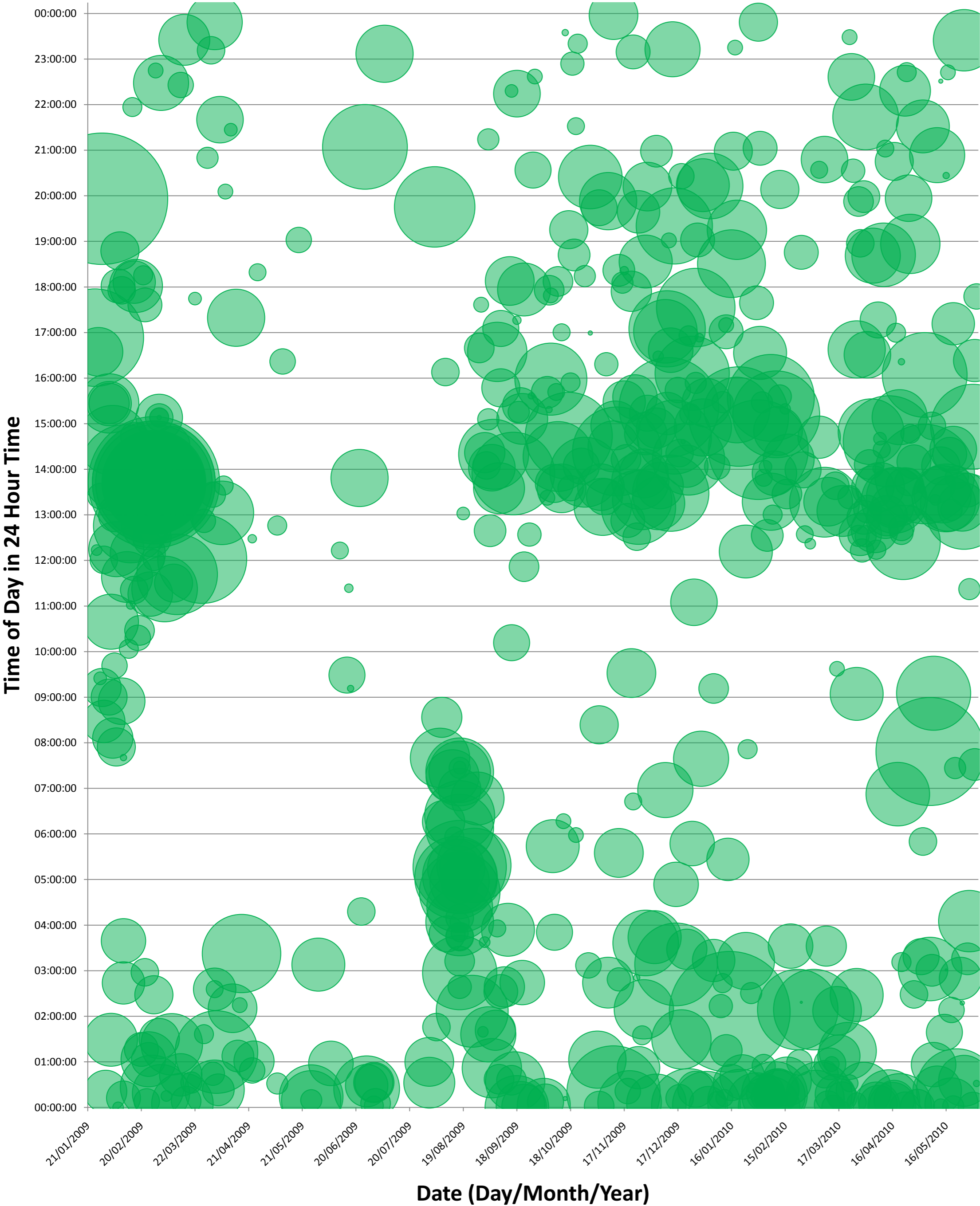
He didn't really have much to say about it. So I will just throw some quotes he said about being social in the bubbles below.

"All my good times have been on webcam chat with the lovely players."

"I can tell you something. It's not much of a story. We had a suggestion from ID #### to have a Plant Wars awards. Some of the awards being plant of the year, biggest noob, post whore, best staff, and best plant under 100 days old; and we had raised a lot of money from users for prizes, colonies donated money, and Jon donated seeds and donator days to the cause."

"I helped with the awards and also won a few of the awards myself. It was actually really fun."

11. Daniel McBeast's Grubs Received from Digs



This shows Daniel McBeast's grubs gathered via digging, which you sell as a way to obtain money in the game.

He didn't really have much to say about it.
So I will just throw some quotes he said about being social in the bubbles below.

"It's fun being the social butterfly. But it's sometimes hard stirring up activity within the game and keeping the boards amusing. I have been a little slack with activity lately. I usually bring activity with humor to the boards."

"More time is dedicated to social butterflying. I log on and usually go straight for the boards. Sometimes 45 minutes has passed and I haven't even used any fertilizer."

So maybe it is time to make some more interesting digs?