## Author's Accepted Manuscript

A new method of estimating thermal performance of embryonic development rate yields accurate prediction of embryonic age in wild reptile nests

Njal Rollinson, Sarah M. Holt, Melanie D. Massey, Richard C. Holt, E. Graham Nancekivell, Ronald J. Brooks



 PII:
 S0306-4565(17)30367-4

 DOI:
 https://doi.org/10.1016/j.jtherbio.2018.03.008

 Reference:
 TB2073

To appear in: Journal of Thermal Biology

Received date: 10 September 2017 Revised date: 26 February 2018 Accepted date: 9 March 2018

Cite this article as: Njal Rollinson, Sarah M. Holt, Melanie D. Massey, Richard C. Holt, E. Graham Nancekivell and Ronald J. Brooks, A new method of estimating thermal performance of embryonic development rate yields accurate prediction of embryonic age in wild reptile nests, *Journal of Thermal Biology*, https://doi.org/10.1016/j.jtherbio.2018.03.008

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## ACCEPTED MANUSCRIPT

## A new method of estimating thermal performance of embryonic development rate yields accurate prediction of embryonic age in wild reptile nests

Njal Rollinson<sup>a,b,1</sup>, Sarah M. Holt<sup>c,1</sup>, Melanie D. Massey<sup>a</sup>, Richard C. Holt<sup>d</sup>, E. Graham

Nancekivell<sup>c</sup>, Ronald J. Brooks<sup>c</sup>

<sup>a</sup>Department of Ecology and Evolutionary Biology. University of Toronto. 25 Willcocks St.,

Toronto, ON. M5S 3B2;

<sup>b</sup>School of the Environment, University of Toronto, 33 Willcocks Street, Toronto, ON. M5S 3E8, Canada

<sup>c</sup>Department of Integrative Biology, University of Guelph, Guelph, Ontario, N1G 2W1, Canada. <sup>d</sup>School of Computer Science, University of Waterloo, Waterloo N2L 3G1, Canada

**Abstract:** Temperature has a strong effect on ectotherm development rate. It is therefore possible to construct predictive models of development that rely solely on temperature, which have applications in a range of biological fields. Here, we leverage a reference series of development stages for embryos of the turtle *Chelydra serpentina*, which was described at a constant temperature of 20°C. The reference series acts to map each distinct developmental stage onto embryonic age (in days) at 20°C. By extension, an embryo taken from any given incubation

<sup>&</sup>lt;sup>1</sup> author contributions were equal.

Download English Version:

## https://daneshyari.com/en/article/8650033

Download Persian Version:

https://daneshyari.com/article/8650033

Daneshyari.com