

Barrens and Butterflies: The Karner Connection

Standards Addressed

Environmental Education Standards:

- A. Questioning and Analysis: A.4.1, A.4.2, A.4.3, and A.4.4.
- C. Environmental Issue Investigation Skills: C.4.3.
- D. Decision and Action Skills: D.4.3, D.4.4, and D.4.6.

Key Concepts/ Content

Students will conduct an issue investigation that is relevant to Wisconsin. In doing so, they will gain the skills necessary to identify and investigate an environmental issue using both primary and secondary sources of information.

- ✱ To analyze an issue by identifying the key players and their perspectives.
- ✱ To collect pertinent data.
- ✱ To analyze data and draw conclusions.
- ✱ To identify possible solutions or actions plans.
- ✱ To gain an understanding of the importance of oak and jack pine barrens in Wisconsin.

Teacher Background

In December of 1992, the Karner blue butterfly was added to the federal list of endangered species. Wisconsin is believed to support most of the remaining Karner blues in the eastern United States and Canada.

The only known larval food plant of the Karner blue is the wild blue lupine. Lupine grows in oak and jack pine “barrens”—communities that depend upon disturbance regimes.

The DNR has been instrumental in trying to help ensure the long-term conservation of the Karner blue butterfly. Its program, the Karner Blue Butterfly Habitat Conservation Plan (HCP), is the first HCP being developed for multiple landowners and land users on a statewide basis. By conserving the butterfly’s habitat, it is hoped that the butterfly will survive and flourish.

Getting Ready

If possible, with your students, take a field trip to see an example of prime lupine habitat. If a trip is not possible, have a representative from one of the groups participating in the HCP come to the classroom to discuss efforts to improve the population of the Karner blue butterfly.

Safety Issues



Elementary Science Safety Contract (See Appendix).

Procedures

Read aloud and discuss the children's book entitled *Miss Rumphius* by Barbara Cooney.

Part 1: Help students conceptualize and carry out an investigation. Possible investigative questions might include:

1. To what extent do residents of Wisconsin feel that a Karner Blue Butterfly Habitat Conservation Plan is important? (opinionnaire)
2. What are the critical variables to successfully propagate wild blue lupine? (experimentation; data collection).
3. How much wild blue lupine vegetation is evident in our area? (physical survey)
4. To what extent do Wisconsin residents feel that it is necessary to provide incentives to private landowners who follow recommendations proposed in the Karner Blue Butterfly Habitat Conservation Plan? (opinionnaire)
5. To what extent do Wisconsin residents feel that it is necessary to provide incentives to businesses who follow recommendations proposed in the Karner Blue Butterfly Habitat Conservation Plan? (opinionnaire)

Part 2: In carrying out their investigation of the Karner blue butterfly, students should:

- 1) identify and investigate the issue using both primary and secondary sources of information. Note: Primary and secondary sources of information are listed in the “Resources” list below.
- 2) analyze the issue by identifying the participants and their perspectives
- 3) collect pertinent data
- 4) analyze data and draw conclusions
- 5) identify possible solutions or action plans

**Evidence of
Student
Understanding**

Rubric for Environmental Education Research
(One possible rubric for evaluating student research skills)

Task: Make a list of research materials relevant to your research topic.

The librarian or media specialist in your school can be of assistance here. Look for readily available resources, such as books, magazines, newspapers, and journals.

In addition, make a list of several people you might interview about this topic. These people could be public officials, instructors at a local college or university, newspaper writers, or other people who have special knowledge in the field you want to research. You may be able to phone or write letters to people who are far away, or ask them questions by e-mail.

Finally, find at least two internet sites that you might also use in your search for information.

Prepare a documented list of all your sources.

Scoring Guide—

4	Exemplary: The list includes over one dozen different sources and represents a wide variety of research resources, including books, magazines, newspapers, journals, internet sites, and persons to interview. Each item on the list includes complete information so that another researcher could easily find the item. The list of potential interview subjects includes each person's full name, address, and telephone number. Each item on the list appears to be clearly related to the topic.
3	Proficient: The list includes at least one dozen different sources. There are minor omissions in information for the reference list, but there is enough information so that another researcher can easily find each item on the list. Each item on the list appears to be related to the topic.
2	Progressing: The list has between 6 and 12 sources. The list does not contain significant resources for some important aspects of the topic. Some of the items on the list do not appear to be related to the topic.
1	Not meeting the standards: The list has fewer than 6 sources, is incomplete, or contains sources that are not closely related to the topic.

During the investigation students can be assessed on their ability to:

- 1) identify and clearly state environmental issues. An environmental issue arises when individuals or groups hold opposing points of view on how the problem should be corrected. Students should be able to make a clear statement of an issue.
- 2) analyze the issue by identifying the key players. People have opposing viewpoints on issues because they possess different value orientations. Students should be able to identify these viewpoints and the value perspectives they represent.
- 3) use primary sources of information. Students should be able to differentiate between surveys, questionnaires, and

opinionnaires. In addition, they should be able to select a sample population and identify an appropriate data collection strategy.

4) use secondary sources of information. Students should be able to write letters, interview experts, use library and media reference systems, and record notes on information obtained.

5) analyze data collected from both primary and secondary sources. This includes formulating logical conclusions, inferences, and recommendations based on data; graphing; communicating; and revising recommendations in light of new data.

6) Identify possible action plans.

References/ Resources

📖 Bleser, Cathy. 1995. *Recommendations for Conducting Wild Lupine Surveys*. Wisconsin Department of Natural Resources, Bureau of Endangered Resources. (Bleser's paper describes, in detail, survey options and techniques for finding/mapping wild lupine.)

📖 Rabuck, Jennifer. 1996. *Listening to the Lupine: A Habitat Conservation Plan*. Northbound, Volume 16, Number 3: 4. (Rabuck's article gives a detailed description of the Habitat Conservation Plan for the Karner blue butterfly, including goals and management strategies.)

📖 Wisconsin Power and Light Company in cooperation with the Wisconsin Karner Blue Butterfly Habitat Conservation Plan Partners. 1996. *Karner Blue Butterfly: Partners in Protection*. (This brochure includes pertinent information about the Karner blue. Especially important is a Wisconsin map, which depicts high potential Karner blue butterfly habitat).

📖 *Miss Rumphius*, by Barbara Cooney, The Viking Press, New York, 1982

- 📖 *Big Plans for a Little Butterfly* (pages 17-20)
Wisconsin Department of Natural Resources magazine,
June 1999, Bob Welch, Waupaca Field Station, E110
Emmons Creek Road, Waupaca, WI 54981
Note: Bob Welch and his high school students have
worked with the Karner blue butterfly and restoration of
oak savannas in central Wisconsin.
- 📖 DNR's website: <http://www.dnr.state.wi.us/org/land/er/info.htm>
- 📖 *Endangered Species of Wisconsin: Karner Blue Butterfly*
U.S. Fish and Wildlife Service, Green Bay Wisconsin Field
Office, 1015 Challenger Court, Green Bay, WI 54311
- 📖 *Karner Blue Butterfly Habitat Conservation Plan*
(Copies of the plan are available through the Wisconsin
Department of Natural Resources Bureau of Endangered
Resources)
- 📖 *Rare Species Fact Sheet: The Karner Blue Butterfly*, U.S.
Fish and Wildlife Service, New England Field Office,
400 Ralph Pili Marketplace, 22 Bridge Street,
Concord, NH 03301

Barrens and Butterflies

The Karner Connection

NAME THE PARTS OF A BUTTERFLY

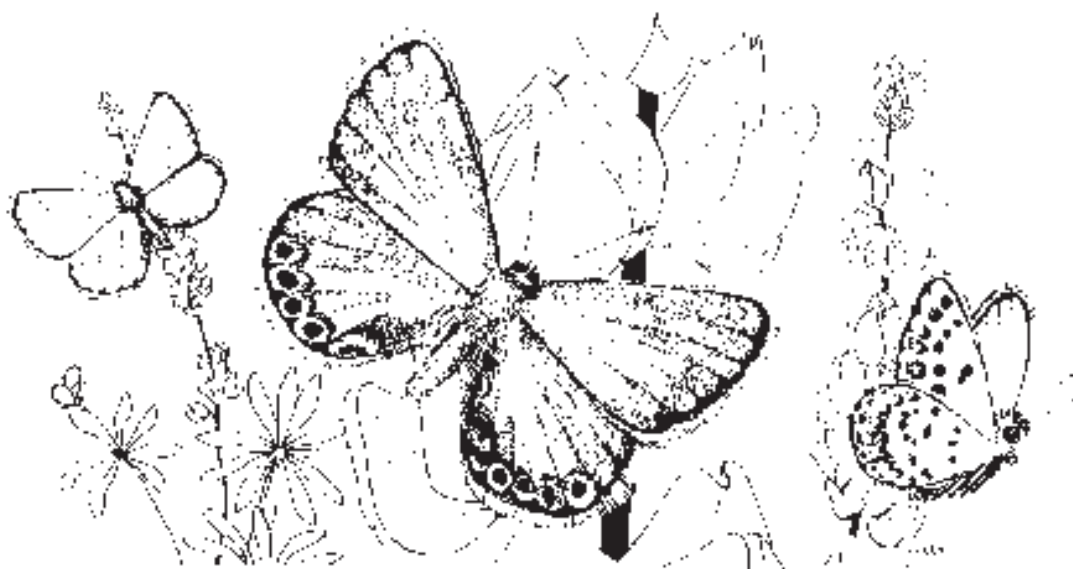
Below is a picture of a Karner Blue Butterfly on its food source, the lupine flower stalk.

Draw a pointer to and label these parts:

1. Antenna
2. Head
3. Forewing
4. Hindwing
5. Thorax
6. Compound Eye
7. Abdomen
8. Proboscis*

Did you know?

All insects have a head, thorax, and abdomen.



* The proboscis is a mouth part that functions much like a straw for the butterfly. When the butterfly feeds, it uncurls the proboscis out and sucks up the nectar from the lupine. When not in use, the proboscis pulls up tightly in a spiral.

