

*2001
USGS
Vernal Pool
Inventory and Monitoring*

Wallkill River NWR

2001 DESCRIPTION OF DATA COLLECTION FOR VERNAL POOL SURVEYS

The Egg Mass Count data sheet has the grid on the back to map out the site and egg mass locations. You need to Xerox two of these data sheets per site per visit. You can Xerox them onto Rite-in-the-Rain paper (some provided) or regular paper, depending on the weather. One data sheet is for Observer 1 and the other is for Observer 2. Below are descriptions on how to fill out this data sheet. Observer 1 begins the egg mass count and "Other Organisms" observations, while Observer 2 fills out the first half of the front page of the data sheet (until the "Other Organisms" section) and the "Vernal Pool Habitat Description and Location Data Sheet" (described below). Once Observer 1 is finished with the egg mass count and "Other Organisms" sections, Observer 2 then conducts the survey in the pond.

When you first get to the site, it is important that both Observers have the **same site map** drawn onto their data sheets. This will make the comparison of egg mass locations afterward much easier. It is also extremely helpful to **draw landmark features** on the site map, such as large fallen trees and islands, before the survey is conducted. Observer 1 should **start at the North End of the Pond** and circumnavigate the pond in a clockwise fashion. After Observer 1 is finished, then Observer 2 will follow suit. If the pond is large (e.g., > 40 m length or width), Observer 1 can start clockwise and Observer 2 can start counterclockwise to save time.

Egg mass counts are best conducted **during the day** when the sun is out (**9 am – 3 pm**). When it is darker out, it is harder to see into vernal pools, particularly those that are stained by tannic acid from decaying leaves. Use polarized glasses to conduct egg mass counts so that you can see into the water better. We will use a visual/tactile method to count egg masses, using eyes and hands (cupping under the egg mass) to count and feel the egg masses in the pond. Another method that works for wood frog egg masses is to use a twig to lightly touch the top of an egg mass and jiggle it once to determine individual egg masses. Another method is to purchase a white slotted spoon that you could hold underneath the egg masses in order to see them better. However, it is extremely important not to disturb the egg masses during the survey. Observers must walk very slowly through the entire pond. Most egg masses are near the edges of the ponds, but egg masses can also be in the middle of ponds, particularly shallow ponds.

Egg mass counts should be conducted at **SIX vernal pool sites per refuge**. **Each site should be visited three times in the season every two weeks**. Switch the roles of observers after each site. For example, if Al Zelley is Observer 1 at Sally Pool, then he should be Observer 2 at the next pool surveyed.

The Double-Observer Independent method we are using is a means to obtain detection probabilities for each observer, thus providing adjusted population estimates for the number of egg mass areas in the pools (Cook and Jacobson 1979, Nichols et al. 2000). With two counts at a site, we are also able to calculate the mean # of egg masses and the error associated with the mean at the site. **Once both Observers are finished collecting the egg mass data at a site, Observer 1 and 2 need to get together to determine 1) How many total egg masses were counted by each observer, and 2) how many EGG MASS AREAS were missed by one or other of the Observers (see below for details).** After you are done doing this, you may put labeled wire flags for the egg mass areas around the edge of the vernal pool.

VERNAL POOL HABITAT DESCRIPTION AND LOCATION DATA SHEET

OBSERVER: _____ DATE: _____

LOCALITY: _____ SITE: _____

DETAILED DIRECTIONS TO SITE:

UTM ZONE: _____ UTM DATUM: _____ ELEVATION: _____ ☐ m ☐ ft

LENGTH

UTM E: _____ UTM N: _____ UTM E: _____ UTM N: _____

WIDTH

UTM E: _____ UTM N: _____ UTM E: _____ UTM N: _____

UTM E: _____ UTM N: _____ UTM E: _____ UTM N: _____

POOL MAX. LENGTH: _____ m POOL MAX. WIDTH: _____ m POOL MAX. DEPTH: _____ cm

WATER LEVEL: ☐ FULL ☐ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

WATER CHEMISTRY (optional): pH: _____ Conductivity (units): _____ DO (units): _____

WATER COLOR: ☐ Clear ☐ Stained _____

POND TYPE:

☐ Natural, if so then: ☐ temporary ☐ semiperm/permanent ☐ beaver flowage ☐ oxbow ☐ other: _____

☐ Artificial, if so then: ☐ borrow/gravel pit ☐ roadside ditch ☐ farm pond ☐ impoundment ☐ other: _____

Estimated age of pond: ☐ ≤ 5 yrs. ☐ ≥ 5 yrs.

☐ Unknown

FISH PRESENT: ☐ No ☐ Yes Species: _____

WETLAND CLASS: ☐ forested ☐ shrub ☐ marsh ☐ meadow ☐ none (open water)

Classify by dominant form that covers 30% or more of the pool water surface

SITE TYPE: ☐ upland-isolated (not part of larger wetland)

☐ bottomland-isolated (part of a river or lake floodplain)

☐ wetland complex (associated with a larger wetland complex)

For the following, rank the proportion of pond area in which each vegetation type occurs:

0 = 0% (absent), 1 = 1-10% (rare), 2 = > 10-50% (common), 3 = > 50% (abundant)

IN POND PHYSICAL HABITAT: Abundance of Sticks _____ Abundance of Logs _____ (> 10 cm diameter)

IN POND VEGETATION: SAV _____ Moss _____ Grass _____ Sedge/Rush _____ Shrub _____ Tree _____ Other _____

SUBSTRATE TYPES: *Estimate % types composing bottom surface (must add up to 100%)*

Silt/Clay ____ Mud ____ Sand ____ Gravel ____ Pebble ____ Cobble ____ Boulder ____ Leaf Litter ____ Other ____

HABITAT AROUND POOL: *Estimate % of each within 165 feet or 50 m of pool, excluding cover directly over pool (estimates should total 100%):*

____ % Woodland (check most dominant type). If some of habitat is woodland, is the overstory:

☐ Hardwood (> 75% deciduous)

☐ Heavy (> 50% canopy cover of trees/shrubs > 6 ft. tall)

☐ Softwood (> 75% evergreen)

☐ Moderate (< 50% canopy cover of trees/shrubs < 6 ft. tall)

☐ Mixed (all others)

____ % Open (check most dominant type)

☐ Agriculture

☐ Fields/Meadow/Marsh

☐ Other: _____

____ % Residential/Urban/Suburban

____ % Road ☐ Paved ☐ Dirt/Gravel

____ % Other: _____

DISTANCE TO FOREST FROM WATER'S EDGE: _____ ☐ m ☐ ft.

DISTANCE TO NEAREST ROAD: _____ ☐ m ☐ ft.

ROAD CONDITIONS AT NIGHT: ☐ Light Traffic (< 10 cars) ☐ Heavy Traffic (> 10 cars)

NOTES:

LOCALITY: _____ SITE: _____

Date: _____ Sky Code: _____ Wind Code: _____ Previous Day Precipitation? ☐ YES ☐ NO

Substrate Temp.: _____ Water Temp.: _____ ☐ °C ☐ °F

Pool Max. Depth: _____ cm Water Level: ☐ FULL ☐ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF							
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

OBSERVER 1

OBSERVER 2

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)

[illegible]

Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
------	------------	-------	------	------	------------	-------	------	------	------------	-------	------

[illegible]

DATA FIELDS ON EGG MASS COUNT DATA SHEET

LOCALITY: Name of Refuge or Park (e.g., Great Bay NWR, Acadia National Park)

SITE: Name of specific pond being surveyed (e.g., Beech Pool # 1, Ken's Pond)

DATE: Write out Month, DD, YYYY (e.g., March 22, 2001)

SKY CODE: The sky codes are located on your clipboard. Do not conduct surveys if sky codes are 6 or above!! The codes are as follows:

Code	Sky Condition
------	---------------

0	Clear or few clouds (< 20% of sky)
1	Partly cloudy or variable (20-50% of sky)
2	Cloudy or overcast (> 50% of sky)
3	Fog
4	Mist
5	Showers or light rain
6	Heavy rain
7	Sleet/Hail
8	Snow

WIND CODE: The Beaufort Wind Scale is on your clipboard. Do not conduct surveys if wind codes are 6 or above!! The codes are as follows:

Code	mph	Indicators of Wind Speed
------	-----	--------------------------

0	< 1	calm, smoke rises vertically
1	2-3	light air movement, smoke drifts
2	4-7	light breeze, wind felt on face, leaves rustle
3	8-12	gentle breeze, leaves/twigs in constant motion, raises dust
4	13-18	moderate breeze, small branches move
5	19-24	fresh breeze, small trees begin to sway
6	25-31	strong breeze, large branches move
7+	> 31	strong winds

PREVIOUS DAY PRECIPITATION: Check one of the boxes as to whether precipitation did (Yes) or did not (No) occur in the past 24 hours.

SUBSTRATE TEMPERATURE: Collect substrate temperature at two locations (one shade, one sun) 1-2 cm above the ground one foot of the water's edge.

WATER TEMPERATURE: Collect water temperature at two locations (one shade, one sun) within the pool one foot from the shore at a depth of 2 cm. For substrate and water temperatures, check box as to whether Centigrade or Fahrenheit scale was used.

POOL MAXIMUM DEPTH: Install a dowel rod (5/8" x 48") where you estimate it to be the deepest part of the vernal pool. Each time you visit the site, wade out to the dowel rod to record the water depth at that location. Record in centimeters using meter stick.

WATER LEVEL: Check whether the vernal pool is full, $\frac{3}{4}$ full, $\frac{1}{2}$ full, $\frac{1}{4}$ full, or less than $\frac{1}{4}$ full/dry. You will be able to gauge this by knowing the site's water extent or by looking for water marks or moss growing at the base of trees or the extent of area near the water covered by damp mud or darkened, dried crinkled leaves.

OTHER ORGANISMS: Each Observer fills out this section during his/her egg mass count survey. For Invertebrates listed in the Table at the bottom, simply place a checkmark in the Table to indicate whether adults or larvae were present. Please include in the Notes section any other invertebrates that were seen at the pool (consult "A Field Guide to the Animals of Vernal

Pools"). For Amphibian and Reptile species, record the number of adults, mated pairs, spermatophores, egg masses, tadpoles/larvae, and juveniles you observe for each of the species listed in the Table. For Chorus Code 3, simply record 3. For Chorus Codes 1 and 2, record the Chorus Code and include an Abundance Count in parentheses following it. For e.g., if you hear a chorus code of 2 and estimate 6 spring peepers calling, write down 2(6).

Chorus Code	Description
0	No amphibians calling.
1	Individuals can be counted, calls not overlapping. Assign this number when individual males can be counted, and when the calls of individuals of the same species do not overlap. For the <i>Abundance Count</i> , record the number of individual frogs of each species calling.
2	Calls distinguishable, some simultaneous calling. This code is assigned when there are a few males of the same species calling simultaneously. However, with a little work, individual males can still be distinguished. The exact number of individuals may not be determined, but a reliable estimate of the number of individuals can be determined based on the location of the calls and/or by differences in the voices calling. Therefore the <i>Abundance Count</i> , is an estimate of the number of individuals calling.
3	Full chorus, calls continuous and overlapping. This value is assigned when there are so many males of one species calling that all the calls sound like they are overlapping and continuous. There are too many overlapping calls to allow for any reasonable count or estimate, therefore an <i>Abundance Count</i> is not recorded.

OBSERVER: Write your full first name and last name (e.g., Kate O'Brien). Check the box to indicate whether you are Observer 1 or Observer 2.

DATE: Write out Month DD, YYYY (e.g., March 22, 2001). **NOTE:** It is critical that egg mass counts occur on the same day.

TIME BEGIN: Use the 24 hour clock (e.g., use 13:20 = 1:20 pm). Write down the time the egg mass count survey begins. Begin and end times only cover the time actually spent searching for and counting egg masses and recording other organisms, not time spent collecting habitat or environmental data.

TIME END: Use 24 hour clock (e.g., use 15:00 = 3:00 pm)

GRID SPACING: Indicate the distance in meters between the lines on the grid. This necessitates **measuring the maximum length and width of the pond BEFORE you begin the survey, so that you have a more accurate site map.** Indicate the direction North with an N and arrow on the map.

SPECIES: For species acronyms, use those in Species Column in "Other Organisms" section.

AREA: As you circumnavigate around and in the pond, label each area where egg masses are found with Letters (e.g., A, B, ..). When egg masses are grouped together within 1 m of each other, consider these within the same letter grouping.

EGG MASS (E) OR SPERMATOPHORES (S): Record the number of egg masses or spermatophores you observe in each area.

STAGE: Use Gosner (1960) to stage the embryos into the following stages (1,2,3):

Stage	Description
1	Preneural fold, Gosner stages 1-12
2	Neural fold to Pre-tail bud, Gosner stages 13-17
3	Tail bud and beyond, Gosner stages > 17

DEAD: Dead embryos are white in appearance. Use the following categories to document % mortality of eggs in the egg mass area: 0 = 0%, 1 = 1-10%, 2 = >10-50%, 3 = >50%.

AFTER BOTH OBSERVERS HAVE CONDUCTED THE EGG MASS COUNTS, FILL IN THE AREA AT THE TOP OF THE MAP GRID. Count up the TOTAL NUMBER OF EGG MASSES counted by each Observer, and Count up the NUMBER OF AREAS MISSED by each of the Observers. For example, if Observer 1 mapped out Areas A, B, and C, with 5, 42 and 101 egg masses, respectively, but Observer 2 only mapped out Areas A and B, with 40 and 95 egg masses, you need to write the following:

	OBSERVER 1	OBSERVER 2
Total # Egg Masses	148	135
Areas Missed of Total	0/3	1/3

DATA FIELDS FOR "VERNAL POOL HABITAT DESCRIPTION AND LOCATION DATA SHEET"

This data sheet only needs to be filled out once per site at the beginning of the field season. Observer 2 can fill out this data sheet while Observer 1 is surveying the pond for egg masses.

OBSERVER: Write your full first name and last name (e.g., Laurie Wunder).

DATE: Write out Month DD, YYYY (e.g., March 29, 2001).

LOCALITY: Name of Refuge or Park (e.g., Great Bay NWR, Acadia National Park)

SITE: Name of specific pond being surveyed (e.g., Beech Pool # 1, Ken's Pond)

DETAILED DIRECTIONS TO SITE: Describe the specific geographic location of the site. Use air distance in two directions (e.g., 5 km N and 7.5 km W) of a map landmark that likely will not change. For example, "500 m NW from American Holly Drive 0.2 km W of gate entrance."

UTM ZONE: Record Zone in which site occurs (e.g., Zone 18S).

UTM DATUM: Record Datum you are using to locate site (e.g., NAD27, NAD83)

ELEVATION: Record elevation of site. Check if units are meters or feet.

UTM COORDINATES: Take Coordinates at the water's edge at points that represent the maximum Length and Width of the Site. You may also want to take a few more coordinates if the site is particularly complex.

UTM EASTING: e.g., 342325 (six digits)

UTM NORTHING: e.g., 4702503 (seven digits)

POOL MAXIMUM LENGTH: Record using a meter tape (e.g., 14.2 m). If you record in ft., be sure to cross of m and write ft instead.

POOL MAXIMUM WIDTH: Record using a meter tape (e.g., 5.5 m)

POOL MAXIMUM DEPTH: Install a dowel rod (5/8" x 48") where you estimate it to be the deepest part of the vernal pool. Each time you visit the site, wade out to the dowel rod to record the water depth at that location. Record in centimeters using meter stick.

WATER LEVEL: Check whether the vernal pool is full, $\frac{3}{4}$ full, $\frac{1}{2}$ full, $\frac{1}{4}$ full, or less than $\frac{1}{4}$ full/dry. You will be able to gauge this by knowing the site's water extent or by looking for water marks or moss growing at the base of trees or the extent of area near the water covered by damp mud or darkened, dried crinkled leaves.

WATER CHEMISTRY (OPTIONAL): All of the water quality measurements are optional. However, if you have water testing equipment, it is strongly recommended that you record at least the following variables. Below are recommended procedures, but go ahead and use whatever water testing equipment you have. I will request information about your water testing equipment at the end of the field season.

pH: An aliquot of water from the vernal pool will be collected in a glass or plastic beaker. pH of the water will be measured using a portable pH meter and a high performance glass combination electrode immediately after sample collection. The electrode will be calibrated prior to sample measurement using buffers of pH 4.0 and 7.0 (or 7.0 and 10.0 if conditions necessitate) and calibration will be documented. pH data (in standard pH units) will be recorded on the data sheet.

CONDUCTIVITY (Specific Electrical Conductance): Conductivity is typically recorded as microsiemens/cm at 25°C. An aliquot of pool water will be collected in a glass or plastic beaker. Conductivity of the water sample will be measured using a portable conductivity meter, calibrated prior to measurement, immediately after sample collection. Accuracy of the measurement will be checked by measuring the conductivity of a known standard and will be documented.

DISSOLVED OXYGEN: Measure as mg/L. The amperometric method of DO measurement will be used, which allows the determination of DO concentration with a temperature-compensating meter that works with a polarographic membrane-type sensor (e.g., YSI). The instrument will be calibrated with the air-calibration chamber in water method before sample measurement, and the DO and temperature sensors will be immersed directly into the pool to allow equilibration.

WATER COLOR: Check whether the water is clear or stained (tea-colored) from organic matter (e.g., humic acids).

EXTRA SPACES ARE AVAILABLE FOR ADDITIONAL WATER QUALITY MEASURES

POND TYPE: Record whether the origin of the pond is Natural, Artificial, or Unknown. Then check boxes to specify type of natural or artificial pond. If an artificial pond, check box that best corresponds to estimated age of pond ($\leq$ or $\geq$ 5 years old).

FISH PRESENT: Record if fish are absent (No) or present (Yes). Record species observed.

WETLAND CLASS: Classify wetland by vegetation in tallest class that covers 30% or more of the pool as being forested, shrub, marsh, meadow, or open water. Check box that best applies.

SITE TYPE: Classify site type by whether it is upland-isolated, bottomland-isolated, or part of a wetland complex. Check box that best applies.

IN POND PHYSICAL HABITAT: Record abundance categories (0 = 0%, 1 = 1-10%, 2 = >10-50%, 3 = > 50%) for each of the following:

Abundance of Sticks

Abundance of Logs

IN POND VEGETATION: Record abundance categories (0 = 0%, 1 = 1-10%, 2 = >10-50%, 3 = > 50%) for each of the following:

Submerged Aquatic Vegetation (SAV)

Moss

Grass

Sedge/Rush

Shrub

Tree

SUBSTRATE TYPES: Estimate % types composing bottom surface (must add up to 100%)

Silt/Clay

Mud/Organic Muck

Sand (1-2 mm)

Gravel (3-32 mm)

Pebble (33-64 mm)

Cobble (65-256 mm)

Boulder/Bedrock (> 256 mm)

Other

HABITAT AROUND POOL: Estimate % of each within 50 m (165 ft) of pool, excluding cover directly over pool (estimates should total 100%):

Woodland – record whether hardwood, softwood, mixed, and overstory type (heavy, moderate)

Open – record whether agriculture, fields, other

Residential/Urban/Suburban

Road – record whether paved or dirt/gravel

Other – record what other habitat types are present

DISTANCE TO FOREST FROM WATER'S EDGE: Record distance from water's edge to forest in either m or ft (check box which applies).

DISTANCE TO NEAREST ROAD: Record distance to nearest road in either m or ft (check box which applies)

ROAD CONDITIONS AT NIGHT: Record whether nearest road to site experiences light (< 10 cars) or heavy (> 10 cars) traffic at night.

NOTES: Include any observations about the site you think pertinent.

FIELD EQUIPMENT

Data sheets

Two Egg Mass Count data sheets per site (need 6 total per site; 3 egg mass counts per site spaced 2 weeks apart)

One Vernal Pool Habitat Description and Location data sheet per site

Pencils (2)

Clipboards (2)

Polarized Sun Glasses (2)

50 m fiberglass tape (1)

Thermometer (1)

Dowel Rod (1 per site)

Hammer or Rubber Mallet (to pound in dowel rod) (1)

Gosner (1960) Stage descriptions on Rite-in-Rain paper (1)

Field Guide to the Animals of Vernal Pools

Reptiles and Amphibians Eastern/Central North America, Peterson Field Guides

Protocol Write-up (1)

Compass (1)

Watch (1)

Meter stick (1)

GPS Unit/PLGR (1)

Water Testing Equipment (1)

VERNAL POOL HABITAT DESCRIPTION AND LOCATION DATA SHEET

OBSERVER: Kevin Holcomb DATE: 4/20/2001

LOCALITY: Walkkill River NWR SITE: Scenic Lakes V.P. #1 (North)

DETAILED DIRECTIONS TO SITE:

Scenic Lakes Rd - From Parking Area walk North ~100 m

UTM ZONE: 18T UTM DATUM: _____ ELEVATION: 122 ☒ m ☐ ft

#450 LENGTH
UTM E: 0535741 UTM N: 4559498 UTM E: 0535777 UTM N: 4559558 #452

#451 WIDTH
UTM E: 0535768 UTM N: 4559538 UTM E: 0535751 UTM N: 4559544 #453

UTM E: _____ UTM N: _____ UTM E: _____ UTM N: _____

POOL MAX. LENGTH: 58 m POOL MAX. WIDTH: 17 m POOL MAX. DEPTH: 45 cm

WATER LEVEL: ☒ FULL ☐ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

WATER CHEMISTRY (optional): pH: _____ Conductivity (units): _____ DO (units): _____

WATER COLOR: ☒ Clear ☐ Stained _____

POND TYPE:

☒ Natural, if so then: ☐ temporary ☒ semiperm/permanent ☐ beaver flowage ☐ oxbow ☐ other: _____

☐ Artificial, if so then: ☐ borrow/gravel pit ☐ roadside ditch ☐ farm pond ☐ impoundment ☐ other: _____

Estimated age of pond: ☐ ≤ 5 yrs. ☒ ≥ 5 yrs.

☐ Unknown

FISH PRESENT: ☒ No ☐ Yes Species: _____

WETLAND CLASS: ☒ forested ☐ shrub ☐ marsh ☐ meadow ☐ none (open water)

Classify by dominant form that covers 30% or more of the pool water surface

SITE TYPE: ☐ upland-isolated (not part of larger wetland)

☒ bottomland-isolated (part of a river or lake floodplain)

☐ wetland complex (associated with a larger wetland complex)

For the following, rank the proportion of pond area in which each vegetation type occurs:

0 = 0% (absent), 1 = 1-10% (rare), 2 = > 10-50% (common), 3 = > 50% (abundant)

IN POND PHYSICAL HABITAT: Abundance of Sticks 2 Abundance of Logs 1 (> 10 cm diameter)

IN POND VEGETATION: SAV _____ Moss 1 Grass 3 Sedge/Rush _____ Shrub 2 Tree 2 Other _____

SUBSTRATE TYPES: Estimate % types composing bottom surface (must add up to 100%)

Silt/Clay 10 Mud 50 Sand _____ Gravel _____ Pebble _____ Cobble _____ Boulder _____ Leaf Litter 40 Other _____

HABITAT AROUND POOL: Estimate % of each within 165 feet or 50 m of pool, excluding cover directly over pool (estimates should total 100%):

90 % Woodland (check most dominant type). If some of habitat is woodland, is the overstory:

- | | |
|--|---|
| ☒ Hardwood (> 75% deciduous) | ☐ Heavy (> 50% canopy cover of trees/shrubs > 6 ft. tall) |
| ☐ Softwood (> 75% evergreen) | ☐ Moderate (< 50% canopy cover of trees/shrubs < 6 ft. tall) |
| ☐ Mixed (all others) | |

10 % Open (check most dominant type)

- ☐ Agriculture
- ☒ Fields/Meadow/Marsh
- ☐ Other: _____

_____ % Residential/Urban/Suburban

_____ % Road ☐ Paved ☐ Dirt/Gravel

_____ % Other: _____

DISTANCE TO FOREST FROM WATER'S EDGE: 0 ☐ m ☐ ft.

DISTANCE TO NEAREST ROAD: 72.5 ☒ m ☐ ft.

ROAD CONDITIONS AT NIGHT: ☒ Light Traffic (< 10 cars) ☐ Heavy Traffic (> 10 cars)

NOTES:

Wallkill River NWR Scenic Lakes Rd (North) #1
4/20/2001

Observer #1

A (1)

B (14)

C (1)

D (3)

E (10)

F (12)

G (4)

H (8)

I (6)

J (20)

K (6)

L (1)

M (1)

N (3)

observer #2

DD (1)

AA (4)

V, W, X, Y, Z (18)

DD (1)

S (4)

T (2)

(49) C, D, E, F, G, H, I, J, K, L, M, N,
O, P, Q

(5) R, U,

(1) EE

(1) B

(3) A

OBSERVER: K. Holcomb ☒ 1 ☐ 2 DATE: 4/20/01 TIME BEGIN: 1040 TIME END: 1140

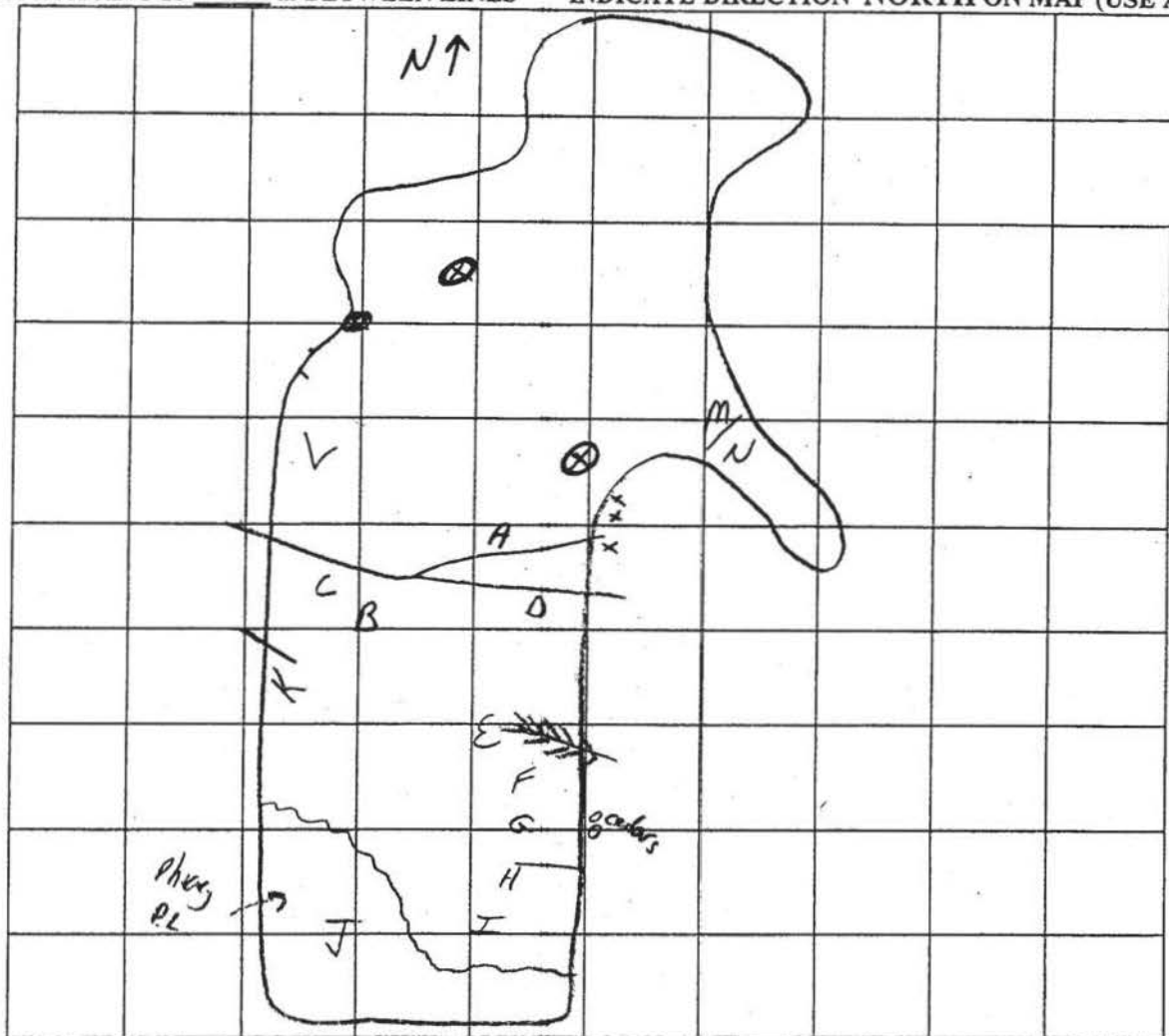
OBSERVER 1

OBSERVER 2

Total # Egg Masses _____ W _____ S _____ W _____ S

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
SS A	1	2		WF G	4	2		SS M	1	1	
SS B	14	2		WF H	8	2		SS N	3	1	
SS C	1	2		WF I	6	2					
WF D	3	2		WF J	20	2					
WF E	10	2		WF K	6	2					
WF F	12	2		WF L	1	2					

LOCALITY: Wallkill River NWR SITE: Scenic Lakes Rd (North) #1

Date: 4/20/01 Sky Code: 0 Wind Code: 1 Previous Day Precipitation? ☐ YES ☒ NO

Substrate Temp.: 57° 78° Water Temp.: 49° 57° ☐ °C ☒ °F

Pool Max. Depth: 45 cm Water Level: ☒ FULL ☐ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

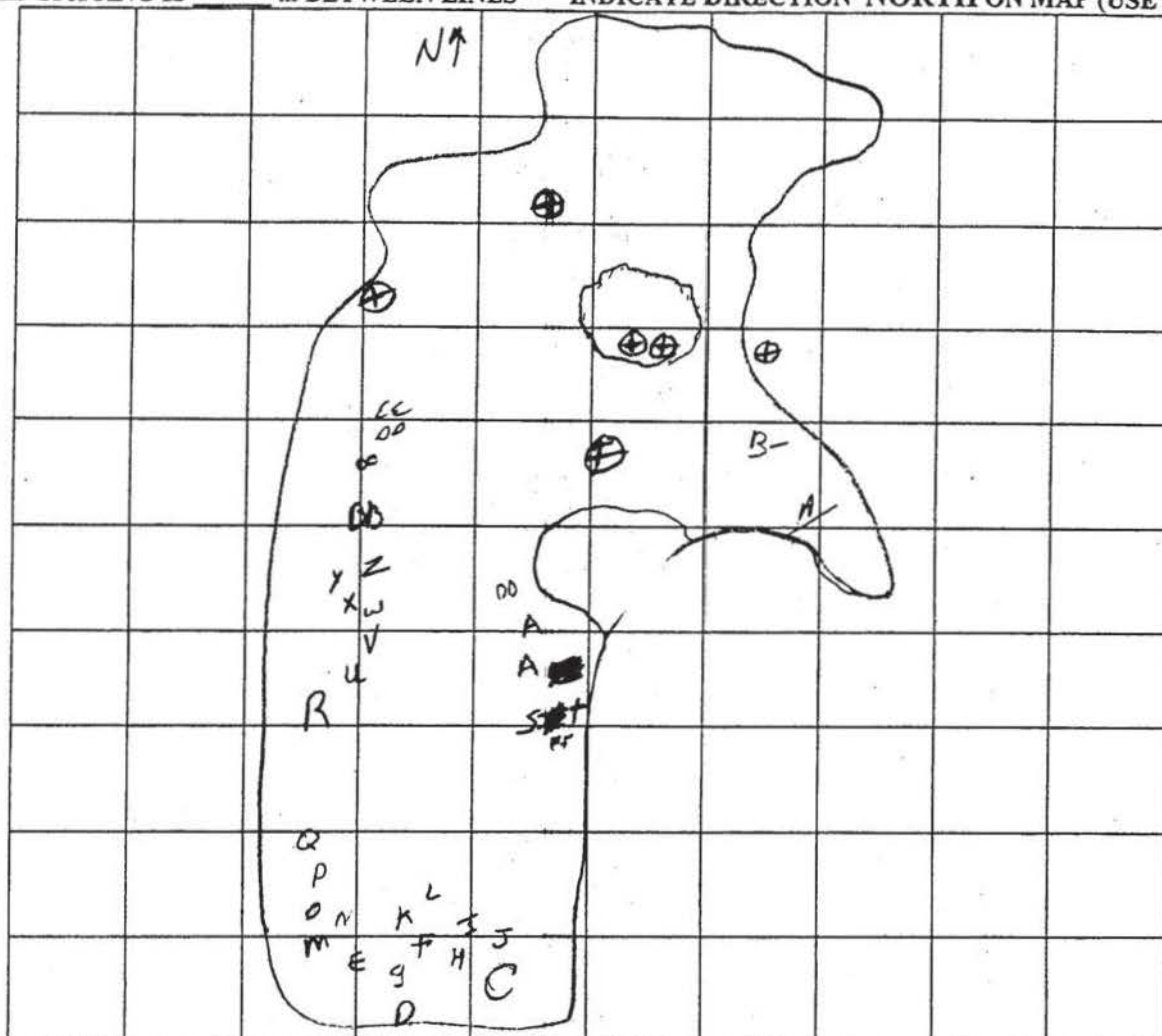
OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermato-phores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF	<u>2</u>						
Spring peeper SP		<u>1</u>					
Gray tree frog GTF							
Green frog GF							
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

OBSERVER: M. Glock J. Glock ☐ 1 ☒ 2 DATE: 4/20/01 TIME BEGIN: 1040 TIME END: 1140
 OBSERVER 1
 Total # Egg Masses _____ W _____ S _____ W _____ S
 Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



AA-SS
 SS-W-4
 X-1
 Y-7
 Z-5
 AA-4
 BB-2
 CC-2
 DD-1
 EE-4
 FF-1

Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
SS A	1+2	1		G	1	2		M	2	2	
SS B	1	1		H	2	2		N	3	2	
SS C	5	2		I	2	2		O	10+3	2	
SS D	1	2		J	1	2		P	2	2	
SS E	1	2		K	2	2		Q	2	2	
SS F	1	2		L	8	2		R	2+1	2	
								S	4		
								T	2		
								U	2		

LOCALITY: Wallkill River NWR SITE: Scenic Lakes Rd (North) #1

Date: 4/20/01 Sky Code: 0 Wind Code: 1 Previous Day Precipitation? ☐ YES ☒ NO

Substrate Temp.: 57° 78° Water Temp.: 49° 57° ☐ °C ☒ °F

Pool Max. Depth: 45 cm Water Level: ☒ FULL ☐ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF							
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

LOCALITY: Wallkill River NWR SITE: Scenic Lakes - North
 Date: 5/9/2001 Sky Code: 0 Wind Code: 1 Previous Day Precipitation? ☐ YES ☒ NO
 Substrate Temp.: 68 95 Water Temp.: 65 70° ☐ °C ☒ °F
 Pool Max. Depth: 24 cm Water Level: ☐ FULL ☐ ¾ FULL ☐ ½ FULL ☒ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF	4						
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

1000+ Tadpoles in center of pool
 NO Egg Masses

OBSERVER: Kevin Holcomb ☒ 1 ☐ 2 DATE: 5/9/01 TIME BEGIN: 1:00 TIME END: 1:20

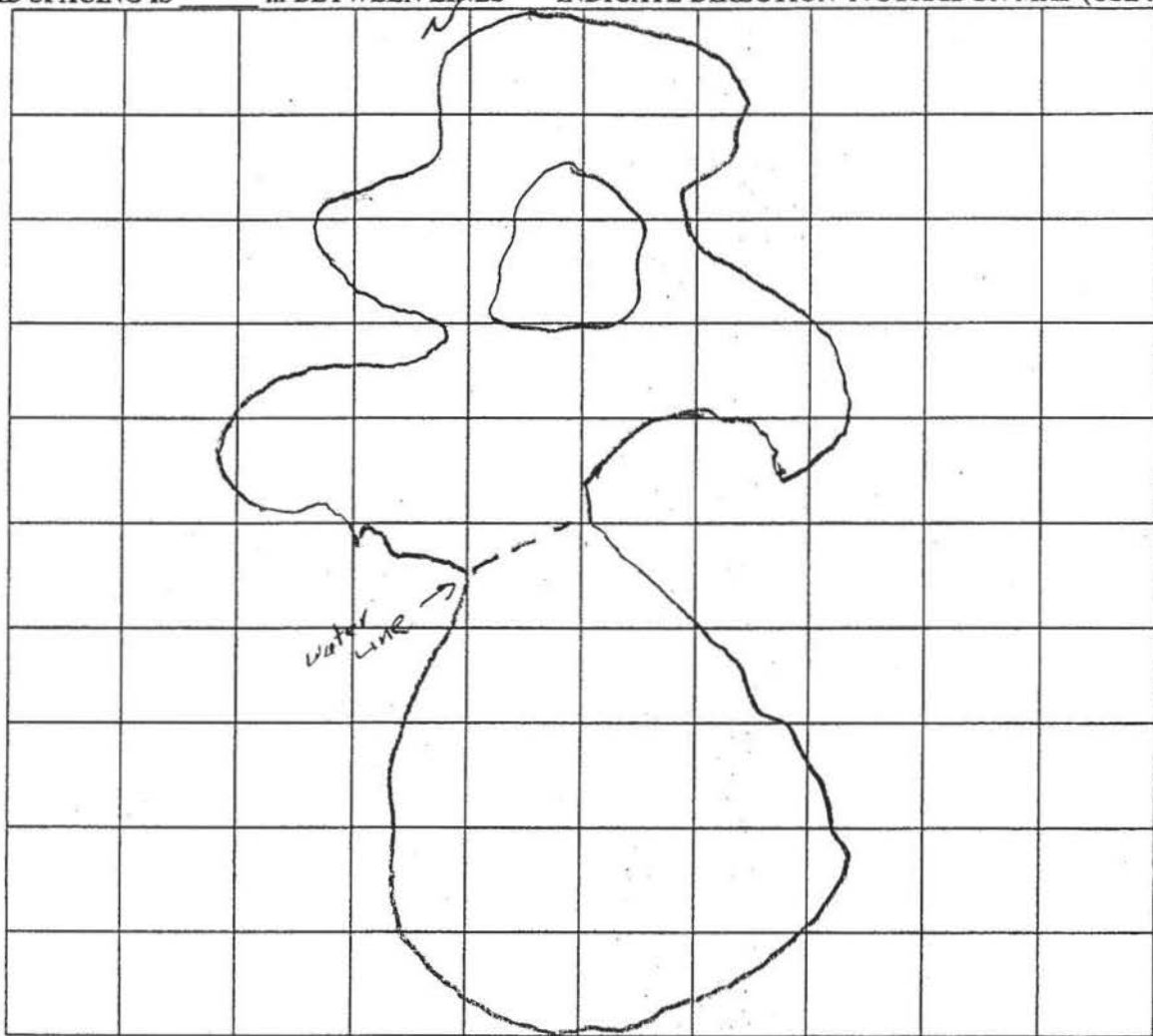
OBSERVER 1

OBSERVER 2

Total # Egg Masses _____ W _____ S _____ W _____ S

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

LOCALITY: Walkill river NWA SITE: Scenic Lakes - North

Date: 5/9/01 Sky Code: 0 Wind Code: 1 Previous Day Precipitation? ☐ YES ☒ NO

Substrate Temp.: 62 45 Water Temp.: 65 70° ☐ °C ☒ °F

Pool Max. Depth: 24 cm Water Level: ☐ FULL ☐ ¾ FULL ☐ ½ FULL ☒ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF	3						
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

1,000 tadpoles in this pool

Joshua Glock

OBSERVER: Michael Glock ☐ 1 ☐ 2 DATE: 5/9/01 TIME BEGIN: 100 TIME END: 125

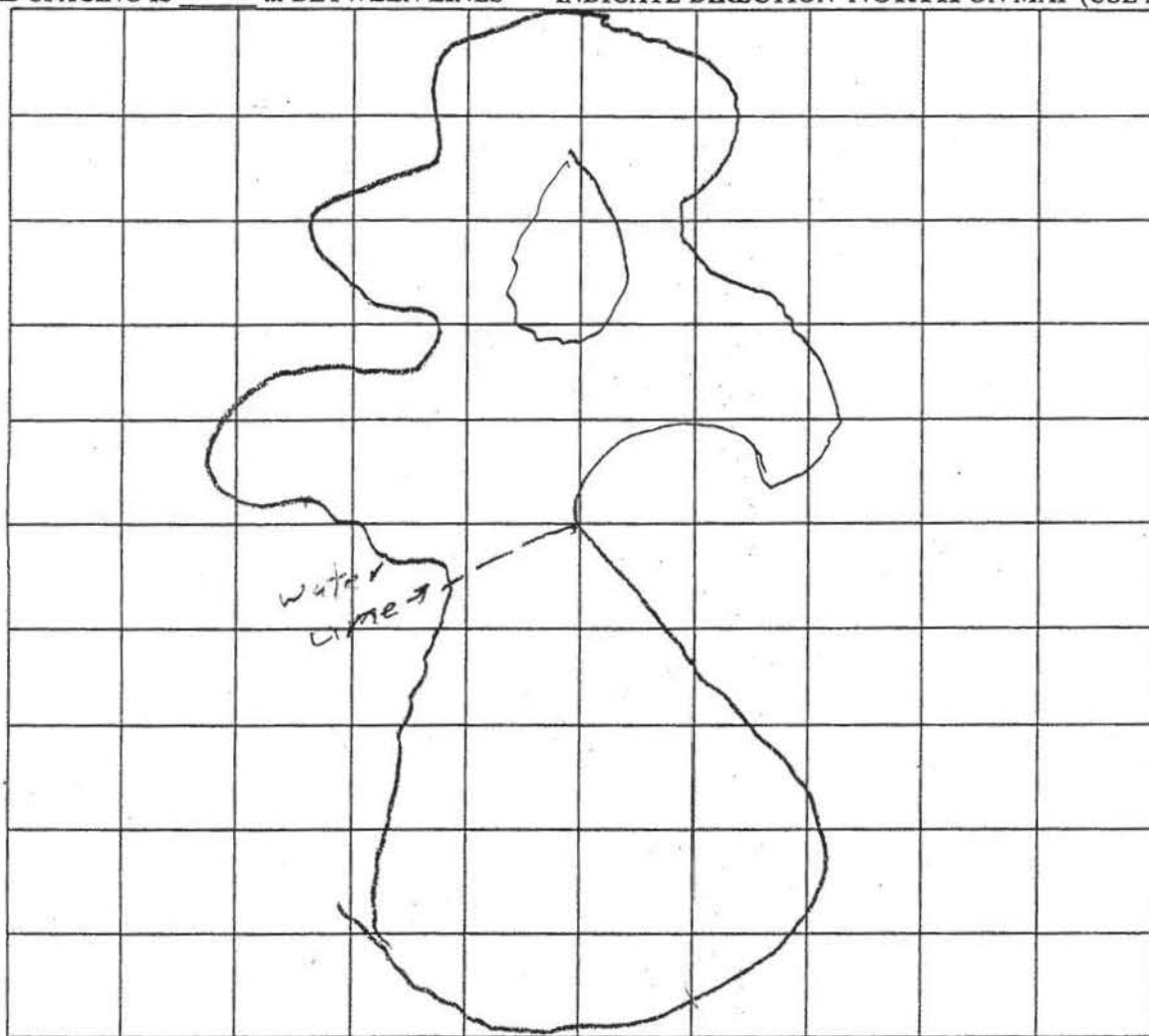
OBSERVER 1

OBSERVER 2

Total # Egg Masses _____ W _____ S _____ W _____ S

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

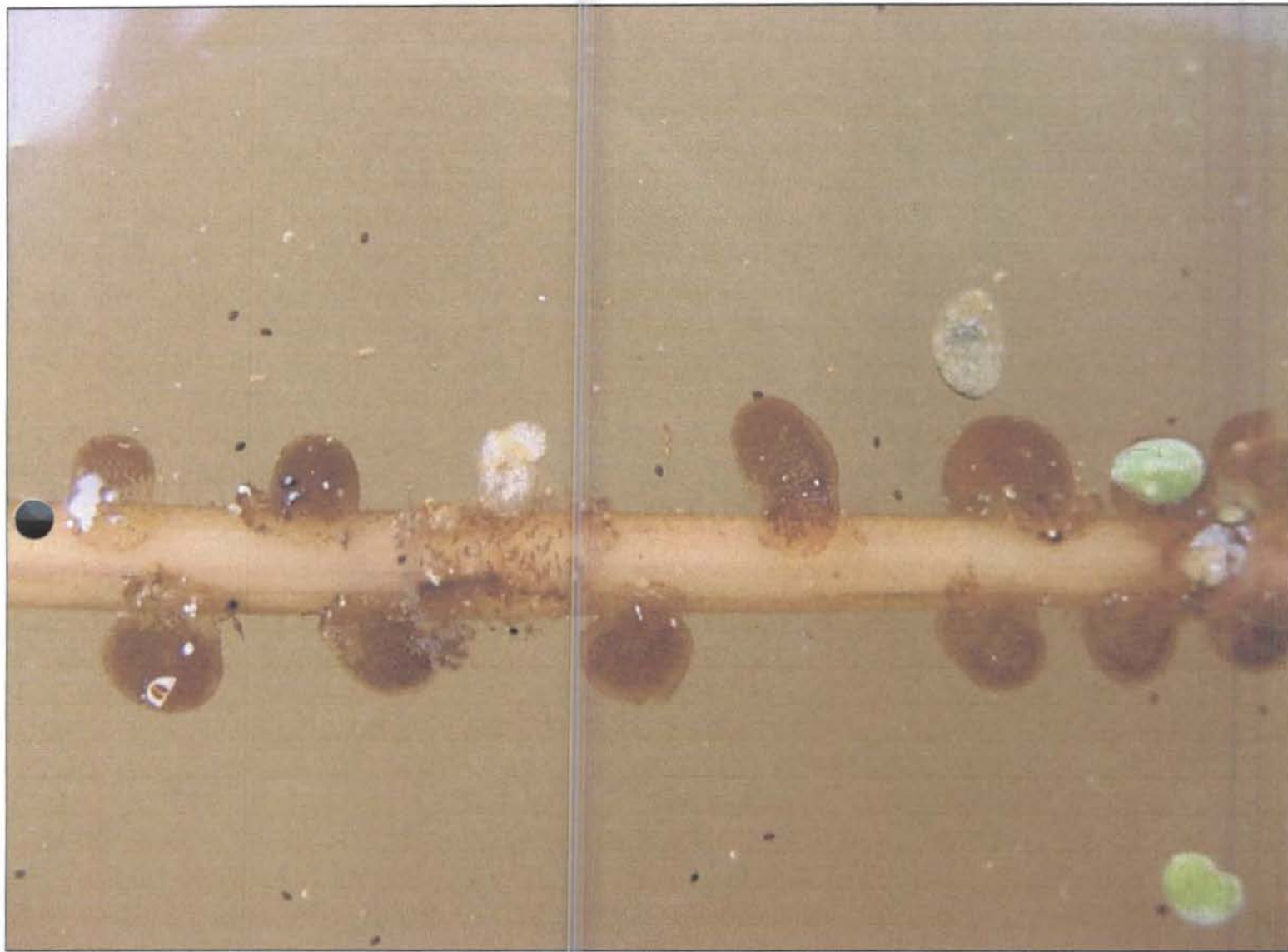
Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



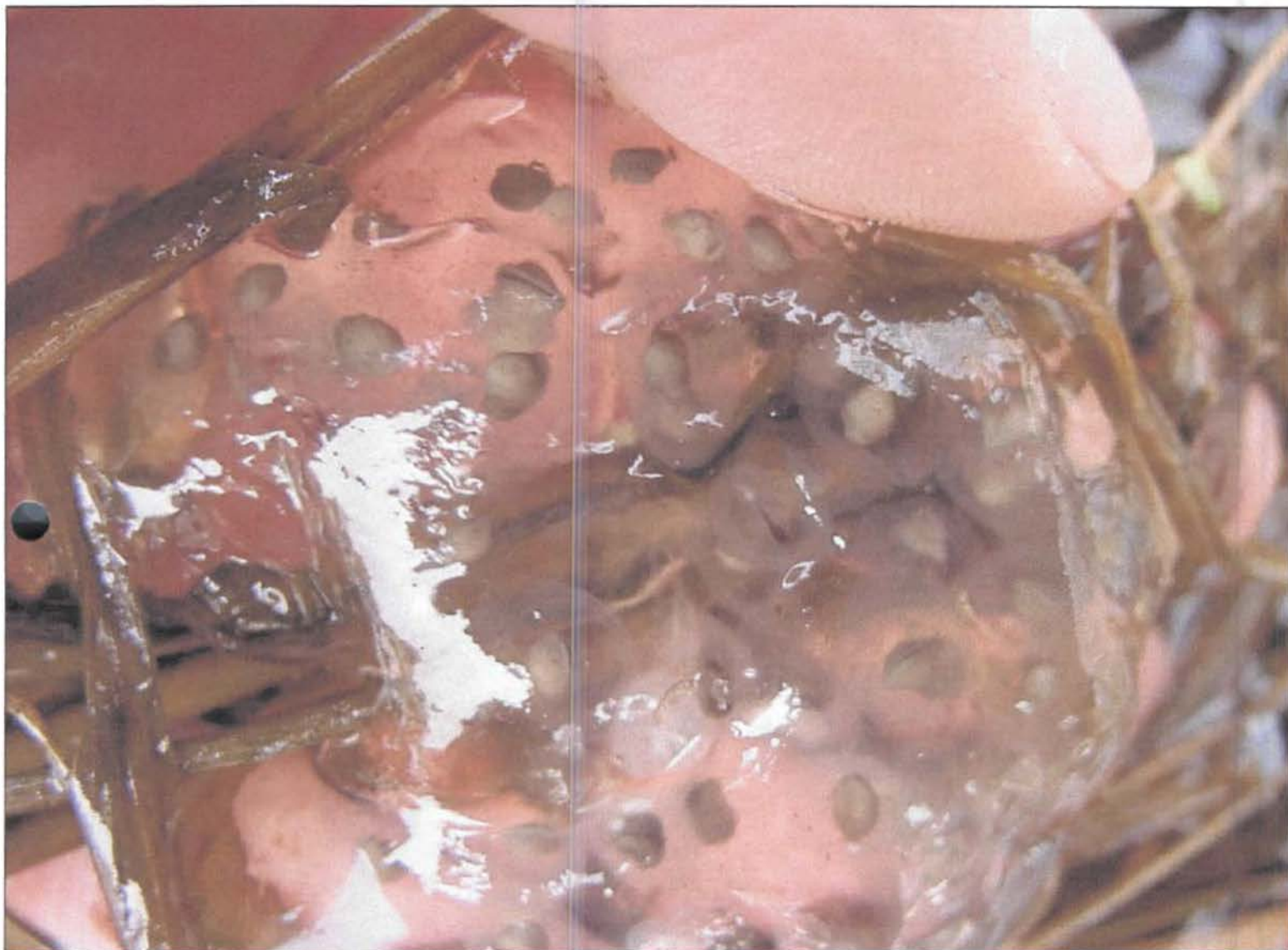
Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



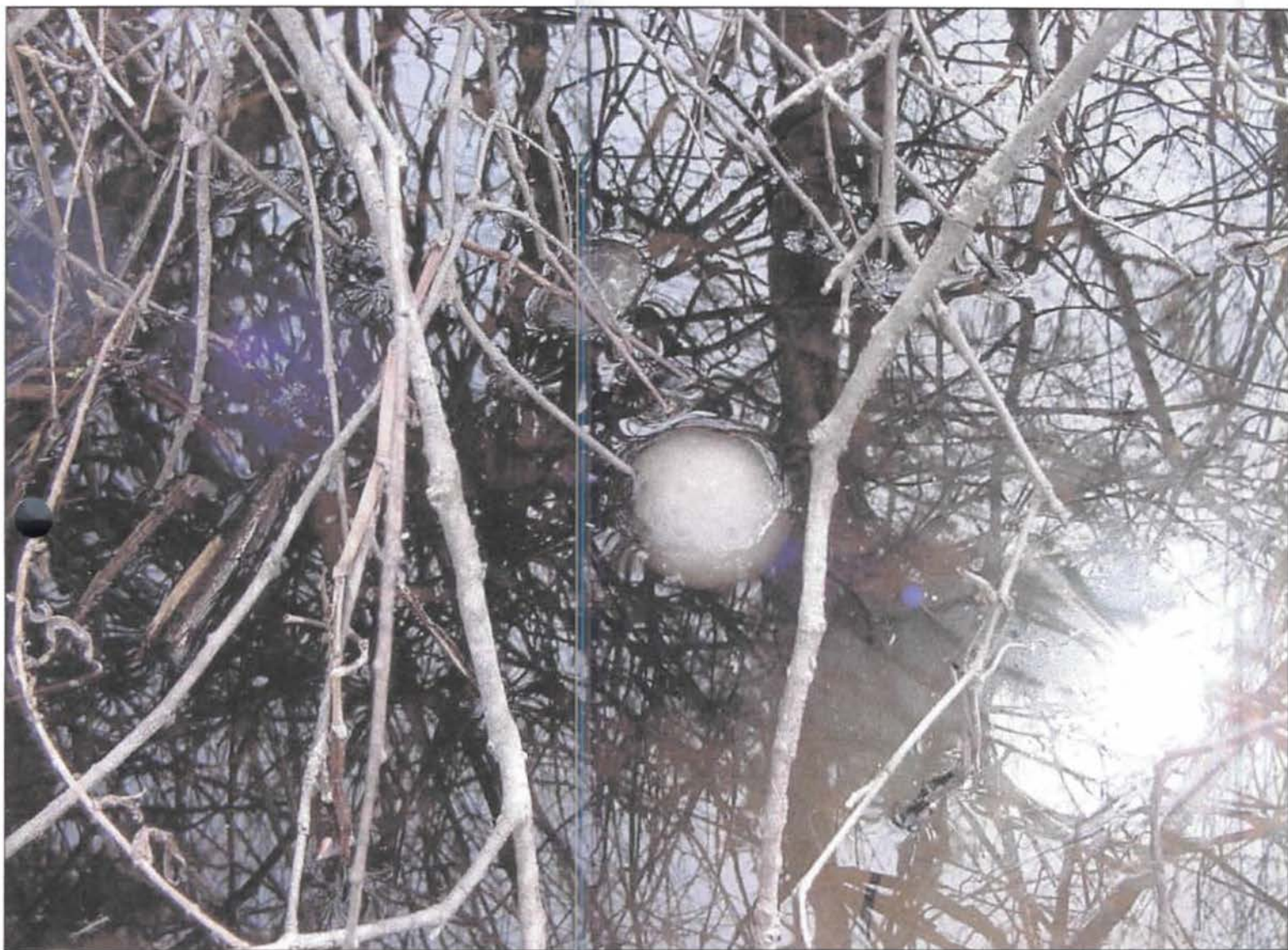
Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



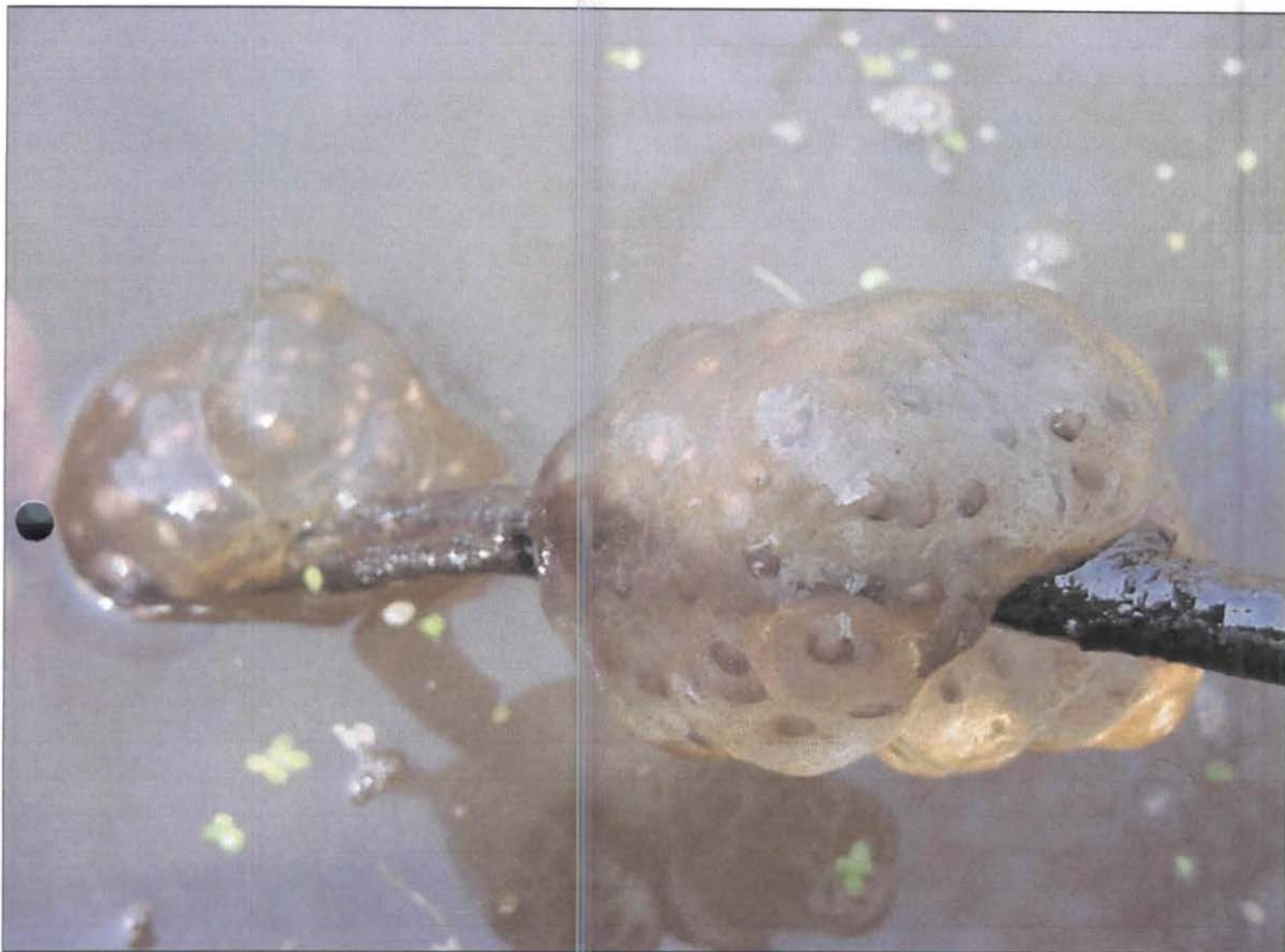
Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - North



Wallkill River NWR - Tract #22
5/9/2001 Vernal Pool
Scenic Lakes Rd - North



VERNAL POOL HABITAT DESCRIPTION AND LOCATION DATA SHEET

OBSERVER: Kevin Holcomb DATE: 4/20/2001

LOCALITY: Wallkill River NWR SITE: Scenic Lakes V.P. #2 (South)

DETAILED DIRECTIONS TO SITE:

Scenic Lakes Rd - From Parking Area walk South

UTM ZONE: 18T UTM DATUM: _____ ELEVATION: 116 ☒ m ☐ ft

LENGTH

UTM E: 0535674 UTM N: 4559404 UTM E: 535685 UTM N: 4559378

WIDTH

UTM E: 535677 UTM N: 4559386 UTM E: 535691 UTM N: 4559391

UTM E: _____ UTM N: _____ UTM E: _____ UTM N: _____

POOL MAX. LENGTH: 15.5 m POOL MAX. WIDTH: 1.3 m POOL MAX. DEPTH: 60 cm

WATER LEVEL: ☒ FULL ☐ 1/4 FULL ☐ 1/2 FULL ☐ 3/4 FULL ☐ < 1/4 OR DRY

WATER CHEMISTRY (optional): pH: _____ Conductivity (units): _____ DO (units): _____

WATER COLOR: ☒ Clear ☐ Stained _____

POND TYPE:

☐ Natural, if so then: ☐ temporary ☐ semipermanent/permanent ☐ beaver flowage ☐ oxbow ☐ other: _____

☐ Artificial, if so then: ☐ borrow/gravel pit ☐ roadside ditch ☐ farm pond ☐ impoundment ☐ other: _____

Estimated age of pond: ☐ ≤ 5 yrs. ☒ ≥ 5 yrs.

☒ Unknown

FISH PRESENT: ☒ No ☐ Yes Species: _____

WETLAND CLASS: ☐ forested ☒ shrub ☐ marsh ☐ meadow ☐ none (open water)

Classify by dominant form that covers 30% or more of the pool water surface

SITE TYPE: ☐ upland-isolated (not part of larger wetland)

☒ bottomland-isolated (part of a river or lake floodplain)

☐ wetland complex (associated with a larger wetland complex)

For the following, rank the proportion of pond area in which each vegetation type occurs:

0 = 0% (absent), 1 = 1-10% (rare), 2 = > 10-50% (common), 3 = > 50% (abundant)

IN POND PHYSICAL HABITAT: Abundance of Sticks 3 Abundance of Logs _____ (> 10 cm diameter)

IN POND VEGETATION: SAV _____ Moss _____ Grass _____ Sedge/Rush 2 Shrub 3 Tree _____ Other _____

SUBSTRATE TYPES: Estimate % types composing bottom surface (must add up to 100%)

Silt/Clay 25 Mud 15 Sand Gravel 5 Pebble Cobble 10 Boulder Leaf Litter 45 Other

HABITAT AROUND POOL: Estimate % of each within 165 feet or 50 m of pool, excluding cover directly over pool (estimates should total 100%):

45 % Woodland (check most dominant type). If some of habitat is woodland, is the overstory:

- | | |
|--|---|
| ☒ Hardwood (> 75% deciduous) | ☒ Heavy (> 50% canopy cover of trees/shrubs > 6 ft. tall) |
| ☐ Softwood (> 75% evergreen) | ☐ Moderate (< 50% canopy cover of trees/shrubs < 6 ft. tall) |
| ☐ Mixed (all others) | |

50 % Open (check most dominant type)

- ☐ Agriculture
- ☒ Fields/Meadow/Marsh
- ☐ Other:

 % Residential/Urban/Suburban

5 % Road ☐ Paved ☒ Dirt/Gravel

 % Other:

DISTANCE TO FOREST FROM WATER'S EDGE: 0 ☐ m ☐ ft.

DISTANCE TO NEAREST ROAD: 80 ☒ m ☐ ft.

ROAD CONDITIONS AT NIGHT: ☒ Light Traffic (< 10 cars) ☐ Heavy Traffic (> 10 cars)

NOTES:

Wallkill River NWR
4/20/2001

Scenic Lakes U.P. #2 (South)

observer #1

A (1)

B (1)

C (3)

D (1)

observer #2

C (1)

B (1)

A (3)

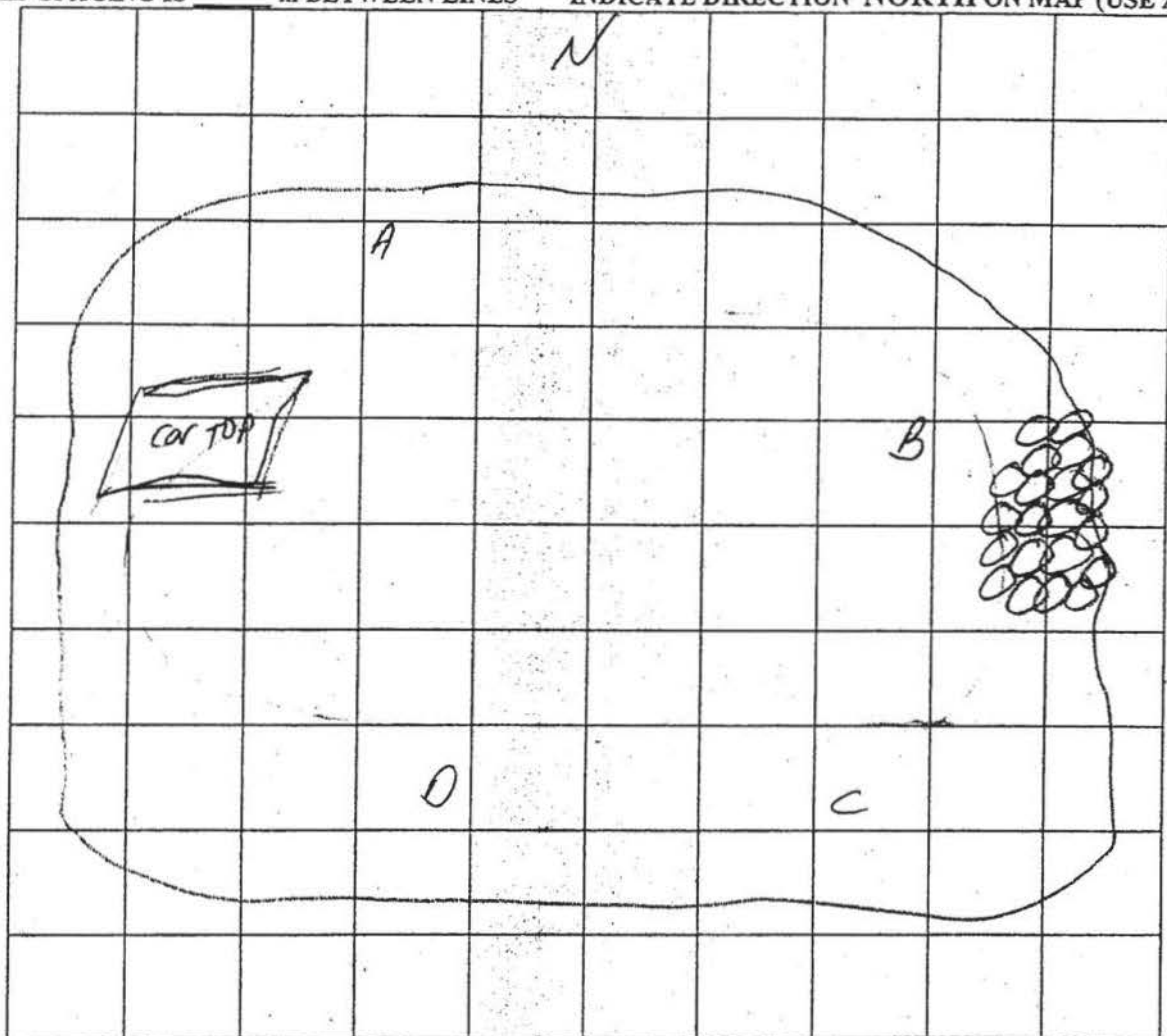
D (1)

OBSERVER: K. Holcomb ☒ 1 ☐ 2 DATE: 4/20/01 TIME BEGIN: 1320 TIME END: 1400
OBSERVER 1 OBSERVER 2

Total # Egg Masses _____ W _____ S _____ W _____ S _____

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
------	------------	-------	------	------	------------	-------	------	------	------------	-------	------

WF	A	1	B'
SS	B	1	2
WF	C	3	2,
SS	D	1	2

LOCALITY: WRNWR SITE: Scenic Lakes South #2
 Date: 4/20/01 Sky Code: 2 Wind Code: 1 Previous Day Precipitation? ☐ YES ☒ NO
 Substrate Temp.: 61° 62° Water Temp.: 58° 59° ☐ °C ☒ °F
 Pool Max. Depth: 60 cm Water Level: ☒ FULL ☐ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ <¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF	<u>2</u>						
Leopard frog LF	<u>1</u>						
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							<u>1</u>
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

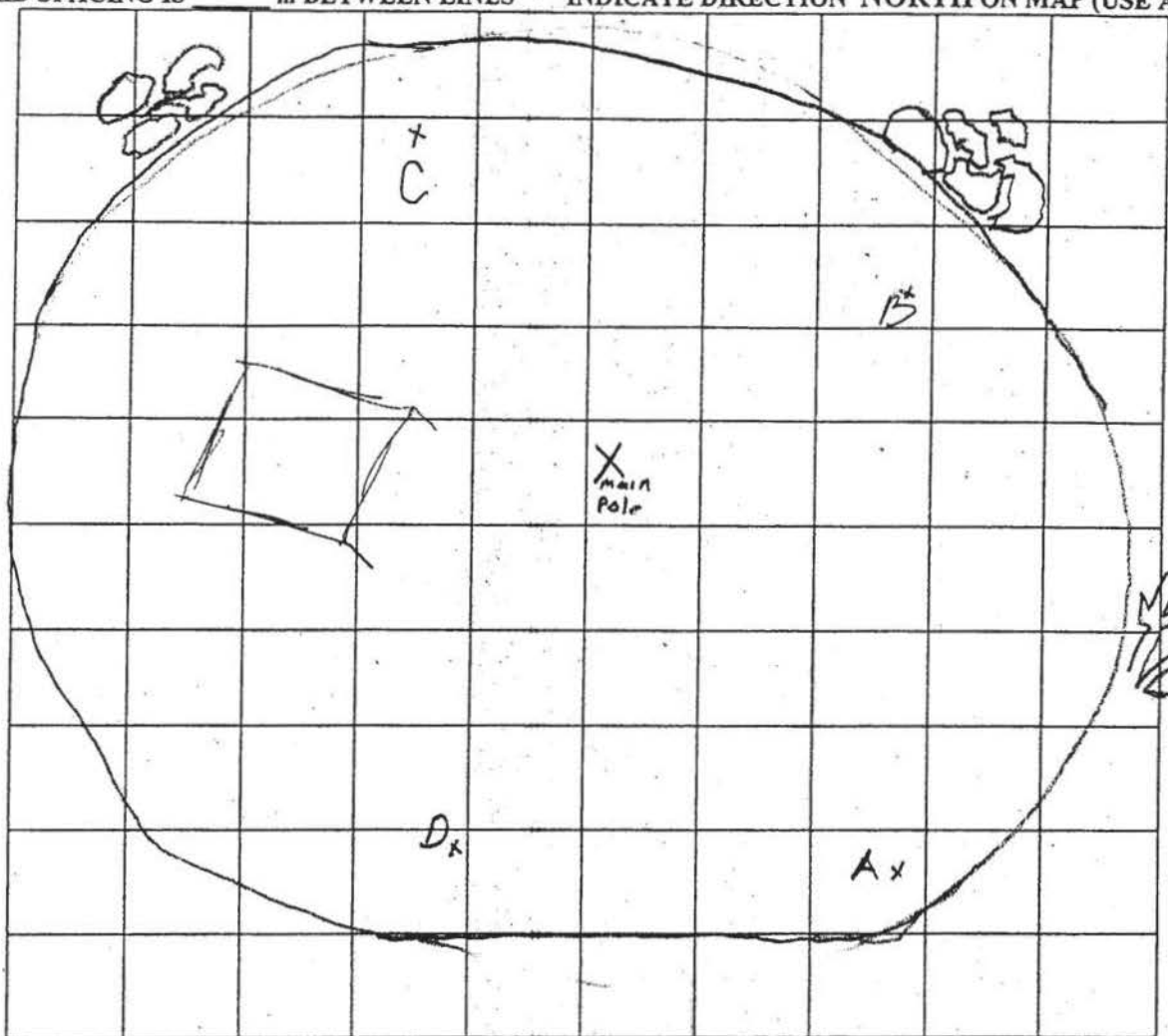
NOTES:

OBSERVER: M. Glack ☐ 1 ☒ 2 DATE: 4/26/01 TIME BEGIN: 13:10 TIME END: 14:00
OBSERVER 1 OBSERVER 2

Total # Egg Masses _____ W _____ S _____ W _____ S _____

Areas Missed of Total _____ W _____ S _____ W _____ S _____

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
------	------------	-------	------	------	------------	-------	------	------	------------	-------	------

wf	A	3	3
ss	B	1	2
wf	C	1	2
ss	D	1	2

LOCALITY: WBAWR SITE: Some Lakes South #2

Date: 4/20/01 Sky Code: 2 Wind Code: 1 Previous Day Precipitation? ☐ YES ☒ NO

Substrate Temp.: 61 62 Water Temp.: 58 59 ☐ °C ☒ °F

Pool Max. Depth: 60 cm Water Level: ☒ FULL ☐ 1/2 FULL ☐ 1/4 FULL ☐ 1/4 FULL ☐ < 1/4 OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermato-phores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF							
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle	1 X						✓
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

Wallkill River NWR

Scenic Lakes - South

5/9/2001

Observer #1

A (6)

B 1

C 1

D 1

E 1

F 1

Observer #2

A (6)

B (1)

D (1)

E (1)

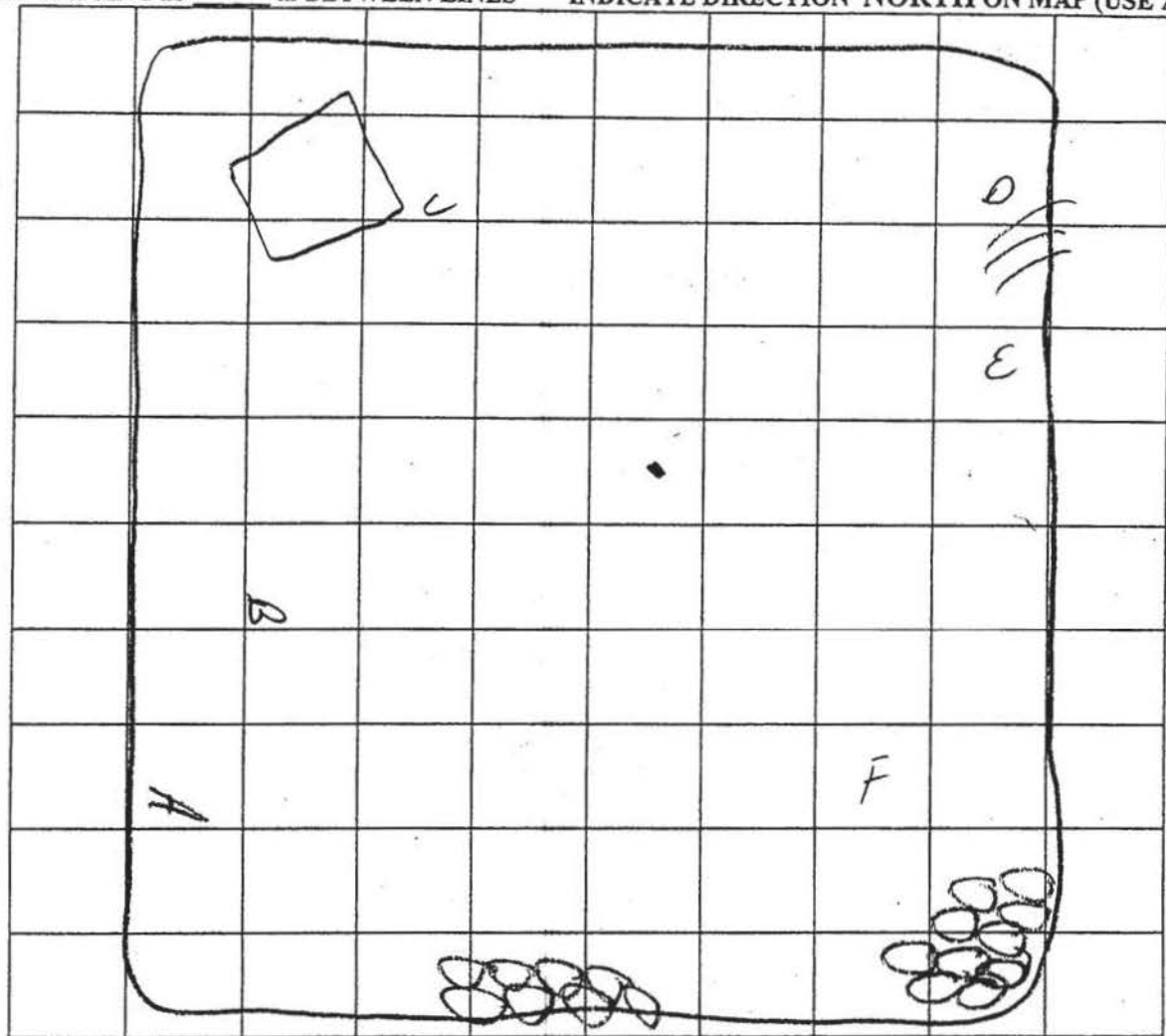
C (1)

OBSERVER: Kevin Hildamb ☒ 1 ☐ 2 DATE: 5/9/2001 TIME BEGIN: 130 TIME END: 200

Total # Egg Masses _____ W _____ S _____

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
------	------------	-------	------	------	------------	-------	------	------	------------	-------	------

A 6 3 ?

B 1 3 ?

C 1 3⁺

0 1 3⁺

£ 1 3^p

F 1 3⁺

LOCALITY: Wallich River NWR SITE: Sage Lakes - South

Date: 5/9/2001 Sky Code: 0 Wind Code: 1 Previous Day Precipitation? ☐ YES ☒ NO

Substrate Temp.: 74 65 Water Temp.: 69 63 ☐ °C ☒ °F

Pool Max. Depth: 44 cm Water Level: ☐ FULL ☐ ¾ FULL ☒ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF	<u>1</u>						
Spring peeper SP							
Gray tree frog GTF							
Green frog GF	<u>6</u>						
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

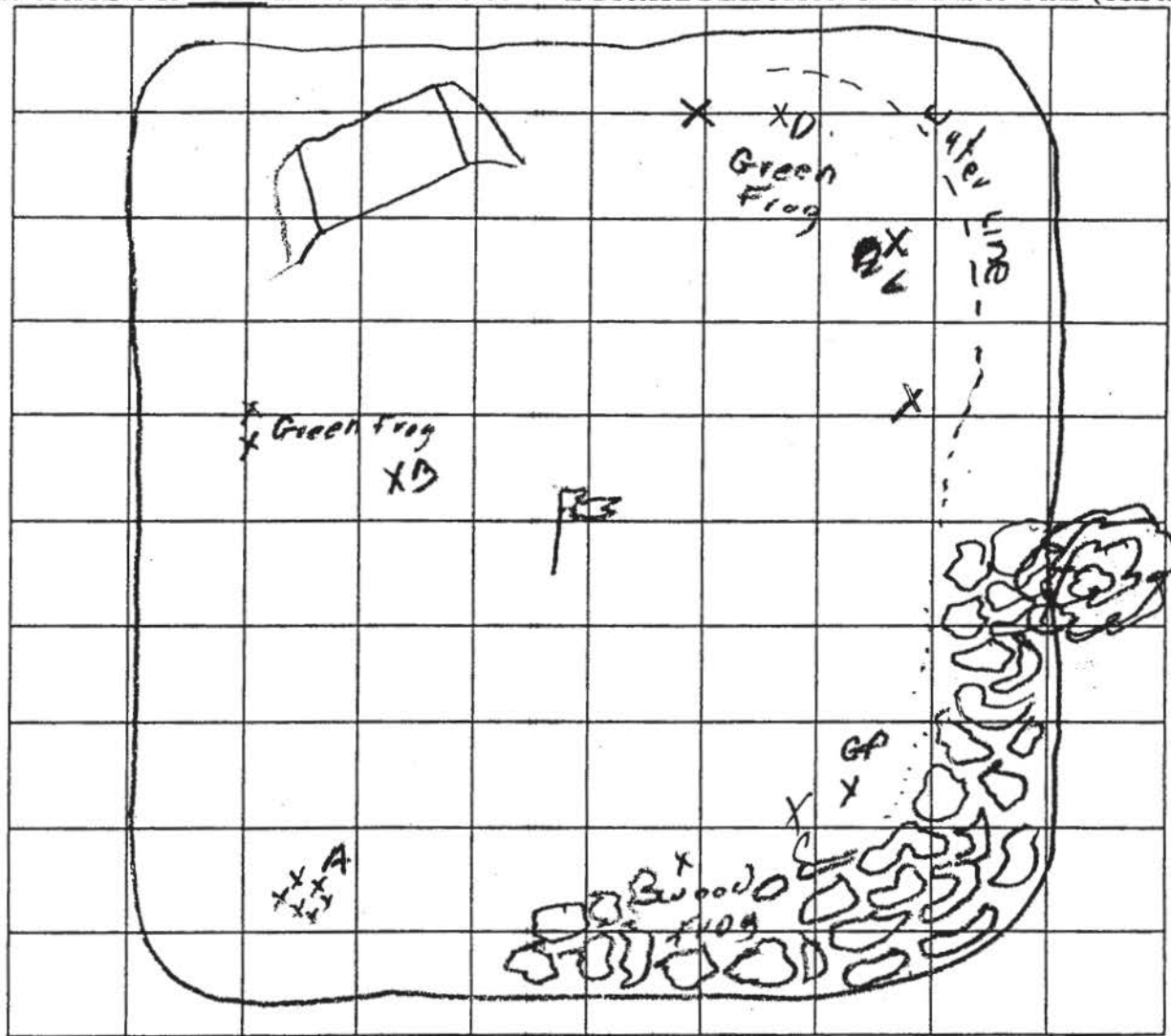
NOTES:

OBSERVER: Michael G. Love ☐ 1 ☒ 2 DATE: 5/9/01 TIME BEGIN: 1:30 TIME END: 2:04

Total # Egg Masses _____ W _____ S _____ W _____ S

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
A	6	3 ^{12/14/17} 3 ^{PC}									
B	1	3									
C	1	3									
D	1	3									
E	1	3									

LOCALITY: Walkill river NW SITE: scenic lakes - south

Date: 9/9/01 Sky Code: 0 Wind Code: 1 Previous Day Precipitation? ☐ YES ☐ NO

Substrate Temp.: 74 65 Water Temp.: 69 63° ☐ °C ☒ °F

Pool Max. Depth: 44 cm Water Level: ☐ FULL ☐ ¾ FULL ☒ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF	<u>4</u> <u>✓</u>						
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - South



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - South



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - South



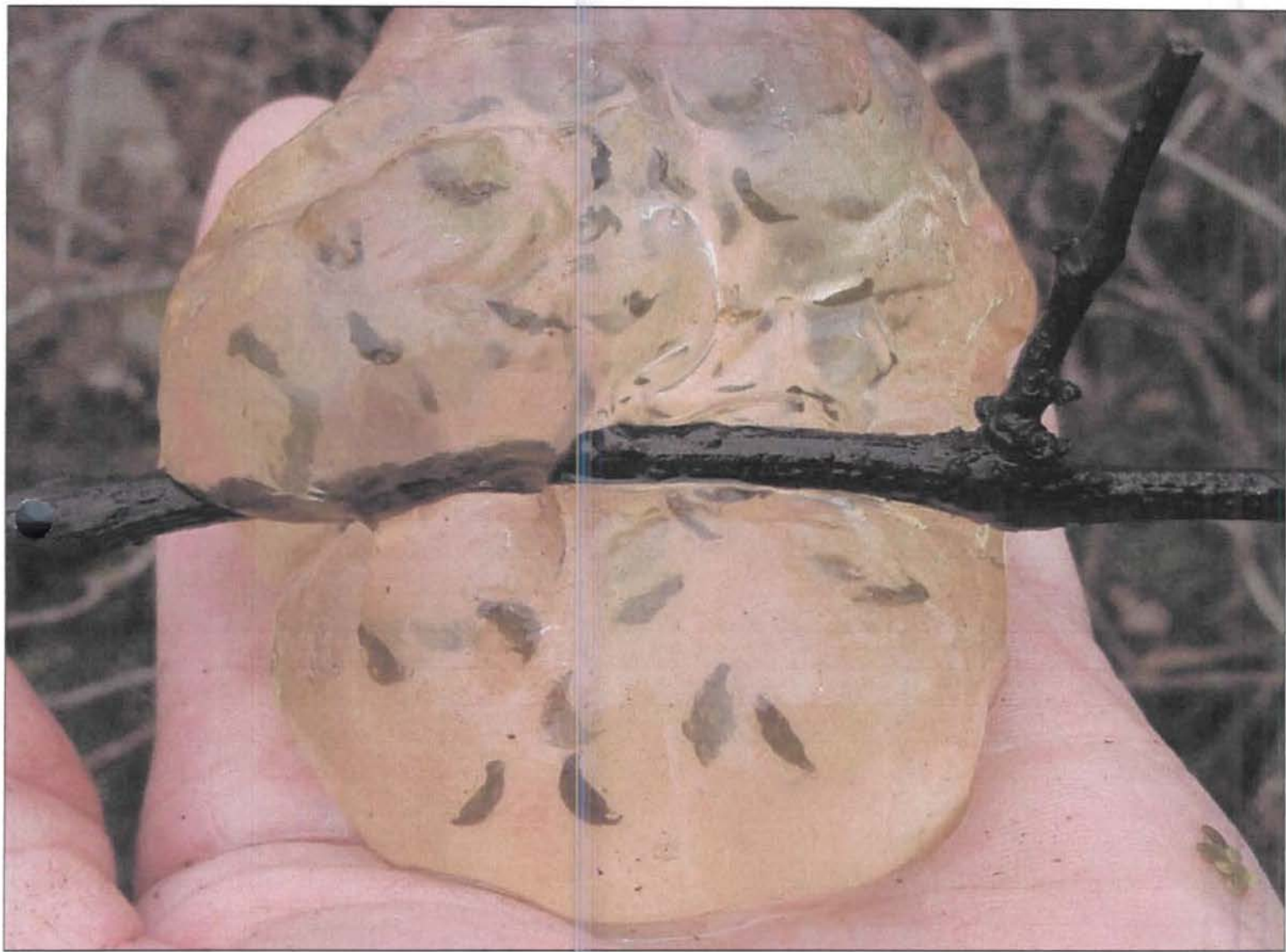
Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - South



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - South



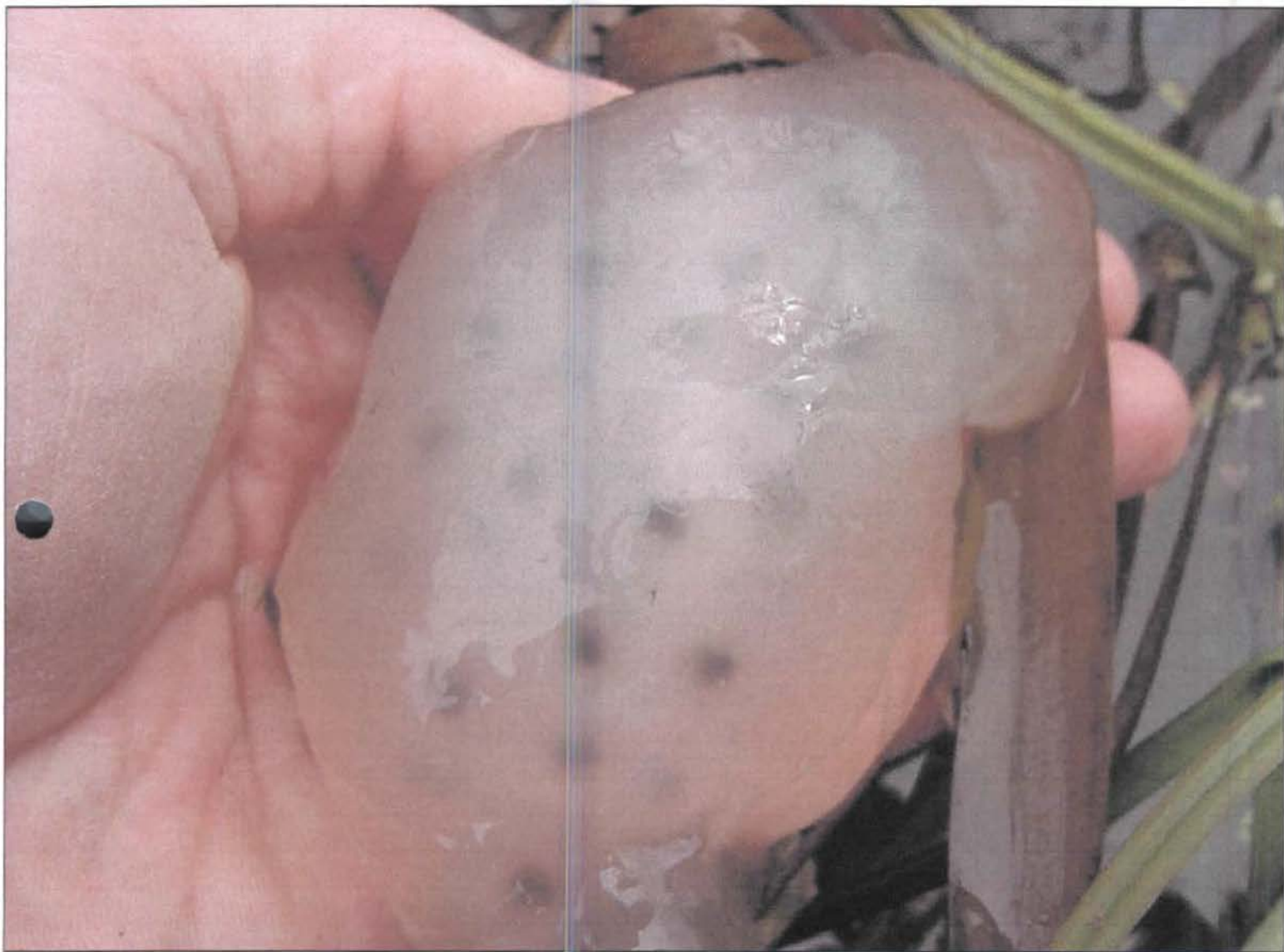
Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - South



Wallkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - South



Walkkill River NWR - Tract #22
4/20/2001 Vernal Pool
Scenic Lakes Rd - South



Wallkill River NWR - Tract #22
5/9/2001 Vernal Pool
Scenic Lakes Rd - South



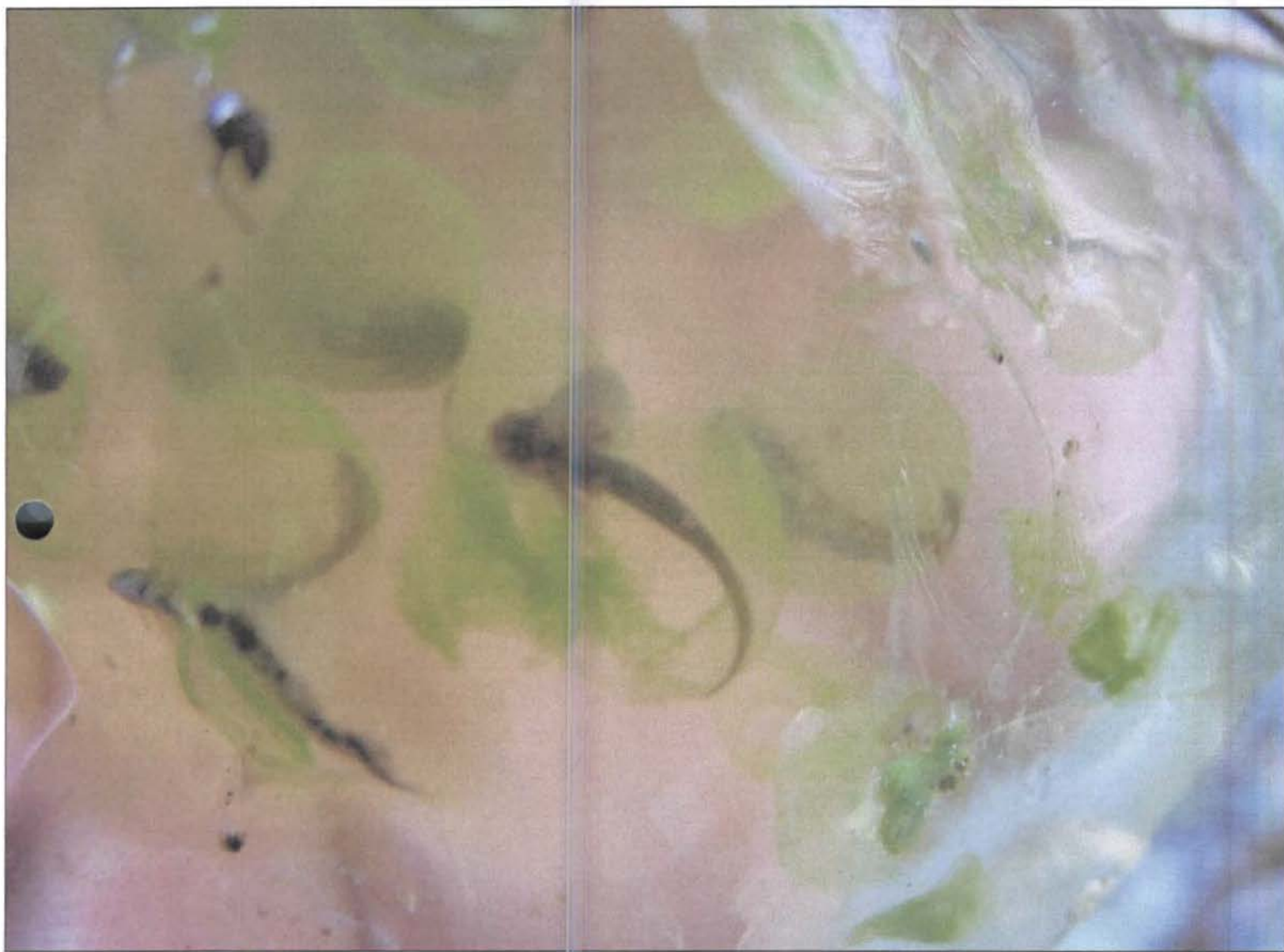
Wallkill River NWR - Tract #22
5/9/2001 Vernal Pool
Scenic Lakes Rd - South



Wallkill River NWR - Tract #22
5/9/2001 Vernal Pool
Scenic Lakes Rd - South



Walkkill River NWR - Tract #22
5/9/2001 Vernal Pool
Scenic Lakes Rd - South



Wallkill River NWR - Tract #22
5/9/2001 Vernal Pool
Scenic Lakes Rd - South



Wallkill River NWR - Tract #22
5/9/2001 Vernal Pool
Scenic Lakes Rd - South



Wallkill River NWR - Tract #22
5/9/2001 Vernal Pool
Scenic Lakes Rd - South



VERNAL POOL HABITAT DESCRIPTION AND LOCATION DATA SHEET

OBSERVER: Kevin Holcomb DATE: 4/20/2001

LOCALITY: Wallkill River NWR SITE: Wood Duck Nature Trail

DETAILED DIRECTIONS TO SITE:

From Rt. 565 WALK South on Wood Duck Nature Trail
V.P. on East Side of trail

UTM ZONE: 18T UTM DATUM: _____ ELEVATION: 113 ☒ m ☐ ft

#454 LENGTH
UTM E: 0534910 UTM N: 4560135 UTM E: 0534940 UTM N: 4560119 #454

#455 WIDTH
UTM E: 0534915 UTM N: 4560114 UTM E: 0534923 UTM N: 4560125 #455

UTM E: _____ UTM N: _____ UTM E: _____ UTM N: _____

POOL MAX. LENGTH: 47.5 m POOL MAX. WIDTH: 7 m POOL MAX. DEPTH: 57 cm

WATER LEVEL: ☒ FULL ☐ 3/4 FULL ☐ 1/2 FULL ☐ 1/4 FULL ☐ < 1/4 OR DRY

WATER CHEMISTRY (optional): pH: _____ Conductivity (units): _____ DO (units): _____

WATER COLOR: ☒ Clear ☐ Stained _____

POND TYPE:

☐ Natural, if so then: ☐ temporary ☐ semiperm/permanent ☐ beaver flowage ☐ oxbow ☐ other: _____

☒ Artificial, if so then: ☐ borrow/gravel pit ☒ roadside ditch Rail Road ☐ farm pond ☐ impoundment ☐ other: _____

Estimated age of pond: ☐ ≤ 5 yrs. ☒ ≥ 5 yrs.

☐ Unknown

FISH PRESENT: ☒ No ☐ Yes Species: _____

WETLAND CLASS: ☒ forested ☐ shrub ☐ marsh ☐ meadow ☐ none (open water)

Classify by dominant form that covers 30% or more of the pool water surface

SITE TYPE: ☐ upland-isolated (not part of larger wetland)

☐ bottomland-isolated (part of a river or lake floodplain)

☒ wetland complex (associated with a larger wetland complex)

For the following, rank the proportion of pond area in which each vegetation type occurs:
0 = 0% (absent), 1 = 1-10% (rare), 2 = > 10-50% (common), 3 = > 50% (abundant)

IN POND PHYSICAL HABITAT: Abundance of Sticks 1 Abundance of Logs 1 (> 10 cm diameter)

IN POND VEGETATION: SAV _____ Moss 2 Grass _____ Sedge/Rush _____ Shrub _____ Tree 1 Other _____

SUBSTRATE TYPES: Estimate % types composing bottom surface (must add up to 100%)

Silt/Clay ____ Mud 5 Sand ____ Gravel ____ Pebble ____ Cobble ____ Boulder ____ Leaf Litter 95 Other ____

HABITAT AROUND POOL: Estimate % of each within 165 feet or 50 m of pool, excluding cover directly over pool (estimates should total 100%):

92 % Woodland (check most dominant type). If some of habitat is woodland, is the overstory:

- | | |
|--|---|
| ☒ Hardwood (> 75% deciduous) | ☒ Heavy (> 50% canopy cover of trees/shrubs > 6 ft. tall) |
| ☐ Softwood (> 75% evergreen) | ☐ Moderate (< 50% canopy cover of trees/shrubs < 6 ft. tall) |
| ☐ Mixed (all others) | |

5 % Open (check most dominant type)

- ☐ Agriculture
- ☒ Fields/Meadow/Marsh
- ☐ Other: _____

____ % Residential/Urban/Suburban

2 % Road ☐ Paved ☒ Dirt/Gravel

____ % Other: _____

DISTANCE TO FOREST FROM WATER'S EDGE: 0 ☐ m ☐ ft.

DISTANCE TO NEAREST ROAD: 290 ☒ m ☐ ft.

ROAD CONDITIONS AT NIGHT: ☐ Light Traffic (< 10 cars) ☒ Heavy Traffic (> 10 cars)

NOTES:

Vernal Pool
Wood Duck Nature Trail #1



Wallkill River NWR

4/20/2001

Wood Duck Nature Trail

observer #1

A (2)

B (3)

C (1)

D (1)

E (1)

F (1)

G (1)

H (1)

I (1)

observer #2

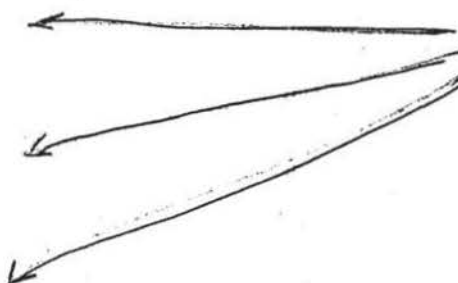
A, B (2)

C, D, E (3)

F (5)

G (1)

H (1)



LOCALITY: WRNWR SITE: WOOD Nat. Trail
 Date: 4/20/01 Sky Code: 2 Wind Code: 1 Previous Day Precipitation? ☐ YES ☒ NO
 Substrate Temp.: 59 60 Water Temp.: 64° 63° ☐ °C ☒ °F
 Pool Max. Depth: 57 cm Water Level: ☒ FULL ☐ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermato-phores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF	1						
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

LOCALITY: WRNWRSITE: Wood Duck Noddy TrailDate: 4/20/01 Sky Code: 2 Wind Code: 1 Previous Day Precipitation? ☐ YES ☒ NOSubstrate Temp.: 59 60 Water Temp.: 64 63 ☐ °C ☒ °FPool Max. Depth: 52 cm Water Level: ☒ FULL ☐ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF					(1)		
Green frog GF							
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

OBSERVER: Michael Glock ☐ 1 ☒ 2 DATE: 4/20/01 TIME BEGIN: 14:45 TIME END: 15:35

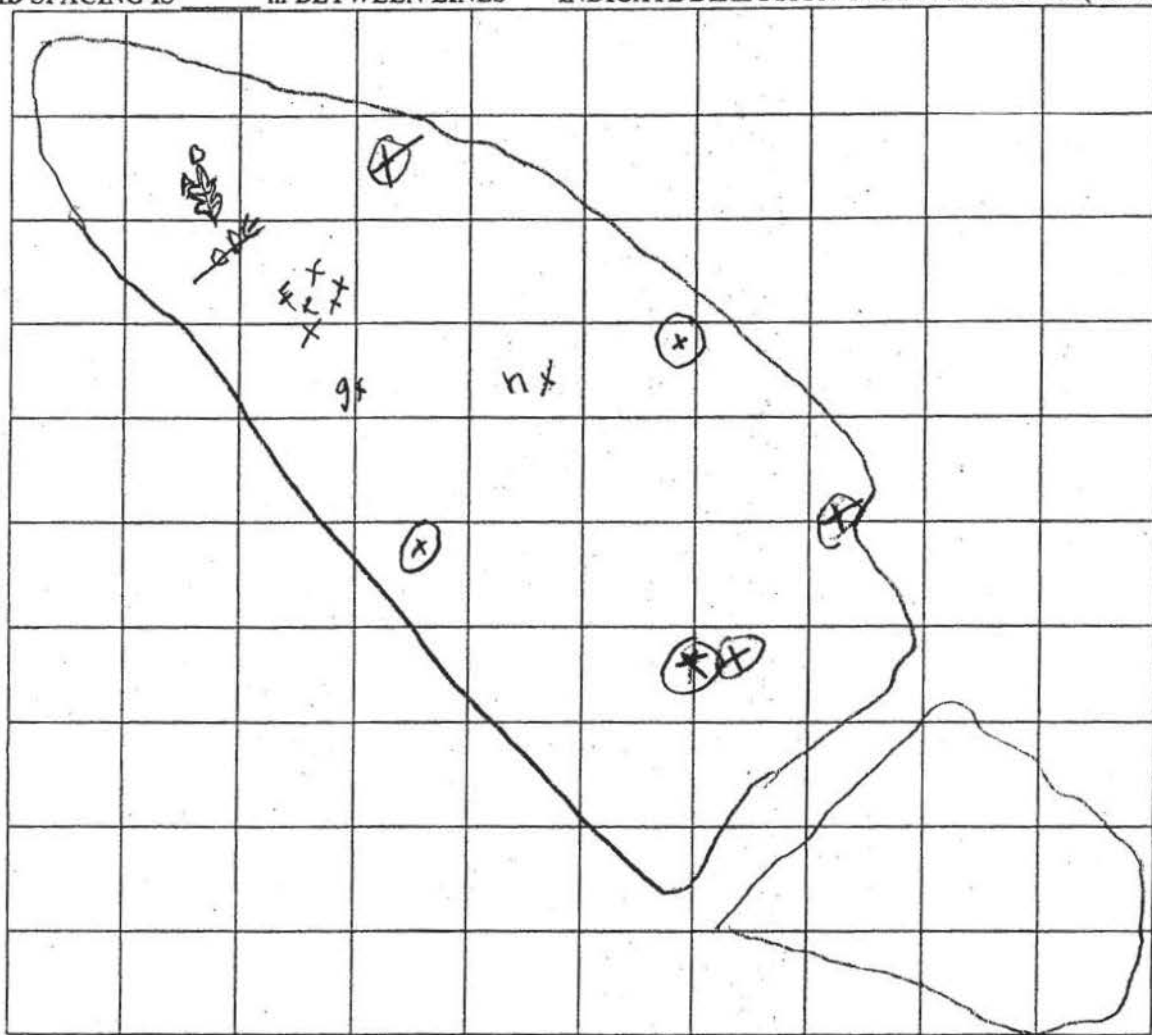
OBSERVER 1

OBSERVER 2

Total # Egg Masses _____ W _____ S _____ W _____ S

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
------	------------	-------	------	------	------------	-------	------	------	------------	-------	------

A	1	2
B	1	2
C	1	2
D	1	2
E	1 1	2
F	5	2

Wallkill River NWR

5/9/2001

observer #1

A (3)

B (1)

C (1)

D (1)

Wood Duck Nature Trail

observer #2

A (1)

B (1)

C (1)

D (1)

LOCALITY: Wallkill River NWR SITE: Wood Duck Trail

Date: 5/9/01 Sky Code: 0 Wind Code: 1 Previous Day Precipitation? ☐ YES ☒ NO

Substrate Temp.: 68 80 Water Temp.: 65 66 ☐ °C ☒ °F

Pool Max. Depth: 61 cm Water Level: ☒ FULL ☐ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF							
Leopard frog LF							
Pickereel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

OBSERVER: Kevin Holcomb ☒ 1 ☐ 2 DATE: 5/9/01 TIME BEGIN: 215 TIME END: 280

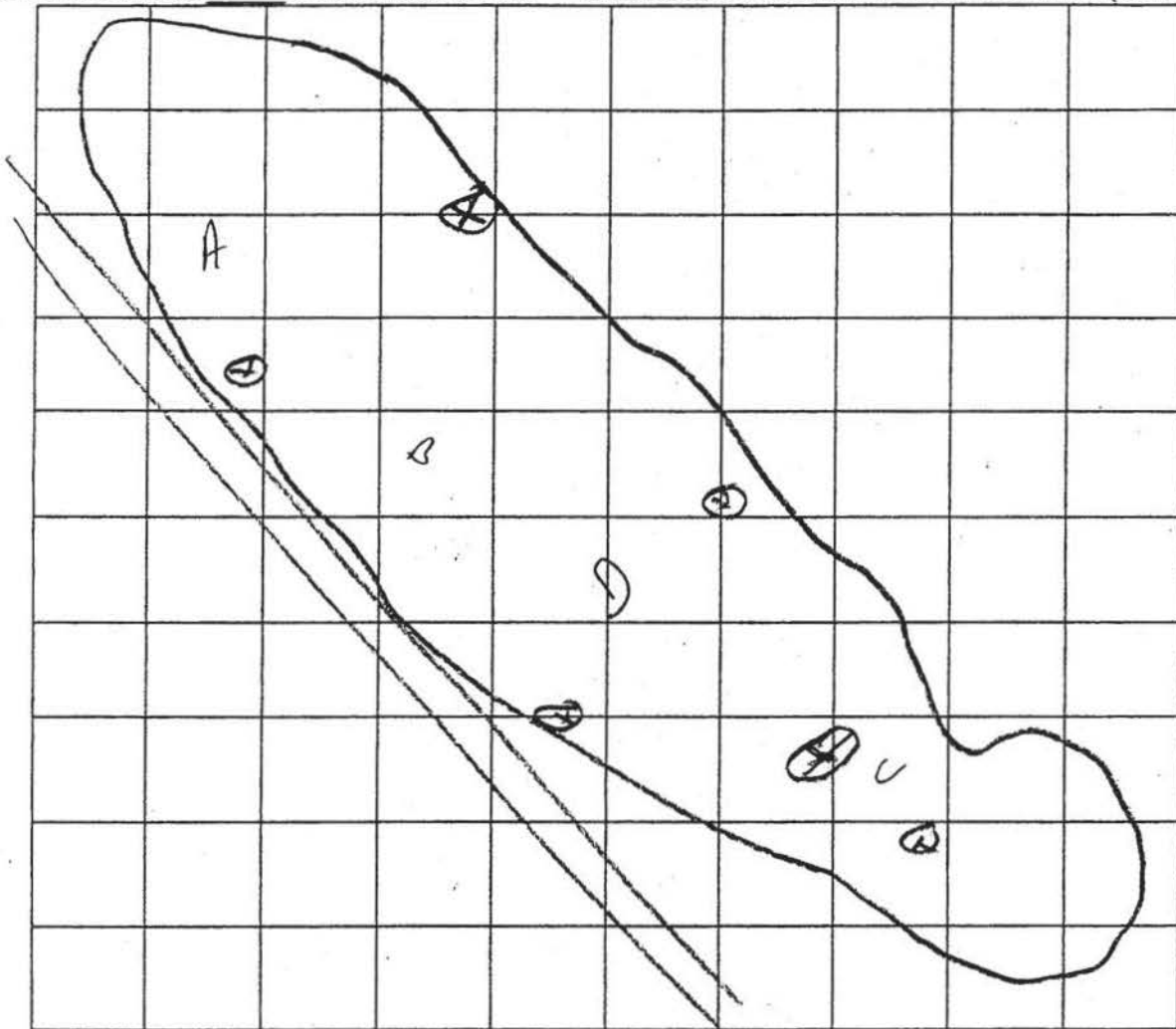
OBSERVER 1

OBSERVER 2

Total # Egg Masses _____ W _____ S _____ W _____ S

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
A	3	3									
B	1		✓								
C	1	3									
D	1	3									

SS

SS

LOCALITY: Walkill river near SITE: Wood Duck fecal

Date: 5/9/01 Sky Code: 0 Wind Code: 1 Previous Day Precipitation? ☐ YES ☐ NO

Substrate Temp.: 68 80 Water Temp.: 65 66 ☐ °C ☒ °F

Pool Max. Depth: 10 cm Water Level: ☒ FULL ☐ 1/4 FULL ☐ 1/2 FULL ☐ 3/4 FULL ☐ < 1/4 OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF							
Leopard frog LF							
Pickerel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

OBSERVER: Michael J. Slat ☒ 1 ☐ 2 DATE: 5/9/01 TIME BEGIN: 2:20 TIME END: 2:50

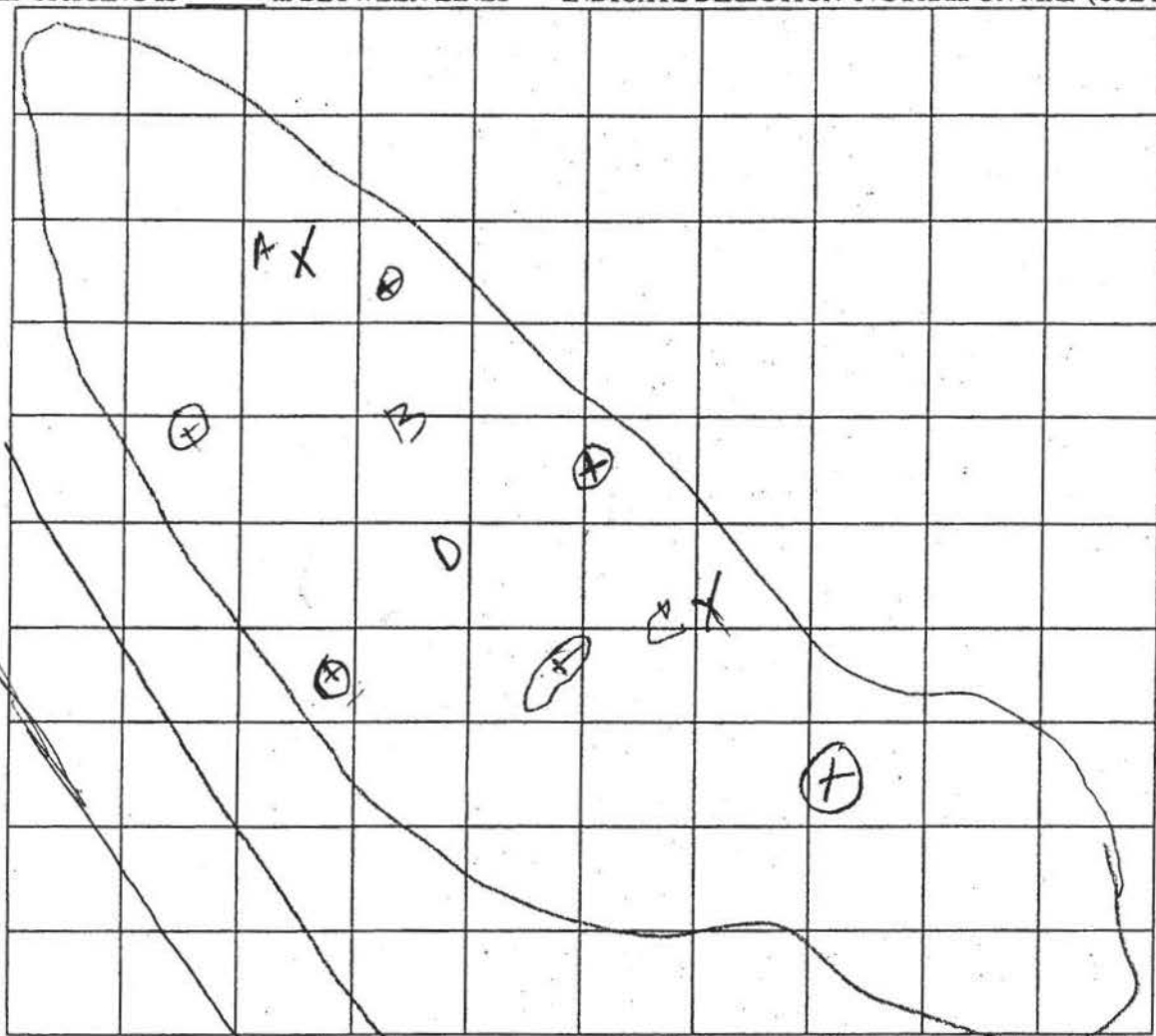
OBSERVER 1

OBSERVER 2

Total # Egg Masses _____ W _____ S _____ W _____ S

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
A	1	3									
B	1		✓								
C	1	3									
D	1	3									

Wallkill River NWR - Tract #86
4/20/2001 Vernal Pool
Wood Duck Nature Trail



Wallkill River NWR - Tract #86
4/20/2001 Vernal Pool
Wood Duck Nature Trail



Wallkill River NWR - Tract #86
4/20/2001 Vernal Pool
Wood Duck Nature Trail



Wallkill River NWR - Tract #86
5/9/2001 Vernal Pool
Wood Duck Nature Trail



Wallkill River NWR - Tract #86
5/9/2001 Vernal Pool
Wood Duck Nature Trail



Wallkill River NWR - Tract #86
5/9/2001 Vernal Pool
Wood Duck Nature Trail



Wallkill River NWR - Tract #86
5/9/2001 Vernal Pool
Wood Duck Nature Trail



VERNAL POOL HABITAT DESCRIPTION AND LOCATION DATA SHEET

OBSERVER: Kevin Hokomb DATE: 4/27/2001

LOCALITY: Wallkill River NWR SITE: Paling

DETAILED DIRECTIONS TO SITE:

Bassett's Bridge Rd (Rt. 642) + R+R Bed Walk South ~200m
V.P. on East side of R+R

UTM ZONE: 18T UTM DATUM: _____ ELEVATION: 125 ☒ m ☐ ft

LENGTH

#459 UTM E: 0538160 UTM N: 4566827 UTM E: 0538142 UTM N: 4566781 #461

WIDTH

#458 UTM E: 0538132 UTM N: 4566812 UTM E: 0538162 UTM N: 4566789 #460

UTM E: _____ UTM N: _____ UTM E: _____ UTM N: _____

POOL MAX. LENGTH: 40.5 m POOL MAX. WIDTH: 28 m POOL MAX. DEPTH: 27 cm

WATER LEVEL: ☐ FULL ☒ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

WATER CHEMISTRY (optional): pH: _____ Conductivity (units): _____ DO (units): _____

WATER COLOR: ☒ Clear ☐ Stained _____

POND TYPE:

☐ Natural, if so then: ☐ temporary ☐ semiperm/permanent ☐ beaver flowage ☐ oxbow ☐ other: _____

☒ Artificial, if so then: ☐ borrow/gravel pit ☒ ^{Rail Road} roadside ditch ☐ farm pond ☐ impoundment ☐ other: _____

Estimated age of pond: ☐ ≤ 5 yrs. ☒ ≥ 5 yrs.

☐ Unknown

FISH PRESENT: ☒ No ☐ Yes Species: _____

WETLAND CLASS: ☐ forested ☒ shrub ☐ marsh ☐ meadow ☐ none (open water)

Classify by dominant form that covers 30% or more of the pool water surface

SITE TYPE: ☒ upland-isolated (not part of larger wetland)

☐ bottomland-isolated (part of a river or lake floodplain)

☐ wetland complex (associated with a larger wetland complex)

For the following, rank the proportion of pond area in which each vegetation type occurs:

0 = 0% (absent), 1 = 1-10% (rare), 2 = > 10-50% (common), 3 = > 50% (abundant)

IN POND PHYSICAL HABITAT: Abundance of Sticks 2 Abundance of Logs _____ (> 10 cm diameter)

IN POND VEGETATION: SAV _____ Moss _____ Grass _____ Sedge/Rush 2 Shrub 2 Tree _____ Other _____

SUBSTRATE TYPES: Estimate % types composing bottom surface (must add up to 100%)

Silt/Clay ____ Mud 25 Sand ____ Gravel ____ Pebble ____ Cobble ____ Boulder ____ Leaf Litter 75 Other ____

HABITAT AROUND POOL: Estimate % of each within 165 feet or 50 m of pool, excluding cover directly over pool (estimates should total 100%):

50 % Woodland (check most dominant type). If some of habitat is woodland, is the overstory:

- | | |
|--|---|
| ☒ Hardwood (> 75% deciduous) | ☒ Heavy (> 50% canopy cover of trees/shrubs > 6 ft. tall) |
| ☐ Softwood (> 75% evergreen) | ☐ Moderate (< 50% canopy cover of trees/shrubs < 6 ft. tall) |
| ☐ Mixed (all others) | |

45 % Open (check most dominant type)

- ☐ Agriculture
- ☒ Fields/Meadow/Marsh
- ☐ Other: _____

____ % Residential/Urban/Suburban

5 % Road ☐ Paved ☒ Dirt/Gravel

____ % Other: _____

DISTANCE TO FOREST FROM WATER'S EDGE: 0 ☐ m ☐ ft.

DISTANCE TO NEAREST ROAD: 150 ☒ m ☐ ft.

ROAD CONDITIONS AT NIGHT: ☒ Light Traffic (< 10 cars) ☐ Heavy Traffic (> 10 cars)

NOTES:

LOCALITY: WRNWRSITE: PalingDate: 4/27/01Sky Code: 2Wind Code: 1Previous Day Precipitation? ☐ YES ☒ NOSubstrate Temp.: 63° 60° Water Temp.: 65° 63° ☐ °C ☒ °FPool Max. Depth: 27 cm Water Level: ☐ FULL ☒ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermatophores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP		/					
Gray tree frog GTF							
Green frog GF	/	/					
Leopard frog LF							
Pickereel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

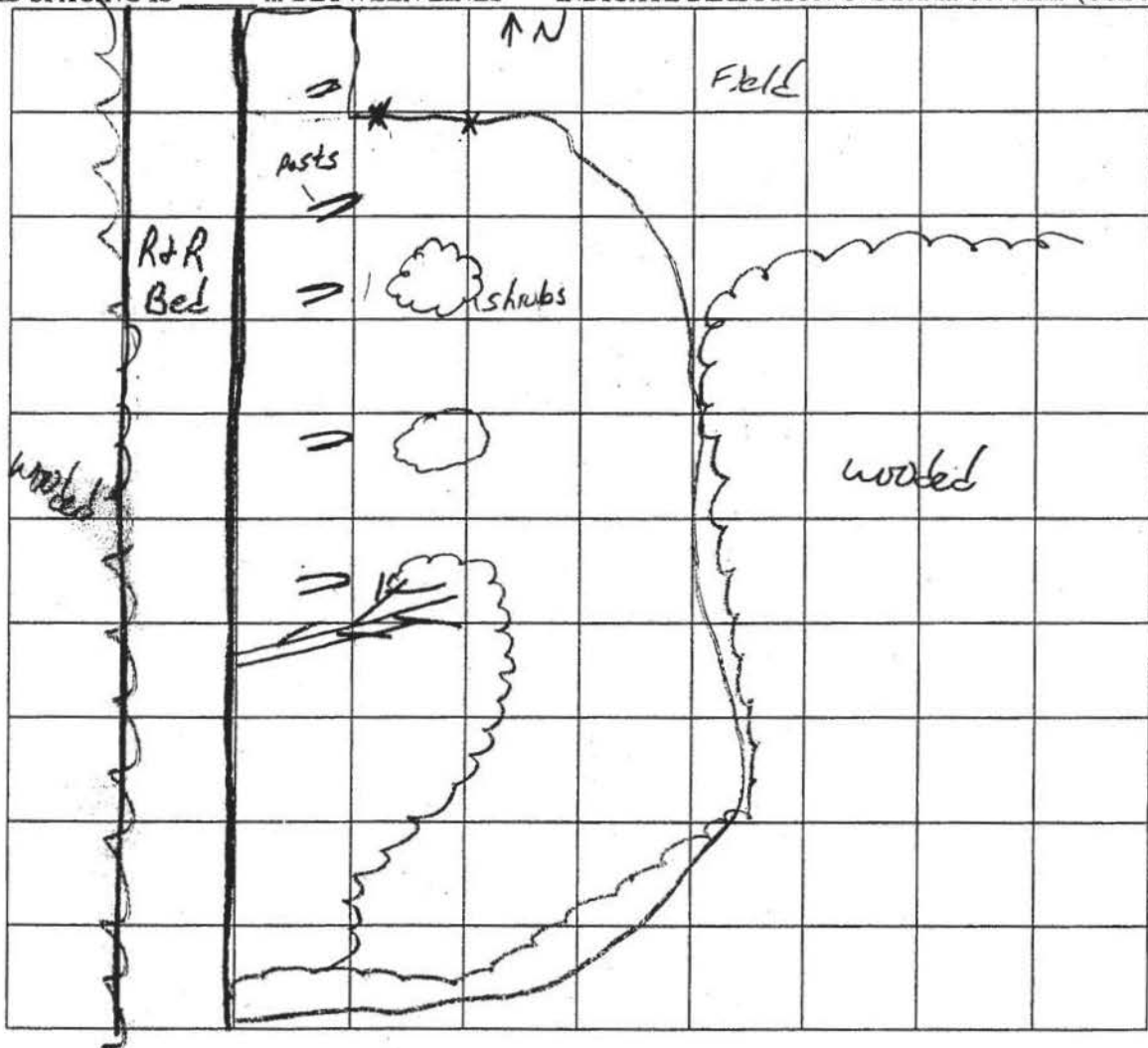
OBSERVER: Kev's Hplcomb ☒ 1 ☐ 2 DATE: 4/22/01 TIME BEGIN: 1 PM TIME END: 2:00pm
OBSERVER 1 OBSERVER 2

OBSERVER 1

Total # Egg Masses _____ W _____ S _____ W _____ S _____

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
------	------------	-------	------	------	------------	-------	------	------	------------	-------	------

[illegible]

LOCALITY: WRNWRSITE: PalingDate: 4/27/01Sky Code: 2Wind Code: 1Previous Day Precipitation? ☐ YES ☒ NOSubstrate Temp.: 63° 60° Water Temp.: 65° 63° ☐ °C ☒ °FPool Max. Depth: 27 cm Water Level: ☐ FULL ☒ ¾ FULL ☐ ½ FULL ☐ ¼ FULL ☐ < ¼ OR DRY

OTHER ORGANISMS:

SPECIES	# Adults	Chorus Code	# Mated Pairs	# Spermato-phores	# Egg Masses	# Tadpoles Larvae	# Juveniles
Spotted sal. SS							
Blue-spotted sal. BS							
Jefferson sal. JS							
Marbled sal. MS							
Red-spotted newt RN							
Four-toed sal. FS							
Wood frog WF							
Spring peeper SP							
Gray tree frog GTF							
Green frog GF							
Leopard frog LF							
Pickrel frog PF							
American toad AT							
Fowler's toad FT							
Eastern spadefoot ES							
Painted turtle							
Spotted turtle							
Wood turtle							
Blanding's turtle							
Snapping turtle							
Fairy shrimp							
Fingernail clam							
Amphibious snail							

NOTES:

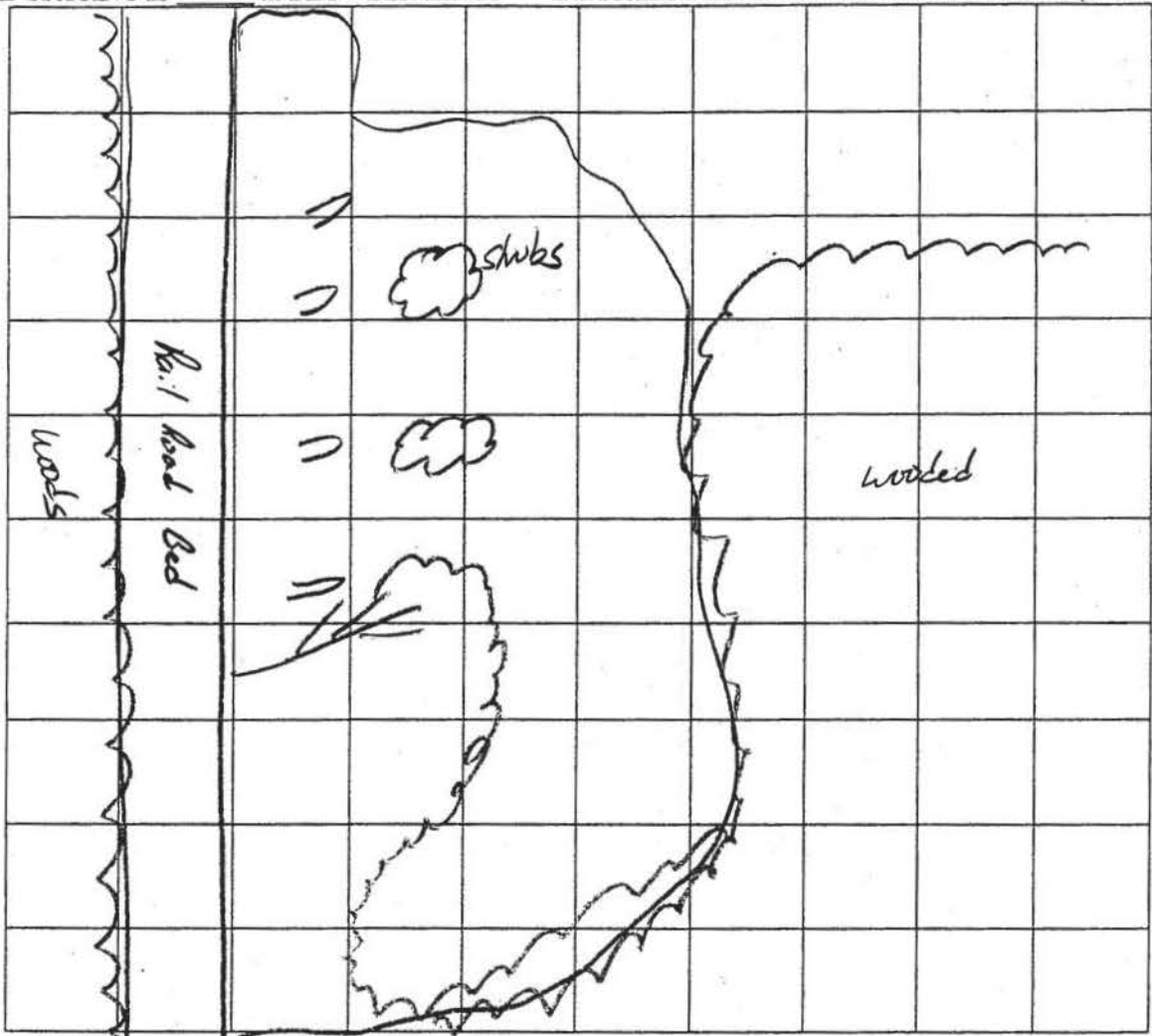
OBSERVER: Tom Spatenberg ☒ 1 ☐ 2 DATE: 9/27/09 TIME BEGIN: 12:30 TIME END: 1:45 pm

OBSERVER 2

Total # Egg Masses _____ W _____ S _____ W _____ S _____

Areas Missed of Total _____ W _____ S _____ W _____ S

GRID SPACING IS _____ m BETWEEN LINES INDICATE DIRECTION NORTH ON MAP (USE ARROW)



Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead	Area	# Egg Mass	Stage	Dead
------	------------	-------	------	------	------------	-------	------	------	------------	-------	------

[illegible]

Walkkill River NWR - Tract #47
4/27/2001 Vernal Pool
Paling



Wallkill River NWR - Tract #47
4/27/2001 Vernal Pool
Paling



Wallkill River NWR - Tract #47
4/27/2001 Vernal Pool
Paling



Wallkill River NWR - Tract #71
4/27/2001 Vernal Pool
"Wallkill Farms"



Wallkill River NWR - Tract #71
4/27/2001 Vernal Pool
"Wallkill Farms"



Wallkill River NWR - Tract #71
4/27/2001 Vernal Pool
"Wallkill Farms"



Wallkill River NWR - Tract #71
4/27/2001 Vernal Pool
"Wallkill Farms"



Wallkill River NWR - Tract #71
4/27/2001 Vernal Pool
"Wallkill Farms"

