# **Lye Brook Amphibian Monitoring**

**Update** 

2010

(Covering 1995-2009)

For the Vermont Monitoring Cooperative

Erin Talmage and James S. Andrews

# Amphibian Monitoring in the Lye Brook Wilderness Region of the Green Mountain National Forest 1995-2009

# Background

An inventory of amphibians in the Lye Brook Wilderness Region of the Green Mountain National Forest (GMNF) in Bennington County was begun in 1993 and completed in 1995. Monitoring of selected amphibian species began in 1994. The goals of the monitoring are to (1) establish a baseline data set of abundance indices for the amphibian species caught in the fences, (2) monitor year-to-year changes in their abundance indices, (3) compare population changes between this site and other monitoring locations in the

were captured per trapping as compared to 4.7 in 2008. This was the lowest amount caught since the -going since

1999. Sixty one percent of the Green Frogs caught in 2009 were young of the year, as a result the population may increase again over the next few years with good overwintering success.

#### American Toad

Despite a slight increase in 2008 and 2009, from 2002, American Toads continue to show a long-term gradual decline in numbers (Figure 1) that is steady and significant. The decline at the upper two fences has been quite dramatic, from an initial high of 4.3 per trapping in 1995 to 0.4 per trapping in 2009 (Table 2).

### Wood Frog

From 2002 to 2008 Wood Frogs showed a large increase from 0.2 to 3.2 per trapping at the lower fence and from 1.9 to 6.5 per trapping at the upper two fences (Tables 2 & 4). This trend continued in 2009 with 3.7 per trapping at the lower fence and 6.9 per trapping at the upper two fences. This may well be the result of good overwintering conditions (continuous snow cover) and/or adequate rainfall in the spring for tadpole development. The overall long-term trend is decreasing but is weakly correlated (Figure 1). This could change rapidly with another productive year.

# Spring Peeper

Spring Peepers showed a huge increase in 2008 since 2002, but were then found in fewer numbers again in 2009 (Tables 2 & 4, Figure 3). At the lower fence its numbers soared from 0.2 per trapping to 2.7 in 2008 and then fell back to 1.0 per trapping in 2009. At the upper two fences its numbers increased from 0.8 to 4.8 per trapping and then fell back to 0.8. With the 2008 numbers, a fairly level trend line turned into what appears to be a long-term increase; although this may have merely been a spike resulting from a one-year increase. Spring Peepers showed a long-term decline and subsequent disappearance from the Mt. Mansfield fences. It supports our hypothesis that local factors (rather than regional or statewide) at Mt. Mansfield and Lye Brook currently control the populations.

#### Eastern Newt and Eastern Red-backed Salamander

Both the Eastern Newt and the Eastern Red-backed Salamander show a virtually flat trend line with large annual variation (Figures 4 & 6).

#### Spotted Salamander

The Spotted Salamander showed an increase since 2002 resulting in a positive slope of its long-term trend line (Figure 4) that has been both consistent and significant. At the lower fence, although it decreased from 2008 to 2009, 3.1 to 1.5 per trapping; these capture rates are still considerably higher than previous years. At the upper fences 12.1 per trapping were found in 2008 and 2009 (Tables 2 & 4).

#### Pickerel Frog

The Pickerel Frog disappeared entirely from the lower fence in 2002, but was found in 2008 and 2009, with a capture rate of 0.7 per trapping in both years (Table 4 and Figure 3). In 2009 Pickerel Frogs were found at the upper two fences for the second time since the beginning of the study; although only three adults were captured. It has never been caught in sufficient numbers to be reliably monitored. None of the fences are placed in ideal habitat for this species.

#### Northern Two-lined Salamander

Northern Two-lined Salamander is not caught in sufficient numbers at our fences to be effectively monitored. The fences are not placed in appropriate habitat for this species; however, in 2008 there was a

large increase in numbers of this species caught. In fact, more were caught then than in any previous year. Wet weather probably made it possible for this species to wander further from streambeds and seepage areas (Table 5). In 2009, a few were caught but not as many as were found in 2008 (Figure 5).

#### Abnormalities

In 2009 no amphibians out of a total of 807 captures had an abnormality (Tables 1 & 3). The last abnormality found at the Lye Brook Wilderness fences was a single Wood Frog in 2002. According to the drift-fence technicians, even that abnormality looked like an injury as opposed to a birth defect. Abnormalities have never been common at our Lye Brook fences.

# Summary

In 2003, funding from GMNF for continued monitoring near Lye Brook Wilderness was no longer available. Consequently monitoring was suspended and the fences were removed. In 2007 the fences were rebuilt in their original locations and monitoring resumed in 2008 and continued in 2009 with funding from Vermont Monitoring Cooperative. Data from these efforts has been exported in Excel format and sent via E-mail to VMC. We hope to continue monitoring near Lye Brook Wilderness in 2012. Most species showed increases in per trapping rates in 2008 and 2009 when compared to 2002. Most notable and significant were the long-term and significant increase in Spotted Salamanders and the short-term increase in Spring Peepers. In our 2002 summary we were watching long-term increases in Spotted Salamanders, Eastern Newts, and Green Frogs. Of these, only the Spotted Salamander continues its upward trend with the other two species having leveled off and now showing a slight decline.

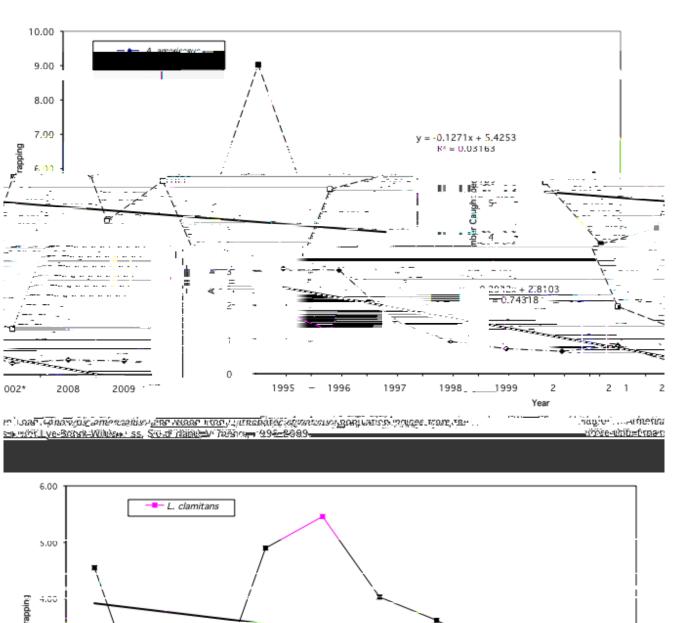
American Toad still shows an overall decline that has been steady and significant since monitoring began in 1995. It has been most striking since 1999.

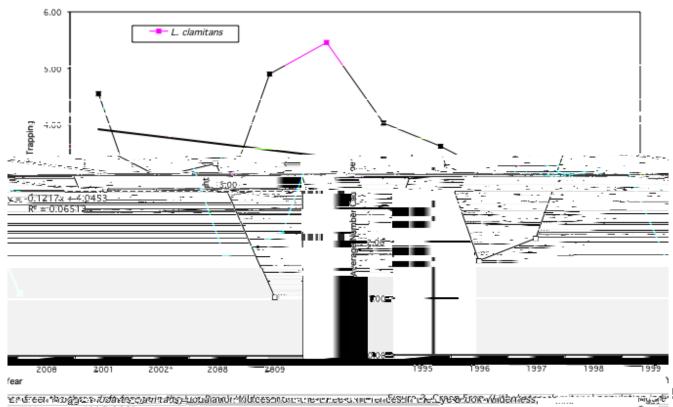
It is rewarding to see an increase in both Spring Peepers and Wood Frogs since 2002. This is in stark contrast to the disappearance of Spring Peepers and the decline of Wood Frogs at Mt. Mansfield. It is also rewarding to have Pickerel Frogs show up again at both the lower and upper fences.

The single Blue-spotted Salamander (Ambystoma laterale group) that was found in one of the upper fences in 1997 looks more suspicious as additional years accumulate with no others caught at any fence. This is primarily a low-elevation flood-plain-margin species. It may well have been placed in the pitfall trap by someone who was aware of the fence location.

#### Acknowledgments

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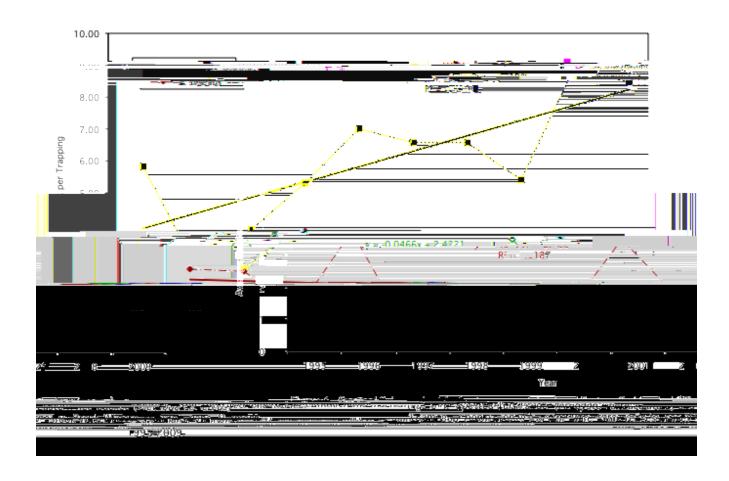
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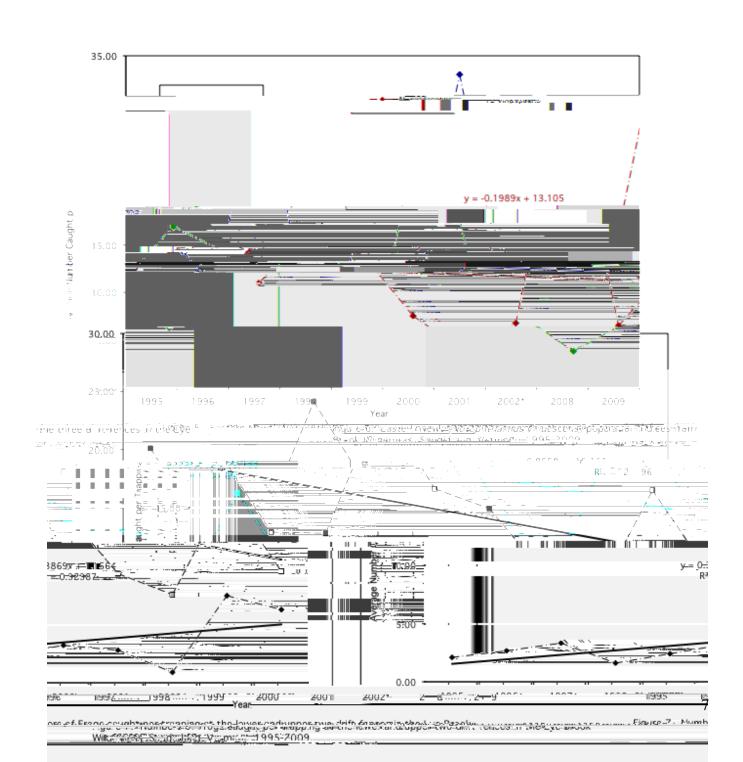
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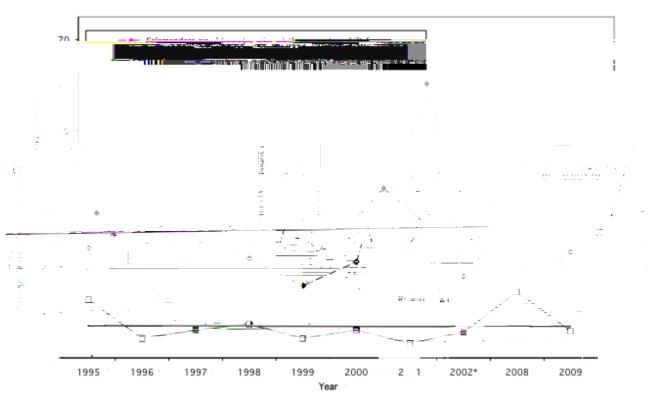
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