



U.S. Fish & Wildlife Service

# National Conservation Training Center

*Conserving the Nature of America*

## CSP4220 - Species Distribution Modeling

Course Code	<b>CSP4220</b>
Course Title	<b>Species Distribution Modeling</b>
Description	<p>This course will provide participants with the skills needed to build species distribution models (SDMs) and habitat suitability maps that have become increasingly important for conservation planning. Topics explored include processing species occurrence and environmental datasets, model building, prediction and evaluation, and development of habitat suitability maps. Participants will learn to apply these skills in R statistical programming language through hands-on exercises. Three modeling methods will be covered: logistic regression, generalized linear mixed models and Random Forests.</p> <p><b>OBJECTIVES:</b></p> <p>Upon completion of this course, participants will be able to:</p> <ul style="list-style-type: none"><li>• Use R for spatial analyses and predictive modeling</li><li>• Collate and process environmental predictors (raster layers)</li><li>• Apply logistic regression, generalized linear mixed models and Random Forest methods to build predictive models</li><li>• Evaluate and validate model fit and performance</li><li>• Develop and interpret habitat suitability maps based on model output</li><li>• Fit kernel density estimates to estimate home range</li><li>• Generate pseudo-absences for presence only data</li></ul> <p><b>TARGET AUDIENCE:</b></p> <p>Anyone interested in expanding their modeling skillset for the benefit of species conservation.</p> <p><b>PREREQUISITES:</b></p> <p>Statistical Modeling for Conservation (CSP4210) and GIS Intermediate (CSP7204), or the equivalent experience (per Course Leader approval). Must also have a working knowledge of R Statistical programming language.</p>
Delivery Method	Instructor Led
Non-FWS Fee	\$1,195.00
Instructional Hours	36
Credits/CEUs	3.0
Course Content Contact	Eric Tsakiris; <a href="mailto:eric_tsakiris@fws.gov">eric_tsakiris@fws.gov</a> ; 304-876-7430; <a href="mailto:eric_tsakiris@fws.gov">eric_tsakiris@fws.gov</a>
Curriculum Category	<b>Statistics and Modeling</b>
Course Frequency	Once per year
Registration Link	Register in DOI Talent
DOI TALENT Course Type	ILT
College Credit Name	Semester Hours
College Credit Value	2

**Schedule: CSP4220 - Species Distribution Modeling**

<b>Start</b>	<b>End</b>	<b>Session Information</b>	<b>Location</b>	<b>Session Contact</b>
7/29/2018	8/02/2018	For course content questions: eric_kelchlin@fws.gov Class begins at 8:00am on the first day and ends at noon on the last day	National Conservation Training Center (NCTC)	eric_kelchlin@fws.gov