

2015 SPRINGTIME MONITORING REPORT

VERNAL POOL AMPHIBIANS BREEDING

BNE/ COLEBROOK SOUTH/PETITION 983

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INTRODUCTION: As part of the Connecticut Siting Council's decision to permit three wind turbines at the Flagg Hill Site (a.k.a. Colebrook South, Petition 983) monitoring of vernal pool obligate amphibians was requested. During the permitting process BNE submitted studies that identified areas of vernal pool use (i.e., cryptic vernal pools) within the northern end of Wetland 1, a large beaver impoundment. These areas were at the northeast and northwest corners of the impoundment. Clearing of the site has commenced; that clearing in accordance with Calhoun and Klemens (2002) which requires a variety of best management and development practices to avoid impacts the pool breeding amphibians. These include avoiding all clearing within the vernal pool envelope (0-100 feet from the edge of the vernal pool) and no more than 25% clearing in the critical upland habitat zone(100-750 feet from the edge of the vernal pool). There are also standards for the construction of roads within the critical upland habitat zone, specifically the avoidance of the creation of water filled ruts that could act as "decoy pools" and excluding amphibian movements into areas where active construction/logging is occurring by the use of exclusionary silt fencing.

MATERIALS AND METHODS: A single site visit was conducted on April 29, 2015. Based on the past seasons of field work it has been determined that by late April through early May all the amphibians (wood frogs and spotted salamanders) have bred. The weather during the sampling period, 11:00 AM-2:00 PM was in the mid 60's F, with full sun and moderately breezy. Sampling included visually examining shallow areas of the wetland to observe egg masses, cover searching around the edge of the pools to locate amphibians and audial surveys to detect calling frogs. The sampling team was supervised by Dr. Michael W. Klemens and conducted by Davison Environmental, LLC.

RESULTS: The study site is divided into two cryptic vernal pool areas, the northeastern and northwestern cryptic vernal pools embedded in Wetland 1. Associated with the northeastern vernal pool is a road rut on an old woods road.

We counted a total of 176 *Ambystoma maculatum* egg masses in the northeastern vernal pool area of Wetland 1. There were also approximately 112 *Rana sylvatica* egg masses, with approximately 100 in a single large raft. A nearby road rut contained four *Rana sylvatica* egg masses and a single *Ambystoma maculatum* egg mass. The total egg masses in the northeastern vernal pool area including the road rut pool were 116 *Rana sylvatica* egg masses and 177 *Ambystoma maculatum* egg masses. Additional species observed were *Pseudacris crucifer*, *Notophthalmus viridescens*, *Chrysemys picta*, and *Nerodia sipedon*. Three active blue heron nests were observed with adult herons. A pair of nesting wood ducks

was observed as well as beaver. A total of 75 *Ambystoma maculatum* egg masses were found in the northwestern vernal pool area and no wood frogs were observed.

DISCUSSION: A total of **33** *Ambystoma maculatum* egg masses were counted in the northeastern cryptic vernal pool in 2012, contrasted with **114** egg masses counted in the same pool area in 2013, and **84** egg masses in 2014 and **177** in 2015. Of the four sampling years, two of these, 2012 and 2014, were characterized by a drawn down pool when eggs were deposited and inundated subsequent to egg mass deposition. Similarly the northwestern cryptic vernal pool contained **25** spotted salamander egg masses in 2012 contrasted with **83** egg masses in 2013 and **49** in 2014 and **75** in 2015. It is apparent in those years when Wetland 1 is drawn down at the beginning of the amphibian breeding period, and then refills after egg deposition, egg mass counts are lower, which is likely a combination of researcher inability to locate eggs in deeper water, and the predation of those egg masses by fish. Wood frog populations appear to have increased greatly in 2014, with significantly large numbers of egg masses compared to previous years. These higher numbers of wood frogs continued in 2015, providing additional evidence of the cyclical nature of this species. Such fluctuations are quite normal for wood frog populations, which respond to a generation time of three years, as opposed to twenty years for spotted salamanders.

In conclusion the spotted salamander population appears stable, and the wood frog population increasing in the four-year period between 2012 and 2015.

REFERENCES:

Calhoun, A. J. K. and M. W. Klemens. 2002. **Best Development Practices (BDPs) for Conserving Pool-breeding Amphibians in Residential and Commercial Developments in the Northeastern United States.** MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, NY.