



Applied Remote Sensing Training (ARSET) Program

Species Distribution Modeling with Remote Sensing

Homework Questions

Question 1

Species Distribution Models (SDMs) allow you to assess the suitability of a habitat for a species using raster-based predictor variables.

Answers: (bold correct)

- a. **True**
- b. False

Question 2

Which of the following are examples of species distribution predictors derived from Earth observations (select all that apply)?

Answers: (bold correct)

- a. **Land cover**
- b. **Temperature**
- c. Species occurrence
- d. **Vegetation indices**

Question 3

When referring to habitat suitability, true absence of a species means:

Answers: (bold correct)

- a. The species could not be detected, even though it was present.
- b. The environment is truly unsuitable for the species.**
- c. The species was absent, even though the environment is suitable.

Question 4

Which of the following is an example of a machine-learning-based model that iterates many times over and learns from each modeling process?

Answers: (bold correct)

- a. MAXENT**
- b. DOMAIN
- BIOMAPPER

Question 5

Wallace allows the user to draw species occurrence data from which of the following sources?

Answers: (bold correct)

- a. GBIF (The Global Biodiversity Information Facility)
- b. VertNet
- c. BISON (Biodiversity Information Serving Our Nation)
- d. User-Specified Occurrence
- e. All of the above**

Question 6

In the Wallace workflow, which step immediately follows the partitioning of occurrence data?

Answers: (bold correct)

- a. Process Environmental Data
- b. Visualize Model Results
- c. Build and Evaluate Niche Model**

Question 7

Wallace can model current species distribution, but it cannot predict distributions into the future.

Answers: (bold correct)

- a. True
- b. False**

Question 8

What key questions for SDM development does the Mapping Application for Penguin Populations and Projected Dynamics (MAPPPD) attempt to address with remote sensing (select all that apply)?

Answers: (bold correct)

- a. Can we assess individual penguin health?
- b. Can we estimate abundance?**
- c. Can we differentiate between penguin species?**
- d. Can we use MAPPPD to improve conservation decision-making processes?**

Question 9

When assessing landscape connectivity with Circuitscape, users can identify pinch-points. What is the definition of a pinch-point in this context?

Answers: (bold correct)

- a. A physical barrier preventing movement of a species
- b. An area where connectivity might be lost sooner**
- c. An area of degraded habitat

Question 10

Map of Life uses the maximum amount of available information in their models because the strengths of one data type often offset weaknesses in another. Combining and integrating these different data types improves overall species distribution estimates.

Answers: (bold correct)

- a. True**

b. False

Question 11

Describe how you intend to use SDMs in your work.

Short answer: