



2022 BOARD AND STAFF

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Rhiannon Carruthers
Seasonal Environmental Educator

Humaira Enayetullah
Digital Mapping Specialist
& Env Ed Assistant

Ada Cooke-Baskier
Seasonal Program Delivery Assistant

Gillian Xu
Environmental Ed Intern

Karen Bennedsen
Financial & Office Administrator

EDUCATIONAL INTERNS

Matthew Graham – University of
Toronto, ENV440 Intern
Matthew contributed to EcoSpark's
Caterpillars Count research and
volunteer programs

Philip Harker – University of Toronto,
Trinity College Intern
Philip supported citizen science activity
development and environmental
communications

Sam Zheng – University of Toronto
- Mississauga, Environment and
Geomatics Intern
Sam used his mapping skills to show
how changes in the local climate
impact migratory birds operating on
different environmental indicators to
determine migration timing.

Holli Campbell and Emily Blake –
Teachers in training - University of
Waterloo
Holli (a former staff member) and Emily
lent their skills to EcoSpark in May by
consulting on curriculum connections,
developing teacher resources, and
supporting communications for citizen
science opportunities such as City
Nature Challenge.

Megan Burnett, Phil Brewster, Addison
Wride – Fleming College, Ecosystem
Management Technology Work for
Credit program
The 2022 team helped to develop
resources and demonstrate datasets
for EcoSpark program participants'
use in creating ecological portraits of
the environmental health of school
grounds and public green spaces.

TABLE OF CONTENTS

1	Letter from the Chair and Executive Director	6	Citizen Science	10	Sparking Science
2	Strategic Plan	6	School Watch	11	Greenbelt
3	Digital Mapping	7	Park Watch	12	Finances
4	Changing Currents	8	Corporate Volunteers	13	Supporters
		9	City Nature Challenge		

2022 was a busy year for EcoSpark, managing the impacts of the pandemic on our operations and laying the groundwork for a strong recovery.

The world was slowly opening up in the fall of 2022, with schools reopening for in-person classes while also offering online hybrid options for students and families not comfortable going back into larger group settings. EcoSpark continued offering a mix of both in-person and virtual classes, providing teachers and students with as much flexibility as possible.

At the same time, EcoSpark began the process of updating our strategic plan to create a post-covid path forward for the next few years. The process, led by Deloitte Canada through their Community Advisory Projects volunteer initiative, tweaked our strategic goals, addressed new challenges created by the pandemic, and narrowed our focus to key programs and growth opportunities.

As part of our strategic update we are refining and expanding our terrestrial school based programs - launching the Citizen Science Goes to School Program aimed at expanding program delivery to schools lacking equal access to science, technology, engineering and math (STEM) resources. This program is designed to monitor environmental changes - both positive and negative - over multiple years, giving students the ability to monitor the impacts of environmental stewardship activities

carried out on their school grounds. By helping students see the positive environmental impacts of their actions we are helping them develop a sense of personal agency when addressing issues like climate change and biodiversity loss.

We also prioritized rebuilding and strengthening partnerships with school boards and teachers, updating our staffing plans and approaches, expanding our digital mapping capabilities and capacity, and diversifying and increasing our funding. We are excited to embark on the next leg of our journey with new plans in place to direct us for the next few years!

Sincerely,



DONNA RICE
*Chair of the Board
of Directors*

A handwritten signature in black ink that reads "DL Rice".



PAUL MERO
Executive Director

A handwritten signature in black ink that reads "Paul Mero".

STRATEGIC PLAN

In 2022 EcoSpark launched a process to update our Strategic Plan.

We reviewed our Mission, Vision and Values as we looked forward to a post COVID-19 world. We recognized that many things had changed and would never go back to the way they were before the pandemic. Through the pandemic many teachers we had partnered with in the past retired, the needs and expectations and skills of newly graduated students - a key hiring pool - had changed, and the needs of students lacking equal access to STEM learning had continued growing.

With the volunteer help of a team from Deloitte, we engaged in a process of reviewing our vision, programs and funding to improve our model and build a foundation for growth over the next few years. We developed a three year road map to address key

challenges, such as creating a more flexible plan to adjust staffing based on our varied seasonal demand.

We renewed our commitment to being the partner of choice for citizen science engagement, to inspiring, empowering and training the next generation of environmental leaders, and to ensuring the resiliency and sustainability of EcoSpark.

With the completion of the plan in 2023, EcoSpark will be on a path to more sustained growth, building stronger partnerships, diversifying our funding, and putting in place the infrastructure to support expansion of our programs for increased citizen science engagement with more students and community volunteers.



DIGITAL MAPPING

There is a growing recognition that the world is leaving the Holocene - the era that started at the end of the last ice age 11,000 years ago - and we are now entering the Anthropocene era.

This age is driven by the impacts humans are having on the planet, and is also known in lay terms as the “human era.” One of the best ways to understand the impacts of humans on the planet is by observing how the planet is changing over time, and we do that using the latest digital mapping technologies.

In 2020 EcoSpark began using ArcGIS, a world leading Graphic Information System, under ESRI’s charity partner program. The software allows us to map the results of student and community-led citizen science projects and to share them on our GeoHub in the resource section of our website.

EcoSpark continues developing online mapping resources, and in 2022 our new GeoHub was launched to start pulling them together. The GeoHub uses a variety of maps, story-maps and map dashboards, to turn data collected by participants

into stories about the natural world where they live, go to school, and play.

Story-maps, like EcoSpark and Caterpillars Count, introduce participants to concepts like phenology, which provides data on the impacts of shifting seasons on arthropods and the migrating birds that rely on them to feed their young. And our Tree Benefits program engages students in measuring and mapping the trees on their school grounds - some older than their parents and grandparents. They calculate the amount of carbon dioxide the trees absorb and water runoff they prevent.

With schools mandated to integrate digital mapping technology into school geography lessons, EcoSpark is bringing the technology to life by helping students gather, analyze and share the results of studies they conduct on their own school grounds.



Students view and analyse tree data using ESRI’s Survey123 and StoryMaps platform

CHANGING CURRENTS

2022 was a challenging year for the Changing Currents program.

With school boards modifying regulations concerning student safety around water bodies, EcoSpark had to continue adjusting its in-person program delivery to meet the varying requirements of each board. Reduced access to busing for students, due to a pandemic-related increase in bus driver retirements, reduced capacity and higher costs, also made it harder for EcoSpark to deliver the in-person Changing Currents program.

EcoSpark also faced challenges finding staff trained to use the Ontario Benthic Biomonitoring Network (OBBN) protocols for water quality monitoring. No OBBN training program had been offered since the spring of 2019, meaning many students entering environmental monitoring fields didn't have the qualification to lead our water quality monitoring program.

Through all of the challenges the team was still able to deliver programming for over 700 participants in both in-person and online sessions.



Students in Toronto using a D-net to collect invertebrates (photo: Craig Harris)





Sara demonstrating the use of a turbidity tube

CITIZEN SCIENCE

SCHOOL WATCH

In 2022, Ecospark's School Watch program delivered terrestrial citizen science programs to 1,868 students and teachers. We explored the climate benefits of trees, and conducted school ground biodiversity, pollinator and bird surveys. We helped students change the way they see their school grounds and the world around them!

We also launched a new project, the Citizen Science Goes to School program. The program aims to organize high schools and their feeder elementary schools into hives that monitor and analyze environmental health indicators across their school grounds over multiple years. By having schools collaborate on shared projects they learn the importance of using standardized research protocols for gathering and comparing data from different locations. It also allows them to test different stewardship activities to compare their impacts and effects on local ecosystems.

This new program is focused on schools that are typically in areas that score lower on ratings of

environmental and social health indicators and are identified by school boards and local municipalities as priorities for additional support.

The school watch program added a new project to its roster, Sknowledge, so it can now offer engaging students programs throughout the school year. The Sknowledge project fills in local data gaps for researchers studying changes to snow patterns as local temperatures warm based on annual climate impacts.

School Watch also expanded its Tree Benefits program to include a digital mapping program to support students in Specialist High Skills Majors (SHSM) programs. The expanded program calculates the value of the positive climate impacts trees have, such as: capturing carbon dioxide and air pollution, and preventing water runoff and soil erosion.



Durham students after completing a Biodiversity workshop



PARK WATCH

EcoSpark's Park Watch program has been building programming partnerships with university researchers and organizations working on local ecosystem stewardship programs. We worked with dozens of Project Swallowtail Block Ambassadors and project members (an organization supporting local groups planting and maintaining pollinator gardens) conducting insect field research work within the city of Toronto.

We added more Caterpillar Counts research sites - up to 8 in 2022. We worked with community groups and schools in Durham, Toronto and Peel regions, gathering and submitting data to support the program and a new report highlighting insights from the data.



Community group connecting biodiversity and art at Toogood Pond Park in Unionville



CORPORATE VOLUNTEERS

EcoSpark's work with corporate volunteer groups increased in 2022, engaging more volunteers in the experience of gathering and contributing to citizen science.

Corporate groups included Danaher, LPL Financial, Dow, Applied Materials, Moody's, and Dropbox.

Over the course of 2022, we engaged 223 adults from 12 different corporate groups through our Corporate Volunteering program. Corporate volunteers participated in our Biodiversity and Tree Benefits workshops (both in-person & virtual)

and contributed local data to citizen scientist monitoring programs. Our corporate volunteers not only contributed data to citizen science, but also valuable feedback on our programs that informed changes to our work with the schools and students.



Corporate volunteers complete a pollinator survey at the Toronto Brickworks



CITY NATURE CHALLENGE

Through our partnership with the Royal Ontario Museum for the City Nature Challenge (CNC), we gained access to a broader group of contributors for our mapping initiatives.

Our own mini bio-blitz was held on April 30 at Albert's Marina just north of Holland Marsh.

The blitz brought together staff, board members, Greenbelt Youth Ambassadors, and community members, helping to bring up the total GTA results for City Nature Challenge: 547 participants; 5,060 observations; 825 different species. The global totals were also impressive: 67,200 participants; 1,694,877 observations; 50,176 different species.

Our SpringGo cards were a fun addition to the CNC experience and our SpringGo winners received annual passes to the ROM, as well as a tour of the ROM's ornithology lab. It was great partnering with the ROM – working together to encourage citizen science by mapping local biodiversity.



Dana and Paul submit data to iNaturalist during CNC at Holland Marsh



SPARKING SCIENCE THROUGH MENTORSHIP

SPARKING SCIENCE THROUGH MENTORSHIP

The 2022 annual Sparking Science Conference gathered 90 grade nine girls from Durham Region high schools for our first in-person conference since the beginning of the COVID-19 pandemic.

We were graciously hosted, and funded, by our University of Toronto Scarborough campus partners.

The girls were organized into small groups and each group met with 6 of the 9 female mentors. The mentors' backgrounds varied from university researchers to a chemical engineer working with a company making personalized cosmetics to an

electrician working in the trades. Based on the feedback received from students and mentors, the event was a big success!

Thanks to Dunbarton High School, Ajax High School, Henry Street High School, Pickering High School and R.S. McLaughlin CVI, for joining us in person for the 2022 conference!



Mentors and participants at the
Sparking Science Conference



GREENBELT

EcoSpark began hosting the Greenbelt Municipal Education Program in 2022, engaging new councillors and community professionals and leaders to deepen their understanding of the Greenbelt and smart growth planning principles.

The project will increase support for the Greenbelt and provide resources to help communities address local planning needs and priorities.

The program includes a webinar series for newly elected councillors, resource materials and/or tools regarding sustainable planning, and collaboration opportunities to provide further assistance on specific issues, including presenting planning information to municipal councils.

The pandemic continued impacting the ability to organize in-person events for the Greenbelt Youth Ambassador team. But the group continued to focus on developing speaking notes and presentations to share with Eco clubs and other youth about processes for updating municipal plans.



Slide from a webinar about housing issues in the Greater Golden Horseshoe

Need for Additional Land to Meet 2031 Housing Forecasts

Three recent studies have found that land shortages are not responsible for the housing shortfalls:

1. **“But a shortage of land isn’t the cause of the problem. Land is available, both inside the existing built-up areas and on undeveloped land outside greenbelts.”** [emphasis added] (Ontario Housing Affordability Task Force. – February 2022)
2. **Before the most recent urban expansions there was over 2 million units of unbuilt housing capacity in the GGH alone** (Eby, K. – February 2023)
3. **15 municipalities representing 70% of Ontario’s population had over 1.5 million units already under construction, subject to approved applications or already in applications under review** (RPCO – March 2023)

FINANCES

EcoSpark's 2022 Audited Financial Statements were prepared by Pennylegion Chung LLP and dated April 18, 2023. The following information is an excerpt from the Audited Financial Statements; the full statements can be made available upon request.

SUMMARIZED STATEMENT OF FINANCIAL POSITION As at December 31, 2022	2022	2021
ASSETS		
Current assets		
Cash	\$ 274,686	\$ 343,507
Accounts receivable	37,511	19,922
Sales and property tax recoverable	4,484	5,364
Prepaid expenses	1,478	7,113
	\$ 318,159	\$ 375,906
LIABILITIES AND NET ASSETS		
Current liabilities		
Accounts payable and accrued liabilities	\$ 42,909	\$ 13,381
Deferred revenue	85,469	183,632
CEBA loan repayable	40,000	40,000
Net assets - Unrestricted	149,781	138,893
	\$ 318,159	\$ 375,906
REVENUE		
Contributions	\$ 436,327	\$ 296,052
Workshop fees	50,583	27,715
Fundraising and other	3,549	8,778
CEBA, CEWS, and CERS	-	78,405
	\$ 490,459	\$ 410,950
EXPENSES		
Personnel	290,569	227,316
Program	126,240	98,225
Office and general	19,599	24,049
Rent	19,263	18,289
Communications	10,436	1,528
Professional fees	6,197	5,227
Insurance	5,634	5,395
Training and development	1,633	1,121
	\$ 479,571	\$ 381,150
EXCESS (DEFICIENCY) OF REVENUE OVER EXPENSES	10,888	29,800
Net assets, beginning of year	138,893	109,093
NET ASSETS, END OF YEAR	\$ 149,781	\$ 138,893

SUMMARIZED STATEMENT OF OPERATIONS AND CHANGES IN NET ASSETS FOR THE YEAR ENDED DECEMBER 31, 2022	2022	2021
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NET ASSETS, END OF YEAR	\$ 149,781	\$ 138,893

THANK YOU TO OUR SUPPORTERS

Our work couldn't be done without the generous commitment of our staff, board of directors, partners, and supporters. Thank you to everyone for your valuable time, energy, and support!



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We would also like to thank the following companies for their in-kind support of Not-for-profit Organizations, including EcoSpark:

Microsoft Google esri Canada Safe Software Adobe Deloitte Canada

OUR MISSION

EcoSpark works with communities and schools, providing them with the knowledge and tools to monitor their environment and take action for positive environmental change.



FOR MORE INFORMATION

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EcoSpark gives people the tools and knowledge to create positive environmental change.

To make a donation, visit ecospark.ca/donate or call 647-258-3280 x 2005

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