



Contributing Teacher Ranger Teacher: Shevaun Adams- Valentine Rural High School, Valentine, NE

Subject: Life Science

Grades: 3rd and 4th

Butterflies of the Niobrara: An Introduction to Hybrids

Description: Within the Niobrara River Valley, there are several species of butterflies that are hybrid offspring of two common species. This activity is a fun way to combine science and art, while introducing the concept of hybrids.

Background

Overview genetics and how hybrids occur. It might also be helpful if students are familiar with the Butterfly Lifecycle.

Three species of butterflies are known to hybridize within the Niobrara River Valley. They are the Red Spotted Purple (*Limenitis arthemis astyanax*), Eastern Viceroy (*Limenitis [Basilarchia] archippus*), and Weidemeyer's Admiral (*Limenitis (Basilarchia) weidemeyer*). Another species, White Admiral (*Limenitis arthemis arthemis*) is known to interbreed with the Red Spotted Purple although none have been documented in the Niobrara River Valley.

Their offspring include *Rubidus*, a cross between the Red Spotted Purple and Eastern Viceroy and a cross between Weidemeyer's Admiral and the Red Spotted Purple. There is a possibility that a hybrid between the Red Spotted Purple and White Admiral exists within the valley, though none have been documented.

Activity

Using the included parent species and their resulting hybrid offspring, have students identify the differences and likenesses between the parent species and offspring. Questions you might ask include: Which parent butterfly is most obvious for coloring pattern in the offspring? Which parent is most obvious for wing edges in the offspring? Older students can compare the life cycles of the parents with that of the offspring and determine which parent it is more similar to.

Next

- Choose a few species of butterflies found in the Niobrara River Valley. A good source is "*The Niobrara a River Running through Time*" by Paul A. Johnsgard. Page 92 has a fairly large species list.
- Look up the butterflies you chose on-line or in a field guide. A good source is AudubonGuides.com <http://www.audubonguides.com/species/Butterflies>
- Have the students choose 2 parent butterflies and create their hybrid using the coloring sheet.

Niobrara National Scenic River

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National Park Service
U.S. Department of the Interior

www.nps.gov/niob
www.facebook.com/NiobraraNSR



Parent Species

Red Spotted Purple (*Limenitis arthemis astyanax*)



Eastern Viceroy (*Limenitis [Basilarchia] archippus*)





Parent Species [Continued]

Weidemeyer's Admiral (*Limenitis (Basilarchia) weidemeyer*)



White Admiral (*Limenitis arthemis arthemis*)





Hybrid Offspring

Red Spotted Purple (*Limenitis arthemis astyanax*) X Eastern Viceroy (*Limenitis [Basilarchia] archippus*)



Red Spotted Purple (*Limenitis arthemis astyanax*) X Weidemeyer's Admiral (*Limenitis (Basilarchia) weidemeyer*)





Coloring Sheet

Your hybrid butterfly is produced by crossing:

Parent name _____ x Parent Name _____

Your hybrid's name _____

