JONATHAN PERRY
5/14/18

PROJECT #4

1. For this project, I chose to add hunting seasons during the months of November, December and January to this simulation to show the effects of hunting in regard to the relationship of the deer population and the height of the grain.
2.

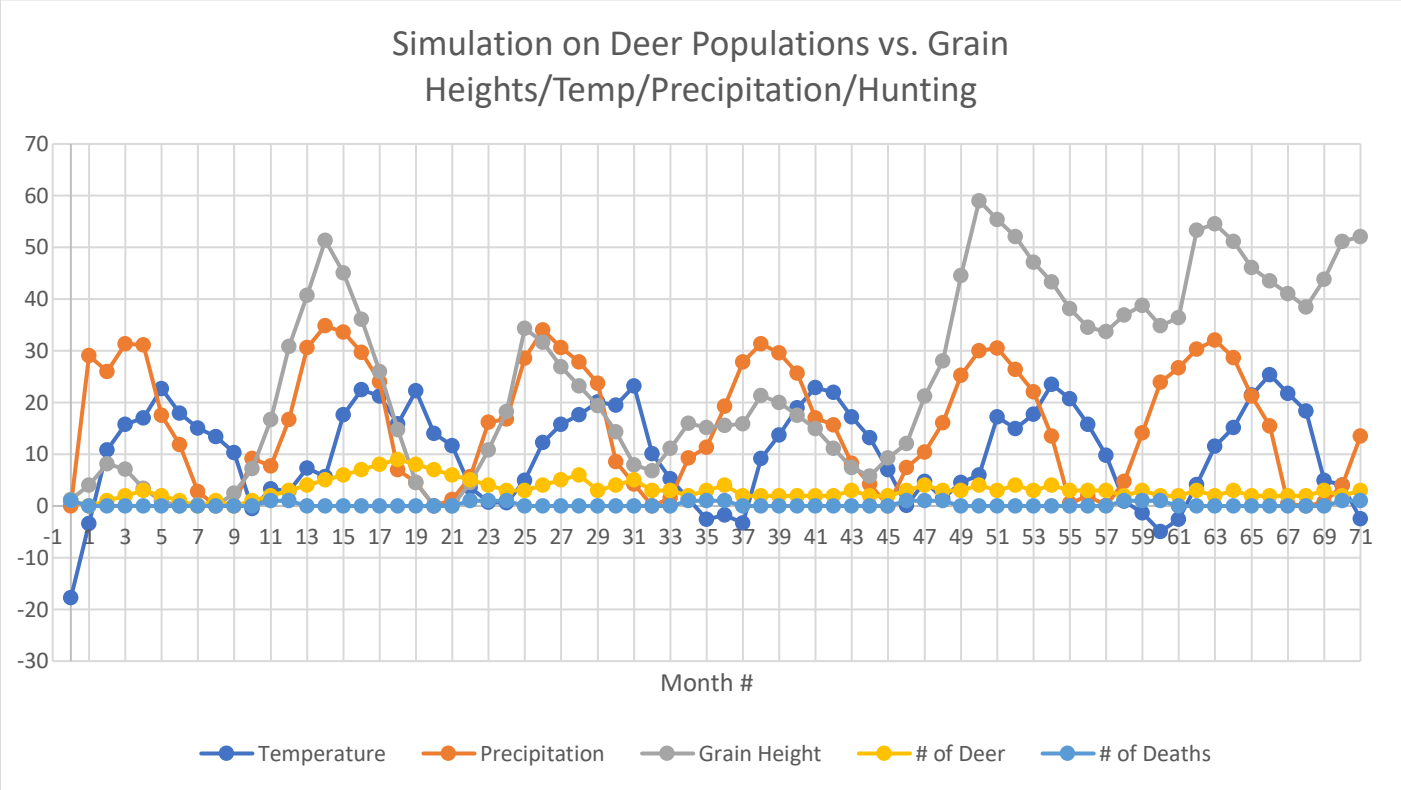
Month	Temperature	Precipitation	Grain Height	# of Deer	# of Deaths
0	-17.777779	0	1.27	1	1
1	-3.407059	29.06	3.97	0	0
2	10.842112	25.97	8.09	1	0
3	15.802905	31.33	7.12	2	0
4	17.05513	31.09	3.42	3	0
5	22.645103	17.5	0.88	2	0
6	17.965813	11.9	0	1	0
7	15.006908	2.79	0.25	0	0
8	13.362446	0	0	1	0
9	10.294787	0	2.47	0	0
10	-0.536864	9.18	7.25	1	0
11	3.256798	7.75	16.68	2	1
12	2.848434	16.69	30.78	3	1
13	7.282431	30.57	40.72	4	0
14	5.616565	34.82	51.3	5	0
15	17.641138	33.62	45.02	6	0
16	22.439274	29.7	36.13	7	0
17	21.237305	23.99	25.97	8	0
18	15.836084	7.01	14.72	9	0
19	22.233498	4.56	4.56	8	0
20	13.978065	0	0	7	0
21	11.606125	1.22	0	6	0
22	3.578635	5.67	4.5	5	1
23	0.711952	16.21	10.77	4	1
24	0.616199	16.83	18.24	3	1
25	4.90082	28.54	34.3	3	0
26	12.300968	34.02	31.67	4	0
27	15.804426	30.58	26.89	5	0
28	17.630913	27.83	23.15	6	0
29	20.130518	23.72	19.35	3	0
30	19.445038	8.51	14.28	4	0
31	23.176414	4.26	7.93	5	0
32	10.122887	0	6.75	3	0
33	5.228861	1.49	11.15	3	0
34	1.330354	9.25	15.98	2	1

35	-2.567364	11.31	15.2	3	1
36	-1.801067	19.31	15.55	4	1
37	-3.297187	27.81	15.89	2	0
38	9.188222	31.38	21.36	2	0
39	13.714045	29.64	20.04	2	0
40	19.003626	25.62	17.52	2	0
41	22.885818	16.99	14.98	2	0
42	21.932911	15.66	11.17	2	0
43	17.211691	8.23	7.43	3	0
44	13.219074	4.19	5.72	2	0
45	6.982996	0	9.25	2	0
46	0.046009	7.46	12.03	3	1
47	4.691323	10.36	21.23	4	1
48	1.418328	16.09	28.09	3	1
49	4.535647	25.22	44.59	3	0
50	5.957438	30.03	59.03	4	0
51	17.190701	30.49	55.32	3	0
52	14.94257	26.44	52.08	4	0
53	17.763855	22.06	47.07	3	0
54	23.553818	13.52	43.26	4	0
55	20.682508	0.46	38.18	3	0
56	15.755874	1.97	34.51	3	0
57	9.744479	0.13	33.74	3	0
58	0.930019	4.74	36.95	2	1
59	-1.338728	14.07	38.78	3	1
60	-4.957447	23.9	34.85	2	1
61	-2.590474	26.72	36.39	2	0
62	4.103489	30.3	53.35	3	0
63	11.556159	32.1	54.5	2	0
64	15.146605	28.66	51.17	3	0
65	21.460588	21.25	46.1	2	0
66	25.395254	15.45	43.56	2	0
67	21.794909	0.43	41.02	2	0
68	18.358799	0	38.49	2	0
69	4.980401	0.72	43.78	3	0
70	3.980927	4	51.16	2	1
71	-2.470981	13.47	52.09	3	1

3.

JONATHAN PERRY
5/14/18

PROJECT #4



4.

In the graph above, there are patterns showing that as the grain height and precipitation increases from month 10 month 17, we see an increase in the number of overall deer. From months 15 to 21, we see the grain height slowly decreasing with no immediate affect on the deer population until the grain height drops dramatically from months 18 and 19, where the deer population starts to plummet. After month 23, the grain height starts to recover, but hunting season has started, so we see a further decrease in the deer population. These patterns happened because the height of the grain is heavily dependent on the temperature, amount of precipitation, and the current number of deer in the simulation. When we see an increase in grain height, it's usually because of an increase in precipitation, as the other variables only lightly affect the height.