Braden Ackles

CS 475

5/8/16

Project 4 Grianville

Own Choice Function:

I implemented zombies that attacked. If the number of deer divided by two is greater than the current number of zombies, then a zombie will wonder his way to the forest. If not, then the odds of a zombie finding deer to eat is to low and one of them will starve to death. This effects the number of deer in the forest and there for will affect how much grain there is.

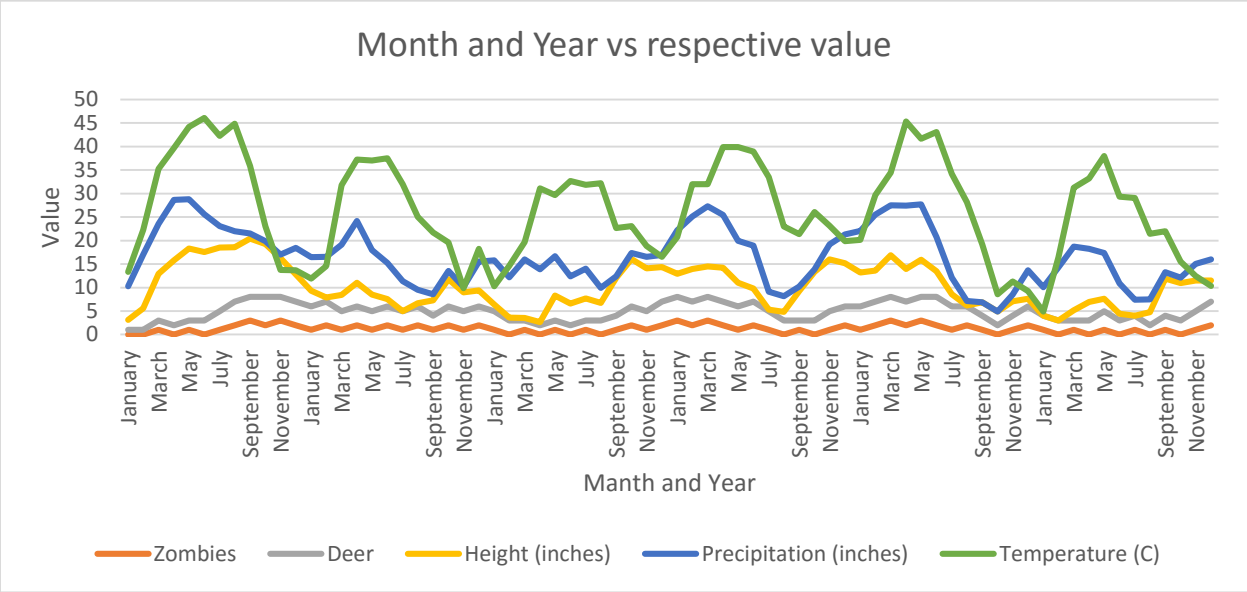
Table:

Month	Zombies	Deer	Height (inches)	Precipitation (inches)	Temperature (C)
January	0	1	2.1495	7.13045	3.047333333
February	0	1	4.54966	11.4364	5.288777778
March	1	2	9.95421	10.5858	11.69811111
April	0	2	13.772	12.8685	11.04488889
May	1	2	15.3325	10.4585	15.38755556
June	0	3	14.5506	8.0684	20.48138889
July	1	4	13.5455	4.50069	19.23011111
August	2	5	11.5801	3.42214	22.8815
September	3	5	12.4475	1.07363	14.38366667
October	2	6	11.2542	0.63232	3.142055556
November	3	5	8.27506	0.728906	-3.231166667
December	2	5	5.78191	5.66379	-4.763277778
January	1	5	3.29022	7.15669	-4.547166667
February	2	5	0.861959	8.67788	-1.970166667
March	1	4	3.47034	10.6686	12.66783333
April	2	4	5.04023	13.152	13.01944444
May	1	4	3.52411	9.42677	19.10827778
June	2	4	1.5838	7.65006	22.26088889
July	1	4	0	6.33819	20.66122222
August	2	4	0.667835	2.84279	15.55138889
September	1	3	3.28997	1.2841	13.17294444
October	2	4	5.78964	1.77056	6.015666667
November	1	4	3.99817	1.16719	-0.264333333
December	2	4	3.4121	6.12319	2.686666667
January	1	4	1.41504	9.35022	-5.513
February	0	3	0.584885	8.58686	2.432111111
March	1	2	0.546364	12.4485	3.704388889

April	0	2	0.679389	11.1911	17.21166667
May	1	2	5.32638	8.32273	13.01422222
June	0	2	4.58999	5.8053	20.2625
July	1	2	4.68936	6.32962	17.8245
August	0	3	3.7431	3.16104	22.32572222
September	1	3	8.05055	0.363486	10.28316667
October	2	4	10.0928	1.24544	5.737666667
November	1	4	9.11515	2.42825	2.282555556
December	2	5	7.33219	2.60421	-0.381333333
January	3	5	4.93679	9.28025	-1.425444444
February	2	5	6.9693	11.1264	6.930055556
March	3	5	6.53023	12.7497	4.7275
April	2	5	7.25758	11.2118	14.43111111
May	1	5	5.0561	8.90654	19.94411111
June	2	5	2.82902	9.07322	20.067
July	1	4	0.338303	3.76843	24.39027778
August	0	3	1.82011	3.33085	14.84527778
September	1	2	6.23132	0.951124	11.21311111
October	0	3	10.3206	0.559005	12.19611111
November	1	4	11.0272	3.19206	3.891055556
December	2	4	9.14553	6.14297	-1.404055556
January	1	5	7.22301	8.81198	-1.861
February	2	5	6.61813	11.8865	4.190111111
March	3	5	8.86252	10.6589	6.929666667
April	2	5	6.97478	13.4761	17.87855556
May	3	5	7.94227	11.7669	13.94183333
June	2	6	5.50077	7.28073	22.30005556
July	1	5	2.56845	3.57132	22.06133333
August	2	4	0.188853	0.987191	21.03455556
September	1	3	2.90004	0	12.28727778
October	0	2	2.91286	0	3.652388889
November	1	3	3.10594	1.42336	2.770388889
December	2	4	1.61557	6.0743	-4.403555556
January	1	3	0	6.05722	-5.141722222
February	0	3	0	11.2845	2.092611111
March	1	2	2.19659	13.5356	12.51038889
April	0	3	3.9411	11.3283	14.92516667
May	1	4	2.61995	9.71729	20.632
June	0	3	1.41146	6.48196	18.44538889
July	1	3	0.00214944	3.42474	21.67127778
August	0	2	2.77663	2.68595	13.99438889
September	1	3	7.90109	1.37833	8.714388889
October	0	3	7.94269	1.18473	3.392055556

November	1	4	6.48724	3.55777	-2.584166667
December	2	5	4.48989	4.53334	-5.704388889

Graph:



Commentary:

To evaluate properly we need to separate each dependent variable out.

Note: Parallelism talk before explanation of what happened. Because of the way its programmed with the barriers before continuing this is most likely what causes the delay between weather, growth and deer. Because it depends on when the variable is read in and what its value is when its read in. There for these barriers are what causes the program not to recalculate early and there for a one month delay in reaction to events that happen because of when they are forced to be calculated.

Grain depends on precipitation and temperature and the amount of deer around to eat it. With grain we see very slim to no delay in the growth related to the amount of water and temperature. Maybe a data point away from an increase in those is an increase in grain and same with decreases immediately after a decrease we see a decrease in grain height because it doesn't grow as much and the deer eat it. Another instance that occurs Is when the amount of deer gets out of control compared to the temp and precipitation and eat more grain then can grow and this causes a decrease in grain even when it should be growing.

Deer depends on how much grain is available and if zombies are around to eat the deer. So as the grain grows we tend to see a small delay in the growth of the deer population but this delay is greater than that between the growth of grain and the weather. So the deer take a little longer to populate since deer can only grow by 1 at a time where grain can grow by more than 1 per grain available. Also zombies come and eat the deer. If the number of deer divided by 2 is greater than the

number of zombies a new zombie comes if it is not than a zombie does. But for all the zombies present one third of them will find and kill a deer. So this affects the deer population because deer get eaten.

Finally, zombies. As previously mentioned one third of the zombies find a kill a deer, but if there are less than twice as many deer as zombies a zombie starves and dies off. So this creates a fluctuation in the number of zombies.

To conclude deer grain and zombies all affect one another. Weather and precipitation are not affected by anything besides the month but that is built in and part of the function. Colder temperatures in the winter and warmer in the summer and wetter in the spring. This has effect on everything else. Where the other three also all affect each other. Zombies indirectly effect how much grain there is because they kill deer and if less deer are there to eat then more grain grows. This is true for all of them they all effect each other.