

Vernal Pool Study

UConn Landfill Remediation Site

Summer 2005

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What is a Vernal Pool?

- Freshwater pool of collected seasonal precipitation and snowmelt
- Not permanent
- No surviving fish population
- At least 10 known pools in landfill area
 - 6 examined in this study

Our Mission:

- To collect preliminary and baseline info on the different amphibian populations in the UConn Landfill area
- Prior to major construction and remediation begins

Procedure and Methods

Divided into two parts:

– Part I: Physical factors

- Size
- Depth
- Air or Water temperature
- Canopy density (percent covered)



Procedure and Methods

- Part II: Organism assessment
 - Invertebrates
 - Adult and juvenile frogs
 - Tadpoles



We looked for these species:

- Wood frog (*Rana sylvatica*)
- Spring peeper (*Pseudacris c. crucifer*)
- Spotted salamander (*Ambystoma maculatum*)
- Marbled salamander (*Ambystoma opacum*)
- Any other species of amphibian present in large numbers at a site



Sampling Methods

- Two forms of collection used:
 - Dip net
 - Net with flat bottom and long handle
 - Useful for collecting groups of tadpoles or single frogs
 - Pipe sampling
 - Large pipe about a foot in diameter
 - Used to measure density of tadpoles (# in pipe/size of pipe area)
 - Proved to be not as successful as expected due to large rocks at the bottom of the vernal pools

Study Areas



Area 1

- Divided into three regions:
 - Site A
 - Site B
 - Site C
(future site)



Site 1A

– Site 1B

- Completely dry from start 6/3/05
- Dark leaf litter from where pool used to be
- No sign of amphibians
- No measurements taken



Site 1B



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- Almost completely dry on 6/3/05
- Submerged barrel held all tadpoles at the site
- Dip net collection

Site 1B: 6/3/05

- Relative Pool Size:
Very small
- Canopy Coverage:
88%



Species	Count	Age
Wood frog	542	Tadpole
Green frog	1F	Adult
Spotted Salamander	2	Tadpole
Redback Salamander	2	Adult
Caddisfly Larvae	Several	Larval Stage

Site 1C

- Site of future vernal pool
- Nothing there yet!

Coming soon!

Area 2



Area 2

- Very small pool along the side of access road
- 1.2 meters deep in center
- 10 egg masses!



Area 2



Area 2: 6/21/05

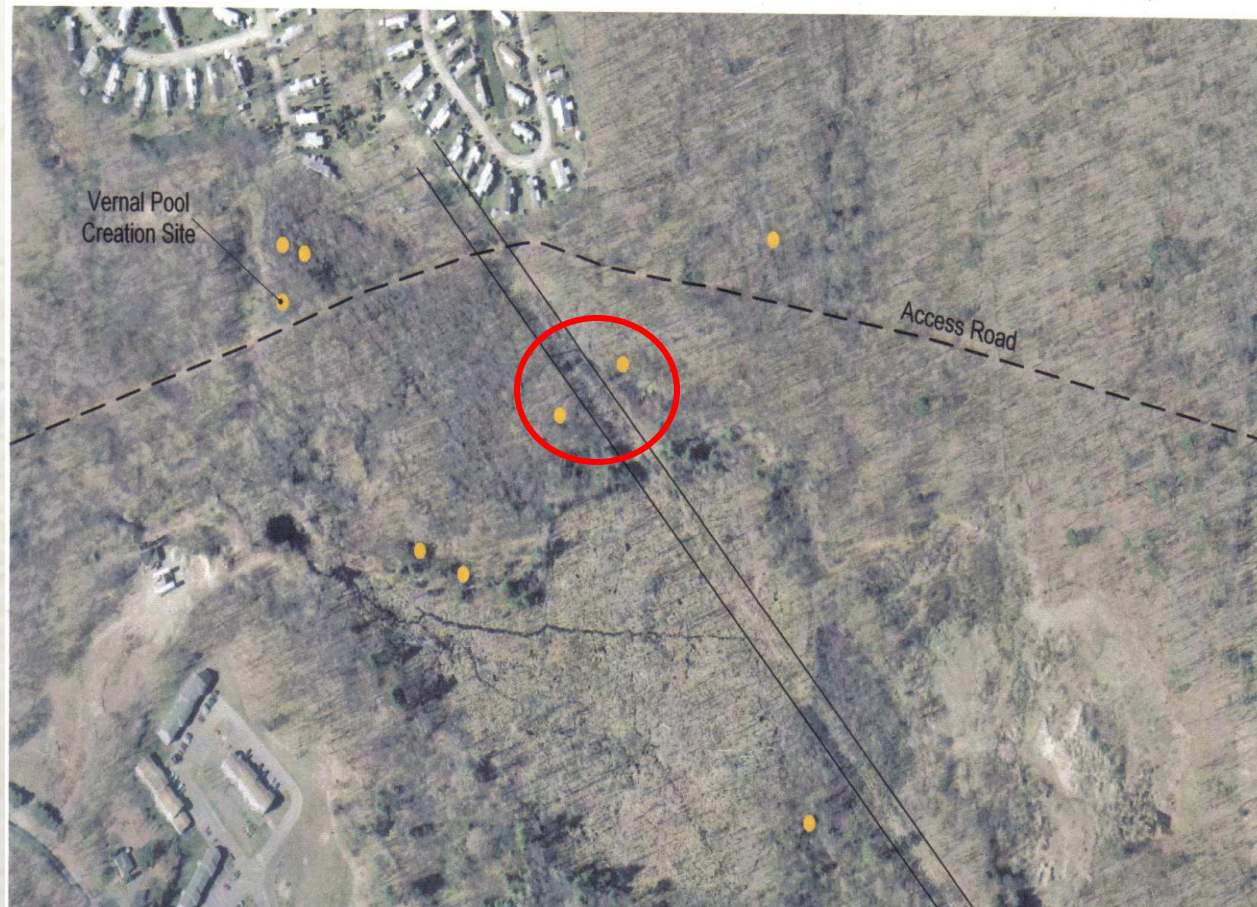
-Relative Pool Size: Very small

-Canopy Coverage: 88%



Species	Count	Age
Green frog	1U	Adult
Dysticid	1	Larvae
Egg masses	10	---

Area 3



Area 3

- Divided into two regions:
 - Site 3A
 - Site 3B



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Site 3A: 6/13/05 & 6/16/05

-Relative Pool Size:
Medium

-Canopy Coverage:
60%

Species	Count	Age
Wood frog	45	Tadpole
Dragonfly nymph	10	Young



Site 3B – “The Gold Mine”: 6/23/05

Species	Count	Age
Wood frog	872	Tadpole
Spotted salamander	3	Tadpole
Green frog	1F, 3M, 16U	Adult and Juvenile
Egg masses	3	---

-Relative Pool Size:
Medium

-Canopy Coverage: 83%



Area 5





Area 5

- Large wetland area connected to larger wetland
- Depth average: 0.75 meters
- Bright orange sediment due to leachate from landfill
- Difficult to work in due to quicksand-like sediment
- Not a vernal pool
- Removed from study on 6/7/05

Stormwater Drain from North Eagleville Road Extension



Stormwater Drain from North Eagleville Road Extension



July 2005



September 2005

Stormwater Drain from North Eagleville Road Extension

- Human-made construction
- >1 meter deep in center
- Pipe sampling not suitable due to rocky bottom (tadpoles escape)



Stormwater Drain from North Eagleville Road Extension

Species	Count	Age
Green Frog	1U	Adult
Gray Treefrog	247	Tadpole
Pickerel frog	1	Adult

-Relative Pool Size:
Medium

-Canopy Coverage: 0%



Project Totals

- 2 undergraduates
- 1-3 days a week for 4 weeks
- 1,713 tadpoles
- 27 frogs
- 2 salamanders
- Variety of other animals

- No noticeable deformities
- Need more studies!

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