CSP4220 - Species Distribution Modeling

Course Code: CSP4220

Course Title: Species Distribution Modeling

Description:
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.

OBJECTIVES:
Upon completion of this course, participants will be able to:
- Use R for spatial analyses and predictive modeling
- Collate and process environmental predictors (raster layers)
- Apply logistic regression, generalized linear mixed models and Random Forest methods to build predictive models
- Evaluate and validate model fit and performance
- Develop and interpret habitat suitability maps based on model output
- Fit kernel density estimates to estimate home range
- Generate pseudo-absences for presence only data

TARGET AUDIENCE:
Anyone interested in expanding their modeling skillset for the benefit of species conservation.

PREREQUISITES:
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.

Delivery Method: Instructor Led

Non-FWS Fee: $1,195.00

Instructional Hours: 36

Credits/CEUs: 3.0

Course Content Contact: Eric Tsakiris; eric_tsakiris@fws.gov; 304-876-7430

Curriculum Category: Statistics and Modeling

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
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<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Session Information</th>
<th>Location</th>
<th>Session Contact</th>
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<tbody>
<tr>
<td>7/20/2020</td>
<td>7/24/2020</td>
<td>For course content questions: <a href="mailto:eric_tsakiris@fws.gov">eric_tsakiris@fws.gov</a></td>
<td>National Conservation Training Center (NCTC)</td>
<td><a href="mailto:sharon_howard@fws.gov">sharon_howard@fws.gov</a></td>
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<td>Class begins at 8:00am on the first day and ends at noon on the last day</td>
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