

# Biodiversity: Survival Through Education

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## Motivation & Goals

### Global & Local Motivation:

- Biodiversity is vital to ensuring an **ecological balance** and **species resilience** against the changing climate.
- The world is facing a biodiversity crisis with a catastrophic **73% decline** in global wildlife populations from **1973-2020**.<sup>1</sup>
- Scientists estimate **35%** of animals and plant could be **extinct by 2050** due to a multitude of anthropogenic factors.<sup>1</sup>
- Northeastern Connecticut has seen **rapid urbanization** severely **decreasing the biodiversity** within the area (as represented in Fig 1).
- I found that within the public education system there is a **lack of biodiversity education** in younger grade levels.

My question: **If biodiversity is so important why isn't it being taught to the youngest generation?**

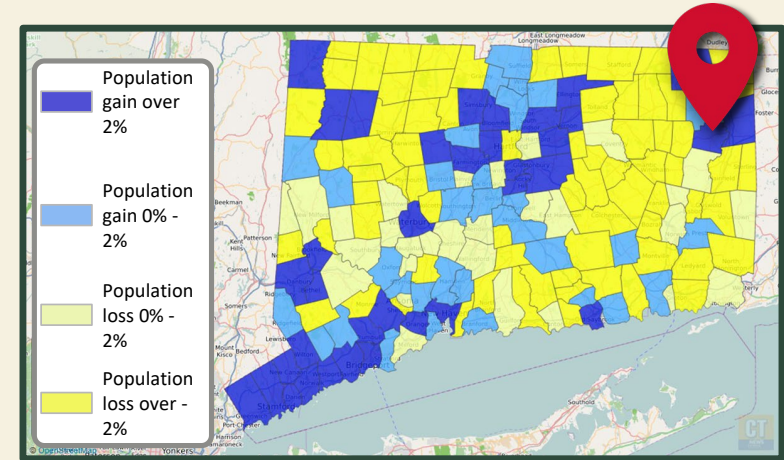


Fig 1: This picture presents a growth map of Connecticut as a whole. In Northeast CT, there has been an increase in urbanization and population with a growth percentage of 2% or greater within the region.

### Overarching Goals:

Increase awareness of biodiversity, its importance, and its role within our day-to-day lives by educating students.

I want students to be able to:

- Describe **biodiversity**
- Feel motivated to **take action within their own communities** to help protect biodiversity.

## Methods

### Hosting Biodiversity Workshops:

- After anecdotal research, I identified a **need for biodiversity education**, specifically for 6th and 7th graders.
- Designing a **45-minute workshop** for 6th and 7th grade students around biodiversity (Fig 2).
  - Date:** March 9 and March 13
  - Location:** Brooklyn Middle School (BMS)
    - Collaborated with 6th and 7th grade science teachers Georgia Williamson and John Dipippo, respectively, and presented the workshop to **five classes each day** for a total of approximately **180 students**.

### Survey Data Overview:

- Give students a survey **before and after the workshop** assessing their background knowledge prior to the workshop and assessing what they learned after the workshop.
- Pre- and post-surveys consisted of **10 questions** regarding their confidence on topics in biodiversity **from a level of 1-5**. Some examples include:
  - How confident do you feel about describing to someone else **what biodiversity is?**
  - How confident do you feel about **taking actions in your own community** to help protect biodiversity?

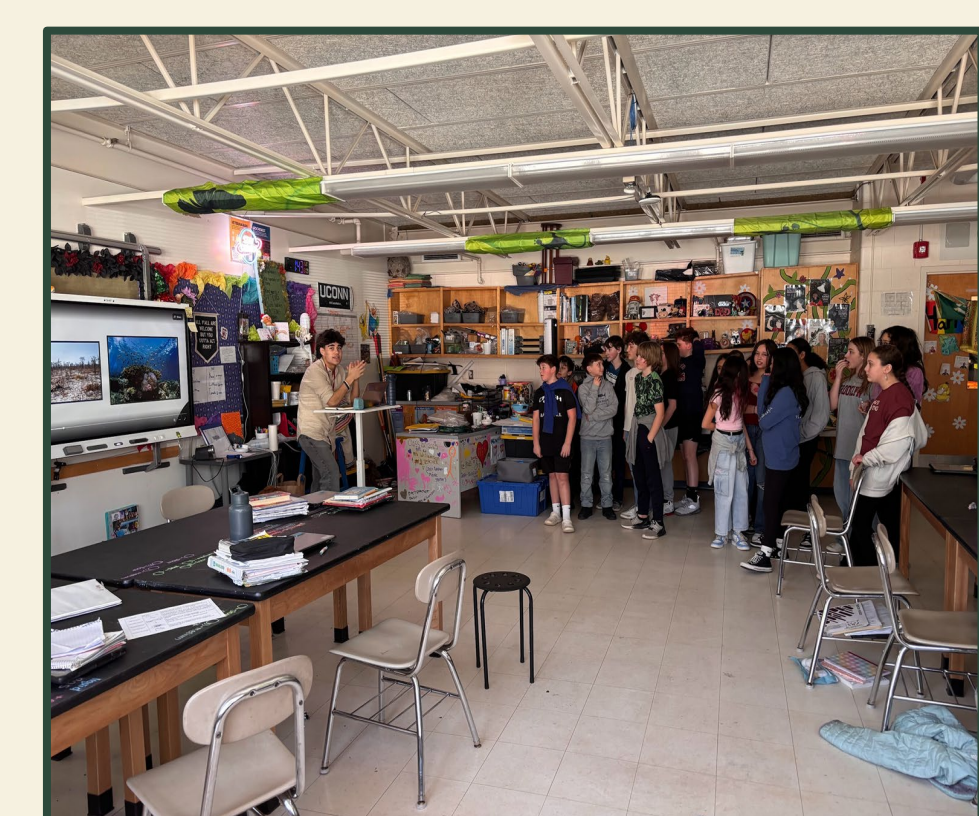
### Working with the Afterschool Program:

- I joined the BMS Landscaping Club to work with students who are especially interested in environmental protection and could get a more **hands on approach** to biodiversity, and **view it in practice**. Dr. Laura Cisneros supported these efforts.
  - Date:** March 11 and March 18
  - Activity:** Using **Seek** on iPads to identify different plants and animals around the forest near the school while discussing more about biodiversity.

### Tabling at CLCC Conference:

- I attended the 2026 Connecticut Land Conservation Conference to **advocate for biodiversity education**. I presented a tri-fold board, distributed pamphlets, and demonstrated an example from my lessons.
  - Date:** March 21

Fig 2: Images from the biodiversity workshop in the 6th grade, after school biodiversity discussion, and the image of the pamphlet handed out at the CLCC Conference.



## Project Outcomes

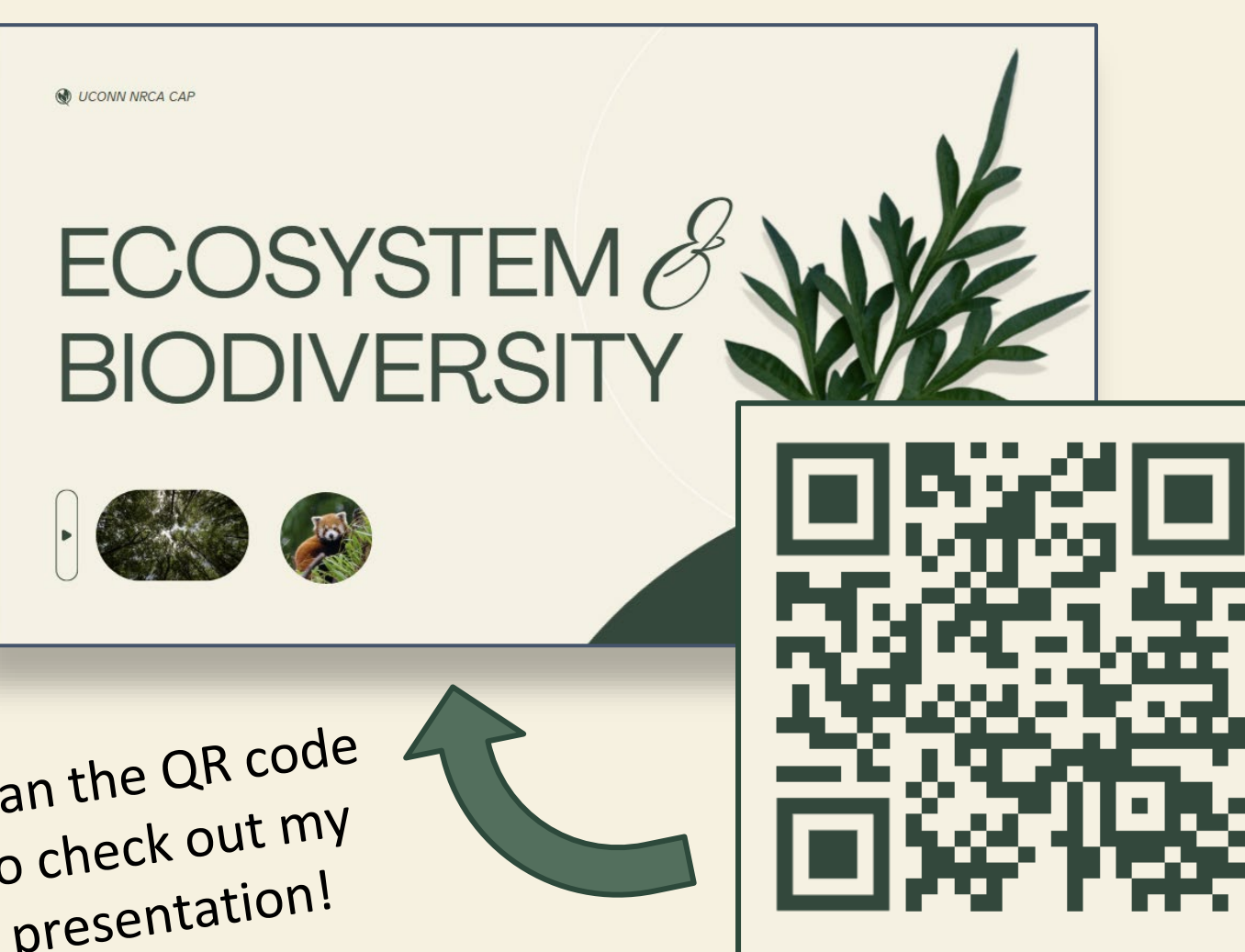
### Key Takeaways in Students' Average Level of Confidence

#### 6th Grade Survey Analysis:

- PRE-SURVEY AVERAGE SCORE: **2.6**
- POST-SURVEY AVERAGE SCORE: **3.7**
- Indicating a **41.9% increase** (Fig 3)

#### 7th Grade Survey Analysis:

- PRE-SURVEY AVERAGE SCORE: **2.6**
- POST-SURVEY AVERAGE SCORE: **3.8**
- Indicating a **43.5% increase** (Fig 3)



Scan the QR code to check out my presentation!

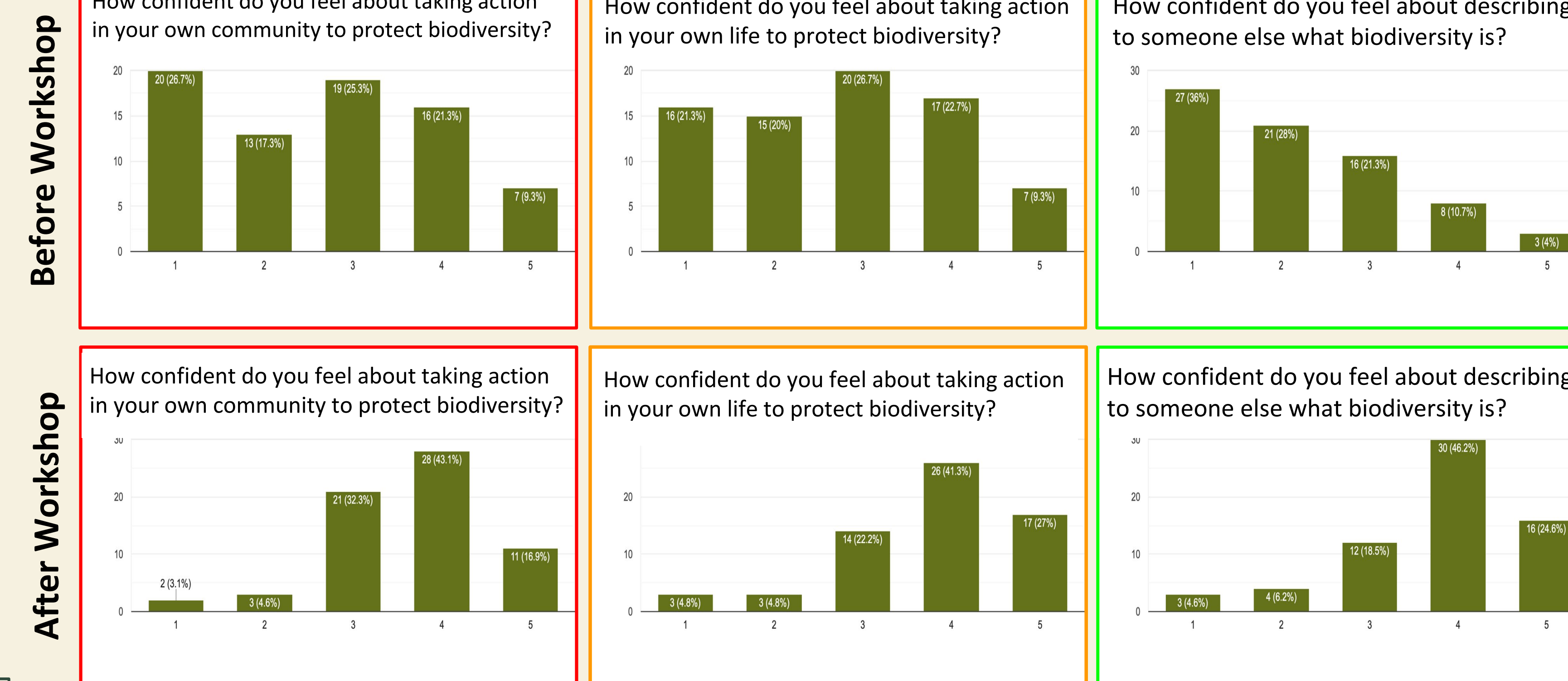


Fig 3: Graphs of three posed questions in the pre- and post-surveys.



Fig 4: Images from the 6th grade biodiversity workshop.

### Biodiversity Workshop Components:

- Students learned definitions within the topic as a whole by analyzing real life cases and population graphs and examining why biodiversity is important.
- Students then used a **hands-on analogy** of a building as a **visible demonstration of biodiversity** (Figs 4-5).
- We wrapped up by **discussing why action is important**, motivating them to **take action** within their own lives and communities to protect biodiversity and **encouraging our future changemakers**.

<b>Step 1:</b> A combination of building materials in bags were given to students. Materials included wooden blocks, Legos, magnetic building shapes, and Lincoln Logs. Each material represented a species.	<b>Step 2:</b> Students were asked to build a structure out of the materials to represent an ecosystem.
<b>Step 3:</b> Different bags represented low, moderate, and high biodiversity. <ul style="list-style-type: none"> <li>Low biodiversity bag: Dominated by one building material.</li> <li>High biodiversity bag: Equal number of each type of building material</li> </ul>	<b>Step 4:</b> Students were asked to remove one "species," and typically the low biodiversity structure collapsed first.

Fig 5: Above are the steps of the hands-on analogy that the students experienced.

### Afterschool Biodiversity Activity:

- Students became more involved and motivated to **take action and protect biodiversity within their own life and community** (Fig 6).
- Using **Seek**, they **identified different plants and animals** around the area. After finishing identification, we had determined that the forest had a **medium level of biodiversity**, but the time of year limited our ability to accurately assess.
- Students gained a **hands-on understanding** of biodiversity and its importance to our local ecosystem.



Fig 6: Pictured above are images from the activity with the BMS Landscaping club.

### CLCC Conference Tabling:

- I spoke to **land trust representatives** from around the state about biodiversity education, expanding my project to a broader audience (Fig 7).
- I handed out **50 pamphlets** and utilized my tri-fold to persuade land trusts to **implement biodiversity conservation education**.
- We discussed the possibility of **providing funds and time to teach about biodiversity**.

Fig 7: Pictured below are images from the 2026 CLCC Conference.



## Community Partnership

### During the entire project I worked with:

- Georgia Williamson, BMS 6th grade science teacher** and advisor for the BMS landscaping club. In addition, she serves as a member of the BMS Social Emotional Learning Committee, where they plan lessons about skills such as communities, and respect.
- John Dipippo, BMS 7th grade science teacher** and respected member of the Brooklyn community.
  - These two pillars of the BMS community have helped to **develop a lesson plan and curriculum that will be able to effectively engage and teach students about biodiversity**.
- Amy Paterson, Executive Director of the Connecticut Land Conservation Council (CLCC)**. She acts on a state level to advocate and lobby for environmental reform (Fig 8).
  - Amy has helped to expand the **call for increased biodiversity education to a statewide scale gaining numerous partnerships and support**.



Fig 8: Picture of me with Amy Paterson, Executive Director of the CLCC.

## Conclusions

- Gave the middle school students within Brooklyn the **knowledge** they need to **protect biodiversity**.
- Encouraged** students to **take action** within their own lives and communities to **protect biodiversity** and the environment at large.
- Potential to expand by:
  - Replicating this workshop** in other schools to educate more students about biodiversity
  - Advocating for **statewide reform** to add biodiversity to the statewide science curriculum
  - Launching a program** within my community to remove invasive species and plant native species

## Acknowledgements & References

I would like to extend my gratitude to my Difference Maker Mentor, Megan Ng, for always supporting and believing in me. You always were there for me and supported me throughout the entirety of my project, and I cannot be more thankful for you.

I would also like to extend a thank you to all my family members who throughout the entirety of my project have supported and been there for me, helping and giving advice at any time needed.

Literature Cited:  
<sup>1</sup> Facts about the Nature Crisis | UNEP - UN Environment Programme, www.unep.org/facts-about-nature-crisis. Accessed 4 Apr. 2026.