CAWS Vernal Pool Monitoring Program

Edward M. Pawlak, PWS

CAWS Vernal Pool Monitoring Program

Vernal Pool Amphibian Life History

- Wood frogs & mole salamanders breed in vernal pools
- But they spend the majority of their lives in well drained upland forests & other wetlands.

History Lesson

- 1600-1990: Vernal what?
- 1990 – 2003: Greater recognition of value; used to block development.
- 2003: Avalon Bay

"We conclude, therefore, that the (Inland Wetlands & Watercourses) Act protects the physical characteristics of wetlands and watercourses and not the wildlife, including wetland obligate species, or biodiversity."

Connecticut State Statute Section 22a-41(c)

For purposes of this section,

(1) "wetlands or watercourses" includes aquatic, plant or animal life and habitats in wetlands or watercourses, and

(2) "habitats" means areas or environments in which an organism or biological population normally lives or occurs.

Connecticut State Statute Section 22a-41(d)

"A municipal inland wetlands agency shall not deny or condition an application for a regulated activity in an area *outside wetlands or watercourses* on the basis of an impact or effect on aquatic, plant, or animal life *unless such activity will likely impact or affect the physical characteristics of such wetlands or watercourses*."

Connecticut State Statute Section 22a-41(d)

Regulatory Effect

IWWCs can no longer claim jurisdiction over large terrestrial habitat zones to conserve amphibian populations, unless they can demonstrate that development there will impact the physical characteristics of a wetland or watercourse.

Connecticut State Statute Section 22a-41(d)

Effect on Pool-Breeding Amphibians

(Lots of baseline data, not much post-development)

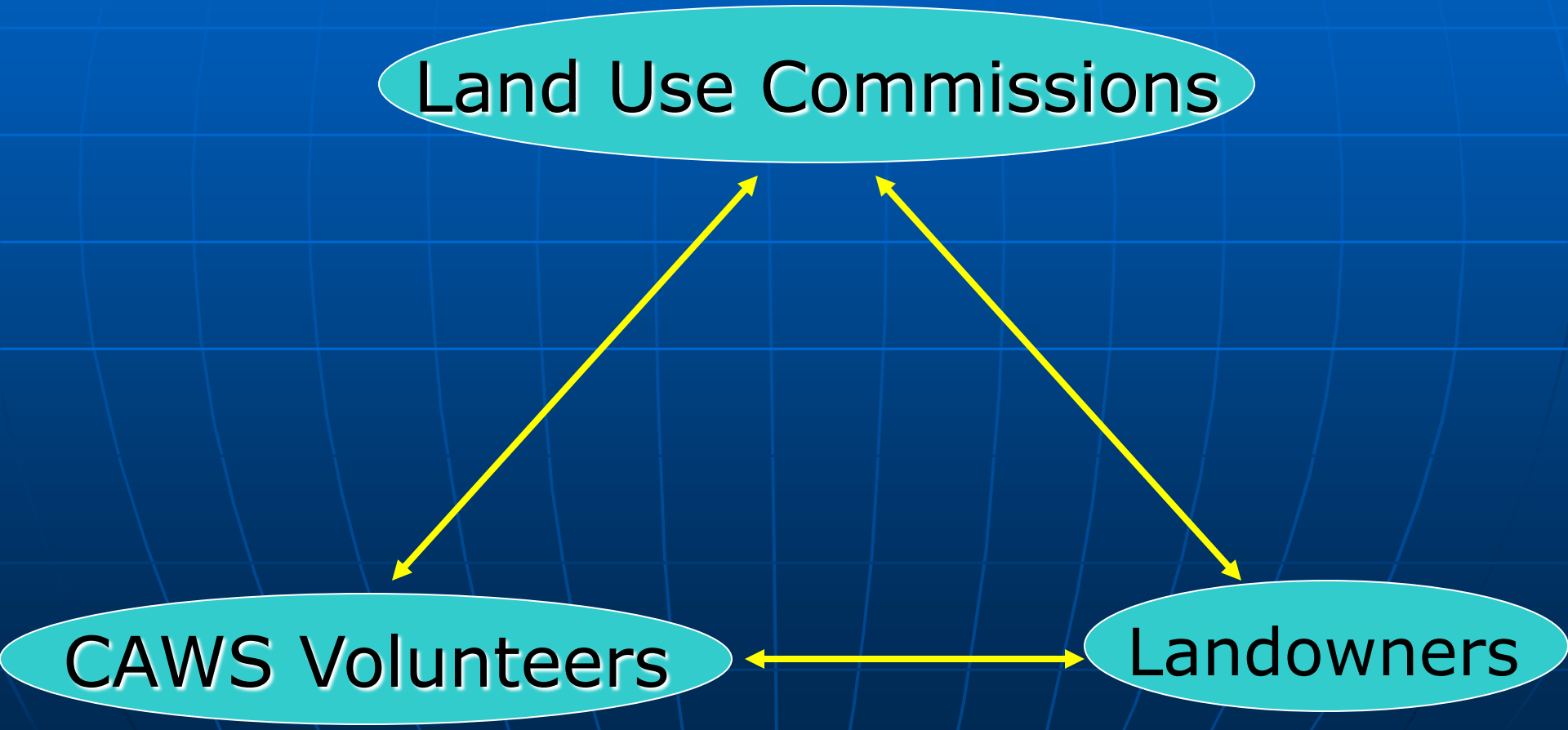
CAWS Vernal Pool Monitoring Program

Goals

- Collect baseline and long-term egg mass data
- Identify amphibian-friendly development designs
- Inform future considerations of vernal pool conservation

CAWS Vernal Pool Monitoring Program

How does the program work?



CAWS Vernal Pool Monitoring Program

Role of Land Use Commissions

- Identify applications with confirmed vernal pools
- Explain CAWS monitoring program, request participation
- Vernal pool & access in Open Space/Conservation Easement
- Participation *must be voluntary*
- Contact CAWS

CAWS Vernal Pool Monitoring Program

Role of Landowners

- Agree to participate in the program at no cost
- Place vernal pools in Open Space/Conservation Easement to allow for future monitoring

CAWS Vernal Pool Monitoring Program

Role of CAWS Monitors

- Attend a spring field training session
- Monitor pools once each spring
- Provide monitoring data annually to CAWS
- No unauthorized data disclosure

CAWS Vernal Pool Monitoring Program

Program Elements

- Baseline egg mass data
- Annual egg mass counts, fairy shrimp presence/absence
- Long-term
- "Reference" and "Development" pools
- Standardized data sheet
- Centralized database

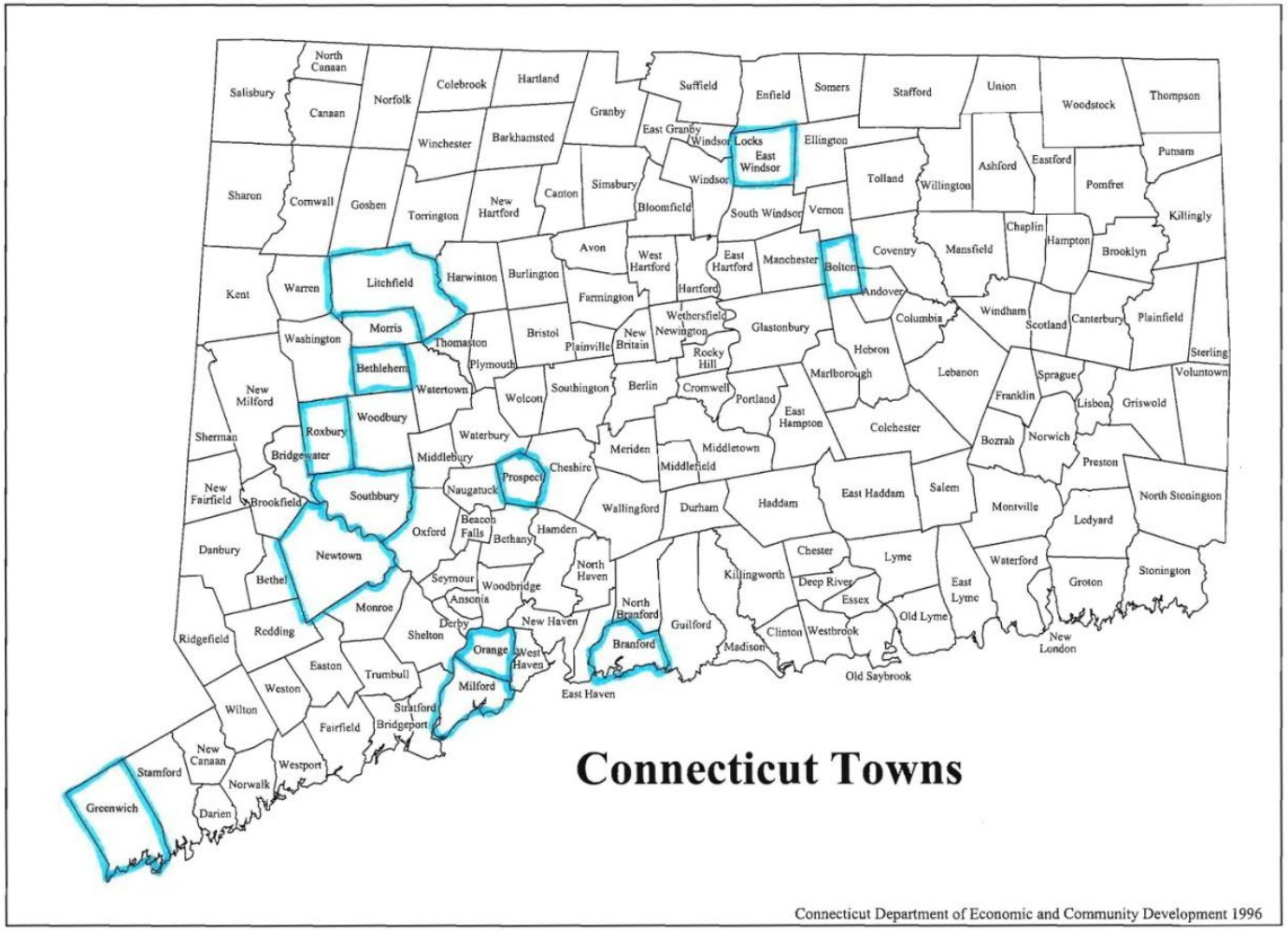
CAWS Vernal Pool Monitoring Program

Program Update

- First training session spring 2007
- 43 pools
- 37 “Development”, 6 “Reference”
- 28 biological/hydrological pools in one project

Reference Vernal Pool Data

	2009	2010	2011
Wood Frog	<50	<50	<50
Spotted Salamander	112	155	246


Connecticut Towns
Connecticut Department of Economic and Community Development 1996
North Canaan
Salisbury
Canaan
Norfolk
Colebrook
Hartland
Granby
Suffield
Enfield
Somers
Stafford
Union
Woodstock
Thompson
Winchester
Barkhamsted
East Granby
Windsor Locks
East Windsor
Ellington
Putnam
Sharon
Cornwall
Goshen
Torrington
New Hartford
Canton
Simsbury
Windsor
Bloomfield
South Windsor
Vernon
Tolland
Willington
Ashford
Eastford
Pomfret
Killingly
Avon
West Hartford
East Hartford
Manchester
Bolton
Coverntry
Mansfield
Chaplin
Hampton
Brooklyn
Kent
Warren
Litchfield
Harwinton
Burlington
Farmington
Hartford
Andover
Wethersfield
Newington
Glastonbury
Columbia
Windham
Scotland
Canterbury
Plainfield
Washington
Morris
Thomaston
Bristol
Plainville
New Britain
Rocky Hill
Hebron
Sterling
Bethlehem
Plymouth
Watertown
Wolcott
Southington
Berlin
Cromwell
Portland
Marlborough
Lebanon
Sprague
Voluntown
New Milford
Woodbury
East Hampton
Colchester
Franklin
Lisbon
Griswold
Roxbury
Waterbury
Meriden
Middletown
Middlefield
Bozrah
Norwich
Sherman
Bridgewater
Middlebury
Prospect
Cheshire
Preston
New Fairfield
Brookfield
Southbury
Naugatuck
Wallingford
Durham
Haddam
East Haddam
Salem
Montville
North Stonington
Beacon Falls
Hamden
Oxford
Bethany
Ledyard
Danbury
Newtown
Chester
Lyme
Waterford
Bethel
Seymour
Woodbridge
North Haven
Killingworth
Deep River
Groton
Stonington
Ansonia
Essex
East Lyme
Monroe
North Branford
Guilford
Old Lyme
Ridgefield
Redding
Derby
New Haven
Shelton
Orange
West Haven
Branford
Clinton
Westbrook
Madison
New London
Easton
Trumbull
Old Saybrook
Weston
Milford
East Haven
Wilton
Stratford
Fairfield
Bridgeport
New Canaan
Stamford
Westport
Norwalk
Greenwich
Darien

CAWS Vernal Pool Monitoring Program

- How many were familiar with the program before today?
- How many reviewed an application with a vernal pool in past 1-2 years?
- How many asked the applicant to participate in the CAWS program?

CAWS Vernal Pool Monitoring Program

Program Contact

- Ed Pawlak (860-561-8598; ecosys88@gmail.com)

- www.ctwetlands.org (click on Vernal Pool Monitoring on left side of page)

CAWS Vernal Pool Monitoring Program

Program Challenge: Vernal Pool Id

- *Early spring*: easy (mating adults, wood frog choruses, amphibian egg masses, fairy shrimp)
- *Late spring-early summer*: more difficult, but feasible (larval id required, may involve rearing)
- *Mid summer-winter*: impossible to confirm, but likelihood can be assessed

Vernal Pool Identification

"Wet Season" Indicators

Early Spring (pre-hatching)

- Wood frog chorus
- "Obligate" amphibian breeding adults
- "Obligate" amphibian egg masses
- Marbled salamander larvae
- Fairy shrimp

Late Spring-early Summer (post-hatching)

- Obligate amphibian larvae (identify or rear to a metamorph stage)

Vernal Pool Identification

"Dry Season" Indicators


Basin depression with sparse herbaceous vegetation


Small patches of
marsh fern/royal fern


Dark gray
water-stained leaves


Water marks
on tree trunks


Woody plants on hummocks


Moss/algae draped
on branches & logs

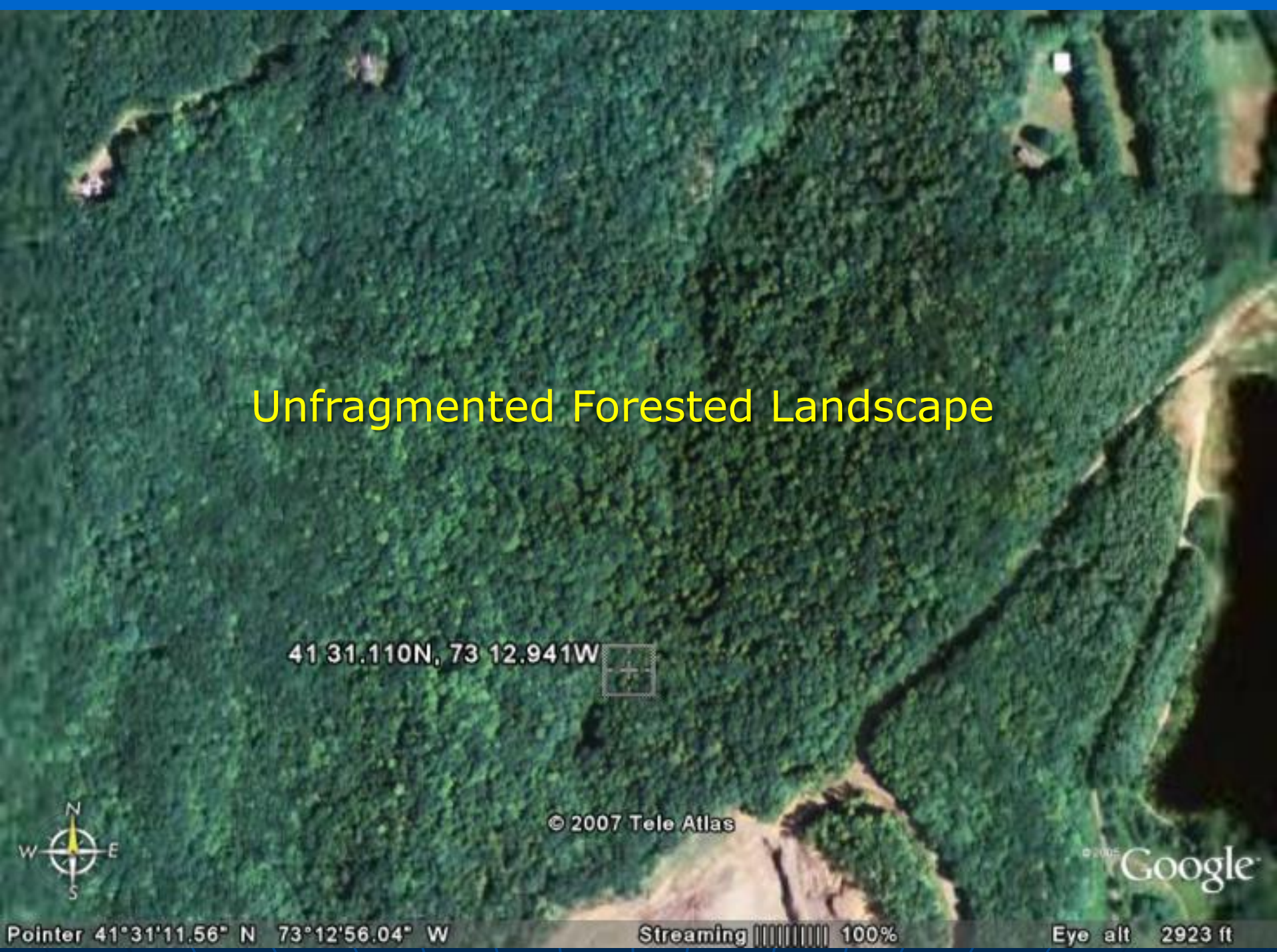
Wood Frog Metamorph

Spotted Salamander Metamorph

(search for metamorphs beneath cover objects in/near pool)


Fingernail Clams

Caddisfly Case


Unfragmented Forested Landscape
41 31.110N, 73 12.941W
© 2007 Tele Atlas
Google
Pointer 41°31'11.56" N 73°12'56.04" W
Streaming 100%
Eye alt 2923 ft


Highly Fragmented Landscape
06107
N
W
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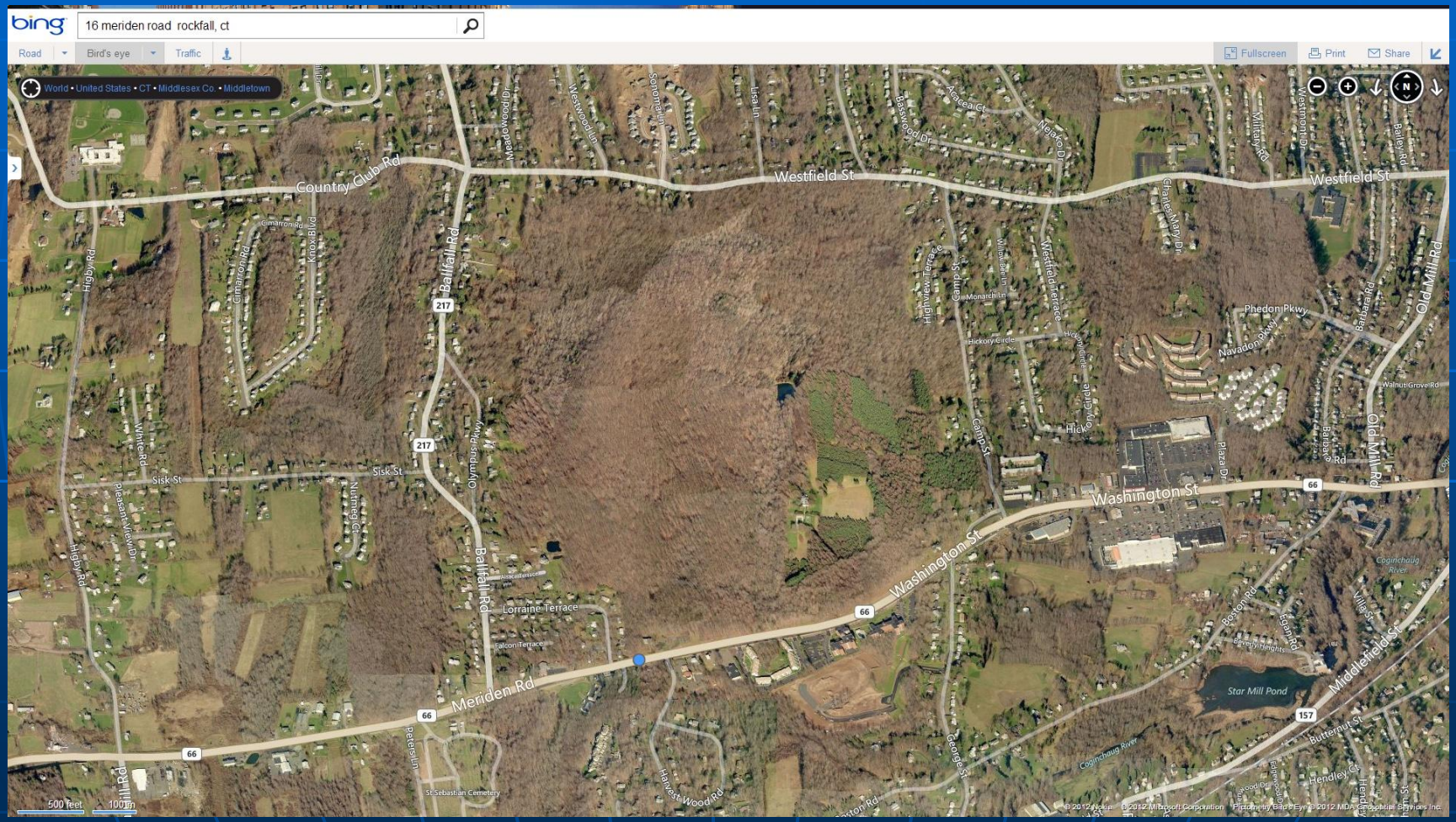
© 2005 Google
Pointer 41°45'29.87" N 72°45'49.72" W
Streaming 100%
Eye alt 5937 ft

What looks dry in summer can appear very different in spring …


09/12/2012


04/11/2012

CT Forest & Parks Landscape Block



Questions to Ask Consultants

- **Investigator Qualifications**
- Training & experience in vernal pool identification?

- **Hydrology**
- Seasonally flooded wetlands or watercourses on property?
- If so, how long wet?

- **Investigation Date(s) and Level of Effort**
- Inspection date(s)? Inspection duration?

Questions to Ask Consultants

- **Investigation Methods & Results: Wet Season**
- Wade into pool? If so, how deep?
- Sample with dip net? How many samples?
- Cover search nearby forest for adult amphibians?
- Polarized sunglasses?
- Observe amphibian adults, egg masses or salamander larvae or frog tadpoles?
- Wood frog choruses?
- Fairy shrimp?
- Id amphibian larvae? Rear them for positive id?

Questions to Ask Consultants

- **Investigation Methods & Results: Dry Season**
- Observe any dry season vernal pool indicators?
- - water marks on tree trunks
- - woody vegetation on raised hummocks
- - algae or moss draped on branches or logs
- - gray water-stained leaves
- - sparsely vegetated basin depression
- - fingernail clams or caddisfly cases

- Perform cover search for amphibian metamorphs?