



September 26, 2017

**PRESENTATION BY THE TORONTO RAVINES REVITALIZATION STUDY (TRRS)
TO THE EXECUTIVE COMMITTEE re EX27.8 - TORONTO RAVINE STRATEGY
- SEPTEMBER 26, 2017 -**

First, I would like to introduce the other members of our presentation team: Anqi Dong and Catherine Berka.

I should say at the outset that we are delighted that Toronto is developing a ravine strategy that will guide the City in conserving these living treasures, which make Toronto a special place.

However, we ask that before you approve it, the staff report be revised to include:

1. the internationally recognized concept of 'Ecological Integrity (EI)' to measure the state and health of ravines,
2. using science available at the University of Toronto's Faculty of Forestry or similar centers of research to develop baseline information and address the capacity of the City and its partners to get the work done, and
3. Incorporate the Ontario Invasive Species Act into the Strategy.

More on these points in our presentation.

I want to take you back to 1975 when my dear friend Dale Taylor and I met at a North Rosedale Ratepayers meeting where development in ravines was a hot topic. We decided that if the Rosedale Ravines were to be protected, there needed to be a body of sound scientific knowledge that would help decision-makers be more strategic. It's nice to say we want to protect our ravines but if we do not know what is there and the changes that are happening then our protection strategies will not be as effective.

In 1976, Dale and I raised \$20,000 and in the next year, we commissioned a study of three Rosedale ravines and one in North York through the departments of Botany and Zoology at the University of Toronto. Students led by their professors catalogued the plant and animal life on a number of study plots to provide a benchmark of information. It is interesting to note that study team leader, the late Professor Bob Jefferies was awarded a Nobel prize in 2007 for his work on climate change.

In 2015, Dale and I decided it was time to re-visit the 1977 study and after raising \$60,000, we engaged the U of T Forestry Faculty to undertake a study of the Rosedale ravines starting that year and just concluding. It duplicated and enhanced the work done in 1977. We chose U of T Forestry because of its leading edge expertise and academic depth in urban forestry.

....2



Page 2

Led by Professor Sandy Smith, the study team of Masters students, Eric Davies, Anqi Dong, Alex Stepniak, Joey Kabigting, Jane Michener and others, some of whom are here today, used the latest scientific techniques to do their field work and analysis. I can say it is a pleasure to work with U of T Forestry who have provided their services in a very professional and economical fashion. We in Toronto are very lucky to have this asset that can provide the expertise and focus the City cannot.

Anqi will speak more to this but Dale and I were shocked to discover the rapid level of decline that has happened to the ravines in the last 40 years, particularly from invasive species. We believe strongly that developing a good scientific baseline is essential for any intervention that will conserve our ravines for future generations.

Now, I would like to introduce Anqi for whom ravines have become a passion. She earned her Master's degree in 2015 through her ravines research and does presentations on this topic such as the Ravines Symposium held last year at the Botanical Gardens.

Thank you

Thank you, Paul.

It has been a great pleasure to resurvey the Rosedale Ravines using modern standards, more specifically, EI or Ecological Integrity. We are glad to see that the draft Ravine Strategy has recognized our study as an important historic baseline dataset. The draft also considered 'Protect' as one of the five guiding principles. In order to better protect this 10,500 hectares of ravine land, we ask that the staff report be amended to specifically include the words 'Ecological Integrity, university level science' and 'capacity'.

Ecological Integrity is the standard framework in conservation and ecosystem management at the provincial, federal, and international levels. The official definitions are slightly different, but they all focus on the composition and abundance of native species. Therefore, Ecological Integrity allows conservation and restoration approaches to be objectively assessed. An example: work at Trent University has found a critical width of pavement above which bird populations decline markedly. Before planning a bike path or a paved access point in the ravines, we need this type of quantitative study to help us make more conscious and informed decisions.



Page 3

The Faculty of Forestry has been studying the ravines for over 100 years. With expertise and experience, we can help restore Ecological Integrity in the ravines using university-level science, as we have been doing since 2015 when Eric Davies and I met Dale and Paul during the Toronto Ravine Strategy Open House. We were surprised when they presented us with their pioneer study from 1977, the Rosedale Ravines Study that applied a scientific ecosystem survey 4 decades ago. Their 200-page report provides important quantitative data describing the baseline condition of the ravine ecosystem. YET, there hasn't been any follow-up since then. We knew it was time to resurvey.

The data we have collected are depressing. In 1977, 10% of the ravine canopy was already covered by non-native tree species; by 2015, it had increased to 40%. Most of these trees were Norway maple, one of the most invasive species in North America. Many of the ash trees have been removed due to attack by invasive EAB (Emerald Ash Borer). We also found evidence of beech bark disease that causes die-back of beech trees across Ontario. Citywide, Toronto has already lost 30 of its 73 native tree species. If this trend continues, in 2050, 60% of the ravine canopy would be non-native species, and the ravine will eventually become a green desert filled with Norway maple, and an understory of other invasive species such as Japanese knotweed and dog-strangling vines. Without an objective framework such as EI Ecological Integrity and university-level science, we will soon have nothing to conserve, restore, or more importantly, protect.

The good news is that we believe the ravines are still saveable at this point using a scientific approach. You can still see patches of nice habitat here and there, but these small fragments need to be reconnected. Bird surveys conducted with the Toronto Ornithology Club have confirmed that the Rosedale Ravines are still hotspots of bird diversity. Butterfly survey conducted with the Toronto Entomologist Club has found a number of hickory hair streaks, a rare species that only lives in healthy hickory woods. We have also mapped 500 large old native trees throughout the Toronto ravines, and our team members and dedicated citizens are still recording. Instead of obtaining seeds from nurseries in Ohio and Oregon, we need to use these old trees representing Toronto's local genetic diversity to restore the ravine forests. While working in the ravines, we have established a strong relationship with many of the adjacent residents. The next presenter, Catherine Berka, is one of them. She has witnessed the decline of ravine health and has the passion to help restore it.

The resurvey of Rosedale Ravines and the mapping of local seed sources are two examples of how UofT Forestry can help the City restore the ravine health. We ask all of those here today to consider this great opportunity, and take steps to formalize the role of the university and Faculty as forest experts in support of the Toronto Ravine Strategy.

....4



Page 4

Now I would like to pass it on to Catherine.

My name is Catherine Berka. I have been involved with the University of Toronto's Ravine Revitalization Study for three years now, as a ravine plot owner, fundraiser and donor. I have followed the 6 Masters Theses with avid interest - from the spread of Norway maple, the explosion of invasive species and the loss of small mammals. This seminal research has given us a critical window into the declining health of our ravines.

Above all, it has given us an inventory of what is down there. How can we talk about PROTECTING something in the Ravine until we first take stock of what we have to protect?

By adopting EI, we can also objectively assess the impact of our ravine plan. Measure what works and what doesn't. And how we can do better.

The Executive Committee must realize that it is a very lofty goal requiring a fine balance - having this wild healthy forest in one of North America's largest cities. How do we realistically achieve this balance without University-level science to inform and guide us in our decision-making?

So, our first recommendation is:

1. **Protect Use Ecological Integrity (EI), now the standard in forest management all over the world, as the framework for monitoring our Ravine Health.**

To do the Science, you need Scientists.

Our second recommendation is:

2. **Use Scientists in Universities as the "specialists" to restore Ravine Health and biodiversity.**

We have been blessed with this phenomenal urban forest with streams running through it, rare and endangered species calling it home. We cannot begin to call ourselves a world class city and manage this unique ravine, ensure its resilience, if we don't use world class experts to guide us. What we have is so much more special than Central Park in New York. But with the ravine's uniqueness comes fragility, necessitating more complexity and expertise.

....5



Page 5

Consider the Medical Model which is absolutely standard - Specialists in Gerontology, Pediatrics, Perinatal care, Orthopedics, Oncology. Medical and academic experts help guide health policy and it is these individuals that deliver health services to our citizens.

We need a parallel structure in the natural world of the ravines: foresters, ornithologists, mammologists, entomologists, etc., to guide us in maintaining the Ecological Integrity in Toronto's urban forest. Just as medical doctors keep us healthy, we need similar world class experts of the flora and fauna world guiding and actively participating in ravine management.

Use the academic expertise we have here in The Faculties of Forestry, Engineering, Landscape Architecture. Soil Sciences. We need to use University-level science.

Sometimes the City has policies (like with EAB) that require refinement. For a while we have known that there are Ash trees that are resistant to EAB, thus cutting the resistant trees down not only costs taxpayers unnecessarily but erases these genetically resistant trees from our local ecosystem and from our future. No more Ash trees in Toronto.

We cannot undo this mistake, but we cannot allow mistakes like this to happen again.

On private ravine land, ravine owners are a rather confused bunch and not without reason. The layers of bylaws, the various pieces in the City and TRCA that manage the ravines, voluminous Best Practice Manuals on removing invasives, all serve to mystify. And we are confused regarding Ontario's 2016 Invasive Species Legislation which can fine individuals up to \$25,000 for failing to control Japanese Knotweed and Dog Strangling Vine. Is the City compliant with Provincial Legislation 354/16? The Toronto Ravine Strategy Plan doesn't even mention it.

3. We recommend incorporating the Ontario Invasive Species Act into the Strategy.

Most private property owners are overwhelmed. Neither the TRCA nor the City can address these concerns in full. The Faculty of Forestry has the capacity to deal with property owners, to organize, educate and engage them in managing their properties cost-effectively with the help of the City's Stewardship model.

We cannot fix the public ravines without fixing the private ravines in parallel.

....6



Page 6

Every one of you on the Executive Committee has an important decision to make here today. Don't look back on this moment 20 years from now with regret when the ecology of the ravines has collapsed and the ravines are merely green spaces with bike lanes, devoid of bird song and crickets, coyotes and foxes. We urge you to put more scientific rigour into Toronto's Ravine Strategy.

We thank you for taking the time to consider these recommendations. We would be pleased to answer any of your questions.



TORONTO RAVINE REVITALIZATION