



# Vernal Pools: Not Mere Puddles

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Kemptonville Winter Woodlot Conference

February 21, 2020

**Definition: ???**

**Vernalis – pertaining to the spring**

**Most do reach their seasonal high water levels  
in spring...not all...some fall or winter**

**Weeks to months**

**Some semi-permanent**

**May skip a year....**

**variation - this is a repeating theme**

## **Where ?**

- **Global in distribution**
- **Found in or adjacent to forests...**
- **But also found in grasslands, floodplains and other environs**

## **Why?**

- **Depressions – glaciation, erosion, surficial geology**
- **No permanent surface water connections**
- **Hydrology – source, timing (hydro-period), duration**

- **Size – few hundred square metres to several hectares**
- **Depth – quite shallow (0.5 m) but can have deep spots > 2-2.5m**
- **Water source – variable: rain, snow - melt, surface overflow (in and out but intermittent), ground water , combination**
- **Water chemistry varies – geological setting and ecosystem setting**

# Diversity

## Within a single pool

## Between pools

- Structure
- Vegetation
- Temperature
- Depth
- Chemistry
- Species
- Size
- Duration
- Landscape setting
- Forest type





**Photo: Daron Tansley**



**Photo: Chris Albertine/VPR**



# Who's there? NE – over 700 spp.

- Invertebrates
- Non-arthropods such as Hydras, sponges, rotifers, Horsehair worms, flatworms, Annelids and molluscs
- Arthropods such as fairy shrimp, clam shrimp, copepods, cladocerans, ostracods, isopods, amphipods and crayfish, mites and springtails
- Insects such as caddisflies, Dragonflies and damselflies,
- water beetles, water bugs, some mayflies and fishflies
- Amphibians such as wood frog, gray tree frog, spring peeper, A. toad, chorus frog, green frog, leopard frog, spotted salamanders, Jefferson complex, four-toed
- Turtles – painted and Blanding's (snapping and spotted)



**Joe Crowley**



**Scott Gillingwater**



**Don Scallen**



**Joe Crowley**

# Adaptations and Strategies

- **Avoidance/Resistance**
- **Dispersal**
- **Mobility**
- **Hitchhiking**
- **Surface water**
- **Aestivation**
- **Drought resistance – eggs, cysts, pupae**
- **Interrupted life cycles**
- **Complex life cycles**
- **Short life spans**
- **Continuous breeding**
- **Adjustable development rates**

# Value? Significance?

- Fresh water habitat
- Landscape Diversity
- Water source
- Breeding
- Feeding
- “Stepping stones”
- Species at risk
- Nutrient cycling
- Filtration
- Climate moderation
- Overwintering habitat
- Flood/ erosion control
- Refugia
- Moisture for trees
- Education research
- Local and regional biodiversity

# What can you do?

- **Identify and inventory – take stock of what and where**
- **Consider reserves and modified management around them – protect edge from effects of canopy removal, leave downed woody debris in and around pool and within your forest as a whole**
- **Keep equipment out of pool and surrounding soft soils**
- **Be mindful of surface water flow routes**

# Ontario Nature Citizen Science

## Vernal Pool Mapping Project

- Field data sheets
- Record details of vernal pools
- Location
- Habitat setting
- Depth
- Species, etc.

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# Vernal Pools: Natural History and Conservation

Elizabeth Colburn, 2004

McDonald and Woodward Pub.

ISBN 0-939923-91-2