

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^{1*}, P. Aniello² and M. J. Hickerson³

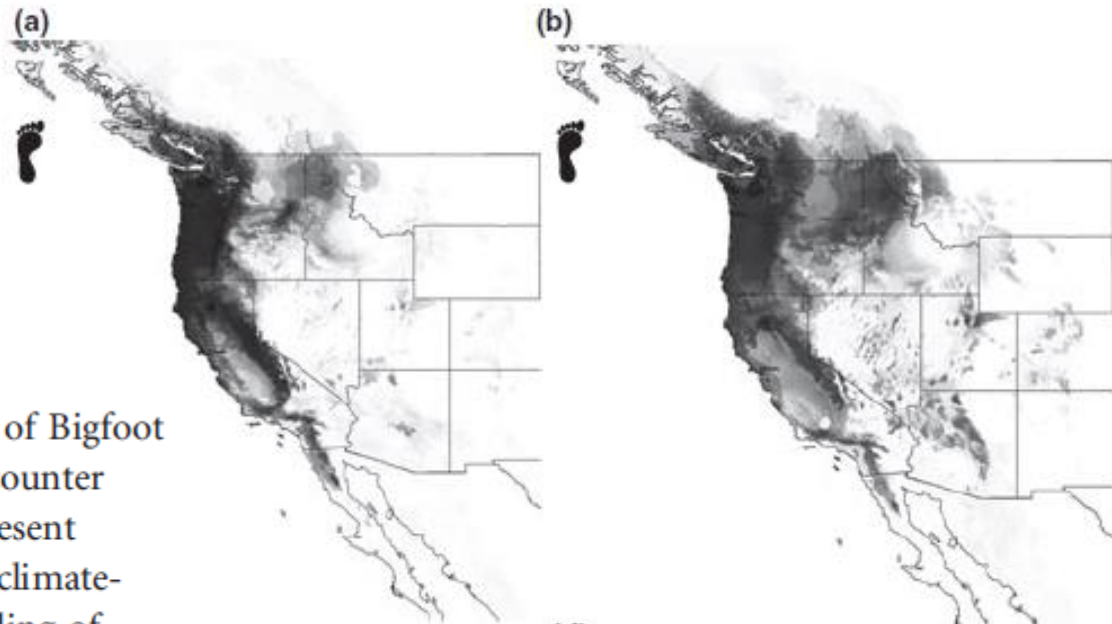


Figure 2 Predicted distributions of Bigfoot constructed from all available encounter data using MAXENT (a) for the present climate and (b) under a possible climate-change scenario involving a doubling of atmospheric CO₂ levels. Results are presented

Habitat Modeling

COMPUTATIONAL SCIENCE

Troubling Trends in Scientific Software Use

Lucas N. Joppa,^{1*} Greg McInemy,¹² Richard Harper,¹ Lara Salido,³ Kenji Takeda,
Kenton O'Hara,¹ David Gavaghan,² Stephen Emmott¹

“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^{*1,2}, Elena N. Ieno^{1,2} and Chris S. Elphick³

¹Highland Statistics Ltd, Newburgh, UK; ²Oceanlab, University of Aberdeen, Newburgh, UK; and ³Department 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

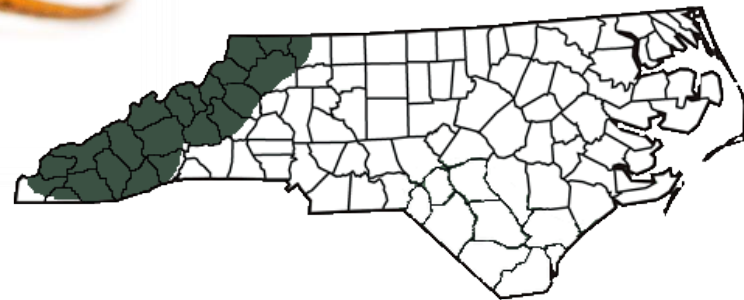
Presence-only modelling using MAXENT: when can we trust the inferences?

Charles B. Yackulic^{1,2,*†}, Richard Chandler¹, Elise F. Zipkin¹, J. Andrew Royle¹, James D. Nichols¹, Evan H. Campbell Grant¹ and Sophie Veran¹

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

Schedule

Topic	Date	In Class	To Watch...	To Do...
3. Habitat Modeling	Tue Feb-13	Work on Project 2 Optional: Unit Hydrographs	§3.1: Intro	Proj 3.0: Overview Proj 3.1: Data Prep
	Thu Feb-15	Proj 3: Data Prep Data Exploration in ArcPro	§3.2: Modelling approaches	Proj 3.2: Rule based Proj 3.3: MaxEnt (thru Step 3.3)
	Tue Feb-20	Q&A - Rule Based Modeling Q&A - 3.3.1 - Maxent	§3.3: Model evaluation	Proj 3.3: MaxEnt (Step 3.4 on) Proj 3.4: Model Tuning
	Thu Feb-22	Q&A - Model Tuning Q&A - Model Evaluation	§3.3: Model evaluation	Proj 3.4: Model Interpretation Proj 3.5: Assignment



http://www.herpsofnc.org/herps_of_NC/salamanders