

The Case for Community Forestry-Oriented Education

Versatile and applicable to nearly every landscape, forestry work has become a focal point of many companies' environmental strategies. In recent years, the private sector has viewed forestry projects through the carbon offset lens, investing in large tracts of often-remote forestland to achieve internal climate commitments. There is, however, a growing awareness that forestry investments on a company's own lands or in the communities in which they operate can help them realize a diverse set of benefits, both internal and external. In order to realize these benefits and ensure their longevity, however, companies must not only commit to locally based forestry work, but also train youth and young adults to act as forest stewards.

Environmental Education (EE) is a subset of Science, Technology, Engineering and Math (STEM) education that focuses on teaching scientific concepts in nature through immersive, hands-on lessons. With its emphasis on place-based action and community engagement, urban and community forestry (UCF) lends itself to a wide range of EE experiences. When planned with community needs and values in mind, forest-oriented EE can provide many benefits for forestry teams and the communities in which they operate:

Benefits for Students

- Higher learning retention through applied lessons
- Mental and physical wellness benefits associated with time outdoors
- Critical thinking and observation skills, and a sense of independence, developed during self-directed learning experiences
- An understanding that STEM fields are accessible, engaging, and relevant to their lives and communities
- Passion for science and nature through positive outdoor experiences
- Increased confidence, particularly for students with alternative learning styles
- An enhanced sense of place from time spent in their own community

Benefits for Business

- Increased satisfaction among employees as companies invest in their communities
- Improved social license to operate
- Community engagement and STEM education metrics that can be used in reporting

To realize these benefits fully, companies engaged in UCF work must adopt a proactive and holistic approach to their forestry work and carry this mindset into any associated community education efforts. While industry is not yet integrated into the most prevalent municipal, state and federal UCF plans, many companies have made public commitments to supporting STEM education, and can support these commitments by developing comprehensive forestry education curricula that garner support for their UCF efforts while empowering young community members to implement forestry work that addresses community concerns such as urban canopy inequality or the need to address climate change's effects (e.g., urban heat island effect, increased or intensified flooding) through nature-based solutions.

About this Toolkit

To explore the potential for industry to engage in UCF work and forestry education, and to develop a best-in-class approach that connects corporate ambitions, community needs, and local, state and national canopy and forestry goals, in 2020, Wildlife Habitat Council (WHC) and a team of corporations, knowledge partners and community stakeholders, implemented an Urban and Community Forestry Challenge Cost Share Grant Program, aligned with the national [Ten Year Urban Forestry Action Plan \(2016-2026\)](#) and focused on creating and enhancing resilient urban and community forests.

The program, which formed the basis for the *Across Fence Lines* initiative, focuses on forging connections between corporate America's industrial and mining facilities and adjacent communities through public-private forestry programs that diversify, leverage and increase UCF funding and resources, while also maximizing local resiliency, workforce development and biodiversity uplift outcomes. As the lack of canopy within an urban region often serves as a proxy for a suite of other social and environmental inequities, *Across Fence Lines* has focused on developing public-private partnerships and crossing fence-lines in **urban and rural communities with low canopy cover, high industrial density and high scores on the Environmental Protection Agency's Environmental Justice Index**. As part of this work, WHC and its partners conducted research in five regions of the U.S. to explore how historical, environmental and socio-economic contexts inform UCF approaches within distinct geographies.

To facilitate private sector engagement in urban and community forestry, Wildlife Habitat Council (WHC) developed this toolkit, which provides guidance on connecting UCF efforts to community education initiatives. It is one of three WHC-produced UCF toolkits — the other two focus on the **Technical Implementation** of forestry projects and how **Outreach and Partnerships** can strengthen UCF work.

Getting Started – General Guidance

While the best education approach for a given community will depend on a wide range of geographic, socioeconomic and cultural factors, there are general guidelines that teams across the U.S.¹ can follow when conducting forestry-oriented educational programming. This section of the toolkit offers basic guidance for implementing education initiatives, with the following section providing guidance within four key regions studied through *Across Fence Lines*. In all regions, dialogue with schools and community members is critical for identifying and addressing community needs.

Alignments with Community Needs and State Standards

At the core of any education effort is the identification of community needs, state learning standards and other regional priorities. Choosing age and community-appropriate subject matter and delivering lessons in an engaging way will help maximize learning outcomes and overall interest in a team's educational offerings. When assessing local needs, consider the following:

- **Start at the source** – Ask employees and volunteers who are parents, caretakers or educators to provide insights on how ongoing UCF efforts could enhance what their children are learning in school.

¹ While the guidance in this toolkit is informed by research and project implementation completed in the U.S., comparable education tactics can be employed in many countries. WHC recommends that UCF teams outside the U.S. supplement this toolkit's guidance with additional research about their countries' environmental histories, forestry priorities and educational needs.

- **Research learning standards** – School groups will find the most value in education experiences that align with state learning standards, supplementing classroom instruction with hands-on activities that increase learning retention.
 - Educational offerings can be aligned with the national [Common Core](#) curriculum, which focuses on increasing math and language arts skills in a variety of contexts.
 - [Many states](#) have also adopted, or aligned their instruction with, the [Next Generation Science Standards](#), which provide a multidimensional framework for science education.
 - A quick web search, or a brief conversation with a local school administrator, can produce a list of state-level learning standards. From there, consider the ways that these standards can tie into current UCF efforts.

Content Development

Incorporating structured curricula into field trips and other experiences ensures that education offerings are aligned with state learning standards, provides consistency for school groups that plan on participating each year, and allows for employee volunteers, chaperones, school administrators and other adult participants to quickly assume the role of lesson leader or facilitator. Consider the following when developing educational content:

- Activities like educational games, group discussions, data collection or nature walks can employ a wide range of immersive teaching approaches while providing students with a solid foundation in key forestry concepts.
- [Project Learning Tree](#) (PLT) offers a wide range of curricula and lesson plans that can be used in forest-oriented EE experiences. The PLT website details how these lessons align with national and state-level standards in the U.S.
- The U.S. Forest Service has compiled a variety of forestry education-related resources into an [Educator Toolbox](#).
 - Among these resources is a free [teacher's guide](#) featuring comprehensive lesson plans.
- Knowledge Partners such as local school districts or environmental NGOs can provide input on the local needs and technical information that should be integrated into educational content.
- [WHC Consulting](#) offers a wide range of conservation education services, from customized curriculum development to training employees to lead lessons.
- Once lessons have been developed, create a list or chart that clearly demonstrates how selected activities align with state learning standards. Use this to showcase education offerings to local schools.

Involving Schools in Tree Plantings or Maintenance

While many forest-oriented EE lessons are built around observation activities or educational games in an established forest, school groups can also be invited to participate in tree plantings, monitoring sessions or maintenance activities. These hands-on experiences familiarize students with the work that foresters and arborists do while providing UCF teams with a volunteer base. If involving schools in planting, monitoring or maintenance work, keep the following in mind:

- Before planting begins, provide students with safety guidelines and an overview of the importance of trees.
- Ensure that students are following best practices for tree planting, maintenance and monitoring (see the **Technical Toolkit** for guidance).
- Have students work in groups (or pair them with volunteers or chaperones), particularly for more labor-intensive tasks like hole-digging. If planting in an area with heavy, rocky or clay-rich soil, consider asking school contractors or park landscaping crews if they can help pre-dig holes using heavy equipment, especially if younger students will be participating in the planting event.

Approaching Schools

- **Contact PTAs** – Funding for field trips or extracurricular activities is often dictated by Parent-Teacher Associations, making them an easy point of contact for arranging tree plantings and other EE experiences.
 - Employees and volunteers may be able to initiate conversations with the PTAs at their children’s schools.
- **Reach out to school officials** – Alternately, initiate contact with leaders at local schools. School districts’ administrative offices can help identify schools with the highest need and provide contact information for their leadership.
- **Consider the needs of underserved students** – Schools in low-income areas face unique funding and logistic challenges when it comes to field trips and extracurricular offerings — keep these challenges in mind when approaching these schools.
 - Conducting plantings at schools, rather than on corporate grounds or in community spaces, makes it easier for underserved students to participate.
 - Offering to fund field trips or provide transportation can ensure that underserved schools have access to off-site offerings.
 - Approaching teachers or administrators with a pre-developed curriculum, highlighting alignments with relevant state standards, can lead to more successful engagement with underserved schools.
- **Anticipate and address school hesitance** – In areas with a history of community-industry tension, school groups may be hesitant to partake in corporate-led UCF efforts. In these cases, it is crucial to identify, and carefully address, barriers to collaboration.
 - Through research and dialogue with community groups, develop a strong understanding of industry’s historic impact on residential areas. When approaching schools, make it clear how local concerns have been addressed in the curriculum and in any plantings conducted.
 - Emphasize the benefits of environmental education and tree plantings (e.g., food security, soil pollution mitigation, improved air quality).

Evaluating Educational Programming

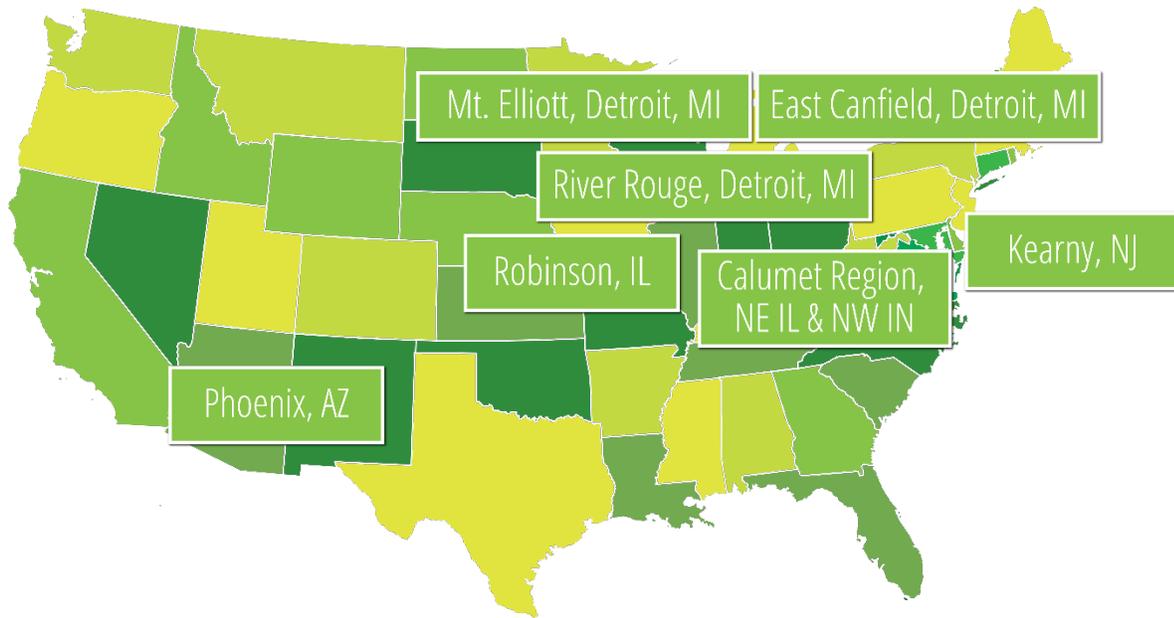
Once an education project has been implemented, it is important to evaluate its outcomes to ensure that the selected activities are resulting in beneficial learning experiences, and that event logistics are working for both organizers and schools. Evaluation is also a key component for corporate forestry teams that wish to apply for WHC Conservation Certification®.

Evaluation methods include:

- **Open-ended reflection** – Through writing, drawing or group discussion, have students reflect on what they learned, observations they made and what questions they still have. Collect and review written or drawn reflections or take notes on group discussions.
- **Surveys** – Have students (or teachers) take a survey focused on the learning experience and event format. Surveys can be administered on-site at the event’s end or sent to participants afterward. Keep records of survey responses to compare feedback over time.
- **Pre- and post-assessments** – Before and after the event, ask students the same set of questions about trees or forestry. The questions can solicit opinions or facts and can be asked in writing or verbally. Compare pre- and post-event responses to assess changes in knowledge or attitudes toward the environment as a result of the experience.
- **Facilitator observations** – Have employees and other volunteers make observations about event success. Instruct them to take notes during/after the event and submit them to a designated contact or gather participants for a debriefing session after the school group has left.

Regional Case Studies

As part of *Across Fence Lines*, local case studies in five regions were developed to showcase UCF success stories across the United States. The regions, detailed below, were selected with attention to their unique histories, climate considerations and environmental justice concerns.



Within some of these regions, *Across Fence Lines* corporate and community partners have used their forest sites as the backdrop for robust, age- and location-appropriate environmental education initiatives. This section of the toolkit explores the unique challenges and opportunities associated with these regional initiatives.

Calumet Region | Case Study

CommuniTree, a forestry collective comprised of businesses, municipal offices, and forestry-oriented NGOs, has planted over 10,000 trees within community spaces and industrial properties in northwestern Indiana and northeastern Illinois. Building on the longstanding success of these plantings, CommuniTree engaged students at George Washington High School on Chicago's southeast side in a collaboratively organized tree planting on school grounds. Students, teachers and local youth organizers planted 45 native trees and shrubs alongside WHC staff and volunteers from local corporations.

The school is located across the street from the proposed site of a new General Iron Facility that has drawn controversy because of its projected impact on local air quality and the associated health impacts on the adjacent community, which is largely comprised of Latino residents of a lower socioeconomic status. As such, in addition to broadly applicable lessons about stormwater management and habitat value, students were also taught to observe the planting site through the lens of air pollution.

After participating in the planting event, students, in partnership with Davey Tree Institute, used i-Tree software to track and model projected atmospheric impacts of the planting. Quantifying the carbon sequestration, particulate matter capture and fugitive dust capture of this small-scale planting engages students in real-world problem solving while developing their contextual and scientific understanding of the environmental justice conflict playing out in their community.

Metro Detroit- I-94 Corridor | Case Study

Alkebu-Lan Village (AKBV) is a longstanding community center in Detroit. With a 30-year history serving youth and their families, what began as a martial arts program teaching discipline and personal responsibility is now a sprawling facility with programs supporting technological literacy, physical fitness, academic success and food security. The organization supports local entrepreneurial efforts such as a pop-up pizza business, which uses fresh produce harvested from a community garden managed by a AKBV youth group. When employees at the nearby ArcelorMittal Tailored Blanks (AMTB) facility reached out to the Alkebu-Lan Village to discuss how they could best connect and support the community across their fence line, AKBV leaders identified the garden as a project in need of additional support.

In June 2021, employees of Waste Management (WM), General Motors, DTE and AMTB came together to plant 45 trees and 200 plugs on AKBV property, adjacent to the community garden. All plants were native species selected to provide habitat for local pollinators. The planting event was paired with a selection of informal environmental education activities, designed to build participants' understanding of the importance of pollinators both ecologically and to food security at a large scale.

The effort was guided by WHC staff and funded with money from WM's Think Green grant and the DTE Foundation. The successful pilot planting convening corporate, academic, nonprofit and community stakeholders resulted in additional funding from the Great Lakes Restoration Initiative to install green infrastructure across the neighborhood, including the planting of 500 additional trees. These funds will also support the development of additional curricula that will teach AKBV's youth program to monitor on-site pollinators, steward and maintain newly planted trees, and understand how the restored habitat provides ongoing value to local wildlife and the community.

Robinson, Illinois | Case Study

With established community outreach programs dating back to 2005, employees at the Marathon Petroleum refinery in Illinois elevated their education program by designing and installing two sites for nature-based learning. Situated at two local schools, a high school and a college, the spaces (a nature trail and an outdoor education setup) present learners with the opportunity to explore topics in ecology, biology and forestry. Marathon Robinson employees both maintain the sites and engage learners in the maintenance and monitoring of the installation. From identifying and removing invasive species and tracking wildlife use of the site, to maintaining a plant inventory, students are exposed to outdoor activities, intentionally and thoughtfully introducing scientific concepts in an active and fun way.

The site's forestry and education efforts have both qualified the Robinson refinery's conservation efforts for WHC certification. In addition to the curriculum planned and delivered by Marathon employees, community members benefit year-round from access to the associated recreational and educational spaces. Designing the sites with utility in mind, beyond the original planting and installation activities, has allowed for ongoing community benefits and dramatically amplified the impact of the initial investment.

Metro Detroit - East Canfield | Case Study

Employees of Stellantis (then Fiat Chrysler Automobiles) conducted several tree plantings as part of the company's MotorCitizens community engagement initiative. This effort, which started in 2018, included planting 15 trees on a vacant lot owned by a local community development group, Canfield Consortium, which is located both down the street from the Mack Ave plant and across Canfield St. from the Barack Obama Leadership Academy. Around the time of the plant's 2021 expansion, the company installed Beniteau Stormwater Park within the neighborhood. The park is part of a multifaceted Community Benefits Agreement, designed alongside Canfield Consortium and other community leaders, which seeks to alleviate the social and environmental impacts of plant expansion.

Beniteau Stormwater Park's installation was paired with the development of two curricula (one focused on biodiversity, the other on hydrology) for local schools, and corporate volunteers were trained to serve as lesson leaders. Designed to resonate with students with a wide range of learning styles, both curricula incorporate hands-on activities, social learning, and opportunities for reflection. They cover topics that align with Michigan State Science Standards, providing a real-world supplement to lessons being taught in school. Activities illustrate concepts such as the interconnectedness of food webs and morphological diversity of animals, allowing students to make real-world connections between the concepts covered and their immediate natural surroundings.

Moving forward, the curricula, which focus on hydrology and biodiversity, will be used by Detroit Public Schools students on field trips to the park, by students of Barack Obama Leadership Academy at a separate tree planting site, located across from their campus. This ongoing activation of an established planting site engages students of all ages in the importance of trees in biodiversity uplift and their critical role in watershed health.

In a community devastated by flooding during extreme rain events in summer 2021, activities illustrating the water cycle, from the local, rain garden level up to the watershed level, are especially important. Students have seen the damaging effects of climate change on their homes and communities, and these opportunities for place-based learning that explores the role of trees in storing stormwater will help broaden their understanding of the solutions available to build local resilience.

WHC Conservation Certification®

Once a conservation education program has been implemented, it may qualify for WHC Conservation Certification, the organization's voluntary sustainability standard.

Certification recognizes a wide array of conservation project types, including formal learning and awareness and engagement projects, which fall under the broad category of education projects. One or more projects make up a site's conservation program. In order for a program to earn certification, at least one associated project must earn a designation of *qualifying*. Qualifying projects must meet five criteria, which for an education project are defined as follows:

1. **Be locally appropriate** - Education content and activities relate to a habitat or species local to the area. Formal learning projects' learning goals must also correlate to established academic standards.
2. **Exceed any relevant regulatory requirements** - The project is voluntary or exceeds regulatory requirements.
3. **Have a conservation or conservation education objective** - Learning goals for the project are listed in the certification application.
4. **Provide conservation or conservation education value** - The number of hours students are engaged and how often the project occurs is calculated, and included in the application.
5. **Have documented measurable outcomes** - Project logistics and/or learning goals are evaluated and documentation of the assessment(s) is uploaded within the certification website.

Applying for Certification

All applications must be submitted through the Conservation Certification website. Teams applying for certification for the first time will need to create an account through the Certification Website following [these instructions](#). The education project applications each ask a range of questions about a project's scope, age, evaluation, participants, and any alignments that the project has with corporate commitments to education and community outreach or large-scale initiatives (e.g., state or nation-wide STEM programs). Once submitted, applications are evaluated by at least two third-party reviewers and a certification outcome is communicated to the program's designated contact. Information about application fees and deadlines, as well as additional guidance on the application, review process and possible outcomes, can be found within the [Certification Support Center](#).

The Certification Cycle

Once a program achieves Conservation Certification, the program team must apply to renew the certification every 2-3 years to demonstrate that efforts are ongoing. Certification, then, can be envisioned as a cycle in which site teams rotate through six steps illustrated on the right.



WHC knows business & biodiversity

About WHC

WHC promotes and certifies ecological stewardship action on corporate lands through partnerships and education. The organization's corporate members represent some of the leading national and multinational corporations seeking to support sustainable ecosystems and the communities that surround them. These efforts have resulted in more than 1,000 certified programs across 48 states and 25 countries, including 70 programs that feature forestry work in locations throughout the Americas, Europe and Asia. About 35% of programs with a forestry component have involved partnerships with schools or youth organizations.

WHC Consulting Services

To help companies forge meaningful relationships with partner organizations and community members, WHC's website features free resources such as webinars, blogs, white papers and project guidances.

WHC Consulting also offers a variety of fee-based services to help companies leverage successful conservation work to improve their social license to operate.

To help companies engaged in UCF work develop relationships with local schools and deliver high-quality educational content, WHC Consulting can provide:

- Recommendations for forestry-based STEM activities
- Industry-specific forestry curricula
- Facilitation of collaborative relationships with local school districts and other partners
- Guidance on how to use existing forestry sites for activities in education projects
- Training for employees and volunteers on hosting and leading education events

To learn more, visit www.wildlifehc.org/consulting