

Writing Prompt

Ring Species? What is a Ring Species?

As the scientific editor of the Woodland High School Science Gazette you are in charge of finding and writing articles on interesting phenomena in various scientific endeavors. A brief research abstract has crossed your desk, making reference to an evolutionary study that referred to the introduction of the idea of an adaptive divergence in a salamander ring-species complex in California.

Upon further investigation of this abstract you found out that the study was initiated by Biologist Robert C. Stebbins in the 1940's and is currently being conducted by current notables; Dr. David Wake and Tom Devitt from the **University of California Berkeley**. Further study of the ring-species complex has also introduced you to another ring-species complex found in the forests of Eastern Europe as well as the forest and desert regions of central and northern Asia, the Tibetan Plateau and the Gobi Desert, the Greenish Warbler.

Interesting facts and ideas that relate to evolution in action and speciation within given geographical ecosystems start surfacing as you go through the research process. As the scientific editor, you have decided to prepare a document to share your findings.

Your task as the science editor is to create one of the following products:

1. A **brochure** that explains the science behind the Greenish Warbler and the Salamanders as ring species.
2. A **professional Venn diagram** that compares and contrast the evolution of the Greenish Warbler and the Salamanders. A summary statement is to be written below the diagram or on a separate page.
3. A **Fact Sheet (Flyer)** that could be handed out at a scientific conference to educate others about a ring species. Include Salamanders and Greenish Warblers as examples.

No matter which product you choose, you must include:

- A definition of the ring species complex
- You will include pictures of the warblers and the salamanders
- You'll have to include comparisons between the salamander species variants and species variants of the Greenish Warbler
- The comparisons will also include similarities and differences of habitats and ecosystems, as well as the various evolutionary mechanisms that caused ring speciation to occur

Word Bank (Use as many as you can, but they must be used correctly. If you don't know how to use the word, do not use it.)

Natural Selection	Geographical Isolation
Descent with Modification	Subspecies
Adaptations	Biomes
Mutations	Environment
Proteins	Niche
Genes	Divergence
Genetic Variation	Populations
DNA Sequences	Lineage
Genome	Habitats
Species	Hybrid
Speciation	Biodiversity
Morphology	Ecosystem
Community	Geographic Variation

Research Sites:

<http://www.youtube.com/watch?v=YCoEiLOV8jc&feature=related>

<http://www.youtube.com/watch?v=PjcFSy1KCT>

<http://www.actionbioscience.org/evolution/irwin.html> (may not be working)

http://www.pbs.org/wgbh/evolution/library/05/2/1_052_05.html

http://www.pbs.org/wgbh/evolution/library/05/2/image_pop/1_052_05.html

http://evolution.berkeley.edu/evolibrary/article/devitt_01

http://www.csun.edu/darwin/Abstracts/DWake_abstract.pdf

<http://www.pnas.org/content/94/15/7761.full>

<http://www.darwiniana.org/rings.htm>

You can also do your own searches for information. You can include additional examples of ring species.