Spontaneous Directional Preferences in Taxonomically and Ecologically Distinct Organisms: Examining Cues and Underlying Mechanisms

Lukas Landler

Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy In

Biological Sciences

John B. Phillips

Paul B. Siegel

William A. Hopkins

Brent D. Opell

March 23, 2015

Blacksburg, VA

Keywords: Snapping turtles, *Chelydra serpentina*, *Cambarus sciotensis*, *Gallus domesticus*, chicken embryos, woodpecker, spontaneous magnetic alignment, radio frequency, radical pair mechanism, magnetoreception, magnetic orientation, cavity alignment

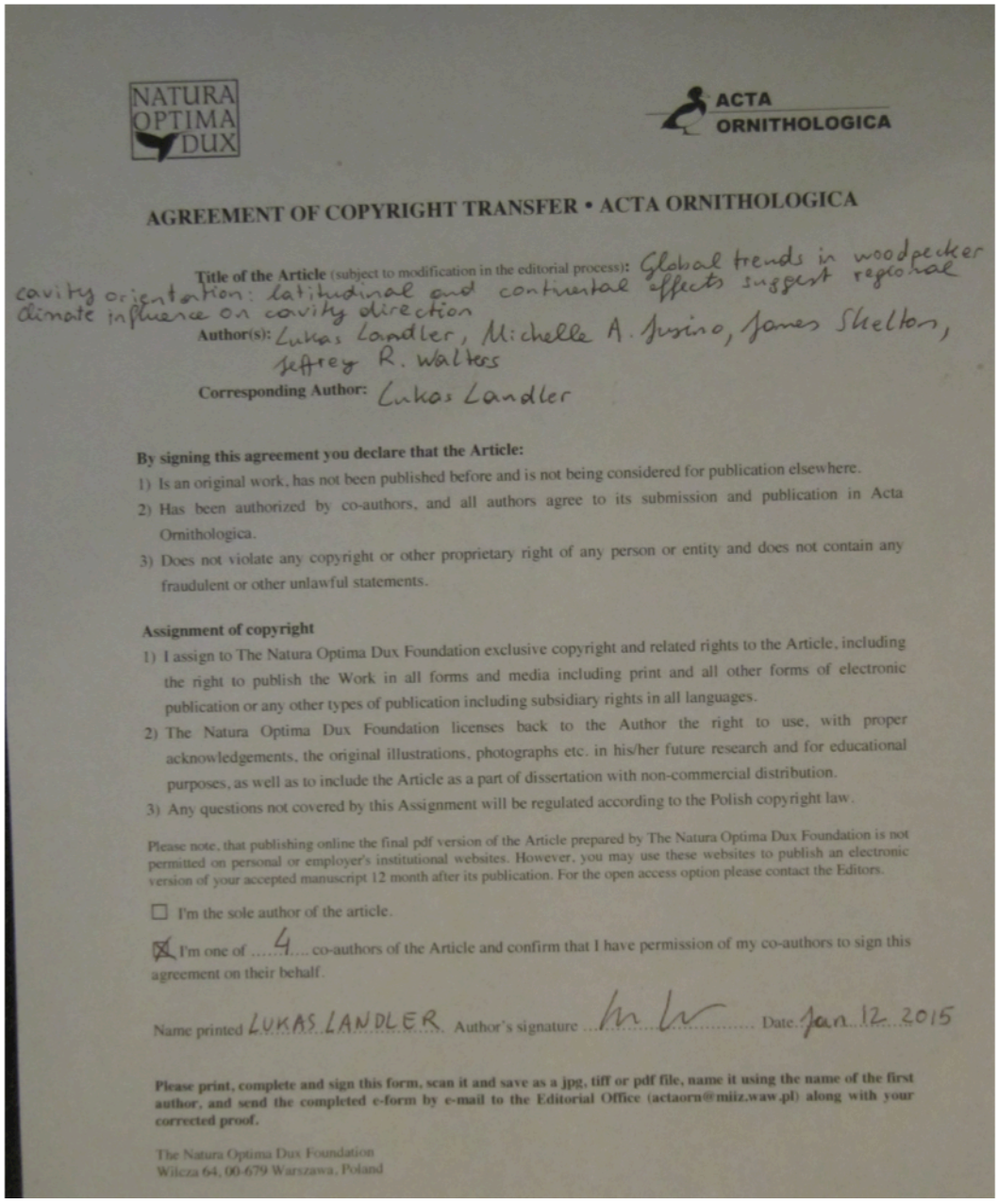
Copyright agreement information (Plos one)

PLOS ONE, from “http://www.plosone.org/static/policies#copyright”

3. Copyright and License Policies

Open access agreement. Upon submission of an article, its authors are asked to indicate their agreement to abide by an open access Creative Commons Attribution (CC BY) license. Under the terms of this license, authors retain ownership of the copyright of their articles. However, the license permits any user to download, print out, extract, reuse, archive, and distribute the article, so long as appropriate credit is given to the authors and source of the work. The license ensures that the authors' article will be available as widely as possible and that the article can be included in any scientific archive.

Copyright agreement information (Acta Ornithologica)



NATURA OPTIMA DUX

ACTA ORNITHOLOGICA

AGREEMENT OF COPYRIGHT TRANSFER • ACTA ORNITHOLOGICA

Title of the Article (subject to modification in the editorial process): Global trends in woodpecker cavity orientation: latitudinal and continental effects suggest regional climate influence on cavity direction

Author(s): Lukas Landler, Michelle A. Jusino, James Skelton, Jeffrey R. Walters

Corresponding Author: Lukas Landler

By signing this agreement you declare that the Article:

1) Is an original work, has not been published before and is not being considered for publication elsewhere.
2) Has been authorized by co-authors, and all authors agree to its submission and publication in Acta Ornithologica.
3) Does not violate any copyright or other proprietary right of any person or entity and does not contain any fraudulent or other unlawful statements.

Assignment of copyright

1) I assign to The Natura Optima Dux Foundation exclusive copyright and related rights to the Article, including the right to publish the Work in all forms and media including print and all other forms of electronic publication or any other types of publication including subsidiary rights in all languages.
2) The Natura Optima Dux Foundation licenses back to the Author the right to use, with proper acknowledgements, the original illustrations, photographs etc. in his/her future research and for educational purposes, as well as to include the Article as a part of dissertation with non-commercial distribution.
3) Any questions not covered by this Assignment will be regulated according to the Polish copyright law.

Please note, that publishing online the final pdf version of the Article prepared by The Natura Optima Dux Foundation is not permitted on personal or employer's institutional websites. However, you may use these websites to publish an electronic version of your accepted manuscript 12 month after its publication. For the open access option please contact the Editors.

☐ I'm the sole author of the article.

☒ I'm one of ....4.... co-authors of the Article and confirm that I have permission of my co-authors to sign this agreement on their behalf.

Name printed LUKAS LANDLER Author's signature ..... Date Jan. 12. 2015

Please print, complete and sign this form, scan it and save as a jpg, tiff or pdf file, name it using the name of the first author, and send the completed e-form by e-mail to the Editorial Office (actaorn@miiz.waw.pl) along with your corrected proof.

The Natura Optima Dux Foundation
Wilcza 64, 00-679 Warszawa, Poland