Vernal Pools Invertebrate Comparison

Cathance River Preserve Project

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Purpose:

How does the changing water temperature, weekly precipitation levels, and shorter daylight hours of the season affect the invertebrates in and around the vernal pools.

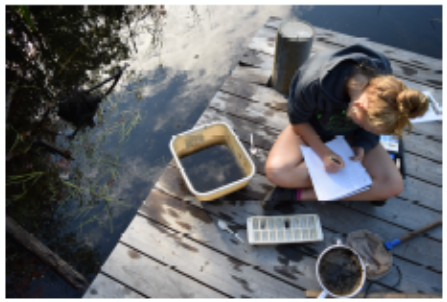
Hypothesis:

The cooler water temperatures, changing weekly precipitation, and shorter daylight hours, will cause there to be less activity of invertebrates in and around the vernal pool.

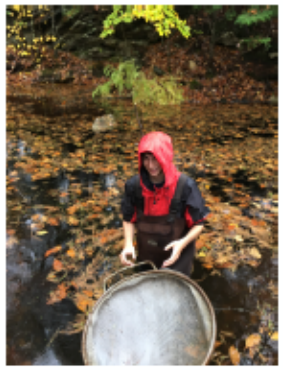
Procedure:

1. Travel to large, shallower, Vernal Pool #1 near Ecology Center.
2. Test abiotic factors at the Vernal Pool.
3. Make visual observations of Vernal Pool.
4. Take a large net and a small net and sweep five times on each net for invertebrates.
5. Sort invertebrates into ice cube tray, and identify the types and amount of invertebrates found.
6. Walk to smaller, deeper, Vernal Pool #2 on Highland Trail.
7. Repeat steps 2-6 on vernal pool #2.

Thanks to CREA, Andrea Stevens, David Reed, and Mr. Evans!



Brennan recording invertebrate types and total number of invertebrates at the Larger Vernal Pool (#1)



Lucas in the Vernal Pool, collecting invertebrate samples at the Smaller Vernal Pool (#2)

Phantom Midge Larvae that was found at the Smaller Vernal Pool (#2). Photo taken by David Reed

Conclusions:

- The data indicated that as time progressed, water temperature and daylight hours decreased and so did the diversity of invertebrates, but the total number of invertebrates increased.
- Week one the water temperature was 18°C at the larger vernal pool and 15°C at the smaller vernal pool, there was no measurement of precipitation and the day was 12.55 hours long. Week seven the water temperature had dropped to 15°C at the larger vernal pool and 14°C at the smaller vernal pool, there was 6.68cm of precipitation and the day was only 10.6 hours long.
- Week one at the larger vernal pool had 13 total invertebrates, but by week seven there was 23 total invertebrates. During the seven weeks there was fluctuation which allowed the total invertebrates to peak at week five with 175 invertebrates.
- Week one at the smaller vernal pool had 77 total invertebrates, but by week seven there was 106 total invertebrates. Like, the larger vernal pool, the smaller vernal pool reached its peak of 265 total invertebrates in week five.
- The large vernal pool started with nine different invertebrate types in week one, increased to ten species on week five, and by week seven dropped to six invertebrate types.
- The small vernal pool started with five. invertebrate types during week one, week five had six species, but by week seven there was only three invertebrate types.

Summary Water Temperature Data Table

Date	Location #1 Large Vernal Pool			Location #2 Small Vernal Pool		
	Water Temperature (C°)	Number of Invertebrate Types	Total Number of Invertebrates	Water Temperature (C°)	Number of Invertebrate Types	Total Number of Invertebrates
9/14/17	18°C	9	13	15°C	---	---
9/22/17	17°C	7	56	14°C	5	77
9/28/17	20°C	9	47	17.5°C	4	11
10/6/17	15°C	7	45	14°C	2	245
10/12/17	11°C	10	175	10°C	6	265
10/20/17	11°C	6	64	10°C	1	10
10/26/17	15°C	6	23	14°C	3	106

Summary Weekly Precipitation Data Table

Date	Location #1 Large Vernal Pool			Location #2 Small Vernal Pool		
	Weekly Precipitation (cm)	Number of Invertebrate Types	Total Number of Invertebrates	Weekly Precipitation (cm)	Number of Invertebrate Types	Total Number of Invertebrates
9/14/17	---	9	13	---	---	---
9/22/17	1.93	7	56	1.93	5	77
9/28/17	0	9	47	0	4	11
10/6/17	0.23	7	45	0.23	2	245
10/12/17	0	10	175	0	6	265
10/20/17	0.05	6	64	0.05	1	10
10/26/17	6.68	6	23	6.68	3	106

Summary Daylight Hours Data Table

Date	Location #1 Large Vernal Pool			Location #2 Small Vernal Pool		
	Daylight Hours	Number of Invertebrate Types	Total Number of Invertebrates	Daylight Hours	Number of Invertebrate Types	Total Number of Invertebrates
9/14/17	12.55	9	13	12.55	---	---
9/22/17	12.15	7	56	12.15	5	77
9/28/17	11.85	9	47	11.85	4	11
10/6/17	11.45	7	45	11.45	2	245
10/12/17	11.15	10	175	11.15	6	265
10/20/17	10.78	6	64	10.78	1	10
10/26/17	10.6	6	23	10.6	3	106