Hatching success and variability in three Blanding's Turtle sub-populations in 2024

Jeffie A. McNeil[1], Thomas B. Herman[1,2], Carter Feltham[1], Trevor Avery[2], Norman W. Green[3], and Matthew J. Smith[4]

[1]*Mersey Tobeatic Research Institute, Kempt, NS*
Departments of Biology and Mathematics & Statistics, Acadia University, Wolfville, NS
[3]*Friends of Keji Cooperating Association, 50 Pinetree Crescent, Hammonds Plains, NS*
[4]*Kejimkujik National Park and National Historic Site, Maitland Bridge, NS*

For over two decades, nests from three at-risk subpopulations of Blanding's turtles (*Emydoidea blandingii*) in Nova Scotia have been routinely caged to protect them from predation. Hatching success shows considerable variation over time and among subpopulations, with a significant trend of increasing success in all three subpopulations, averaging 1.7% per year ($p<0.001$) from 2003-2022, likely linked to the impacts of climate change. In this poster, we examine the hatching success of 48 protected nests in 2024, comparing results across subpopulations and to historic trends. The nesting season started unusually early in 2024, and hatchlings also began emerging early, with the first nest emerging before August 17, the earliest date on record (mean September 10). As of October 3, overall hatching success rate for the 48 nests was 78.5%, though two unhatched nests remained in the ground in subpopulation 2 and four eggs from three partly hatched nests remained from subpopulation 3. Substantial variability was observed among populations, with one subpopulation (SP1) achieving a record high hatching success rate of 92.6%, the highest recorded since the start of the program (mean 62.3%). Our findings underscore the importance of monitoring long-term trends and the need to understand the potential impacts of climate change on nesting success and population dynamics.

Key words: Blanding’s turtle, hatchling emergence, climate change, long-term monitoring