

# Habitat Modeling: Section Introduction

ENVIRON 761

Geospatial Applications for  
Conservation & Land Management

# Habitat modeling

“Species  
distribution  
modeling”

“Habitat suitability  
mapping”

“Ecological niche  
modeling”

“Occurrence  
probability map”

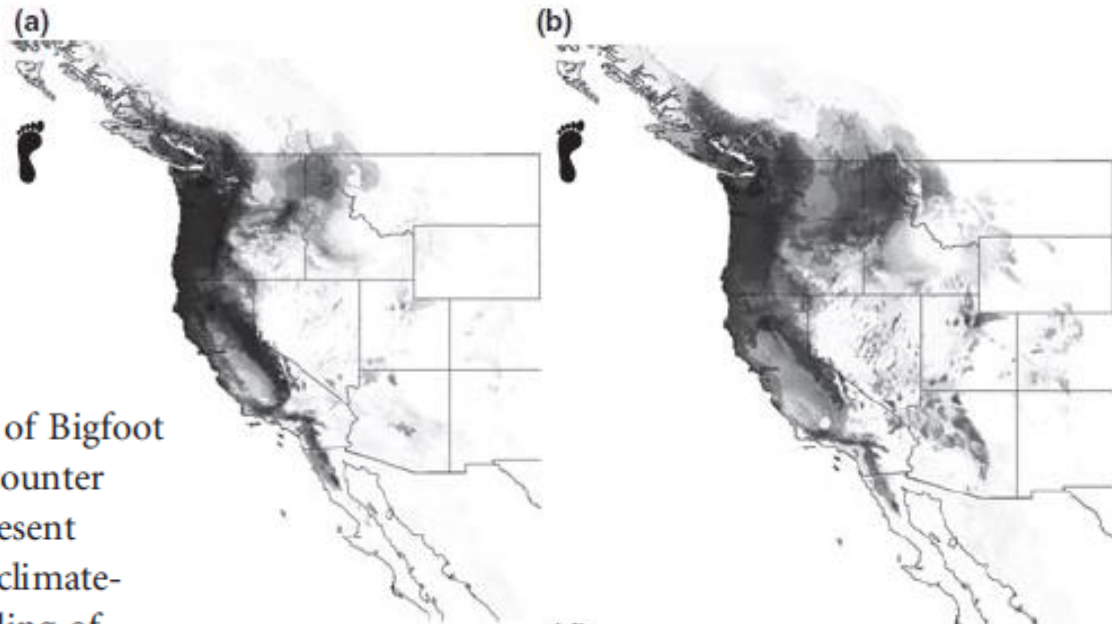
# Habitat Modeling

*Journal of Biogeography* (*J. Biogeogr.*) (2009)



## Predicting the distribution of Sasquatch in western North America: anything goes with ecological niche modelling

J. D. Lozier<sup>1\*</sup>, P. Aniello<sup>2</sup> and M. J. Hickerson<sup>3</sup>



**Figure 2** Predicted distributions of Bigfoot constructed from all available encounter data using MAXENT (a) for the present climate and (b) under a possible climate-change scenario involving a doubling of atmospheric CO<sub>2</sub> levels. Results are presented

# Habitat Modeling

COMPUTATIONAL SCIENCE

## Troubling Trends in Scientific Software Use

Lucas N. Joppa,<sup>1\*</sup> Greg McInemy,<sup>12</sup> Richard Harper,<sup>1</sup> Lara Salido,<sup>3</sup> Kenji Takeda,  
Kenton O'Hara,<sup>1</sup> David Gavaghan,<sup>2</sup> Stephen Emmott<sup>1</sup>

**"Blind trust" is dangerous when choosing software to support research.**

### SELECTED QUOTES FROM SURVEY RESPONDENTS

"The research question and the data should be king, with an approach being selected on the basis that it is appropriate to both the research question and the data rather than the research question and the data being selected to fit the approach which a person knows how to use."

"I regularly see peer-reviewed articles that apply SDM incorrectly from either a statistical or inferential perspective. This is largely a user problem rather than a software problem as some people treat [SDM Software] as black boxes rather than inferential tools, and thus do not put in the intellectual effort required to do good work."

"We don't need fancier software, we need people who understand ecology and the importance of multiple types of data ... The key is the ability to think in ecological terms."

# Habitat Modeling

## Methods in Ecology and Evolution



*Methods in Ecology & Evolution* 2010, 1, 3–14

doi: 10.1111/j.2041-210X.2009.00001.x

### A protocol for data exploration to avoid common statistical problems

Alain F. Zuur<sup>\*1,2</sup>, Elena N. Ieno<sup>1,2</sup> and Chris S. Elphick<sup>3</sup>

<sup>1</sup>Highland Statistics Ltd, Newburgh, UK; <sup>2</sup>Oceanlab, University of Aberdeen, Newburgh, UK; and <sup>3</sup>Department of Ecology and Evolutionary Biology and Center for Conservation Biology, University of Connecticut, Storrs, CT, USA

## Methods in Ecology and Evolution



*Methods in Ecology and Evolution* 2013, 4, 236–243

doi: 10.1111/2041-210x.12004

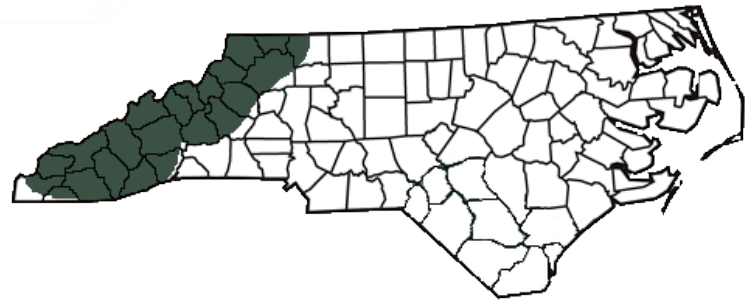
### Presence-only modelling using MAXENT: when can we trust the inferences?

Charles B. Yackulic<sup>1,2,\*†</sup>, Richard Chandler<sup>1</sup>, Elise F. Zipkin<sup>1</sup>, J. Andrew Royle<sup>1</sup>, James D. Nichols<sup>1</sup>, Evan H. Campbell Grant<sup>1</sup> and Sophie Veran<sup>1</sup>

<sup>1</sup>U.S. Geological Survey, Patuxent Wildlife Research Center, 12100 Beech Forest Road, Laurel, MD, 20708, USA; and <sup>2</sup>Department of Ecology and Evolutionary Biology, Princeton University, Princeton, NJ, 08544, USA

# Schedule

|        | Habitat Modeling | Habitat modeling approaches         |
|--------|------------------|-------------------------------------|
| 18-Feb |                  | Fuzzy sets and fuzzy analysis       |
|        |                  | <a href="#">GJAM (A. Schwantes)</a> |
| 25-Feb |                  | Model evaluation                    |



[http://www.herpsofnc.org/herps\\_of\\_NC/salamanders](http://www.herpsofnc.org/herps_of_NC/salamanders)