

Endangered Species and Biodiversity

An Online Database Exploration for
College Level Ecology

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(Biophage)

HELP US!

Introduction

Have you ever wondered why each species has value? Would it spark your interest in knowing what factors contribute to the endangerment of specie, or worse, its extinction? Are you interested in finding out what is being done to help endangered species?

In the United States alone there are 1,200 species listed as either endangered or threatened under the Endangered Species Act. "Endangered species are species of plants or animals (or other life forms such as fungi) that are threatened with extinction. Several factors can cause a species to become endangered. The most common cause is loss of habitat. Much of the world's forests, grasslands, and wetlands are being transformed into agricultural and urban areas, and many species that lived in those habitats are unable to adapt to the new environment. As a result, their numbers can drop greatly in a very short time. In some cases, human hunting or gathering of particular species can drive a species to the brink of extinction." (Davis)

Acquaint Yourself

Why do species have value? What factors contribute to the endangerment or extinction of species? Why is it important to protect species from becoming endangered, or even worse, extinct? What can we do to help? Visiting the following links will give you a good start towards understanding why.

[Home](#) – "Internationally renowned photographer Yann Arthus-Bertrand makes his feature directorial debut with this environmentally conscious documentary produced by Luc Besson, and narrated by Glenn Close. Shot in 54 countries and 120 locations over 217 days, Home presents the many wonders of planet Earth from an entirely aerial perspective. As such, we are afforded the unique opportunity to witness our changing environment from an entirely new vantage point. In our 200,000 years on Earth, humanity has hopelessly upset Mother Nature's delicate balance. Some experts claim that we have less than ten years to change our patterns of consumption and reverse the trend before the damage is irreversible. Produced to inspire action and encourage thoughtful debate, Home poses the prospect that unless we act quickly, we risk losing the only home we may ever have." (Home)

[Why Is Biodiversity Important? Who Cares?](#) – "At least 40 per cent of the world's economy and 80 per cent of the needs of the poor are derived from biological resources. In addition, the richer the diversity of life, the greater the opportunity for medical discoveries, economic development, and adaptive responses to such new challenges as climate change." (Global Issues)

[Sylvia Earle: How to protect the oceans \(TED Prize winner!\)](#) – "Legendary ocean researcher Sylvia Earle shares astonishing images of the ocean -- and shocking stats about its rapid decline -- as she makes her TED Prize wish: that we will join her in protecting the vital blue heart of the planet." (Earle)

[Ecological Intelligence](#) – "Some people believe the planet would be better off, at least ecologically, if humans had never evolved. These speakers offer grim evidence that human activities threaten to poison much of life on earth, but they also suggest some new methods for treading more lightly, and perhaps reversing some deadly trends." (MIT World)

Ask for Information

To discover more about endangered species and the factors contributing to species losses world-wide, you will conduct research using on-line endangered species databases and present the results of your search to the class by creating a fact sheet on an endangered species of your choice.

The information you are required to find is listed in the fact sheet template shown on the next page. Please use this template to fill in your answers. All information required for your fact sheet can be found by researching the free online databases listed below. If you cannot find a particular fact in one database, be sure to check the others.

Databases

1. [IUCN \(International Union for Conservation of Nature\) Red List](#)
The Red List is an international system that evaluates and assigns conservation listing status (for example, endangered vs. threatened) for species. This site has a useful database that you can use to complete factsheets for species that includes: listing status, taxonomy, geographic location, and ecology. You are required to explain the IUCN Red List status for species profiled.
2. [CITES \(Convention on International Trade in Endangered Species of Wild Fauna and Flora\)](#)
An international agreement amongst 175 countries whose aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. It places international sanctions on the trade of endangered species body parts such as, elephant ivory, rhinoceros horn and tiger skin and bones. You are required to explain whether CITES applies to the species they profile.
3. [US Fish & Wildlife Service \(FWS\) Endangered Species](#)
4. [NatureServe Explorer](#) - An authoritative source for information on more than 70,000 plants, animals, and ecosystems of the United States and Canada. Explorer includes particularly in-depth coverage for rare and endangered species.

Additional Resources

Students are encouraged to use multiple sources of information including: science journals and magazines, newspapers, books and internet sites, as well as the online databases listed above. The following are a few good links of interest. Please feel free to find your own additional sources.

[The United States Environmental Protection Agency](#)

[EOL: Encyclopedia of Life](#)

[Earth's Endangered Species](#)

[Defenders of Wildlife](#)

[The Audubon Society](#) - Birds

Further Reading

Interested in learning more? Visit the following links for more information on endangered species and biodiversity.

[Endangered Species Act](#)

[The Significance of Biodiversity: Why We Should Protect the Natural Environment](#)

[Convention on Biological Diversity](#)

[The Ecological Role of Biodiversity in Agro Ecosystems](#)

[Biodiversity and Ecosystem Functioning: Maintaining Natural Life Support Processes](#)

[2010 International Year of Biodiversity](#)

Endangered Species Fact Sheet

Student Name: _____

(Common Name)

Picture of your species here.

Map showing where your species lives.

TAXONOMY	
Domain	
Kingdom	
Phylum	
Class	
Order	
Family	
Genus	
Species	<i>Italicize scientific name</i>

ADDITIONAL INFORMATION	
What is the IUCN and ESA status for this species?	IUCN: _____ ESA: _____
Where is this species found?	
Is it located in a biodiversity hotspot? If so which one?	
Describe briefly the ecology of your species. What habitat does this species live in? What does it eat?	
Why is this species endangered? What threats does it face?	
How many are left?	
How is it protected? What laws protect it?	
What can we do to help this species?	
Facts of interest for this species.	

Apply what you've learned

Based on your research and using the fact sheet you created as an outline, write a one page, single-spaced reflection concerning what you have learned by completing this assignment. Also, please include what you liked or disliked about this project, as well as anything else you feel is important to add. Your reflection should be at least one page in length. However, you can make it longer. Please submit your reflection via the class website along with your endangered species fact sheet by the required due date.

Evaluation Rubric

Criteria	Possible Points	Points Given
Fact sheet includes picture of species	15	
Fact sheet includes map of species location	15	
Fact sheet includes all taxonomy	15	
Fact sheet includes all additional information	15	
Fact sheet shows student understands online database use for research	15	
Reflection shows student understands of why biodiversity is important	15	
Reflection has no grammatical errors	10	
Total Points	100	
Five (5) points will be deducted for each day late		

Conclusion

By completing this lesson students will learn how to use an inquiry based approach to understand the factors influencing the endangerment and extinction of species worldwide. Students will be sensitized to the plight of endangered species around the world, emphasizing the value of species and environmental ethics, as well as gain appreciation for the complex socio-political nature of endangered species conservation. Students will have improved their computer skills and research abilities through online database exploration. Students will also be provided with the knowledge necessary to make educated decisions about biodiversity concerns, for example, when voting in elections or when making purchases of products that may impact endangered species.

Credits

Biophage - *Endangered species image | Biology*. Retrieved Mar. 7, 2012, from Web site: <http://www.biophage.com/endangered-species.html>

Davis, Mark A.. "[Endangered Species](http://www.encyclopedia.com)." *Biology*. 2002. *Encyclopedia.com*. Retrieved Mar. 6, 2012, from Web site: <http://www.encyclopedia.com>

Global Issues - *Why Is Biodiversity Important? Who Cares?* Retrieved Mar. 7, 2012, from Web site: <http://www.globalissues.org/article/170/why-is-biodiversity-important-who-cares>

Home - *YouTube*. Retrieved Mar. 7, 2012, from Web site: http://www.youtube.com/movie?v=jqxENMKaeCU&feature=mv_sr

Earle, Sylvia: *How to protect the oceans (TED Prize winner!)* - *YouTube*. Retrieved Mar. 7, 2012, from Web site: <http://www.youtube.com/watch?v=43DuLcBFxoY>

MIT World - *Ecological Intelligence | About the Lecture*. Retrieved Mar. 7, 2012, from Web site: <http://mitworld.mit.edu/video/913>

Other educators are welcomed to use this lesson. Please include my name as the original author.

March 7, 2012 – Amy Hissom