



## 2017 BOARD AND STAFF

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Mentorship and coaching has always been an important part of the culture at EcoSpark. Whether you are a volunteer, a participant, a staff member or a board member, we value professional development through experiential learning and discovery.

For Cindy, her professional development at EcoSpark began as a junior board member during her time as a student at the University of Toronto. For Joyce, her entire tenure at EcoSpark has been a long journey of personal and professional growth, starting as an intern back in 2005.

Professional development is also integrated into one of our four strategic goals in our 2017-2021 Strategic Plan: We will foster a culture of learning and development to ensure the resiliency and sustainability of EcoSpark.

Mentorship and coaching is therefore woven as a theme throughout this annual report. Not only does this happen within EcoSpark and directly with our projects and programs, we also foster formal and informal peer-to-peer learning whether it's between students, teachers or community groups.

In 2017, mentorship and coaching was an important success factor in all of our endeavours, including our teacher training workshops for Changing

Currents and Nature Academy, our Sparking Science through Mentorship conference, our Greenbelt Youth Ambassadors and capacity building among community groups in the Greater Golden Horseshoe.

EcoSpark continues to be a leader in outdoor environmental education in nearby nature, in our citizen science programs that produce important scientific data, in championing strong protection for the Greenbelt and the Greater Golden Horseshoe. Our success relies heavily on a strong and dedicated staff and board team as well as the generosity of our dedicated supporters, partners, collaborators, participants and volunteers.

As we enter into year two of our strategic plan, we are confident that we will continue to learn, grow and spark a stronger and healthy environment for the current and future generations.

Sincerely,



A handwritten signature in black ink, appearing to read 'Cindy'.

**CINDY CHAO**

*Chair of the Board of Directors*



A handwritten signature in black ink, appearing to read 'Joyce'.

**JOYCE CHAU**

*Executive Director*



## Changing Currents

EcoSpark had another successful year of building lasting connections between students and their local environment. In 2017, 2064 students across 11 different school boards and three independent schools participated in our award-winning Changing Currents program. Our hands-on water quality monitoring program continues to shape the next generation of environmental leaders, and this is made possible through coaching and mentorship.

The training and coaching we provide both teachers and students plays a large role in the quality of our program. We equip teachers with the necessary skills and tools to prepare their students for a Changing Currents stream study and help make curriculum connections through our seasonal teacher training workshops. We also provide students with a thorough overview of our protocols and procedures and encourage positive environmental action in their local neighbourhoods following their stream study.

Changing Currents alumni deliver an added layer of mentorship within the program. Over the years, we have seen returning students shared their knowledge and experience from past stream studies with the incoming cohort of Changing Currents students. In 2017, examples of alumni mentorship included École Ronald-Marion and Cawtha Park Secondary School.

In 2017, we saw return students from Pickering's École Ronald-Marion exercise their leadership skills. In 2016, Mathieu Morin's grade 11 students monitored Duffins Creek behind their school. In 2017, the same students - now in their senior year of high school -

returned to the program to coach Sandrine Tchatchou's grade 9 students through the stream study at the same site. Through Changing Currents, these students are taking a leading role in strengthening their connection to the local environment.



Mississauga's Cawthra Park Secondary School has been monitoring Cooksville Creek for the past three years, contributing long-term water quality data at the site. Teachers Tricia Fitzpatrick and Lindsay McLeod always make it a point to build in mentoring as part of their Changing Currents sessions. In 2017, grade 11 students accompanied the younger grade 9 students to provide guidance and support during their stream study sessions in the spring and fall.



## Changing Current-Branch Out

In 2017, EcoSpark and Credit Valley Conservation (CVC) celebrated its first year in engaging and connecting youth in the Peel Region to the Credit River watershed through citizen science and land stewardship. With this collaborative program, teachers are able to register for **TWO** programs at once, allowing the students to take part in both a hands-on water quality monitoring (EcoSpark's Changing Currents) and land stewardship activities (CVC's Branch Out) such as native plantings, invasive species removal and shoreline cleanup as part of a full day outdoor program.

With the generous support of the Ontario Trillium Foundation over three years, the program engaged 1042 students and 45 teachers from 12 schools in Peel Region to protect the Credit River watershed in 2017. In total, Peel students monitored 720 metres of streams and stewarded nearly 1 hectare of public lands.

The new partnership between EcoSpark and CVC deepens the impact of both programs. It enhances the grade 6 to 12 science and geography curriculum and raises awareness about the importance of water quality and local climate change issues. Importantly, students gain the skills and knowledge to inspire them to discover and restore natural areas in their communities, supporting healthy and sustainable environments within the Credit Valley watershed.



## School Ground Greening

During the 2016-2017 school year, EcoSpark worked with two schools in Mississauga to support school ground greening projects from start to finish. With support from the Ontario Trillium Foundation, this project's goal was to better understand some of the barriers to implementing school ground stewardship projects, especially as a follow-up action to our Changing Currents program.

With a budget of \$5000, Cawthra Park Secondary School and St. Richard Catholic Elementary School were able to create tailored projects to best meet the needs of the teachers and students. Cawthra Park Secondary School planted seven trees, built six edible gardens, and installed a rain barrel on school property. St. Richard Catholic Elementary School created an outdoor classroom with support from EcoSpark. This included natural log seating and landscaping as well as one native pollinator garden. Both projects resulted in increased local biodiversity at the school and increased ability to absorb stormwater through naturalized surfaces.

Mentorship contributed to the success of these projects. Peer-to-peer mentorship was provided by the neighbouring EcoTeam at Louise Arbour Secondary School to Cawthra Park students where

the EcoTeam showcased their own stewardship project and shared some strategies for success. With ongoing coaching support from EcoSpark, there was a high level of student, teacher and community engagement throughout the entire process. Collectively between the two schools, about 1200 students were involved as well as 30 community stakeholders.

We learned that there were many challenges facing teachers in Peel Region who want to initiate school ground greening projects. Based on this project, we recommend that teachers initiate their projects early (even a school year ahead) and seek out local partners to access financial and coaching support. We also recommend improved instructions from school boards in Peel that are clear and accessible for teachers (e.g., guidance around approvals and the roles and responsibilities for different players involved).



## Rot Squad

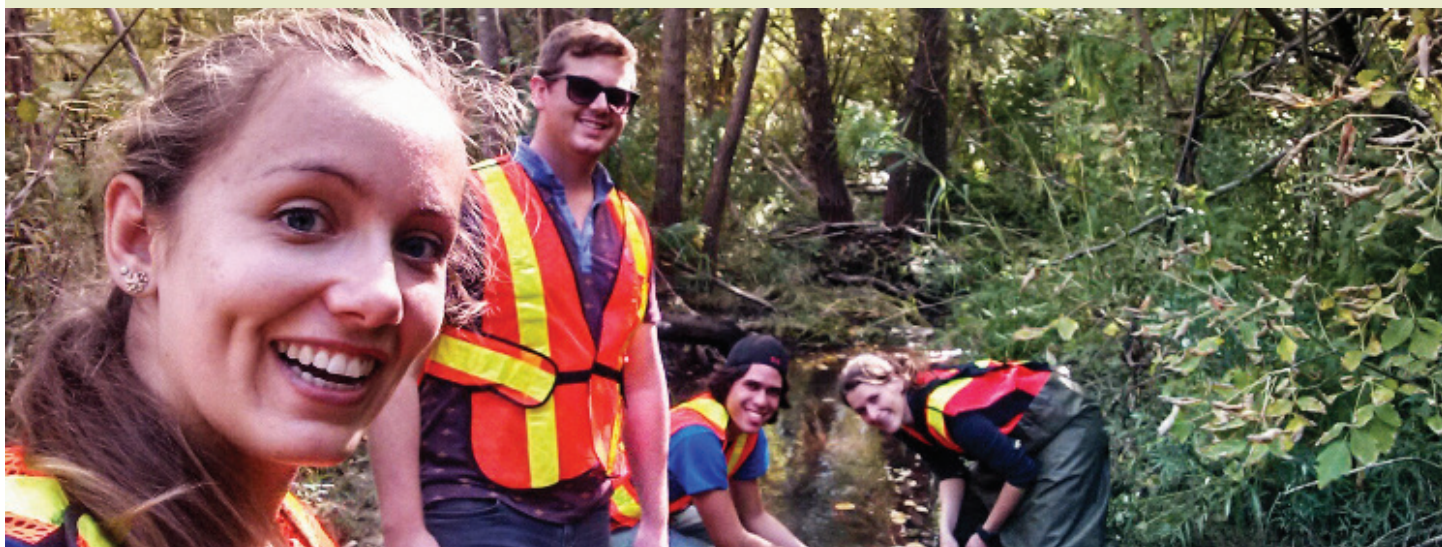
In the spring of 2017, EcoSpark and the University of British Columbia recruited an awesome team of volunteers to join the Rot Squad. The goal was to crowdsource data to determine if rot rate could be a successful measure for stream and ecosystem health, potentially informing and improving land use decisions.

With funding from the Ontario Trillium Foundation and in-kind support from the Toronto and Region Conservation Authority, we developed a citizen science protocol, secured the equipment, identified headwater streams, trained volunteers – and the Rot Squad was born.

Our trained citizen scientists included Rot Squad crew leaders (who received advanced training) and Rot Squad crew members (who received day-of training). They measured rot (or decomposition) rate in headwater streams across southern York Region in April of 2017. Rot rate was recorded by placing small cotton strips (artist canvas) in streams, leaving them for about three weeks, and then testing how much they decompose.

The Rot Squad visited 40 streams in total. We learned that rot rate was both the highest and lowest in disturbed headwater streams (i.e., agricultural and urban sites) and modest in undisturbed sites (i.e., forested sites). This may be attributed to higher levels of nutrients in disturbed sites leading to a high rot rate and higher levels of pollution in disturbed sites that can lead to a low rot rate. Forested sites had less variable rot rates and may provide a healthy range for this indicator. These preliminary results show a lot of potential in using rot to determine ecosystem health.

We were amazed by the dedication of the volunteers. Our 30 Rot Squad volunteers contributed 340 volunteer hours. Thank you to our citizen scientist volunteers for their contributions! We are looking forward to publishing the data in an open access peer-reviewed journal.







## Nature Academy

In 2017, EcoSpark continued to deliver professional development to teachers through our Nature Academy program. We also expanded our workshop offerings to bring more authentic and relevant professional development in environmental education. This included new workshops on terrestrial invasive species and growing sustainability to protect our environment. In total, we provided professional development to over 115 teachers! Our teacher training will help to support the next generation of environmental leaders.

### TERRESTRIAL INVADERS WORKSHOP

On May 6, 2017, EcoSpark piloted a Terrestrial Invaders workshop to introduced teachers in Halton and Peel to the plants and animals that have invaded Southern Ontario and their impact on our ecosystems. Through interactive indoor and outdoor activities, teachers learned how to incorporate terrestrial invasive species into the curriculum and walked away with ideas of how to deepen student knowledge and motivate them to take action to mitigate the effects of invasive species on the environment. This workshop was delivered in partnership with the Invasive Species Centre, the Early Detection Rapid Response Network Ontario, Credit Valley Conservation and The Riverwood Conservancy.

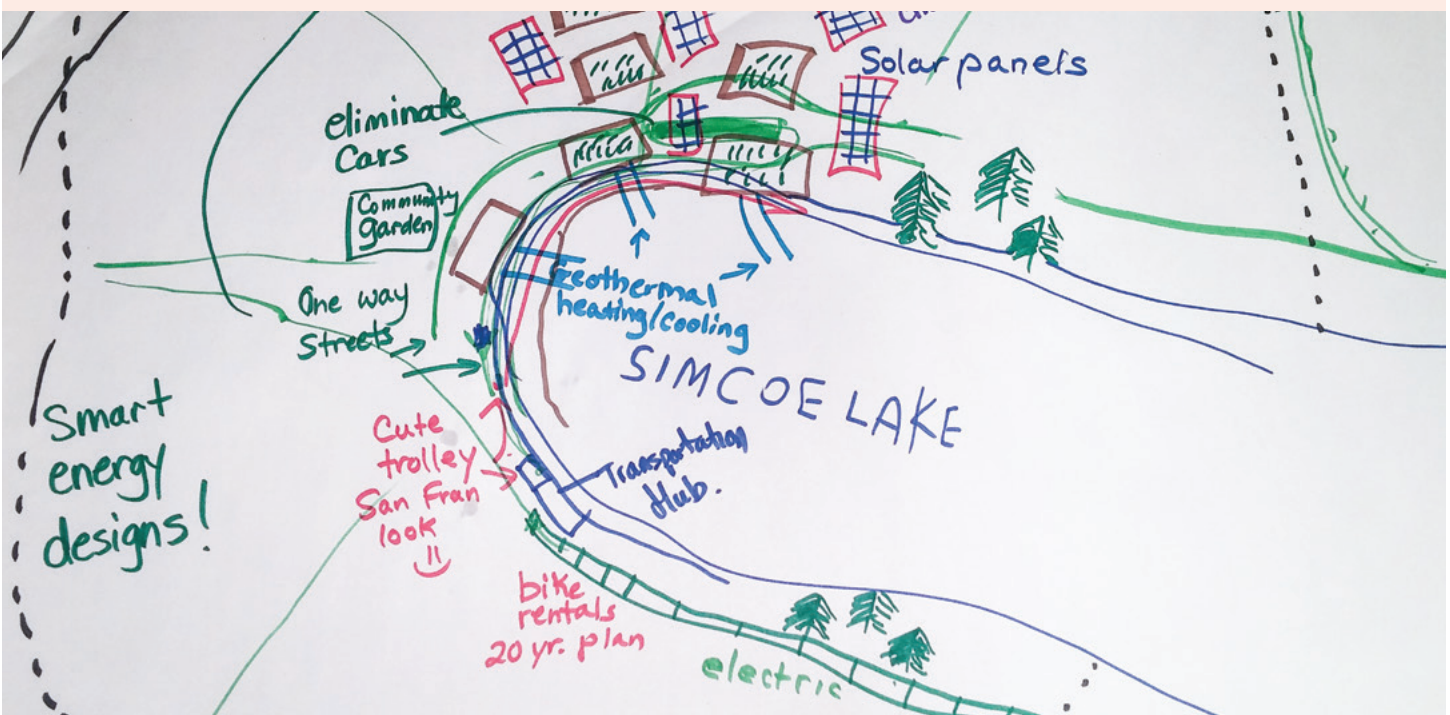


## TEACHER AND STUDENT PROFESSIONAL DEVELOPMENT

### GROWING IN THE GREATER GOLDEN HORSESHOE/COMPLETE COMMUNITIES

During the 2016-2017 school year, EcoSpark partnered with the Neptis Foundation and launched an innovative project to increase understanding of and dialogue about the merits of growth planning among teachers and students in the Greater Golden Horseshoe (GGH). By promoting and supporting the concepts of complete communities in formal education, we helped to ensure that our young people are informed, engaged and active in how our communities mature and grow now and into the future.

Funded by the Province's Places to Grow Implementation Fund, we were able to produce a teachers' guide called *Growing in the Greater Golden Horseshoe*, develop 12 curriculum-linked lesson plans for grade 7-12 geography and grade 9 and 11 science, deliver five teacher workshops and co-teach at three schools across the GGH to 75 students. Furthermore, we were able to integrate innovative technology through the Neptis Geoweb – the Neptis Foundation's free and interactive online mapping and information platform for understanding land use, environmental and transportation planning in the GGH.



## Sparking Science through Mentorship

Launched in 2017, Sparking Science through Mentorship is a one-day mentorship conference to increase science literacy among girls entering grade 9 and demonstrate that a career in science is fun, satisfying and comes in many different shapes and forms. It was important to reach these girls early in high school before they developed any negative associations with or barriers in science that would discourage them from further pursuit of its studies.

The conference was created by EcoSpark, Dunbarton High School, and the University of Toronto Scarborough (UTSC) for Scientific Literacy Week in 2017. Sponsors included the Office of the Vice Principal Research and the Office of the Dean at UTSC as well PromoScience, a program created by the National Sciences and Engineering Program of Canada.

“My favourite part was being able to talk to all the women and learn about their experiences with a career in science and hear their advice for me going forward.”

Fikene from Pine Ridges Secondary School

This unique mentorship conference featured women working in science and technology with a social purpose. We secured 14 diverse women in STEM from different fields including ecology, forestry, neurobiology and behaviour, mineralogy, astrophysics and computer science. One of the mentors included EcoSpark’s Executive Director, Joyce Chau! The key note speaker was Dr. Maydianne Andrade, Professor in the Department of Biological Sciences and Vice Dean of Faculty Affairs and Equity

at UTSC, as well as a Canada Research Chair. This was followed by a series of interactive sessions with groups of students rotating between the mentors who shared their experiences working in STEM. About 120 grade 9 girls from four local high schools in Durham attended the conference.

By introducing mentors to the grade nine girls, Sparking Science showed a viable goal for the students as well as opened their sphere of influence to larger and more detailed career opportunities. Our evaluations showed that 90.67% of participants said they would recommend Sparking Science to their friends. Furthermore, 88% said they would attend Sparking Science again with some even wishing to attend as older students and wanting to see the program evolve and grow. Lastly, 55% of the students said they would be interested in pursuing a future STEM career. With the success of Sparking Science in 2017, we hope to continue this conference in 2018.

“Women can do [anything] we put our minds to.”

Nicole from Pine Ridge Secondary School

## Greater Golden Horseshoe

In 2017, EcoSpark helped to cement the Greenbelt as a permanently protected greenspace through our participation in the Coordinated Review as part of the Oak Ridges Moraine Partnership (EcoSpark, Ontario Nature, STORM and Earthroots). After a 26-month review, the Government of Ontario updated the plans within the Greater Golden Horseshoe (GGH) in May 2017. With continued support from the Friends of the Greenbelt Foundation, the Partnership was actively involved in the implementation of these new plans to advocate for strong environmental outcomes for the region.

### 15TH ANNIVERSARY OF OAK RIDGES MORAINE PROTECTION



April 22, 2017 marked the 15th anniversary of the Oak Ridges Moraine Conservation Plan (ORMCP). We were honoured to have Julia Munro, MPP from York-Simcoe stand in the provincial legislature to commemorate the ORMCP's 15 anniversary. The Oak Ridges Moraine Partnership was joined by many long time advocates for the moraine. The plan is a key milestone of the smart growth movement that is helping to protect the water, nature and communities of the Greater Golden Horseshoe (GGH). As we marked 15-years of moraine protection, it is pivotal to close loopholes that threaten the forests, rivers, wetlands and farms of the Oak Ridges Moraine and GGH.

### #GROWOURGB #PROTECTOURWATERS



The ORM Partnership continued to be a key champion of Greenbelt expansion to protect at-risk waters from sprawl. We were key architects in the developing Bluebelt mapping that includes areas in Brant, Wellington, Simcoe and Northumberland Counties, Waterloo Region and the headwaters of the Humber, Don, Rouge rivers and the Duffins and Carruthers Creeks. Our Bluebelt strongly influenced the Province's draft study area for Greenbelt expansion. While the provincial proposal was a good start, a more systematic approach is needed to make sure that all sensitive features and functions of the region's watersheds are fully protected from urbanization.

### NATURAL HERITAGE SYSTEM FOR THE GREATER GOLDEN HORSESHOE

As an outcome of the updated Growth Plan for the Greater Golden Horseshoe, the Province took a leadership role to identify and map a natural heritage system (NHS) for the region and solicited public input on their methodology. The ORM Partnership provided leadership to the ENGO community through capacity building (e.g., unpacking what the Province proposed and what constitutes a strong NHS) and sharing expertise and exchanging of ideas to strengthen the methodology. The Partnership developed a strong submission to the Environmental Registry with 16 key recommendations. We also prepared multiple avenues for campaign support for a stronger regional NHS. Our online petition garnered support from 2377 individuals and 39 groups co-signed with the Partnership to Minister of Natural Resources and Forestry.

The Partnership also led an exercise to integrate community voices in natural heritage systems planning, piloting the process in Simcoe County

and adjacent communities in the Nottawasaga watershed.

Opportunities to improve the Province's approach to mapping were highlighted through this project that brought together representatives from 20 other organizations to discuss Simcoe County's Natural Heritage System through a series of local meetings, workshops and a celebration event featuring David Crombie and former environmental commissioner of Ontario, Gord Miller.

The Oak Ridges Moraine Partnership continues to advocate for strong environmental action within the GGH in the face of misinformation campaigns, wrongly attributing the increased housing cost and limited supply to the Greenbelt. While the Province pulled back from freezing urban boundary expansions as a result of the Coordinated Review, the Partnership has been closely watching to ensure that new clarity in the plans will eliminate ongoing land speculation on prime farmland, important natural spaces and the edges of rural communities.

## Greenbelt Youth Ambassadors



In 2017, EcoSpark continued to connect youth to the Greenbelt with support from the Durham Community Foundation. In May, we led a group of 40 students

from Dunbarton High School in Pickering on an educational tour of the Greenbelt in Durham Region. This tour included visiting a national historic farm in Pickering (Thistle Ha' Historic Farm), a thriving rural business in Claremont (Native Plants in Claremont), the Oak Ridges Trail in a pine plantation in Glasgow, and a land trust in Whitby (Thickson's Woods). Students got to experience the landscape firsthand while hiking and exploring, meeting the people who steward these lands and learning what shapes the communities where we live, work and play. Two of our Greenbelt Youth Ambassadors from Dunbarton High School – Andrew Fryer and Edward Hewitt – joined us for the day, sharing their own knowledge and experience from their Greenbelt tour and Greenbelt Youth Charter development in 2015.

## FINANCES

EcoSpark's 2017 Audited Financial Statements were prepared by Cowperthwait Metha, Chartered Accountants and dated February 26, 2018. 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	2017	2016
AS AT DECEMBER 31, 2017		
<b>ASSETS</b>		
<b>Current assets</b>		
Cash	\$ 137,858	\$ 151,316
Short-term investments	10,498	-
Accounts receivable	77,040	6,729
Sales and property taxes recoverable	3,040	1,774
Prepaid expenses	6,153	3,332
	<hr/>	<hr/>
	234,589	163,151
Furniture and equipment	1,743	-
	<hr/>	<hr/>
	<b>\$ 236,332</b>	<b>\$ 163,151</b>
<b>LIABILITIES AND NET ASSETS</b>		
<b>Current liabilities</b>		
Accounts payable and accrued liabilities	\$ 12,859	\$ 29,598
Deferred revenue	194,527	127,430
	<hr/>	<hr/>
	207,386	157,028
<b>Net assets - Unrestricted</b>	28,946	6,123
	<hr/>	<hr/>
	<b>\$ 236,332</b>	<b>\$ 163,151</b>
SUMMARIZED STATEMENT OF OPERATIONS AND NET ASSETS	2017	2016
FOR THE YEAR ENDED DECEMBER 31, 2017		
<b>REVENUE</b>		
Foundation Funding	\$ 253,275	\$ 209,148
Other program funding	39,798	56,616
Government Funding	60,606	5,232
Donations	22,579	1,867
Other	2,372	1,968
	<hr/>	<hr/>
	<b>378,630</b>	<b>274,831</b>
<b>EXPENSES</b>		
<b>Program development and delivery</b>		
Salaries and benefits	159,308	140,898
Program resources and events	118,124	68,382
Program administration	22,425	23,446
Program travel	14,811	11,613
Purchased services	18,736	5,584
	<hr/>	<hr/>
	<b>333,404</b>	<b>249,923</b>
<b>Administration</b>		
Office and general	12,099	10,053
Salaries and benefits	6,301	8,527
Rent	3,204	3,476
Amortization	799	-
	<hr/>	<hr/>
	22,403	22,056
Total expenses	<hr/>	<hr/>
	<b>355,807</b>	<b>271,979</b>
<b>EXCESS (DEFICIENCY) OF REVENUE OVER EXPENSES</b>	22,823	2,852
Net assets, beginning of year	6,123	3,271
	<hr/>	<hr/>
<b>NET ASSETS, END OF YEAR</b>	<b>\$ 28,946</b>	<b>\$ 6,123</b>

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## 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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Visit

[www.ecospark.ca](http://www.ecospark.ca)

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

To make a donation, visit [ecospark.ca/donate](http://ecospark.ca/donate) or call 647-258-3280 x 2005.

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