# Lab 9 Response: Biodiversity and the Value of Greenspace

**Directions:** In your responses to all of the questions below, be sure to make connections to the recommended videos and readings, as well as class activities and discussions as appropriate. You may find the additional resources on the [COD Library Research Guide dedicated to greenspaces](https://library.cod.edu/biolo1110/greenspaces) helpful for answering some of the questions.

Your completed assignment must be typed with photos, maps, and images inserted as appropriate in the text. You may prefer to use PowerPoint or Google Slides to organize your response by question, as it is easier to incorporate images and text.

## Part 1: Biological Connections to Greenspace

1. In your own words, explain what greenspace is and the functions it serves.
2. Trees near your home: Complete the following for each of the three trees you selected.

* **Tree 1**
  + Identify the tree:
  + Size (indicate circumference or diameter and include units of measurement):
  + Condition of tree:
  + Location:
  + Include a photo:
  + Upload images of both Tree Benefits and Equivalents on an annual basis:
* **Tree 2**
  + Identify the tree:
  + Size (indicate circumference or diameter and include units of measurement):
  + Condition of tree:
  + Location:
  + Include a photo:
  + Upload images of both Tree Benefits and Equivalents on an annual basis:
* **Tree 3**
  + Identify the tree:
  + Size (indicate circumference or diameter and include units of measurement):
  + Condition of tree:
  + Location:
  + Include a photo:
  + Upload images of both Tree Benefits and Equivalents on an annual basis:

1. (a) Record the benefit findings for your three trees in **Table 9.1** below.

**Table 1. Comparison of tree benefits.**

|  |  |  |  |
| --- | --- | --- | --- |
| BENEFIT CRITERIA | TREE 1 | TREE 2 | TREE 3 |
| Tree Species |  |  |  |
| Tree Size (in. diameter) |  |  |  |
| Total Value of All Benefits ($) |  |  |  |
| Value of Carbon Dioxide Uptake ($) |  |  |  |
| Carbon Sequestered (lbs) |  |  |  |
| Carbon Dioxide Equivalent (lbs) |  |  |  |
| Value of Storm Water Mitigation ($) |  |  |  |
| Runoff Avoided (gal) |  |  |  |
| Rainfall Intercepted (gal) |  |  |  |
| Value of Air Pollution Removal ($) |  |  |  |
| Carbon Monoxide (oz) |  |  |  |
| Ozone (oz) |  |  |  |
| Nitrogen Dioxide (oz) |  |  |  |
| Sulfur dioxide (oz) |  |  |  |
| PM2.5 (oz) |  |  |  |
| Value of Energy Usage Savings ($) |  |  |  |
| Electricity Savings (kWh) |  |  |  |
| Heating Fuel Savings (MMBtu) |  |  |  |
| Value of Avoided Energy Emissions ($) |  |  |  |
| Carbon Dioxide (lbs) |  |  |  |
| Carbon Monoxide (oz) |  |  |  |
| Nitrogen Dioxide (oz) |  |  |  |
| Sulfur Dioxide (oz) |  |  |  |
| PM2.5 (oz) |  |  |  |

(b) Discuss your findings on the benefits that trees provide. Make at least five statements comparing and contrasting the environmental, social, and economic benefits delivered by the three trees you studied—what did you learn, what conclusions did you come to, what surprised you, what questions do you have, etc.

1. Tree canopy in your community: Provide the following information about the tree canopy in your community.

* Community:
* Tree canopy covers \_\_\_ % over \_\_\_ acres:
* Impervious surfaces cover \_\_\_ % over \_\_\_ acres:
* Upload images of the benefits, story, community, equity, and scorecard of your community’s tree canopy:

1. (a) Select and record 5-7 benefit findings for your community tree canopy in Table 9.2 below.

**Table 2. Canopy benefits (OurTrees benefits).**

|  |  |
| --- | --- |
| BENEFIT CRITERIA | ANNUAL TREE BENEFITS |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

(b) Discuss your findings on the benefits that the tree canopy provides to your community based on the criteria you selected. Make at least five statements addressing the environmental, social, and economic benefits delivered by the tree canopy—why did you select these criteria, what did you learn, what conclusions did you come to, what surprised you, what questions do you have, etc.

1. Explore the OurTrees Scorecard for your community tree canopy. Summarize the current status of the tree canopy in your community and also discuss how it compares to nearby communities. Is there room for improvement? How much would you like to see tree canopy increase by in your community? Explain why.
2. Assessment of community greenspace: Provide the following information about the greenspace in your community.
   1. Upload a map that shows the greenspaces in your community:
   2. Based on your map, discuss the following: How accessible are the available greenspaces to you? Are you within a 10-minute walk of public greenspaces?
3. Summarize your assessment of the greenspace you visited using the five criteria you selected.

* Criterion 1
  + Discuss why the criterion is important to you:
  + Discuss whether or not the greenspace you visited supports the criterion:
  + Include a photo and a brief narrative:
* Criterion 2
  + Discuss why the criterion is important to you:
  + Discuss whether or not the greenspace you visited supports the criterion:
  + Include a photo and a brief narrative:
* Criterion 3
  + Discuss why the criterion is important to you:
  + Discuss whether or not the greenspace you visited supports the criterion:
  + Include a photo and a brief narrative:
* Criterion 4
  + Discuss why the criterion is important to you:
  + Discuss whether or not the greenspace you visited supports the criterion:
  + Include a photo and a brief narrative:
* Criterion 5
  + Discuss why the criterion is important to you:
  + Discuss whether or not the greenspace you visited supports the criterion:
  + Include a photo and a brief narrative:

## Part 2: Greenspace through an Environmental and Social Justice Lens

1. In your own words, explain what environmental justice is, what its causes are, and why it matters.
2. What environmental injustices exist in your community? To answer this question, you should describe the environmental injustice you see and provide supporting evidence in the form of your photos and the map/graph. Explain how your photos and map/graph support your arguments about environmental injustice.
3. Summarize the key points about the region you selected in the Unequal Scenes Project, highlighting what makes it an unequal place. In your response, provide supporting evidence in the form of a photo and explain how the photo connects to the key points about injustice you discussed.
4. Explain, using examples, how issues related to greenspace are similar and/or different in the global region you explored compared to our region.
5. Connect the idea of greenspace as a human right to two of the UN’s 17 Sustainable Development Goals. Discuss the connections you see.

## Part 3: Connect to Civic Action

1. Connect what you learned from your exploration of the value of greenspace, environmental justice, and your own access to greenspace to the Pathways of Civic Engagement Framework. Use “supporting availability of and access to high-quality greenspace” as the central issue and identify actions that people are taking, or that we could take, to address this issue along each of the six civic engagement pathways.

* Community Engaged Learning and Research:
* Community Organizing and Activism:
* Direct Service:
* Philanthropy:
* Policy and Governance:
* Social Entrepreneurship and Corporate Social Responsibility:

1. How might you be able to improve the quality of greenspaces in your area, either locally or on a broader scale? Discuss the civic actions that you engage in or would be willing to engage in and discuss your reasoning.