

# *Building Capacity of Great Lakes Champions*

Grantee Organization: Huron Pines

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## Project Summary

*Building Capacity of Great Lakes Champions* aimed to utilize the process of place-based stewardship education to develop, implement, and improve new and existing efforts with K-12 schools in the northeast Lower Peninsula. Reaching 300+ students and 26 educators, this project resulted in the development of long-term management plans for school forests, implementation of stewardship actions related to forest health and marine debris and implementation of green infrastructure projects. Additionally, the project included strong ties to community and conservation needs, met school learning objectives and resulted in stronger relationships with school administrators that will ensure similar efforts continue in the future.

## Project in Context

*Building Capacity of Great Lakes Champions* was designed to bolster new and existing place-based stewardship education (PBSE) efforts to add value to the overall health of the Great Lakes basin. Based on the pedagogy of PBSE, the project brought together students, teachers and community partners to complete meaningful and student-led stewardship projects that will support watershed health beyond the grant period. The need for this work was identified by key stakeholders including the leadership team for the Northeast Michigan Great Lakes Stewardship Initiative, school administrators and staff, and community and conservation partners. This project took place in four school districts located in Otsego, Alcona and Arenac counties. Elementary, middle and high school students were involved in efforts with the largest portion of students falling in grades 9-12. The student-led projects focused on the issue areas of forest resources, marine debris and green infrastructure; each of these topics of concern impacts Great Lakes health and the projects aimed to put plans in place or take actions that would support watershed health beyond the grant period.

## Goals of the Effort

The primary goal of *Building Capacity of Great Lakes Champions* was to bolster existing PBSE efforts in the region and initiate new efforts while instituting planning and support with educators to increase sustainability of the work beyond the grant period. Students will gain experience, skills and knowledge key to being Great Lakes champions now and as they continue to adulthood.

This primary goal was divided into two sub-goals:

1. Reach 80 K-12 students through the implementation of hands-on learning activities, guided outdoor experiences and stewardship projects; and
2. Reach 15 educators through professional development focused on place-based stewardship education

## Results

Through this project, over 300 students were reached in the following ways:

- ***Au Gres Sims School (2 teachers, 59 students)***, alongside Huron Pines, Michigan Sea Grant and the City of Au Gres worked over 2 school years to implement green infrastructure projects on their school campus and in their community. This included the design and

installation of a rain garden and the design of a bioswale to be installed when public health recommendations allow.

- **Gaylord High School (2 teachers, 72 students)** alongside Huron Pines, MI Department of Natural Resources, USDA Natural Resources Conservation Service and the Otsego Conservation District worked over 2 school years to develop and begin implementing the Forest Stewardship Plan for their 3 school forest properties. Additionally, a school forest advisory committee was formed out of these efforts.
- **Vanderbilt Area School (1 teacher, 75 students)**, alongside Huron Pines and the Northeast Michigan Great Lakes Stewardship Initiative, worked over one school year on school forest projects, particularly forest health studies and the installation of an outdoor classroom, and completed a separate community outreach effort to reduce single-use plastics.
- **Alcona Community School (5 teachers, 106 students)**, alongside Huron Pines, the Alcona Conservation District, MSU Extension, and forest products industry partners, worked over two school years in their school forests. Efforts focused on the development of their Forest Stewardship Plan for 2 school forest properties, learning related to a harvest on one property, and planning for additional actions identified in their Forest Stewardship Plans (outdoor learning space and increased access options in particular).

Through this project, over 26 educators were reached in the following ways as well as in additional planning and learning support provided in a one-on-one setting:

- **The 2019 Lake Huron Place-Based Stewardship Education Summer Institute** (11 educators) included a focus on the meeting places of land and water. Alongside community partners, teachers explored how to connect terrestrial and aquatic systems in their students' work.
- **The 2020 Lake Huron Place-Based Stewardship Education Summer Institute** (15 educators) shifted to a virtual format this year and began mid-June with the institute concluding outside of the grant period. Teachers are working through an asynchronous course with focuses on Great Lakes Literacy, place-based stewardship education principles and facilitating excellent projects with their students regardless of what the 20-21 school year looks like.

### Products and Resources

Projects connected to school forests were presented at the 2019 Michigan Stewardship Network Conference; the full grant effort was presented at the 2019 Michigan Rural and Small Town Development Conference. All grant related efforts were highlighted via Huron Pines communications channels including social media, email newsletters, quarterly mailings and annual reports. The results and processes used across school districts and projects were highlighted by sharing lessons learned and best practices across a variety of professional networks. Materials developed to guide students through the development of a Forest Stewardship Plan were developed to be shareable and have been distributed to other organizations; if interested, you may contact Huron Pines for these resources. In addition to broader PBSE conferences and partner sharing opportunities, Au Gres Sims students produced a website connected to their rain garden effort that visitors to the rain garden are directed to visit (<https://sites.google.com/ags-schools.org/au-gres-sims-rain-garden/home>) and a video highlighting the project can be found at [https://www.youtube.com/watch?v=n\\_o4VveCG4g](https://www.youtube.com/watch?v=n_o4VveCG4g). Gaylord Community Schools shared evaluation feedback with their administration and staff.

## **Final Narrative Report**

### ***Building Capacity of Great Lakes Champions***

#### **Background/Overview**

1. As outlined in the original proposal, this project will utilize the process of place-based stewardship education to develop, implement, and improve new and existing efforts with K-12 schools in the northeast Lower Peninsula. Huron Pines will work with four classrooms to implement hands-on learning activities, guided outdoor experiences, and stewardship projects for 80 K-12 students. These four classrooms may be new to place-based stewardship education efforts or may be classrooms currently involved in project implementation. Huron Pines will facilitate communication about project results to community leaders and partners. Project evaluation will include post-project reflections by students and teachers to identify changes in knowledge, attitude, and intended behavior related to environmental stewardship. Huron Pines will facilitate one professional development opportunity for an expected 15 K-12 educators to address best practices for implementing place-based stewardship education efforts. Educators will include those with classrooms mentioned above as well as from the entire Northeast Michigan Great Lakes Stewardship Initiative network. The professional development will focus on a topic that educators and partners have identified as a gap in knowledge or skills.
2. This project was completed as originally intended with the level of participation at some schools exceeding expectations. Over 300 K-12 students led and supported the implementation of stewardship efforts that will contribute to the overall health of terrestrial and aquatic systems. Over 26 teachers were supported through planning processes that will extend beyond this specific funding. The expectations of engaging with students, teachers, and other community partners were overall realistic. Several schools involved had strong administrative support which helped project progress; additionally, 3 of the 4 schools involved had experienced at least portions of the place-based stewardship education process which contributed to the success. Staff changeover between school years 2018-2019 and 2019-2020 hindered progress with some schools and the COVID-19 pandemic halted progress for all schools as they concluded the 2019-2020 school year.

#### **Outcomes**

3. Outcome 1 : Reach 80 K-12 students through the implementation of hands-on learning activities, guided outdoor experiences and stewardship projects. Through this project, over 300 students were reached in the following ways:
  - ***Au Gres Sims School (2 teachers, 59 students)***, alongside Huron Pines, Michigan Sea Grant and the City of Au Gres worked over 2 school years to implement green infrastructure projects on their school campus and in their community. During the 2018-2019 school year, middle and high school students successfully designed and installed a 380-square foot rain garden on their school campus as a means to filter stormwater and reduce pollutant load to the local water bodies. During the 2019-2020 school year, high school students maintained the on-campus rain garden - including the installation of signs and benches - and partially designed

and coordinated with the city on a bioswale at a riverside park. The bioswale project was placed on hold due to the pandemic.

- **Gaylord High School (2 teachers, 72 students)** alongside Huron Pines, MI Department of Natural Resources, USDA Natural Resources Conservation Service and the Otsego Conservation District worked over 2 school years to develop and begin implementing the Forest Stewardship Plan for their 3 school forest properties. During the 2018-2019 school year, Gaylord High School horticulture students participated in the update of the Forest Stewardship Plan for the school district's three forest properties totaling 100 acres. During the 2019-2020 school year, students began soil investigations that were planned to be connected with recommended harvest actions. Due to teacher changeover and the pandemic, the progress on this effort has slowed but the school administration has remained dedicated. This includes the formation of a school forest advisory committee that will help ensure the properties are stewarded in a consistent manner.
- **Vanderbilt Area School (1 teacher, 75 students)**, alongside Huron Pines and the Northeast Michigan Great Lakes Stewardship Initiative, worked in two different project areas. During the 2018-2019 school year, K-8 students worked as part of a community outreach effort on reducing single-use plastics. Teachers were provided with educational videos and lessons to orient students to the issue of single-use plastic in our water systems. The students then produced paper bags with marine debris messaging that were utilized in the local grocery store. During the 2018-2019 school year, high school students focused on accomplishing actions identified in their Forest Stewardship Plan. This included completing a multi-year effort of designing and installing an outdoor classroom as well as installing boundary signage at their school forest. Teachers continue to utilize the forest for learning (particularly in the STEM and arts subjects) with seasonal studies and winter snowshoe events. A new project was identified at the end of the 2019-2020 school year focused on accomplishing a tree planting recommendation in their Forest Stewardship Plan.
- **Alcona Community School (5 teachers, 106 students)**, alongside Huron Pines, the Alcona Conservation District, MSU Extension, and forest products industry partners, worked over two school years in their school forests. During the 2018-2019 school year, Alcona High School students provided input for the update of the Forest Stewardship Plan for the school district's two forest properties totaling 50 acres. Additionally, through the entire school year, high school marketing students took on a fundraising and promotion project to support and highlight Huron Pines' new Hubbard Lake Nature Preserve that is just 20 miles north of their school building. In August 2019, several high school students participated in a prioritizing process for projects to undertake during the 2019-2020 school year. Students in several grades

began designing an outdoor space, visited one of the properties during an active harvest, and conducted biodiversity investigations.

Outcome 2: Reach 15 educators through professional development focused on place-based stewardship education. Through this project, over 26 educators were reached in the following ways:

- **The 2019 Lake Huron Place-Based Stewardship Education Summer Institute** (11 educators) included a focus on the meeting places of land and water. Alongside community partners, teachers explored how to connect terrestrial and aquatic systems in their students' work. All teachers left with a plan of implementation for the 2019-2020 school year.
  - **The 2020 Lake Huron Place-Based Stewardship Education Summer Institute** (15 educators) shifted to a virtual format and began mid-June with the institute concluding outside of the grant period. Teachers will work through an asynchronous course until (include end date). The coursework focuses on Great Lakes Literacy, place-based stewardship education principles and facilitating excellent projects with their students regardless of what the 20-21 school year looks like.
  - Several of the 10 educators noted in Outcome 1 participated in the above professional development opportunities along with additional planning and learning support provided in a one-on-one setting.
4. This project was aimed at reaching K-12 students and teachers in the northeast Lower Peninsula and that audience was reached as intended. A variety of grades from upper elementary to high school were a part of various efforts and learning experiences. Through the evaluation effort, student and teacher feedback was provided and will be described further below. Additionally, teachers were encouraged to provide real time feedback which allowed for the flexibility to improve student experiences and help teachers meet their educational goals throughout the year. One result of this feedback involved adjusting project timelines, particularly in the high school settings to better accommodate the limitations of shorter class periods.
  5. Huron Pines' relationships with administrators and teachers from all four schools were strengthened and the opportunities to ensure several of these projects continued well beyond the project period were strengthened. Huron Pines supported Alcona Community Schools' desire to better prioritize and organize school forest projects by facilitating a student, teacher and community member prioritization session in August 2019; school administrators are utilizing the results of that to check-in with individual projects and ensure that any new efforts align with overall goals. Huron Pines also supported Gaylord Community Schools by helping develop the framework through which a school forest advisory committee can operate to continue the focus on connecting students with their forests.
  6. Two student focused evaluations were conducted as part of this project: one focused on the 2018-19 school year experience of Gaylord High School students and one on the Au Gres High School students also during the 2018-19 school year. A pre/post survey design was

used for Gaylord while a qualitative reflection was used for Au Gres. Different methods were used based on each individual school's preference. Both documents are attached as part of this report. Key findings from the Gaylord evaluation include an increase in knowledge on forestry-based topics, changes in students' attitudes toward community improvement and talking about environmental issues, and improvements in skills related to teamwork, gathering information from trusted sources (published and experts), developing work plans and using tools for measurement. Au Gres student reflections showed that students were less motivated by the indoor planning process (though they understood its necessity) and that overall they enjoyed the hands-on outdoor elements of the project. Many students also started the project thinking it was unlikely they would complete it successfully so they were excited and encouraged about accomplishing goals as the project progressed.

One educator focused evaluation was included for the 2019 Lake Huron Place-Based Stewardship Education Summer Institute and is included as an attachment to the report (one educator left ahead of evaluation completion so results are for 10 participants). Key findings included an appreciation for the brainstorming and networking aspects included, an increase in comfort with connecting land elements to water issues, and a desire for more specific information in a couple of different topic areas.

7. The most important intended outcomes were the completion of the various stewardship actions by each school involved. Each of these provided a meaningful and lasting impact to the natural resource students were focused on and laid the foundation for work in future school years. Additionally, all teachers involved are continuing their PBSE efforts and we saw an increase in administrative level support and enthusiasm around these types of student-led projects. The increase in administrative support in combination with formal plans put into place (Forest Stewardship Plans for Gaylord, Vanderbilt and Alcona; a Lake Huron-wide action agenda focused on stormwater and green infrastructure that includes Au Gres Sims School District's support via their rain garden and bioswale projects designed through this grant period) will help the outcomes achieved through *Building Capacity of Great Lakes Champions* last beyond the grant period and continue to bear measurable stewardship successes in each school's community.

#### **Related Efforts**

8. This project was a part of broader efforts via Huron Pines' focus on school forests, as part of a Lake Huron watershed-wide effort focused on stormwater, and was completed in coordination with the Northeast Michigan Great Lakes Stewardship Initiative. Through the grant period and beyond, other funding has been leveraged; this includes support from the NOAA B-WET program, Consumers Energy Foundation, Americana Foundation, Saginaw Bay Watershed Initiative Network, Project Learning Tree, MI Department of Natural Resources and area community foundations.
9. All of the projects included in this grant are continuing beyond the grant period. Au Gres Sims School District is working towards bolstering their campus greenhouse to provide native plants for green infrastructure projects like their rain garden and bioswale. Vanderbilt Area School is working towards accomplishing a tree planting recommendation on their school forest. Alcona Community Schools is improving access to their school forests with plans for strong leadership by upper elementary students in that process.

Gaylord Community Schools is exploring what including additional grades in this type of learning can look like in future years.

### **Communications/Dissemination**

10. Projects connected to school forests were presented at the 2019 Michigan Stewardship Network Conference; this overall effort was presented at the 2019 Michigan Rural and Small Town Development Conference. All efforts were highlighted via Huron Pines' communications channels including social media, email newsletters, quarterly mailings and annual reports. Au Gres Sims students produced a website connected to their rain garden effort that visitors to the rain garden are directed to visit. The evaluation focused on Gaylord Community Schools was shared with their administration and staff.
11. Through sharing lessons learned and best practices across a variety of professional networks, the results and processes used through this project were highlighted. All materials were developed to be shareable and several other organizations have been provided with these.

### **Reflections**

12. One lesson learned is that active planning with teachers needs to begin long before student engagement can take place. The Alcona and Gaylord projects were designed to be very similar for the 18-19 school year. However, planning with the Gaylord teacher began in May 2018 whereas planning with the Alcona teachers did not take place until late August 2018. The shortened planning time in Alcona resulted in a decrease in the teachers' ability to integrate into their already planned units and pacing for learning. Moving forward, if planning doesn't occur the spring or summer ahead of fall school year implementation, Huron Pines will continue conversations and planning with teachers, and some student engagement, but delay larger projects until the following school year. A benefit we saw across all four projects is the overall student buy-in and interest in the stewardship. In the beginning, the long-term nature of each project was trying for the students who are more used to school projects that last a week or two. Some projects involved back and forth sharing with Huron Pines or other partners so they would move onto other focuses and then have to pick back up once feedback was received. As the project progressed we saw a general enthusiasm each time this back and forth of feedback and renewed focus happened. Students were making the connection that they, the students, were really driving the project forward. Challenges through this project included delays due to weather (early and late snow storms particularly) as well as the 2019-2020 school year being cut short due to the pandemic. Other challenges included working field and outdoor time into existing class schedules. In instances where we had permission to extend beyond a specific class period, there were still impacts to the students and the staff as a result of missing a half or full day of coursework.
13. For longevity of these types of projects, establishing trust and partnership with school administrators is just as important as establishing it with the classroom educators directly involved. Classroom teacher assignments may shift year to year and having administrators who are mindful of efforts that may span several school years when making those assignments can help ensure stewardship project success. When approaching a school to

partner on an effort similar to this, having a specific project identified may be helpful for teachers new to the process. Allowing them to experience an effort that is delineated already will allow them to feel more confident in future years. For any projects that will need to evaluate student experiences, be sure to understand the end of school year schedules so that any final surveys or reflections can be collected ahead of their leaving for the summer; particularly when working with mixed level high school courses where seniors may end their year ahead of other grades. Additionally, being able to account for student number fluctuations is an important aspect in a quality evaluation and in districts that see students move or when students drop courses, this becomes especially relevant.

**Attachments**

14. The following attachments are included as part of this report with the connected outcome indicated:

- Gaylord Community Schools and School Forest Stewardship Plan Development Evaluation (Outcome 1)
- Au Gres Sims Student Reflections on the Rain Garden Development and Installation (Outcome 1)
- 2019 Summer Institute Evaluation Data (Outcome 2)



# Gaylord High School – Forest Stewardship Plan Development

## 2018-2019 Evaluation

During the 2018-2019 school year, horticulture students at Gaylord High School engaged in a process to update the Forest Stewardship Plan for three school forest properties. This process included classroom visits from Huron Pines, field visits with several area foresters and independent research and synthesizing work. As part of this work, Huron Pines administered pre- and post-surveys to these horticulture students in September, prior to any contact, and in June, following project work completion.

The pre-and post-surveys are included at the bottom of this document.

37 students responded to the pre-survey (10th-12 grades).

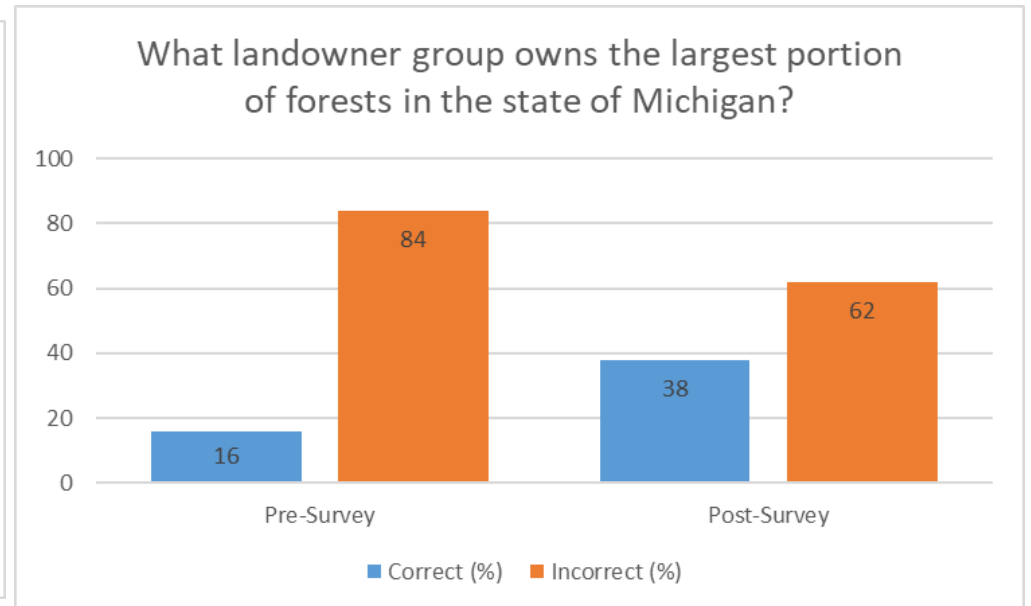
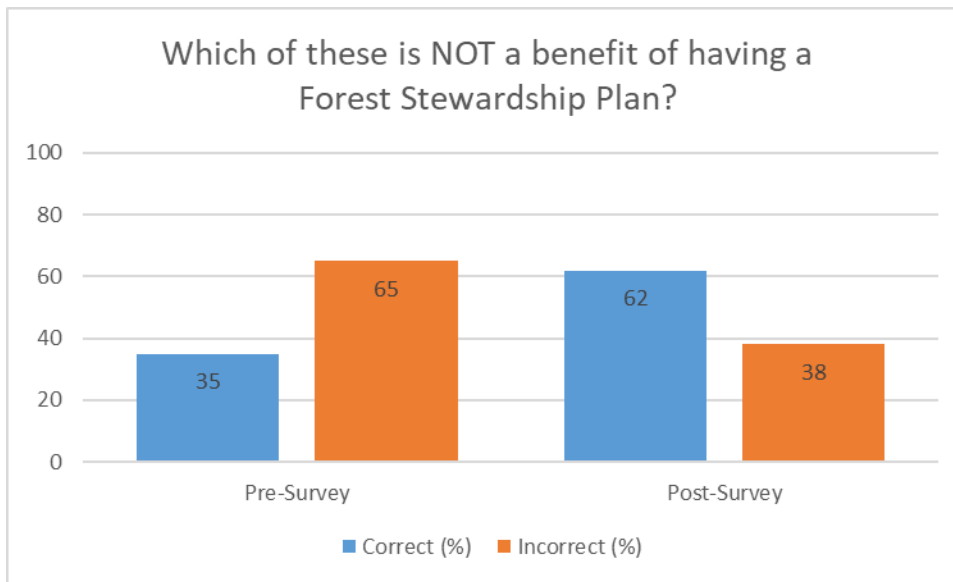
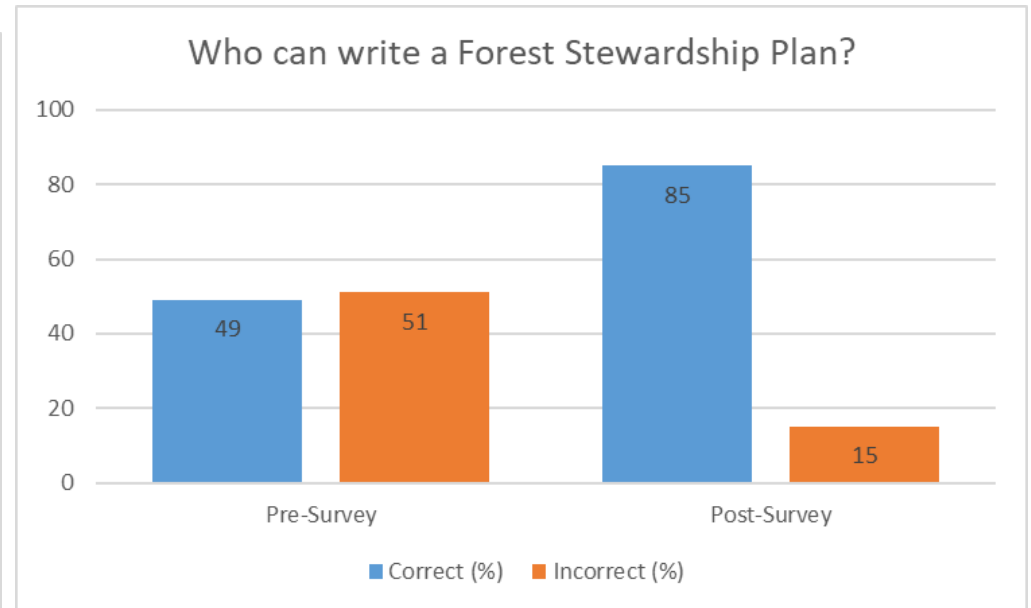
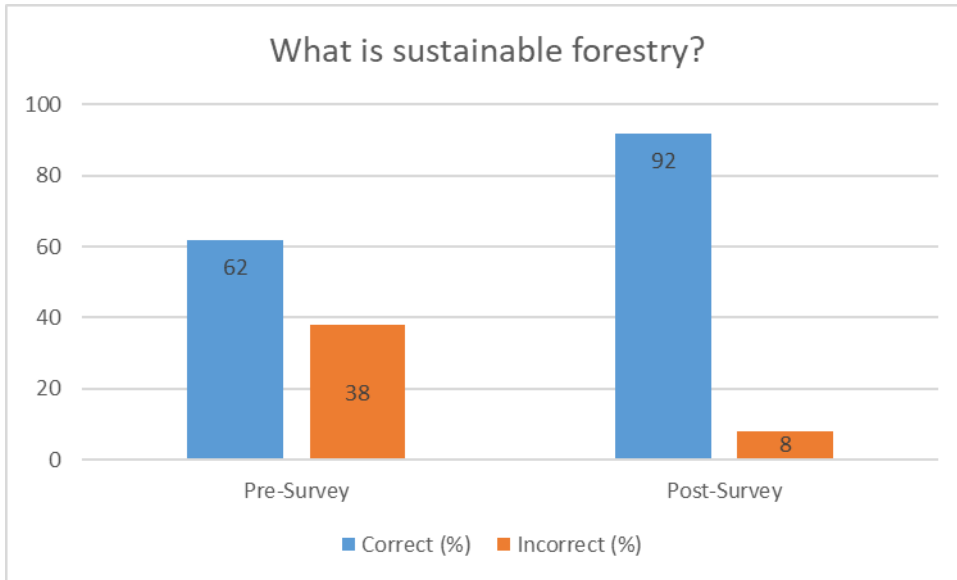
13 students responded to the post-survey; 8 of which also responded to the pre-survey (10th and 11th grades).

The post-survey was administered after the seniors completed their year. For subsequent survey processes, Huron Pines will be scheduling this type of effort more closely with all student's schedules. Additionally, with student schedule shifts throughout the year, some students did not remain in the course for the whole school year or joined midway. Overall, the process schedule was delayed due to several snow days during the school year.

Survey questions were developed based on the following project objectives:

1. Students will assess the district's goals for the school forest.
2. Students will survey resources present in the school forest.
3. Students will prepare portions of the Forest Stewardship Plan.
4. Students will associate work done in the development of the FSP with actions they can take to support resource health outside of the school day and beyond high school.

# Forestry Knowledge



## Forestry/Environmental Attitudes/Intended Behaviors

	Pre-Survey (n=37)		Post-Survey (n=13)		T-test, Type 2: Comparison of all data	T-test, Type 1: Comparison of 8 students that took both pre-and post-survey
Question	Average	Mode	Average	Mode	Statistically Significant Change?	Statistically Significant Change?
By working with others in the community I can help make things better.	4.03	4	4.38	4	No	Yes
I would be willing to work with others to solve an environmental problem in the community where I live.	3.61	3	4.23	5	Yes	No
I know how to talk to other people about environmental issues in our community and the things we should do to solve those problems.	2.70	3	4.08	4	Yes	Yes
Things that people do on the land impact water quality.	4.42	5	4.78	5	No	No
I, my fellow students and community benefit from our school forest.	3.32	3	4.23	5	Yes	No
Forests should be managed with both present and future ecological, economic and cultural needs in mind.	3.95	3	4.69	5	Yes	No

*Scale Used: 1 = Strongly Disagree, 5=Strongly Agree*

**What do you know about forestry and your school forest now? (pre-survey, n=37)**

65% (n=24) responded in the theme of no knowledge about forestry or their school forest(s).

16% (n=6) responded in the theme of forestry entailing natural elements and human involvement.

11% (n=4) responded in the theme of awareness of their school forests (specifically referencing two of the properties).

8% (n=3) responded in the theme of the school forests being cared for and a good thing.

**What do you hope to know about forestry and your school forest at the end of the school year? (pre-survey, n=37)**

46% (n=17) responded in the theme of understanding how to keep forests/their school forest healthy, managed, and how humans can help forests.

24% (n=9) responded in the theme of general knowledge increase around the topic.

14% (n=5) responded in the theme of increasing their knowledge of species presence and general ecosystem topics.

14% (n=5) responded in the theme of uncertainty in what they hoped to learn or a desire to not learn anything.

2% (n=1) responded in the theme of learning around the forestry profession.

**Did your work focused on forestry and your school forest this school year help you develop any of the following skills? (post-survey, n=13)**

100% (n=13) responded that they developed the following skills: Working with others in a team or group; Developing work plans to accomplish a long-term goal; and Using tools, instruments, or technology for measuring.

92% (n=12) responded that they developed the following skills: Gathering trustworthy information from published sources (online, print); and Identifying and speaking with experts from the community who can help you accomplish a task or solve a problem.

77% (n= 10) responded that they developed the following skills: Developing and using models like diagrams, drawings, replicas, equations or computer simulations.

69% (n=9) responded that they developed the following skill: Using math to solve or increase understanding of a real-world problem or need.

62% (n=8) responded that they developed the following skills: Managing time to meet deadlines; and Analyzing and interpreting data by making charts or tables or examining statistics.

54% (n=7) responded that they developed the following skills: Communicating in writing; and Communicating through public speaking or presentations.

**What are three things you learned about forestry or your school forest this year? (post-survey, n=28 – some students responded with less than 3 things)**

21% (n=6) of the responses identified plant species identifications.

17% (n=5) of the responses identified data collection (including specific references to tree age and size) and data analysis.

14% (n=4) of the responses identified forest management practices and techniques.

11% (n=3) of the responses identified opportunities (and the lack of Gaylord Community Schools using those opportunities) around educational uses of the school forests.

11% (n=3) of the responses identified communication skills with resource professionals and in describing natural resource topics.

7% (n=2) of the responses identified knowing where Gaylord Community Schools forest properties are located.

7% (n=2) of the responses identified navigation skills.

4% (n=1) of the responses identified awareness of forestry careers.

4% (n=1) of the responses identified knowledge of tree disease.

4% (n=1) of the responses identified ability to connect individual species to appropriate habitat conditions.

**What is the most interesting or exciting thing you learned about yourself or your community through this project? (post-survey, n=11 – two students did not respond)**

Two responses identified the potential of the school forest properties in learning and use.

Two responses identified enjoyment in viewing different flora and fauna.

Two responses identified the importance of maintaining forests for enjoyment.

One response identified each of the following:

- ability to work with people they don't normally work with,
- awareness of invasive species,
- anyone can have a Forest Stewardship Plan for their property,
- a dislike of trees, and
- enjoyment of the forestry profession and desire to pursue in college courses.

**Do you have any suggestions to make the school forest project more interesting or useful for students like you? (post-survey, n=13 – two students responded with multiple suggestions, two did not respond)**

Three responses identified more students participating in similar projects.

Three responses identified more varied types of activities when visiting properties.

Two responses identified a desire for more facilities/access on properties.

Two responses indicated no improvement was needed.

One response identified each of the following:

- difficulty in missing other classes while on field visits,
- use of clip art (possibly referencing varied styles of learning and instruction modes), and
- additional clean up on the properties.

## Pre-Test Introduction Text

Dear student,

This survey is about your knowledge and feelings about forestry and your school forest. Your responses are confidential: your name will be kept separate from your answers to the questions. Your name is only used to match what you have to say now with what you say at the end of the school year when asked these questions again. Please know that your teacher will see results for the full group only; nothing you say can affect your grades.

This survey should take 10-15 minutes to complete. Thank you in advance for the time you will spend on the survey. If you have any questions about this survey, please contact Emily Vogelgesang, Huron Pines at 989-448-2293.

When you are ready to begin, please click "next".

## Pre-Test Questions

Page 1

As a reminder, we will only use your name to match what you say now with what you say at the end of the school year when asked these questions again. Your teacher will see results for the full group only; nothing you say can affect your grades.

1. *Name (first and last)*

Page 2

Please answer all of the questions.

2. *What is sustainable forestry?*
  - a. *Cutting enough trees so that a family can make a living off of their forest*
  - b. *Leaving forests alone to function as they would if humans were not in the area*
  - c. *Managing forests for economic, cultural and ecological values for the present and future*
  - d. *Removing trees and planting trees only for the benefit of wildlife and air quality*
3. *Who can write a Forest Stewardship Plan?*
  - a. *Anyone in the forestry field (loggers, timber companies, paper companies, state foresters, etc.)*
  - b. *A professional forester with approval from the Department of Natural Resources*
  - c. *Anyone who owns forested land*
  - d. *A natural resource professional with a college degree*
4. *Which of these is NOT a benefit of having a Forest Stewardship Plan?*
  - a. *Access to free labor and supplies to build trails and grow food plots in the forest*
  - b. *Access to cost share programs to improve the property*
  - c. *Long-term plan to support the health and use of a forest*
  - d. *Increased awareness of risks/threats to the property*
5. *What landowner group owns the largest portion of forests in the state of Michigan?*
  - a. *Federal government*
  - b. *State government*
  - c. *Private corporations*
  - d. *Private citizens, families, and schools/communities*

Page 3

How much do you agree or disagree?

7. *By working with others in the community I can help make things better.*
8. *I would be willing to work with others to solve an environmental problem in the community where I live.*
9. *I know how to talk to other people about environmental issues in our community and the things we should do to solve those problems.*
10. *Things that people do on the land impact water quality.*
11. *I, my fellow students and community benefit from our school forest.*
12. *Forests should be managed with both present and future ecological, economic and cultural needs in mind.*

Page 4

Please answer questions with **at least** two sentences.

13. *What do you know about forestry and your school forest now?*
14. *What do you hope to know about forestry and your school forest at the end of the school year?*

### **Post-Test Introduction Text**

Dear student,

This survey is about your knowledge and feelings about forestry and your school forest. Your responses are confidential: your name will be kept separate from your answers to the questions. Your name is only used to match what you have to say now with what you said at the beginning of the school year. Please know that your teacher will see results for the full group only; nothing you say can affect your grades.

This survey should take 10-15 minutes to complete. Thank you in advance for the time you will spend on the survey. If you have any questions about this survey, please contact Emily Vogelgesang, Huron Pines at 989-448-2293.

When you are ready to begin, please click "next".

### **Post-Test Questions**

Page 1

As a reminder, we will only use your name to match what you say now with what you said at the beginning of the school year. Your teacher will see results for the full group only; nothing you say can affect your grades.

1. *Name (first and last)*

Page 2

Please answer all of the questions.

2. *What is sustainable forestry?*
  - a. *Cutting enough trees so that a family can make a living off of their forest*
  - b. *Leaving forests alone to function as they would if humans were not in the area*
  - c. *Managing forests for economic, cultural and ecological values for the present and future*
  - d. *Removing trees and planting trees only for the benefit of wildlife and air quality*
3. *Who can write a Forest Stewardship Plan?*
  - a. *A professional forester with approval from the Department of Natural Resources*
  - b. *Anyone who owns forested land*
  - c. *A natural resource professional with a college degree*
4. *Which of these is NOT a benefit of having a Forest Stewardship Plan?*
  - a. *Access to cost share programs to improve the property*
  - b. *Long-term plan to support the health and use of a forest*
  - c. *Access to free labor and supplies to build trails and grow food plots in the forest*
  - d. *Increased awareness of risks/threats to the property*



5. X
6. X

Page 3

How much do you agree or disagree?

7. *By working with others in the community I can help make things better.*
8. *I would be willing to work with others to solve an environmental problem in the community where I live.*
9. *I know how to talk to other people about environmental issues in our community and the things we should do to solve those problems.*
10. *Things that people do on the land impact water quality.*
11. *I, my fellow students and community benefit from our school forest.*
12. *Forests should be managed with both present and future ecological, economic and cultural needs in mind.*

Page 4

Did your work focused on forestry and your school forest this school year help you develop any of the following skills?

- Working with others in a team or group
- Developing work plans to accomplish a long-term goal
- Managing time to meet deadlines
- Communicating through public speaking or presentations
- Communicating in writing
- Gathering trustworthy information from published sources (online, print)
- Using tools, instruments, or technology for measuring
- Analyzing and interpreting data by making charts or tables or examining statistics
- Developing and using models like diagrams, drawings, replicas, equations or computer simulations
- Using math to solve or increase understanding of a real-world problem or need
- Identifying and speaking with experts from the community who can help you accomplish a task or solve a problem

Page 5

Please answer questions with **at least** two sentences.

15. *What are three things you learned about forestry or your school forest this year?*
16. *What is the most interesting or exciting thing you learned about yourself or your community through this project?*
17. *Do you have any suggestions to make the school forest project more interesting or useful for students like you?*

# Au Gres-Sims High School

## 2018-2019 Rain Garden Project Reflections

During the 2018-2019 school year, environmental science students at Au Gres-Sims High School led the development and installation of an on-campus rain garden. This process included classroom and video conference visits from Huron Pines, Michigan Sea Grant and the City of Au Gres; data collection and design work outdoors and in the classroom; and small group work and outreach to community businesses for financial/material support. The project concluded with the installation of the rain garden in May 2019 with the leadership of the high school students and support of 6th grade students.

As part of this work, Huron Pines requested feedback and reflections from the students and based on the teacher's preference, a qualitative reflection was used to gather this. Throughout the spring of the 2018-19 school year, students were provided with this prompt and the 15 responses collected are included below: "Please record your thoughts about the rain garden project. In a sentence or two, summarize lessons learned, insights, compliments, advice for future students, etc.". Note that some responses were collected ahead of the rain garden installation. Student names have been removed from responses but no edits have been made to their language.

- 1. This project was fun at times and got boring at others. It was a combination of learning skills including designing and even gardening. It is a creative way to help the environment and a good idea for schools or places with pollution.*
- 2. The project started out boring, and I didn't really want to do it at all. But just listen Mr. Freeman and what he wants and you'll do fine. You will quickly learn that it is a lot more than just a hole in the ground after about the fifth trip outside and repetitive tasks.*
- 3. This is a very confusing project but some of it is fun. I hate all the math stuff but I liked building things. I hope that it works but it probably won't.*
- 4. The responsibility and trust we were given on this project exceeded my expectations. I am so happy to be able to get out of the classroom and apply what I've learned. -Samantha*
- 5. I like this project because we don't have any homework. I like how we can work outside and we don't have to sit in a classroom. I like that we get to do hands on work and that we don't have to always take stupid tests.*
- 6. This project was unique to me and I enjoyed a lot of the work that we did inside and outside the classroom. I liked how everybody had a part in building the idea and bringing it to life. Another*

*thing is that mostly everything that we did we did as a team and it also gave us tools that we can use when we get older.*

- 7. I thought the project was fun and times but it also got boring. When we were outside measuring out the land and setting up the outline for our rain garden was some of the fun times. But when we were inside, drawing the blueprints and making up the finance plan, that's when it got boring. Over all though, I thought that it was an interesting project and I would rather be growing a rain garden then taking notes and test.*
- 8. This project is a lot of work but if you just do what your told to do you get a good daily grade. I feel that sometimes it can be alot but it is fun most days. I think the best part of this project is that you feel like you are a part of something and you are working with a team to accomplish that goal.*
- 9. This project sounded fun but also hard at first. I didn't know what we were going to do or how it was going to happen. But as time went on I figured everything out and I knew this project was going to be fun. I like this project a lot and can't wait to start building it later in the year.*
- 10. The project sounded like a lot of work at first. But as the year went on it did have its boring times but I'd rather learn hands on then take a bunch of tests and not know what's going on half the time. I've learned about plants, making blueprints to scale, how measuring slope can actually help you in life, and communication skills.*
- 11. I joined this class late and the hands-on class was new to me, as I've never had to graph a bridge and then build it, and coming into this I thought the project wasn't going to work and the school was never going to let it happen, but they did. So as time went on I realized this was actually happening and I involved myself more and when I did that I learned a lot and I did things that may actually help me in the real world, are class learned teamwork, architecture, we learned any little things that could help us one day.*
- 12. When I joined this class I knew what kind of direction it was going in. It interested me, so I picked it. But that's not the point, when I was told about this project I was excited and I liked it, we went out of our classroom and collected data measured, did some math, and even called business for donations which was successful. We have more plans for the future that I feel positive about and feel like it will succeed.*
- 13. When we started to work on the rain garden I didn't think we would finish it. But now we have it all planned out. And were getting ready to put it in the ground and finish it.*
- 14. At first, I thought this project was going to be boring. As the days went on we actually got to go outside and we got to have a hands on learning experience, which I think is really important for students. At Au Gres-Sims we've never done anything like this, so it's something new and it's*

*going to be helping the environment which is even more exciting. I hope more schools see what we have done and install rain gardens at their school or around there cities.*

- 15. When we started, it seemed impossible for this task to be done. We eventually found out that it wasn't that hard to do, we just needed teamwork. Sometimes the things we were doing were boring, but I eventually found it interesting.*

**2019 Lake Huron Place – Based  
Stewardship Education Teacher Summer  
Institute: July 30-31**

**EVALUATION**

Please take a few minutes to share your perspective on the Lake Huron PBE Summer Institute. The Administrative Team will use this input to plan future NEMIGLSI networking and programming opportunities as well as to enhance your overall experience with NEMIGLSI. Thank you for your participation!

Name: \_\_\_\_\_ 10 Responses

Years Teaching: 1yr - 2; 2 yrs - 3; 15 yrs - 1; 17 yrs - 1  
**18 yrs - 2; 24 yrs - 1**

School: Alcona Elem. – 1; Alpena All Saints – 1;  
Bay Arenac – 2; Grayling MS – 4; Northville – 1,  
4-H - 1

Years employing place-based education in your  
classroom: \_\_\_\_\_

**1. How would you rate the VALUE of the following aspects of the Summer Institute?**

	Poor	Below Average	Average	Above Average	Excellent
<b>Day 1 (Overall)</b>	0	0	0	4	3
Forests 101	0	0	2	4	3
Rivers 101	0	0	2	4	3
Old Growth Forest Exploration	0	0	0	1	8
River Exploration	0	0	1	1	8
Human Impact & the Food Web	0	0	1	5	4
<b>Day 2 (Overall)</b>	0	0	0	1	6
Leaf Pack Exploration	0	0	0	2	8
Data Collection & Management	0	0	0	4	6
Community Connections: PBSE	0	0	0	2	8
Planning time	0	0	0	2	8
Wrap up discussion	0	0	0	4	6

**2. Please rate the extent to which you believe this institute helped to achieve its main objectives (circle one) :**

2.1 **The institute made me more aware of Great Lakes and natural resource education partners and/or programs in Michigan.**

Strongly Disagree-1 - 0    2 - 0    Neutral-3 - 0    4 - 2    Strongly Agree-5 - 8

2.2 **I gained useful information, including opportunities in networking with partners and/or access to resources, which will add value to my own programs or work.**

Strongly Disagree-1 - 0    2 - 0    Neutral-3 - 0    4 - 2    Strongly Agree-5 - 8

2.3 **I better understand regional opportunities offered through the Great Lakes Stewardship Initiative (GLSI) network and hubs, including professional development and resources in support of place-based education efforts in northeast Michigan.**

Strongly Disagree-1 - 0    2 - 0    Neutral-3 - 0    4 - 3    Strongly Agree-5 - 7

2.4 **I am likely to involve myself in further developing at least one opportunity discussed, such as incorporating ideas into my own programming and/or collaborating regionally with partners.**

Strongly Disagree-1 - 0    2 - 0    Neutral-3 - 0    4 - 1    Strongly Agree-5 - 9

**3. Please share your responses to the following statements (Circle one response per statement)**

As the result of my participation in this Summer Institute...      Strongly Disagree      .....      Neutral      .....      Strongly Agree

I am more confident in my ability to implement Place-Based Stewardship Education (PBSE) at my school.	0	0	0	4	6
I know more about Michigan ecosystems and how I am connected to them.	0	0	0	3	7
I am more excited to go back to my classroom this school year.	0	0	0	3	6
I identify the <b>personal benefits</b> of integrating PBSE into my teaching.	0	0	0	3	7
I have a better understanding of Great Lakes Literacy Principles and how to employ them in my teaching.	0	0	1	3	6
I can better identify the links between my teaching in the classroom and the needs of my community.	0	0	0	4	5
I identify the benefits to <b>my students</b> of using PBSE in my classroom. <i>Please explain below...</i>	0	0	0	2	7

- Expanding Connectivity of students, staff, community & their environment. Giving students actual real-world, local projects/issues in their community. Giving student’s experience & exposure to job/career opportunities.
- Applied Science helps students understand & retain new concepts better. Place Based Education offers many opportunities for hands-on applied activities.
- My students will benefit from working with the community to establish a functional school forest and the sense of ownership stemming from the stewardship of the forest over time.
- Connection with their community.
- Students take ownership of learning when it is real-world and they have a say in the process.
- Placed Based learning helps create a personal link to the learning community that can last over time.
- Real world connection to what they are learning!
- I think it has some benefits, but doesn’t necessarily mesh as well as I would like with the math standard.
- Place-based SE is a way to get students invested in their land and water.

**4. Which programs and resources did you find MOST valuable (things to keep)?**

- Hands on lesson activities e.g. macro sampling & leaf packs; Team Building-float; Discussion of connections across discipline & content e.g. the most valuable piece to me is when Brandon & Tracy talk through the start line of research, history, biology, data, facts, etc. of the topic ‘i.e. fisheries related to forests. This really helps me to generate ideas to take back to my staff to incorporate tin their classes!
- Leaf packets, Guided walk through the forest, “Guided” canoe trip.
- Learning about the watershed and how so many aspects of community life can affect them.
- The old growth forest and river float were great. The nuts and bolts on how to get started with PBSE was also helpful.
- I love the brainstorming aspect. Sometimes I feel stuck in the way I think or my ideas. It is nice to bounce ideas off of each other.
- Macroinvertebrates and the Old Growth Forest. Also, the background in the 101 portions

- Leaf Litter and water shed game
- Watershed game, River float, Hartwick Pines, River sampling
- Access to teachers, resource staff.
- Ideas given for projects by the staff and especially Brandon

**5. Which programs and resources did you find LEAST valuable**

- Estimating land usage.
- Shorten the intro hour and half to a brief 15minute intro and intersperse any vital content throughout the remainder of the experience.
- The introduction was the least. It is always needed but not as much fun as getting to “do”
- Nature Journaling.
- Nature Journals
- Natural resource learning
- Even though I have not learned about plant based learning before, I felt that it would have been better to learn by seeing instead of talking about what it is while sitting in a classroom.

**6. Please provide additional comments you wish to share regarding this regional meeting.**

- I really enjoy the time given to work on our project plans. Also, shared resources on the G Drive & ability to share. Would love to have more background info on the theme. ‘What is forestry, who/what is involved, what is connected, jobs, etc.’ Same for connecting to fish/water. This was touched on a little bit after the macro sampling e.g. the research project between S & N American migrations, but would love to hear more!!
- The networking is great. The instructors are knowledgeable & capable to share their information. The program helped to bring a different perspective to current knowledge.
- Very interesting two days. I enjoyed it all! Only thing: knowing when computers are needed specifically would be great. Save hauling them to & from unnecessarily.
- Thank you very much for all of the help on getting us started with our school forest and sharing your expertise and love for the outdoors!
- Thank you for coming this far inland
- I loved the resources you provided and your willingness to help us after the workshop is over. All of the knowledge in the room was impressive. The Watershed game was great! Thank You! P.S. Keep the canoe trip!
- I was very impressed with your knowledge & connection to so many resources!
- It was a fabulous opportunity, thanks!