

Title:

Ecological Niche Modeling of Florida Temperature Changes and Endangered Rabbit Survival

Author(s):

Renaë Allen

Union County High School, Lake Butler, FL

allenr@union.k12.fl.us

Abstract:

*Ecological Niche Models (ENMs) can be used to show many biological and environmental relationships. Applications can be used to promote conservation of species by making predictions of the future status of organisms due to climate changes, environmental changes and human impact. The Florida Marsh Rabbit is a species of concern while a subspecies that is native to the Florida Keys – *Sylvilagus palustris hefneri* – is endangered. This rabbit lives in shallow water environments. This species of rabbit may be adversely impacted by changing water levels along Florida coasts. Layering information on Florida sea level data with marsh rabbit abundance data may show a relationship between the productivity of the marsh rabbit. Since the Florida Keys subspecies is now endangered, it would be expected that data shows a greater impact due to more intense sea level change in that region of Florida. QGIS 2.18 software program will be used to analyze and layer data with maps in order to unite multiple data bases. Students will learn that many data bases containing useful information for scientific analysis are available for public use as well as a model example of how such databases may be used for research application.*

Subject, Grade, Level:

High School Advanced Science Courses 9-12

Experimental Science Honors

(Depth of discussion and student response will vary with grade level.)

Learning objectives:

**Understand that there are many public online data bases that can be used for comparing and analyzing scientific data.*

**Understand that analyzing data can be done with the application of computer software.*

**Study a real-world example of an endangered species to search for adverse environmental relationships.*

Timeframe:

One 45 minute class period.

List of materials:

Computer

iDigBio database

QGIS Software

Procedure and general instructions (for instructor). REQUIRED.

Tutorial provided by Blaine Marchant for use of QGIS software, iDigBio database, and other related data bases.

Procedure and general instructions (for students).

OPTIONAL SECTIONS (other sections you can add if applicable)

Suggestions and materials for assessing student learning

Student data

Reference list

Student assignments related to the activity

Any other appendices appropriate for your particular activity