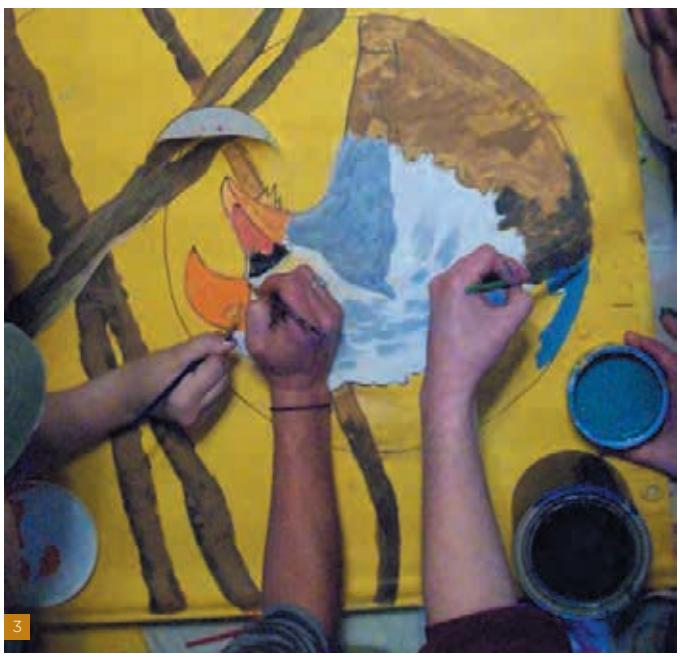
1

Workshops on Ecoliteracy

The Nature of *Making*

Text by Tracy Wyman and James Wang
Images as credited



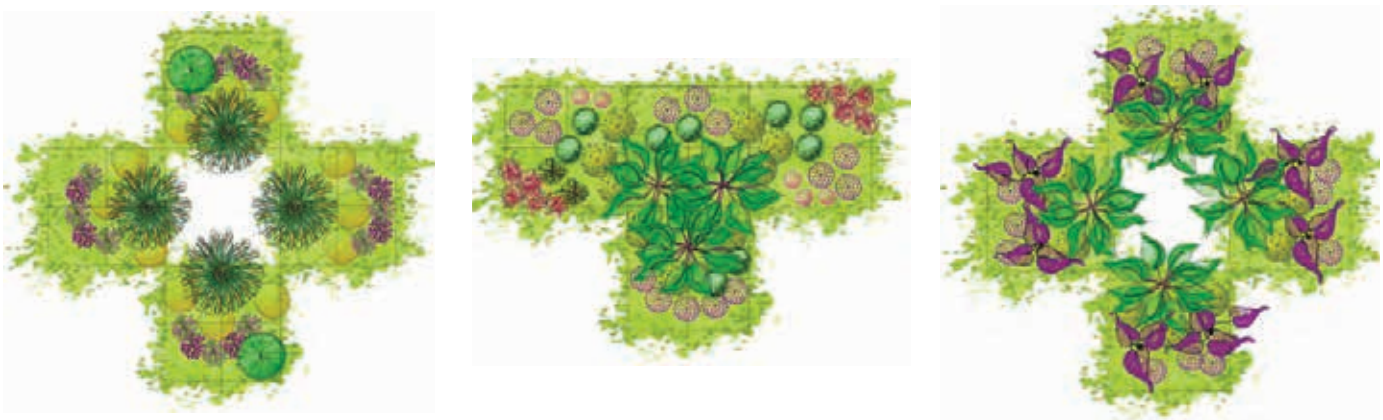
Interplays with nature are open windows to discovery, through which we can begin to see and understand who we are in relation to the natural systems at work around us. This is *ecoliteracy*. Such human-nature understanding is especially crucial within the city, where people are often disconnected from and unaware of their dependence on nature for their daily needs. Culture and cities evolve over time, shaping our understanding of the world and guiding us to become the persons we are. Thus, engaging the community in the processes of the natural systems of the city fosters an ecological intelligence that can help to sustain our cities as this understanding is passed down from generation to generation.

City parks provide opportunities to weave ecoliteracy throughout the fabric of the city, posing as influential tutors capable of impressing on the hearts of each generation the value and interconnectedness of the human and natural elements of the city. Specifically, parks offer a wide variety of recreational and fitness opportunities for interaction with nature. They can also offer opportunities for engaging the community in first-hand experiences with the workings and problem-solving of natural systems, to embed a deep understanding of our interdependence with the health of these systems.

1. Commonwealth Secondary School Green Club students planting the wetland during the Floating Islands ecoliteracy workshop (Photo: Tracy Wyman and James Wang).

2. Hands-on activities of planting a wetland help students to experience nature in new and different ways (Photo: Tracy Wyman and James Wang).

3. Banner painting activities followed the Mount Washington trail restoration workshops (Photo: MWCDC) (See Karen L. Celedonia, and Ann T. Rosenthal, "Combining Art and Eco-Literacy to Reconnect Urban Communities to Nature," *Ecopsychology* 3, no. 4 (2011): 249-255).



4
Planting Design Layouts Chosen by Students
(Drawing: Tracy Wyman)

Ecoliteracy in Parks

Creative self-expression takes place in the process of *making*, as does a tactile understanding of the materials, objects, or land involved in the process. This is the *nature of making*. Hands-on methods engage the whole self—mind and body—in the learning process for deep understanding. In the ecoliteracy workshops profiled below, the hands-on process of making was able to engage participants in ways that allowed them to connect with natural systems in meaningful ways as individuals, while also contributing to the environment and their respective communities as a whole. The studies each introduce "ecological authenticity", whereby participants engage in "real-world tasks within the ecological niche where the tasks bear value" (Barab and Dodge 2008). Both cases employ a guided approach so that non-experts can succeed in the real-world scenarios presented, while also developing partnerships with experts within a social network of peers. The two projects are each summarised below, followed by a discussion on their similarities, distinctions, and outcomes.

Floating Islands at West Coast Park: Singapore

A summer internship opened the door for researchers with Singapore's Centre for Urban Greenery and Ecology (CUGE) to explore how to apply a hands-on ecoliteracy project within the real-world context of West Coast Park. The need to increase biodiversity in the park's eastern pond provided an opportunity to develop an ecoliteracy project where visiting students could potentially become more aware of the natural systems around them. A dragonfly diversity study revealed that species diversity in the park's eastern pond is quite low, with only nine species recorded, compared to 33 different species at the nearby densely forested Kent Ridge Park (Ngiam 2009). The park is situated in a highly urbanised context with a trading port spanning the extension of its southern boundary and a busy highway to the north. Additionally, the constructed pond has a concrete bottom and hardened edge, offering little opportunity for aquatic plants. Park managers were also considering incorporating floating wetlands into the pond as a means of adding aesthetic interest.

In this pilot workshop study, 17 students from Commonwealth Secondary School's Green Club were engaged in the creation of floating wetlands at the park's pond. Three groups of five to six students each worked for four hours in pond-side workshop experiences. They were introduced to the need for increased biodiversity through the dragonfly diversity study, bringing real-world relevance to the project. Researchers then helped students make the connection that floating wetlands could help increase biodiversity by increasing the suitable habitats for a variety of dragonfly species, as well as attracting other wildlife such as butterflies and birds, while the root systems would provide habitats for fish.

The workshops engaged students with the site by giving them an opportunity to and map what they had discovered around the pond, in terms of human, natural, and sensory elements, as they walked around. Bringing their maps together, students shared what they had found and were guided in a discussion about the various options of where the wetlands could be placed. They were then encouraged to communicate the rationales for their suggestions. Working alongside professionals in the design, construction, and planting of the floating wetlands, the students were given opportunities to make creative decisions and influence the project whenever possible.

Three weeks after the workshops, all of the three groups came together in a celebratory anchoring event. The event was attended by most of the original participants, and opened with an entertaining slideshow to reminisce about the events of the three workshops. Several stations had been set up to allow attendees to participate in the activities offered freely. The stations included a display of the maps completed during the workshops, along with some added drawings of their design ideas for the site. Participants were invited to express their thoughts about the project using a variety of means: a short survey; writing and drawing in response to written prompts; writing down ideas for future workshops at the site on a future ideas board; and informal interviews with the researchers. Snacks were provided to facilitate social bonding and sharing, whilst all the students were encouraged to walk around the site to explore. The group gathered for discussion at one point, and then collectively decided where the wetlands should be anchored. They stood on the bank as the researchers anchored them, offering input from their advantaged perspective.

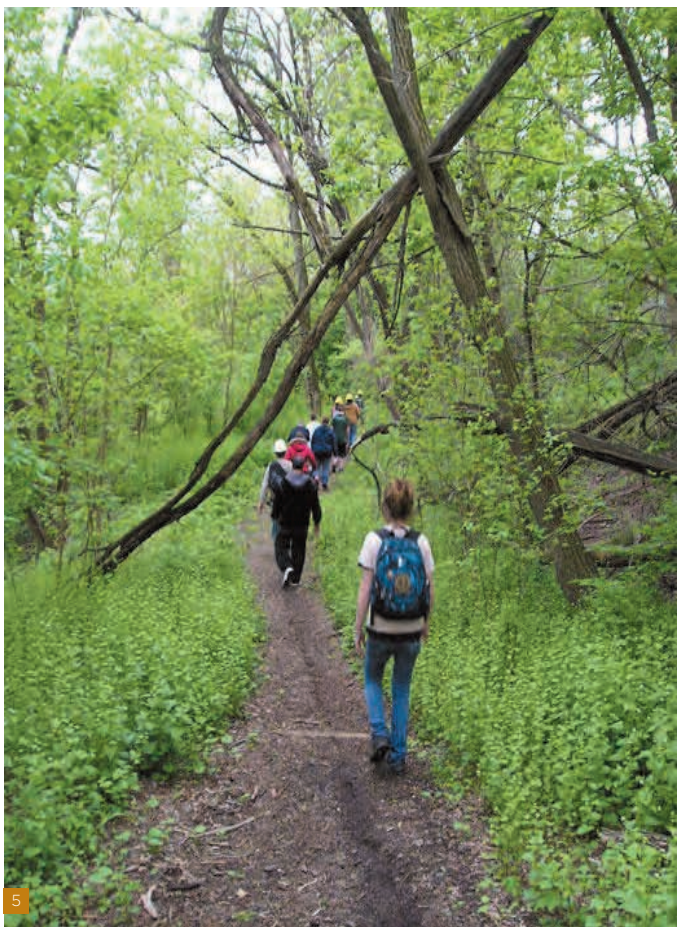
Creative self-expression takes place in the process of *making*, as does a tactile understanding of the materials, objects or land involved in the process. This is the *nature of making*.

Mount Washington: Pittsburgh, Pennsylvania, USA

The workshop on Mount Washington took place in 2009 and was a part of a larger initiative, the Community Trail Art Initiative (CTAI), of the Steel Valley Trail Council in Pittsburgh, USA. The CTAI was initiated to reconnect urban communities to local trails, rivers, and adjacent green spaces through a series of sponsored workshops from 2007 to 2009. The Mount Washington project, in partnership with the Mount Washington Community Development Corporation (MWCDC), was led by CTAI director Ann Rosenthal with assistance from Karen Celedonia, a graduate student from the School of Public Health, University of Pittsburgh. The project combined art with an ecoliteracy workshop series, providing a variety of opportunities throughout for participants to "see, feel, and understand" the land according to famous environmentalist Aldo Leopold's requisites for ethical behavior (Leopold 1949). This real-world project sought to restore a connection to the forested hillside, which had been lost with the advent of the automobile, resulting in the hill's unused slopes becoming inundated with junk cars, appliances, and other refuse. This led to residents perceiving the hillside as dangerous and undesirable (Celedonia and Rosenthal 2011). The MWCDC, which had plans to build a network of trails, welcomed the CTAI project as a means to promote its mission to reclaim the hillside for recreational use and enjoyment.

The project engaged students in a series of ecoliteracy workshops through guided trail exploration. Each workshop was led by a staff educator from a local environmental organisation who introduced local flora and fauna through planned exercises. Field experts led participants to experience first-hand how to build a trail, and a local historian provided vintage photographs and maps to introduce students to the history of the community. The ecoliteracy workshops were followed by art workshops, where participants were guided in the design process to create trail art banners that conveyed the natural and historic features of Mount Washington. The art workshops became a creative interpretation of what was learned in the ecoliteracy trail workshops (Celedonia and Rosenthal 2011).

A celebratory festival *Wild Art Wild Trails* was held at the culmination of the workshop series, where the youths' work and banners were unveiled for the community. A public clean-up event preceded the



5. The Community Trail Art Initiative's Mount Washington Ecoliteracy Project (Photo: Ann Rosenthal).

Through these creative opportunities, each within a site-specific, real-world context, the participants gained a greater understanding of their relationship with nature.

celebration, during which volunteers collected litter and refuse from the hillside. Following the clean-up, participants and visitors could interact with each other while taking part in a variety of activities, including scaling a climbing wall, playing outdoor games, listening to music, and painting more banners with visitors joining the young artists in their creation. Local artists were selected to transform some of the clean-up debris into sculptures during the event, with festival-goers providing direction for reusing salvaged tires, scrap metal, kitchen appliances, and more. These works were on display throughout the festival and at a subsequent community reception hosted by the MWCDC (Celedonia and Rosenthal 2011).

Similarities, Distinctions, and Outcomes

The workshop formats of the two studies were quite similar and shared the same overarching goal—to help young people reconnect to and understand the natural systems in and around their urban environment. Through these creative opportunities, each within a site-specific, real-world context, the participants gained a greater understanding of their relationship with nature.

The Floating Wetlands project was a half-day pilot workshop that used a qualitative research approach that analysed the responses of participants to understand how the workshop format and hands-on process contributed to participant's awareness of natural systems. Although it wasn't designed as an art-based project per se, the creativity that the programme and even some of the programme elements such as mapping the site and the planting design fostered certainly allowed for creative self-expression, which proved to be what the participants appreciated about the experience.

The value in the workshop format was the ability to create opportunities for students to take ownership of the project, which became the generator of creativity. Experiencing their decisions applied in a real-world scenario increased their interest. Similarly, the physical investment of actually building and planting the wetlands contributed to their sense of accomplishment and satisfaction in the work. Students expressed concern for the wetlands to continue to do well, and wanted to see ongoing projects take place at this park to benefit the community and environment. The small group format allowed for individuals to gravitate toward their unique learning niches, for them to try things they'd never tried before, and for their own skills and talents to be highlighted. The group size also ensured that the involvement of each participant was important to the project. The Mount Washington Project was held over a 10-week period, meeting once per week. The ecoliteracy workshops were conducted during the first five weeks, followed by five weeks of art workshops. The art workshops were specifically designed so as not to over-emphasise individuality, but instead emphasise the greater goal of creating a collaborative product for the community.

The trail-creating experience was an opportunity for students to learn practical skills and provided an opportunity for expert field guides to introduce students to flora and fauna along the trail, whilst the art became an opportunity to express what had been learnt on the trail. Though the workshops were not systematically evaluated, they were successful in meeting the goals of providing ecoliteracy sessions, creating trail art banners, and organising the festival, as well as in earning positive response from the community that indicated a desire for these programme to continue.

This concept of ecoliteracy workshops through partnership with parks can be replicated through a variety of approaches. Table A highlights the two approaches presented here in a side by-side comparison addressing the major components of both programmes. Each reflects the unique needs and circumstances of the respective site, participant group, and available resources.

Closing Thoughts

Each of these projects reveals the nature of making in ecoliteracy projects and how it can be applied in real-world scenarios in our parks. The creative process of decision-making and physical making engages participants in a way such that these projects are not only meaningful to the environment and the community but also personally meaningful to the participants. This reciprocity is necessary for truly sustainable cities to instil a love and understanding of the value of nature and its systems in the next generation, and the next.

References:

Barab, Sasha A. and Tyler Dodge. 2008. "Strategies for Designing Embodied Curriculum." In *Handbook of Research on Educational Communications and Technology* (3rd ed), edited by J. Michael Spector, M. David Merill, Jeroen van Merrienboer, and Marcy P. Driscoll, 97-110. New York: Lawrence Erlbaum Associates. Capra, Fritjof. 1996. *The Web of Life: A New Scientific Understanding of Living Systems.* New York: Anchor Books.

Celedonia, Karen L., and Ann T. Rosenthal. 2011. "Combining Art and Eco-Literacy to Reconnect Urban Communities to Nature." *Ecopsychology* 3, no. 4: 249-255.

Leopold, Aldo. 1949. *A Sand County Almanac.* New York, NY: Oxford University Press.

Ngiam, Robin. 2009. *A Dragonfly Diversity Assessment of West Coast Park Pond.* Singapore: National Biodiversity Centre, National Parks Board.

	Floating Wetlands Workshops and Reunion, Singapore	CTAI Workshops and *Wild Art Wild Trails* Festival, Pittsburgh, Pennsylvania, USA
Sponsorship	A research pilot workshop sponsored by Singapore's National Parks Board and Centre of Urban Greenery and Ecology in a cooperative agreement with the University of Florida, USA.	One of several workshop series sponsored by the Steel Valley Trail Council, a local trail network association.
Staffing	A researcher, an undergraduate research intern, the park staff, and a professional with experience in either wetlands planting or park management participated with the students.	Educators from local environmental organisations, undergraduate college student assistants, one graduate student assistant, the community centre and MWCDC staff, and various local artists participated with the students.
Project Impetus	The interconnectedness of human and natural systems based on theories of systems thinking and Fritjof Capra's *The Web of Life*. The design programme of Wendell Berry: • What Is Here? • What Does Nature Prevent us From Doing Here? • What Can Nature Help Us Do Here?	Theories of ecopsychology and the understanding that the de-emphasis of the individual is a necessary step towards restoring the human-nature relationship. "We can be ethical only in relation to something we can see, feel, understand, love or otherwise have faith in." —Aldo Leopold
Key Structural Components		
• Creativity	The Floating Wetlands project created a sense of ownership for participants, giving them a real voice in the outcome of the project as their decisions were integrated throughout the process. The decision-making process became the outlet for creativity and was evident in the site mapping, base construction, and planting design in particular. The students were also given the opportunity to draw their own designs for this pond.	The Mount Washington Trails project fostered creativity by engaging youth in a collaborative art project after a series of ecoliteracy workshops. The art was not only an opportunity for them to express themselves, but also a way for participants to apply what they had learnt in the field by drawing and painting the flora, fauna, and local history they had learnt, thus having to understand these community assets in even greater detail.
• Group Size	As a pilot workshop, the group size was intentionally under six, which meant that every person played an important role and was often able to gravitate to tasks requiring their unique interests and abilities. A small group size can be achieved by dividing larger groups and utilising volunteer partners, or by creating multi-faceted or multi-phased workshops where smaller groups can take part in various segments of the project according to participants' schedules and interests.	As an after-school, optional programme, participation varied from three to 10 students per workshop. A generous staff-to-student ratio ensured that the individual needs and interests of students could be addressed. While some students were comfortable with their drawing skills, others were encouraged to begin tracing an animal from a book to build confidence. Colour schemes and placement of visual elements on the banners were decided as a group, facilitated by staff members.
• Commitment	Park managers have emphasised that commitment to these programmes is essential for their success and that they should be considered a reciprocal partnership. A school's long-term commitment to a park can become part of the school's regular environmental education curriculum, providing opportunities for ecoliteracy while benefiting the park as well.	Many CTAI programmes were established with tight partnerships between school and environmental agencies, which brought success to the programmes. The Mount Washington project engaged an at-risk group of youth through a community centre. Sporadic attendance to the community centre meant that programme facilitators could not predict the number of participants to plan for with each workshop.
• Continuance	A post-event survey as well as information gleaned from the qualitative analysis revealed gaps in participant understanding relating to what behaviours are beneficial to the ecosystem of an urban pond. These gaps in understanding were matched to real needs at the same site and presented to the school and park as a plan for continuance. For example, to help students understand the value of and ecologically sensitive methods of wildlife attraction, two projects have been suggested: a wildlife inventory and the design and implementation of an artful wildlife perch near one group of the wetlands.	The *Wild Art Wild Trails* festival was very popular in the community and has continued in subsequent years. Due to city restrictions on the permanent placement of public art, the CTAI banners are periodically displayed in the community for special events. Workshop organisers and the MWCDC concluded that for the workshops to continue, there would have to be a partnership with local schools, as had been the case in prior CTAI programmes. Voluntary attendance proved to undermine the aims of the programme, which were intended to have continuity from one workshop to the next.