

## **ECOLOGY REPORT INFORMATION FOR GROUPS 4A&4B— DUE 11/10**

Dear Group 4A/4B students,

I would like to challenge the 4A/4B students to finish up their ecology unit with a report on an environmental issue. Each topic below will be handled a little differently than the others. Read the resource that was given to you, but also research further to find more information on your topic if needed. Some of these files below came from the natural resource conservation service's pages where farmers are funded to make improvements on their farm that will save energy, or give another positive impact to the environment. Some of the funding material, you will just skim through. Your presentation should include how your topic is of concern to the ecosystem where it is found. Include measures that are being taken to improve the situation with your topic. Explain terms that are not familiar to you and your classmates. Your report should be approximately one type-written page. Reports may be typed or neatly hand-written and should take approximately two minutes to read and share with your classmates. If there is something within your topic that you could include a picture, please do so. Some topics will lend themselves to more detail than others. If you have any questions, please e-mail or talk to me in class.

😊 Mrs. Pierson

**1. The western water cycle**—how does it differ from the water cycle you are used to seeing pictures of, where water's endless journey circles around? What do snow surveyors do? Who benefits from knowing the predicted spring and summer streamflow? Why?

**Whit Bryant (4A) Titus Agnew (4B)**

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/home/?cid=stelprdb1101556>

**2. Aquaculture**—Why is aquaculture needed to increase seafood supply? What is marine aquaculture? Why are hatcheries important? What are the top marine species grown in the US? What does aquaculture look like around the world?

**Joel Charette 4A & Alexander Breeden 4B**

<https://www.fisheries.noaa.gov/insight/understanding-marine-aquaculture>

**3. Rockingham county farmer returns to roots**—tell us a little about Mr. Holsinger and how he came back to the family farm. How would rebuilding the soil and water resources better the production on the farm? What does it mean to rebuild the soil? Look at the parts highlighted in yellow and include information on them—how does each area improve the ecosystem? Explain what silvopasture is.

**Elijah Fernandez 4A & Gracelyn Crippen 4B**

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/va/newsroom/stories/?cid=nrcseprd725406>

**4. Longleaf pine initiative**—Why does the government want to support longleaf pine restoration? What does the longleaf pine have to offer?—wildlife benefits, they are more resistant to disease and fire—

**Estelle Flynn 4A & Parker Flynn 4B**

[https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/initiatives/?cid=nrcsdev11\\_023913](https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/initiatives/?cid=nrcsdev11_023913)

**5. Agriculture conservation easement program** What is a conservation easement? How does it give ecological benefits?

**More interesting information? How long does one last?**

**Levi Haggerty 4A & Judah Spruill 4B**

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/va/programs/easements/acep/?cid=stelprdb1248504#:~:text=The%20Agricultural%20Conservation%20Easement%20Program,wetlands%20and%20their%20related%20benefits.>

**6. Organic Initiative** What positive impacts does organic farming have on the environment? Give some examples of conservation practices that protect water quality and improve soil health—you may benefit from looking up another resource as well on this topic. **Gabrielle Grace 4A & Lena Garber 4B**

[https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/?cid=nrcs141p2\\_015675](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/?cid=nrcs141p2_015675)

**7. Natural Resources conservation service high tunnels** What is a high tunnel? What is the benefit of having a high tunnel? Other interesting information?

**Mary Heetderks 4A & Levi Stokes 4B**

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/organic/?cid=nrcseprd1364702#:~:text=High%20tunnels%20protect%20plants%20from,and%20sometimes%2C%20year%20Dround.>

**8. Energy initiative** Why would the NRCS have an interest in helping farmers reduce the amount of energy they are using? What can cause a farmer to use more energy than necessary? Old equipment? Other? What are that national and state priorities?

**Isaac Hoovler 4A & Soren Holmes 4B**

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/eqip/?cid=stelprdb1046252>

**9. The importance of crop rotations** Explain what rotating crops means. Why is it important? What happens if you don't rotate crops? Share some important facts and how crop rotations helps the soil to be more productive.

**Caris Lemcke 4A & Aiden Hendricks 4B** <https://store.almanac.com/the-importance-of-crop-rotation/>

**10. Former physician's assistant focuses on healing the land—what is plasticulture?** Why would it improve their land to establish a pollinator habitat? Why is soil healthier when cover crops are on the fields? Explain what micro-irrigation is. You will need to look up another resource to help you.

**Parker Fuller 4A & Kaelyn McVey 4B**

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/va/newsroom/stories/?cid=nrcseprd725806>

<https://en.wikipedia.org/wiki/Plasticulture>

**11. Unlock your farm's potential, do not disturb (unlock the secrets in the soil)** what is tillage? Why is it damaging to till? Benefits of not disturbing the soil? Other interesting information?

[http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb1049424.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1049424.pdf)

**Johnny Miles 4A & Henry Gunn 4B**

**12. Invasive species, the feral pig** Why is it called one of the world's worst invaders? Where are they found? What is their size? What do they eat? What are the economical and environmental impacts? How is the feral pig controlled?

**Eli Mays 4A & Malcolm Herndon 4B**

<https://abnvasives.ca/squeal-on-pigs/>

**13 Invasive species, sirex woodwasp** Where is its native range? What does it eat? Why Is the woodwasp considered to be a great pest? What are the signs of infestation?

**Luke Marshall 4A & Kaitlyn Wilcox 4B**

<https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-insects/sirex-woodwasp/>

**14 Invasive plant species, Kudzu** Explain how the Kudzu kills or degrades other plants. Where is its habitat? When was it introduced into the US? What would some suggested alternative plants be? Why is the kudzu an problemfor an ecosystem?

<https://www.nature.org/en-us/about-us/where-we-work/united-states/indiana/stories-in-indiana/kudzu-invasive-species/>

**George Lepage 4A & Nicholas Nappi 4B**

**15 Invasive plant species, Texas blueweed** (Echium Vulgare) What about this plant cause it to be an economical threat? Tell some of the history of the plant, where it is found, anything else interesting.

**Ben Porter 4A & Beckett Hendricks 4B**

[http://www.texasinvasives.org/plant\\_database/detail.php?symbol=ECVU](http://www.texasinvasives.org/plant_database/detail.php?symbol=ECVU)

**16 What can be done to save the Monarch butterfly?** Why have the number of monarch butterflies decreased? What is being done to help the monarchs to increase in number? How do the conservation efforts benefit producers? Anything else interesting?

**Preston Parks 4A & Declan Newberry 4B**

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/plantsanimals/pollinate/?cid=nrcseprd402207>

**17. Aquaporins: Fighting the global water crisis using nature's own filter** NASA has researched ways to provide filtered Water to their astronauts on the International Space Station. Some of the technology can be used to help fight the water crisis on earth. What is the technology? What did you learn that was interesting?

**Annabelle Pownall 4A & Timothy Payne 4B**

**18. Pacific Ocean Garbage Patches** <https://media.nationalgeographic.org/assets/file/gpposter.pdf>

What is the main ingredient in ocean garbage patches? How easy would it be to clean it all up? Why do you think this? **Ariella Miller-4A & Conrad Soko-4B**

**19 BURMESE PYTHON**--<https://www.history.com/news/invasive-species-list-mammals-birds-aquatic>

SCROLL down to #2 burmese python. Where did they originate and how did they enter the U.S.? How many eggs do they produce each year? What do they do that creates havoc on the ecosystem?

**Avery Scroggum-4A**

**20) NUTRIA**--<https://www.history.com/news/invasive-species-list-mammals-birds-aquatic>

SCROLL DOWN TO #5 Nutria. Nutria looks like a cross between what two animals. How do they damage wetlands? How did they get to the U.S.?

**Vyonae Thompson-4A**

**21 European Gypsy moth** <https://www.nps.gov/isro/learn/nature/invasive-species-gypsy-moth.htm>

Similar to spiders, the smallest gypsy moth larva creates a thread. What is ballooning? When did the gypsy moth get introduced to the U.S.?

<https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/the-threat/hp-egm/hp-egm>

Scroll down to the section on the European Gypsy Moth. Why is it considered a significant pest? What types of trees do the gypsy moth caterpillars eat? What are the signs and symptoms of a gypsy moth infestation?

**Charlotte Otto-4A**

