



## INVESTIGATOR'S ANNUAL REPORT

United States Department of the Interior  
National Park Service

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OMB # (1024-0236)  
Exp. Date (11/30/2010)  
Form No. (10-226)

|                                                                                                                                    |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |
|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| <b>Reporting Year:</b><br>2009                                                                                                     | <b>Park:</b><br>Saratoga NHP                         | <b>Select the type of permit this report addresses:</b><br>Scientific Study                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                |
| <b>Name of principal investigator or responsible official:</b><br>Lawrence Woolbright                                              |                                                      | <b>Office Phone:</b><br>518-783-2451                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |
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| <b>Additional investigators or key field assistants (first name, last name, office phone, office email)</b><br>No co-investigators |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |
| <b>Project Title (maximum 300 characters):</b><br>The Amphibian Community at the Saratoga National Historical Park                 |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |
| <b>Park-assigned Study or Activity #:</b><br>SARA-00002                                                                            | <b>Park-assigned Permit #:</b><br>SARA-2008-SCI-0002 | <b>Permit Start Date:</b><br>Apr 01, 2008                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Permit Expiration Date:</b><br>Dec 31, 2017 |
| <b>Scientific Study Starting Date:</b><br>Apr 01, 2008                                                                             |                                                      | <b>Estimated Scientific Study Ending Date:</b><br>Dec 31, 2017                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                |
| <b>For either a Scientific Study or a Science Education Activity, the status is:</b><br><br>Continuing                             |                                                      | <b>For a Scientific Study that is completed, please check each of the following that applies:</b><br><br><input type="checkbox"/> A final report has been provided to the park or will be provided to the park within the next two years<br><br><input type="checkbox"/> Copies of field notes, data files, photos, or other study records, as agreed, have been provided to the park<br><br><input type="checkbox"/> All collected and retained specimens have been cataloged into the NPS catalog system and NPS has processed loan agreements as needed |                                                |
| <b>Activity Type:</b><br>Monitoring                                                                                                |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |
| <b>Subject/Discipline:</b><br>Ecology (Aquatic, Marine, Terrestrial)                                                               |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose of Scientific Study or Science Education Activity during the reporting year (maximum 4000 characters):</b><br><br>We propose to study the amphibian community of the Saratoga National Historical Park over a ten-year period of time. Key goals are to determine species present on the site, population densities, and spatial and temporal patterns of habitat use. These will be accomplished mainly through auditory surveys, visual surveys, and driving transects during spring breeding seasons. Data will provide a historical baseline for future evaluations of amphibian population trends, along with information relevant to amphibian conservation. |
| <b>Findings and status of Scientific Study or accomplishments of Science Education Activity during the reporting year (maximum 4000 characters):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Activity for 2009 focused on three ongoing projects: woodfrog (*Rana sylvatica*) and salamander (*Ambystoma maculatum*) egg clutch counts, radiotracking the movements of woodfrogs, and redback salamander (*Plethodon cinereus*) migration.

**Clutch counts.** This was our ninth year of counting clutches at 25 ponds and wetland complexes on the battlefield, and it was a thoroughly average year. We counted a total of 3,901 woodfrog clutches, compared to the nine-year average of 3166. We also counted a total of 191 spotted salamander clutches, compared to the nine-year average of 208. Data are on file in the Park office.

**Radiotracking.** This was the fourth and final year of the woodfrog radiotracking project. In 2006 and 2007 we tracked woodfrogs during their spring dispersal from breeding pools. In 2008 we attempted to track them all summer, but were plagued with low movement and high frog mortality because of the spring draught. In 2009 we fastened radiotransmitters to 30 woodfrogs (5 males and 5 females from each of 3 breeding pools) between April 4 - 12. There was a significant amount of snake predation this year, with 12 transmitters recovered from the scats of snakes that had been temporarily caged to allow transmitter recovery. Other frogs were lost through time, as is always the case, but seven were successfully tracked through the summer and into the fall, some into late November. Combined with prior years' data this gives us movement information on 79 individuals. Analysis is currently underway.

**Salamander migration.** During previous years we have reported directional movements of redback salamanders in the early spring. We continued the 180 m long road transect in that location this year. In addition, for the first time this year, we tested the hypothesis that this behavior represents an annual migration by looking for, and finding, reverse movement along the transect in the fall. To better understand the population, we installed a cover board array on either side of the transect and have been monitoring it for salamander presence. We also installed data collectors to record temperature in both locations and have been measuring soil moisture. We hope to be able to finish data collection on this project in 2010.

For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis?

No

Funding specifically used in this park this reporting year that was provided by NPS (enter dollar amount):  
\$9635

Funding specifically used in this park this reporting year that was provided by all other sources (enter dollar amount):  
\$5505

List any other U.S. Government Agencies supporting this study or activity and the funding each provided this reporting year:

**Paperwork Reduction Act Statement:** A federal agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. Public reporting for this collection of information is estimated to average 1.625 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the forms. Direct comments regarding this burden estimate or any aspect of this form to Dr. John G. Dennis, Natural Resources (3127 MIB), National Park Service, 1849 C Street, N.W., Washington, DC 20240.

| Clutch Counts - <i>Ambystoma maculatum</i> - all years, all ponds |      |      |      |      |      |      |      |      |      |
|-------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| Pond location                                                     | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
| Way back behind 1 (E end of trough)                               | nf   | nf   | 1    | 0    | 0    |      | 0    | 0    | 0    |
| John's Pond 2 (off track past stop 1)                             | nf   | nf   | 0    | 0    | 1    |      | 0    | 0    | 0    |
| stop 1                                                            | 2    | 0    | 9    | 0    | 47   |      | 1    | 10   | 0    |
| service road                                                      | 0    | 0    | 1    | 0    | 4    |      | 0    | 0    | 0    |
| Beaver (old - top of hill nr Larry's)                             | 12   | 3    |      | 6    | 5    | spm  | 0    | 1    | 4    |
| Sean's 2 (right of road at culvert)                               | nf   | nf   | 0    | 0    | 0    |      | 0    | 0    | spm  |
| 1st flag to left before stop 2                                    | nf   | nf   | 1    | 3    | 1    |      | 0    | 0    | 0    |
| 2nd flag to left before stop 2                                    | nf   | nf   | 1    | 0    | 0    |      | 0    | 0    | 4    |
| stop 2 (all ponds combined)                                       | 0    | 0    | 0    | 0    | 0    |      | 0    | 0    | 0    |
| bottom of hill on left before stop 4                              | nf   | nf   | 2    | 8    | 0    |      | 0    | 0    | 15   |
| stop 4 culvert                                                    | nf   | nf   | 0    | 0    | 0    |      | 0    | 0    | 0    |
| Sean's = bottom of hill past stop 4 on l                          | nf   | 0    | 0    | 0    | 0    |      | 0    | 0    | 0    |
| Larry's = top of hill on left past stop 4                         | nf   | 6    | 2    | 0    | 0    | 4    | 10   | 1    | 2    |
| Beaver pond below monument                                        | nf   | nf   | 4    | 9    | 0    | 3    | 3    | 0    | nc   |
| stop 5                                                            | nf   | 0    | 4    | 0    | 9    |      | 12   | 0    | 0    |
| pond south of road in curve below 1                               | nf   | nf   | 0    | 0    | 0    |      | 0    | 0    | 0    |
| roadside at John's Pond (all combined)                            | nf   | 0    | 3    | 0    | 0    |      | 0    | 5    | 2    |
| John's Pond                                                       | nf   | 0    | 0    | 0    | 9    |      | 0    | 0    | 3    |
| ditches on dirt track JP - FF                                     | nf   | nf   | 0    | 0    | 2    |      | 0    | 4    | spm  |
| stop 8 fem field                                                  | 4    | 156  | 161  | 136  | 62   | 8    | 20   | 451  | 145  |
| stop 8 roadside                                                   | 3    | 39   | 8    | 0    | 11   |      | 3    | 45   | 7    |
| big pond on track thru Brit woods                                 |      |      | 15   | 0    | 3    |      | 4    | 5    | 0    |
| vernal depressions in Brit woods - all                            | 15   | 170  | 0    | 12   | 23   |      | 9    | 27   | 3    |
| British camp north                                                | 6    | ?    | 0    | 1    | 3    |      | 1    | 30   | 3    |
| British camp south                                                | 12   | ?    | 5    | 0    | 2    |      | 5    | 17   | 3    |
|                                                                   |      |      |      |      |      |      |      |      |      |
| Total internal ponds                                              | 54   | 374  | 217  | 175  | 182  | 15   | 68   | 596  | 191  |

| Pond location                               | N deg | N minutes | W deg | Wminutes | Other names (years used) |
|---------------------------------------------|-------|-----------|-------|----------|--------------------------|
| Way back behind 1 (E end of trough)         | 43    | 0.410     | 73    | 37.027   |                          |
| John's Pond 2 (off track past stop 1)       | 43    | 0.283     | 73    | 38.992   |                          |
| stop 1                                      | 43    | 0.368     | 73    | 38.875   |                          |
| service road                                | 43    | 0.274     | 73    | 38.844   |                          |
| Wheatfield                                  | 43    | 0.015     | 73    | 38.976   |                          |
| Beaver (old - top of hill nr Larry's)       | 42    | 59.834    | 73    | 38.928   |                          |
| Sean's 2 (right of road at culvert)         | 42    | 59.682    | 73    | 38.785   |                          |
| 1st flag to left before stop 2              | 42    | 59.398    | 73    | 38.451   |                          |
| 2nd flag to left before stop 2              | 42    | 59.379    | 73    | 38.439   |                          |
| stop 2 - a - birch pothole at NE            | 42    | 59.255    | 73    | 38.537   |                          |
| stop 2 - b - main site inside woods to S    | 42    | 59.254    | 73    | 38.628   |                          |
| stop 2 - c - edge of field on SW            | 42    | 59.247    | 73    | 38.710   |                          |
| stop 2 - d - N middle at BA p/u             | 42    | 59.285    | 73    | 38.535   |                          |
| bottom of hill on left before stop 4        | 42    | 59.545    | 73    | 38.477   |                          |
| stop 4 culvert                              | 42    | 59.721    | 73    | 38.654   |                          |
| Sean's = bottom of hill past stop 4 on left | 42    | 59.782    | 73    | 38.785   | Stop 4 (03)              |
| Larry's = top of hill on left past stop 4   | 42    | 59.821    | 73    | 38.843   | Woolbright's(02); 4A(03) |
| Beaver pond below monument                  | 42    | 59.884    | 73    | 38.530   |                          |
| stop 5                                      | 43    | 0.108     | 73    | 38.811   |                          |
| pond south of road in curve below 1         | 43    | 0.338     | 73    | 38.679   |                          |
| roadside at John's Pond #1                  | 43    | 0.302     | 73    | 37.549   |                          |
| roadside at John's Pond #2                  | 43    | 0.295     | 73    | 37.537   |                          |
| roadside at John's Pond #3                  | 43    | 0.286     | 73    | 37.528   |                          |
| roadside at John's Pond #4                  | 43    | 0.272     | 73    | 37.515   |                          |
| John's Pond                                 | 43    | 0.319     | 73    | 37.519   |                          |
| ditches on dirt track JP - FF VP#1          | 43    | 0.319     | 73    | 37.421   |                          |
| ditches on dirt track JP - FF VP#2          | 43    | 0.319     | 73    | 37.409   |                          |
| ditches on dirt track JP - FF VP#3          | 43    | 0.323     | 73    | 37.394   |                          |
| stop 8 fern field - by JP track             | 43    | 0.306     | 73    | 37.425   |                          |
| stop 8 fern field - back corner             | 43    | 0.263     | 73    | 37.359   |                          |
| stop 8 fern field - front corner            | 43    | 0.213     | 73    | 37.390   |                          |
| stop 8 fern field - across trail nr maple   | 43    | 0.263     | 73    | 37.432   |                          |
| stop 8 roadside                             | 43    | 0.122     | 73    | 37.445   |                          |
| big pond on track thru Brit woods - site a  | 42    | 59.990    | 73    | 37.477   |                          |
| vernal depressions in Brit woods - site b   | 42    | 59.976    | 73    | 37.430   |                          |
| vernal depressions in Brit woods - site c   | 42    | 59.992    | 73    | 37.468   |                          |
| brit woods - E side of 1st big complex - d  | 43    | 0.070     | 73    | 37.412   |                          |
| brit woods - W side of 1st big complex - e  | 43    | 0.067     | 73    | 37.436   |                          |
| brit woods - Jared's pond - f               | 43    | 0.039     | 73    | 37.445   |                          |
| British camp north                          | 42    | 59.857    | 73    | 36.996   | Stop 8 West (01,02)      |
| British camp south                          | 42    | 59.857    | 73    | 36.996   | Stop 8 East (01, 02)     |

| Pond location                             | size   | temp/ | open/  | on rd?   | description                             |
|-------------------------------------------|--------|-------|--------|----------|-----------------------------------------|
|                                           | S/M/L  | perm  | wooded | Y/N      |                                         |
| Way back behind 1 (E end of trough)       | S      | T     | O      | N        | emergent grassy                         |
| John's Pond 2 (off track past stop 1)     | S      | T     | W      | N        | forested                                |
| stop 1                                    | L      | P     | W      | Y        | forested                                |
| service road                              | L      | P     | W      | Y (dirt) | open water                              |
| wheatfield                                | S      | T     | O      | Y        | emergent grassy                         |
| Beaver (old - top of hill nr Larry's)     | S      | T     | O      | Y        | stream at former beaver dam             |
| Sean's 2 (right of road at culvert)       | S      | T     | O      | Y        | emergent/gr at both sides of culvert    |
| 1st flag to left before stop 2            | S      | T     | W      | Y        | red-twig dogwood                        |
| 2nd flag to left before stop 2            | S      | T     | W      | Y        | culvert back-up                         |
| stop 2 (all ponds combined)               | many S | T     | both   | N        | vernal pools/stream/potholes Q bicolor  |
| bottom of hill on left before stop 4      | S      | T     | O      | Y        | shrubby                                 |
| stop 4 culvert                            | S      | T     | O      | Y        | emergent/gr at both sides of culvert    |
| Sean's = bottom of hill past stop 4 on L  | S      | T     | O      | Y        | culvert back-up when pipe clogged       |
| Larry's = top of hill on left past stop 4 | S      | T     | O      | Y        | emergent - cattails                     |
| Beaver pond below monument                | S      | T     | O      | N        | stream at former beaver dam             |
| stop 5                                    | M      | P     | W      | Y        | emergent                                |
| pond south of road in curve below 1       | S      | P     | W      | Y        | forested                                |
| roadside at John's Pond (all combined)    | M      | P     | W      | Y        | ponds on L of tour road under pines     |
| John's Pond                               | L      | P     | W      | N        | forested                                |
| ditches on dirt track JP - FF             | many S | T     | W      | N        | vernal pools /trailside ditches - treed |
| stop 8 fern field                         | L      | T     | O      | N        | emergent grass & shrub                  |
| stop 8 roadside                           | M      | P     | O      | Y        | open water                              |
| big pond on track thru Brit woods         | M      | T     | W      | N        | forested vernal pool                    |
| vernal depressions in Brit woods - all    | many S | T     | W      | N        | forested vernal pool system             |
| British camp north                        | M      | P     | W      | N        | forest/shrub deep depression            |
| British camp south                        | M      | P     | W      | N        | forest/shrub deep depression            |
|                                           |        |       |        |          |                                         |



[illegible]

| 2009 radiotracking data            |        |       |         |       |         |       |         |         |      |  |  |
|------------------------------------|--------|-------|---------|-------|---------|-------|---------|---------|------|--|--|
| Distances and bearings of travel w |        |       |         |       |         |       |         |         |      |  |  |
| Ftg                                | sum    | total | sum d/  | #     | days/   | tot   | tot     | mvmt    | tot  |  |  |
| #                                  | dist   | days  | day     | moves | move    | dist  | dist/   | affia   | baar |  |  |
| 1                                  | 131.2  | 15    | 8.7     | 2     | 7.5     | 118.8 | 7.9     | 1.1     | 263  |  |  |
| 2                                  | 411.3  | 178   | 2.3     | 14    | 12.7    | 138.3 | 0.8     | 3.0     | 311  |  |  |
| 3                                  | 1029.4 | 239   | 4.3     | 14    | 17.1    | 146   | 0.8     | 7.1     | 280  |  |  |
| 4                                  | 451.1  | 182   | 2.5     | 15    | 12.1    | 125.8 | 0.7     | 3.3     | 159  |  |  |
| 5                                  | 563.4  | 239   | 2.4     | 18    | 13.3    |       | 0.0     | #DIV/0! |      |  |  |
| 6                                  | 0      | 7     | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 7                                  | 35.8   | 15    | 2.4     | 1     | 15.0    |       | 0.0     | #DIV/0! |      |  |  |
| 8                                  | 0      | 7     | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 9                                  | 0      | 19    | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 10                                 | 0      | 7     | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 11                                 | 0      | 22    | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 12                                 | 0      | 0     | #0!V/0! | 0     | #DIV/0! |       | #DIV/0! | #DIV/0! |      |  |  |
| 13                                 | 258.7  | 235   | 1.1     | 8     | 29.4    | 154.8 | 0.7     | 1.7     | 27   |  |  |
| 14                                 | 0      | 22    | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 15                                 | 451    | 235   | 1.9     | 10    | 23.5    | 213.7 | 0.9     | 2.1     | 41   |  |  |
| 16                                 | 0      | 9     | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 17                                 | 0      | 9     | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 18                                 | 79     | 28    | 2.8     | 1     | 28.0    |       | 0.0     | #DIV/0! |      |  |  |
| 19                                 | 0      | 9     | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 20                                 | 80.1   | 23    | 3.5     | 1     | 23.0    |       | 0.0     | #DIV/0! |      |  |  |
| 21                                 | 0      | 8     | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 22                                 | 105.9  | 32    | 3.3     | 1     | 32.0    |       | 0.0     | #DIV/0! |      |  |  |
| 23                                 | 0      | 27    | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 24                                 | 0      | 17    | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 25                                 | 184.5  | 32    | 5.8     | 2     | 16.0    | 66    | 2.1     | 2.8     | 59   |  |  |
| 25                                 | 0      | 27    | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 27                                 | 318.9  | 231   | 1.4     | 13    | 17.8    | 186   | 0.8     | 1.7     | 5    |  |  |
| 28                                 | 0      | 4     | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |
| 29                                 | 53.5   | 29    | 1.8     | 1     | 29.0    |       | 0.0     | #DIV/0! |      |  |  |
| 30                                 | 0      | 29    | 0.0     | 0     | #DIV/0! |       | 0.0     | #DIV/0! |      |  |  |

| Clutch Counts - Rana sylvatica - all years, all ponds |      |      |      |      |      |      |      |      |      |      |      |  |  |
|-------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|--|--|
| Pond location                                         | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |      |  |  |
| Way back behind 1 (E end of trough)                   | nf   | nf   | 13   | 174  | 60   | 482  | 193  | 139  | 120  | 97   |      |  |  |
| John's Pond 2 (off track past stop 1)                 | nf   | nf   | 35   | 145  | 102  | 103  | 71   | 79   | 71   | 55   |      |  |  |
| stop 1                                                | 119  | 393  | 383  | 640  | 724  | 618  | 66   | 965  | 435  | 248  |      |  |  |
| service road                                          | 174  | 1    | 100  | 149  | 511  | 437  | 306  | 212  | 233  | 120  |      |  |  |
| wheatfield                                            | 0    | 0    | 0    | 0    | 0    | 5    | 2    | 63   | 33   | 0    |      |  |  |
| Beaver (old - top of hill nr Larry's)                 | 2    | 7    | 0    | 0    | 0    | 1    | 3    | 0    | 0    | 0    |      |  |  |
| Sean's 2 (right of road at culvert)                   | nf   | nf   | 0    | 0    | 0    | 7    | 0    | 2    | 3    | 0    |      |  |  |
| 1st flag to left before stop 2                        | nf   | nf   | 2    | 0    | 34   | 38   | 16   | 49   | 53   | 43   |      |  |  |
| 2nd flag to left before stop 2                        | nf   | nf   | 5    | 19   | 17   | 37   | 2    | 27   | 22   | 1    |      |  |  |
| stop 2 (all ponds combined)                           | 0    | 0    | 12   | 162  | 89   | 271  | 52   | 165  | 113  | 33   |      |  |  |
| bottom of hill on left before stop 4                  | nf   | nf   | 13   | 6    | 0    | 22   | 13   | 33   | 37   | 19   |      |  |  |
| stop 4 culvert                                        | nf   | nf   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |      |  |  |
| Sean's = bottom of hill past stop 4 on 1              | nf   | 4    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |      |  |  |
| Larry's = top of hill on left past stop 4             | nf   | 23   | 16   | 47   | 32   | 23   | 38   | 92   | 62   | 77   |      |  |  |
| Beaver pond below monument                            | nf   | nf   | 16   | 0    | 0    | 2    | 3    | 0    | no   | nc   |      |  |  |
| stop 5                                                | nf   | 160  | 91   | 160  | 217  | 253  | 112  | 311  | 129  | 68   |      |  |  |
| pond south of road in curve below 1                   | nf   | nf   | 0    | 0    | 6    | 18   | 19   | 34   | 18   | 5    |      |  |  |
| roadside at John's Pond (all combined)                | nf   | 0    | 6    | 55   | 118  | 80   | 67   | 225  | 119  | 225  |      |  |  |
| John's Pond                                           | nf   | 432  | 0    | 281  | 470  | 354  | 102  | 422  | 248  | 470  |      |  |  |
| ditches on dirt track JP - FF                         | nf   | nf   | 0    | 45   | 38   | 17   | 21   | 31   | 46   | 31   |      |  |  |
| stop 8 fern field                                     | 129  | 419  | 317  | 1420 | 1114 | 839  | 277  | 395  | 537  | 311  |      |  |  |
| stop 8 roadside                                       | 89   | 220  | 114  | 124  | 233  | 124  | 59   | 384  | 478  | 410  |      |  |  |
| big pond on track thru Brit woods                     | nc   | belc | 246  | 133  | 61   | 94   | 20   | 73   | 201  | 102  |      |  |  |
| vernal depressions in Brit woods - all                | 126  | 555  | 0    | 445  | 563  | 186  | 125  | 679  | 494  | 433  |      |  |  |
| British camp north                                    | 67   | ?    | 65   | 119  | 102  | 56   | 100  | 334  | 297  | 170  |      |  |  |
| British camp south                                    | 60   | ?    | 121  | 96   | 65   | 0    | 0    | 219  | 142  | 55   |      |  |  |
| Total internal ponds                                  | 766  | 2214 | 1555 | 4220 | 4606 | 4122 | 1672 | 5438 | 3901 | 2983 | 3166 |  |  |