

Introduction to Environmental Science (ENR2100)
The Ohio State University, Columbus, Ohio, USA
Professors: Brian H. Lower, Ph.D. & Steven K. Lower, Ph.D.
Textbook: Environmental Science for a Changing World, Evolution & Extinction
Lecture: Battle for the Elephants

LIFE ON EARTH



Scandinavia at Night. NASA astronaut photograph acquired on April 3, 2015 by the ISS Crew Earth Observations Facility and the Earth Science and Remote Sensing Unit at Johnson Space Center. The image was taken by a member of the Expedition 43 crew. <http://visibleearth.nasa.gov/view.php?id=85855>



THE OHIO STATE UNIVERSITY

Life on Earth

Life on Earth is a result of billions of years of evolution. Changes in the environment has driven evolutionary processes for eons. These adaptations ultimately result in changes in biodiversity, which has and will continue to impact life on Earth, including humans.

Watch/read the following and type your answers in a Word document (or any other word processing software that you are comfortable using). After you are done, log onto <https://carmen.osu.edu> and upload your Word document (or PDF file) with your answers to the Carmen dropbox. The dropbox will close exactly at the deadline and if you miss the deadline then you will not be able to complete this assignment and you will earn a 0%. Do not wait until the last minute to upload your answers to dropbox because if something goes wrong with your Internet connection and you miss the deadline, then you are out of luck. We do not accept assignments by Email and we do not accept late assignments. One word of caution. As with most classes offered at OSU, we use TurnItIn software <http://turnitin.com> to check for plagiarism against previously published articles and books and against student papers from universities all over the world. So it is in your best interest to make sure that you assignment is your own. We really do want to hear from you and your thoughts and ideas on the various topics below. You will no doubt offer exciting insight and novel solutions to these issues and it is important for your success in our class that you use your own ideas and talents to complete this assignment. When you answer these questions we are looking for you to provide substantial insight and knowledge of the subject matter. As such, your answers will likely require between 250-500 words for each question 1-6 listed below. For comparison, this paragraph that you are currently reading contains approximately 300 words.

1. (4-points) Watch Dr. Lower's lecture "Battle for the Elephants" on Carmen or go.osu.edu/enr2100 and watch the supplementary videos that are contained within his lecture. How do cultural and religious practices contribute to the dramatic decline in african elephant populations from the 1800s until present day? What role did and does the USA and China play in this tragic storyline? Why do you suppose that humans place so little value on the lives of some organisms? Do you think that we can ever overcome our penchant to see humans as the center of the universe?
2. (4-points) What is CITES (hint watch Dr. Lower's lecture "Battle for the Elephants) and how does it work? What is the difference between species listed in Appendix I, II and III? List two organisms (plant or animal) that is listed in Appendix I and give its geographical location. List two organisms (plant or animal) that is listed in Appendix I and give its geographical location. List two organisms (plant or animal) that is listed in Appendix III and give its geographical location.
3. (4-points) Go to the website www.actionbioscience.org/evolution/myers_knoll.html and read the article "How will the sixth extinction affect evolution of species?", which discusses the effects of the sixth

mass extinction on evolution. If the URL above doesn't take you to the article, search for it by title at www.actionbioscience.org).

- a. Is this a reliable information source? Does it have a clear and transparent agenda? Explain.
 - b. Who runs the website? Does this person's/group's credentials make this source reliable or unreliable? Explain.
 - c. Who are the authors of the article? What are their credentials? Do they have the scientific background and expertise that lends credibility to the article?
4. (4-points) Go to the website www.pubmed.gov find the one article that was written by Norman Myers and Andrew H. Knoll in 2001. Download the pdf file of the article to your computer. This article is free. If you are asked to pay money for the article then you have done something wrong and should start over.
- a. What is the title of the article? What is the journal's name where the article was published? What volume was it published in? What are the page numbers for the article?
 - b. Who runs pubmed? What is the U.S. NIH (the middle letter in "NIH" is a capital i, not a lower case l)? Tell us a little bit about the NIH and what its purpose is. Who provides the money that is used to run the NIH?
 - c. Have you ever been impacted in a positive way by the research that is being conducted by the U.S. NIH? If yes, provide at least one example of how you benefited.
 - d. Read the article that you found on www.pubmed.gov because you will be asked to answer a few questions about the article on Carmen.
5. (4-points) In your words, explain why the authors (Norman Myers and Andrew H. Knoll) think that the current mass extinction will change evolutionary processes. What changes in particular do they think will impact future evolution? What type of evidence do they provide to support their arguments? Give specific examples.
6. (5-points) The sixth mass extinction is attributed to human impact. Go to the International Union for Conservation of Nature (IUCN) "Species of the Day" website www.iucnredlist.org/species-of-the-day/archives and read about several of the endangered organisms.
- a. Choose five species at random that are identified as vulnerable, endangered or critically endangered. Read about each species and list the reasons for their endangerment.
 - b. Create one master list of all the threats you encountered for your five species and categorize them as either human caused or caused by natural events. Which list is longer, human-caused or nature-caused?
 - c. Does human impact play a role in the endangerment of these species? What actions would be most useful to address these threats?