

# Cathance Preserve Salamander Study

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## Purpose:

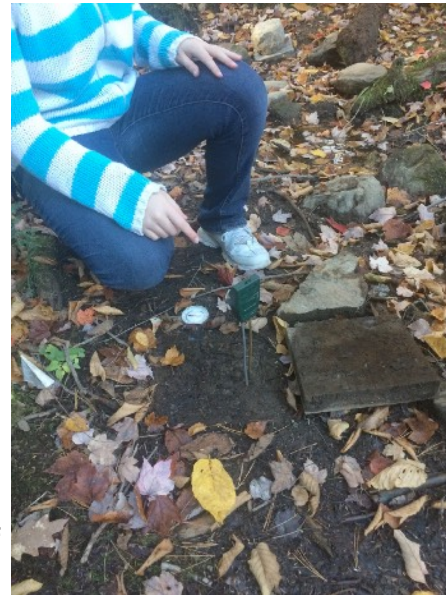
- The purpose of this study is to determine:
- What species of salamanders are present at the Preserve, at what numbers do they appear and how those numbers compare with last year's salamander study.
  - What soil pH range is preferable to salamanders.
  - Do salamanders prefer an air temperature of about 22°C, and a soil temperature of about 16-18°C?

## Hypotheses:

- The researchers predict that the populations of salamanders in 2017 will be similar to that of 2016.
- The preferred pH and temperatures to salamanders will be: a soil pH of 3 - 5, air temperature 22°C, and soil temperature 16-18°C.
- Salamander populations will begin to decline at air temperatures below 13°C.

## Procedure:

- Arrive at the Cathance River Preserve Ecology Center and gather materials
- Meet with expert and go to established cover boards. There are two different types of cover boards. The small one are 30cm x 30cm x 4cm and one larger board that is just longer and wider than 30cm x 30cm, still having a thickness of 4cm. Each board is about 1-5m apart in the following habitats:
  - o Grassy
  - o Coniferous
  - o Stream
  - o Near a Vernal Pool
- Record organisms found under cover boards
  - Measure and record Soil Moisture, Soil pH, Soil and Air Temperature.
  - Repeat steps 4-8 for each transect
- Wash hands

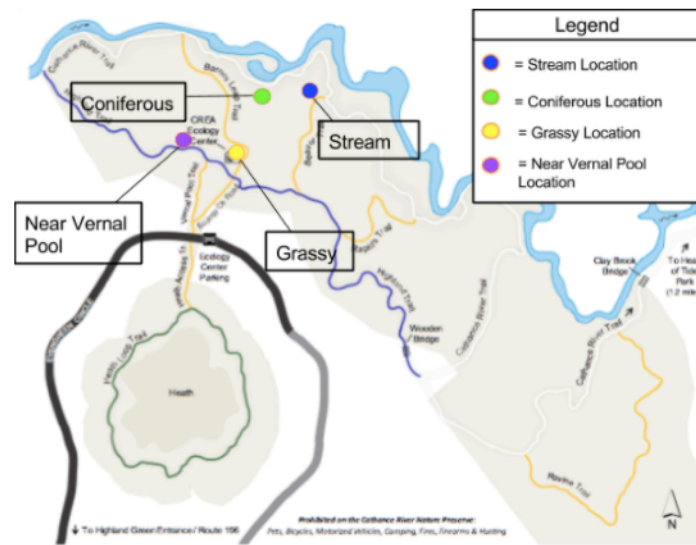


One of the researchers measuring soil moisture and temperature under a cover board

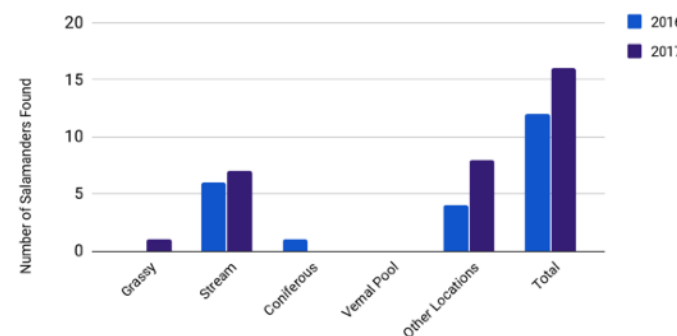


An overview of the researches recording data.

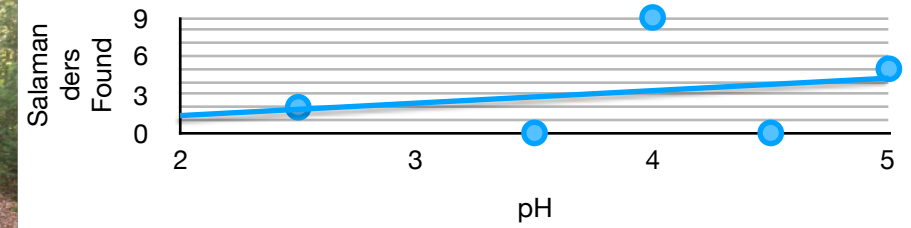
## Map of Salamander Transect Locations



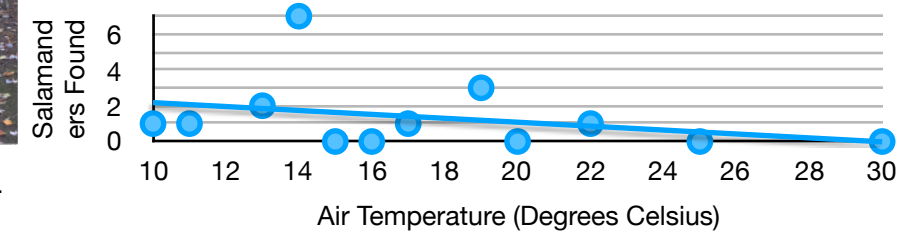
2016 vs. 2017 Salamander Study: Total Redback, Two-Lined and Dusky Salamanders Found at Each Transect



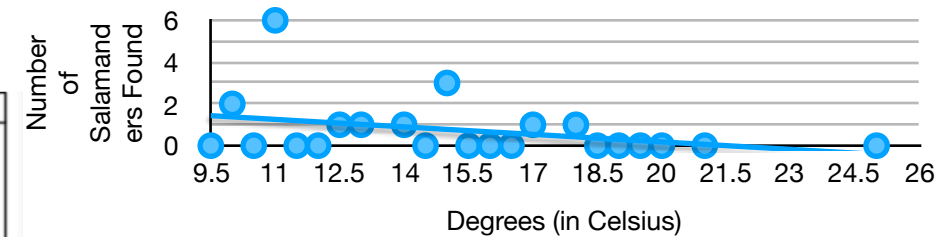
Number of Salamanders Found at Each Recorded Soil pH



Salamanders Found at Recorded Air Temperatures



Total Salamanders Found at Each Recorded Soil Temperature



## Conclusions:

- The researchers' hypotheses were proven partially correct.
- Salamander types (Redback, Two-lined and Dusky) were similar in type and in numbers to last year's study.
  - Data gathered shows that generally the less acidic soil pH, the more salamanders were found.
  - The data shows salamanders prefer a pH of 4-5, which disproves part of the hypothesis.
  - Salamanders prefer a cooler air temperature with most found at 14°C, disproving the hypothesis that they prefer warmer 22°C.
  - Salamanders prefer cooler soil temperatures with most being found at 11°C, below the hypothesized 16-18°C preference.

Thank you - Amanda Shearin (Maine Department of Fish and Wildlife) for mentoring this project.