



INTRODUCTION

Welcome to our final newsletter. Resilience 2 to 1 is going to close down in the fall after a decade of providing essential information on climate adaptation and resilience. The site has been run by volunteers. Many of us are retired or close to retirement. So we are changing focus in our individual lives. All of us will still be involved in actions that promote community well-being in the light of climate change. Some of those stories are here in this newsletter. We invite you to read and consider how you too intend to contribute in your own way going forward.

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01 - How do we get climate adaptation into post-secondary education?

By Cheryl Bradbee, BPhil, MCS, MDiv, MLA, PhD

Curriculum design is a way to accelerate a change in content in university programs including content about climate change, adaptation, and resilience. To achieve these goals the University of New Brunswick is introducing a new graduate program focused on climate adaptation and sustainability.

UNB Engineering has launched a new Master of Engineering program. It is the course-based, professional quality, Master of Engineering Leadership in Design Innovation (MELDI). UNB Engineering designed the program to satisfy employer needs for graduates who can innovate and lead. Climate and sustainability issues permeate the whole program.

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The concentrations are:

- Energy Transitions (chemical engineering)
- Resilient Power Systems (electrical engineering)
- Building Better Communities (civil engineering)
- Innovative Engineering (mechanical engineering)

Each one includes courses that establish the context of innovation in that sector as well as the kind of work needed to adapt to climate change and promote sustainability. Students take courses in change management and leadership to increase their skills at leading innovation within their organization and beyond into the community. They have courses in design and a year-long studio in design innovation where they will do real projects for real clients. This program has been two years in the making and will deliver interdisciplinary training to future engineering leaders. It is based in the context of now and the future where climate change is the background to all decision making. This program was possible because it is at the graduate level. That enabled a flexibility in courses that the accredited undergraduate engineering programs do not have. We were able to customize the program to employer demands and the future of professional practice.

For more information: <https://www.unb.ca/fredericton/engineering/grad/meldi.html>

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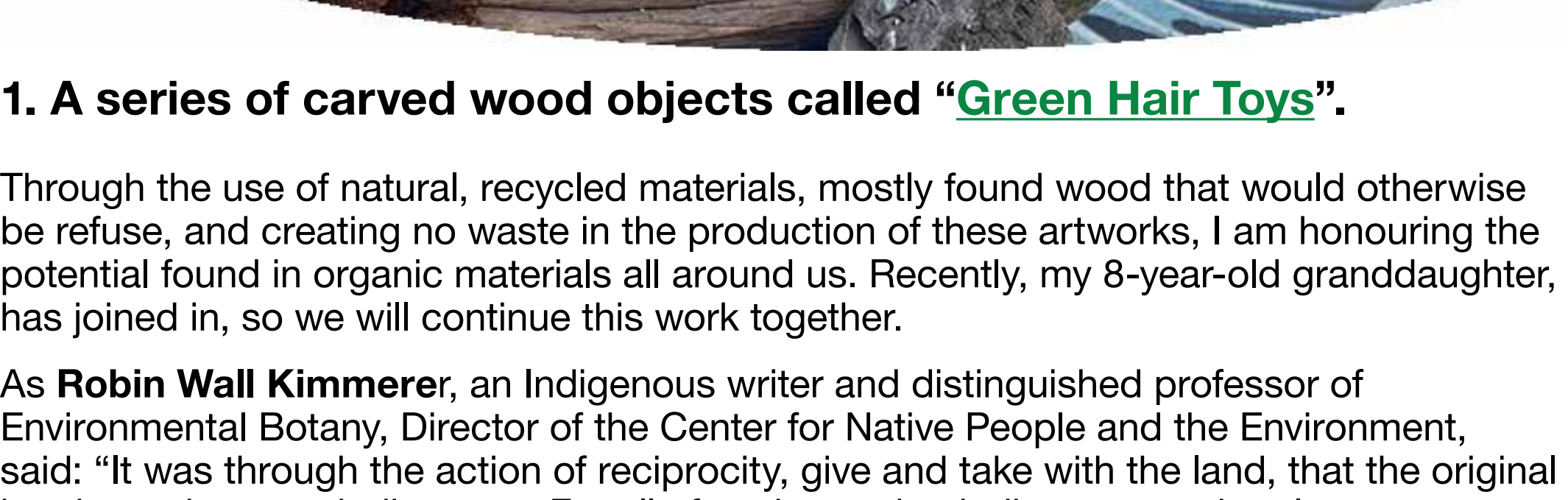
02 - The Good Ancestor

By Aleksandar Janicijevic, Dipl. Ing. Arch.

Shortness of breath prevents us from breathing normally but even worse from thinking reasonably. We are supposed to leave this earth to our children.

I strongly intend to continue my work toward being a good ancestor. My three main fields of activity will be:

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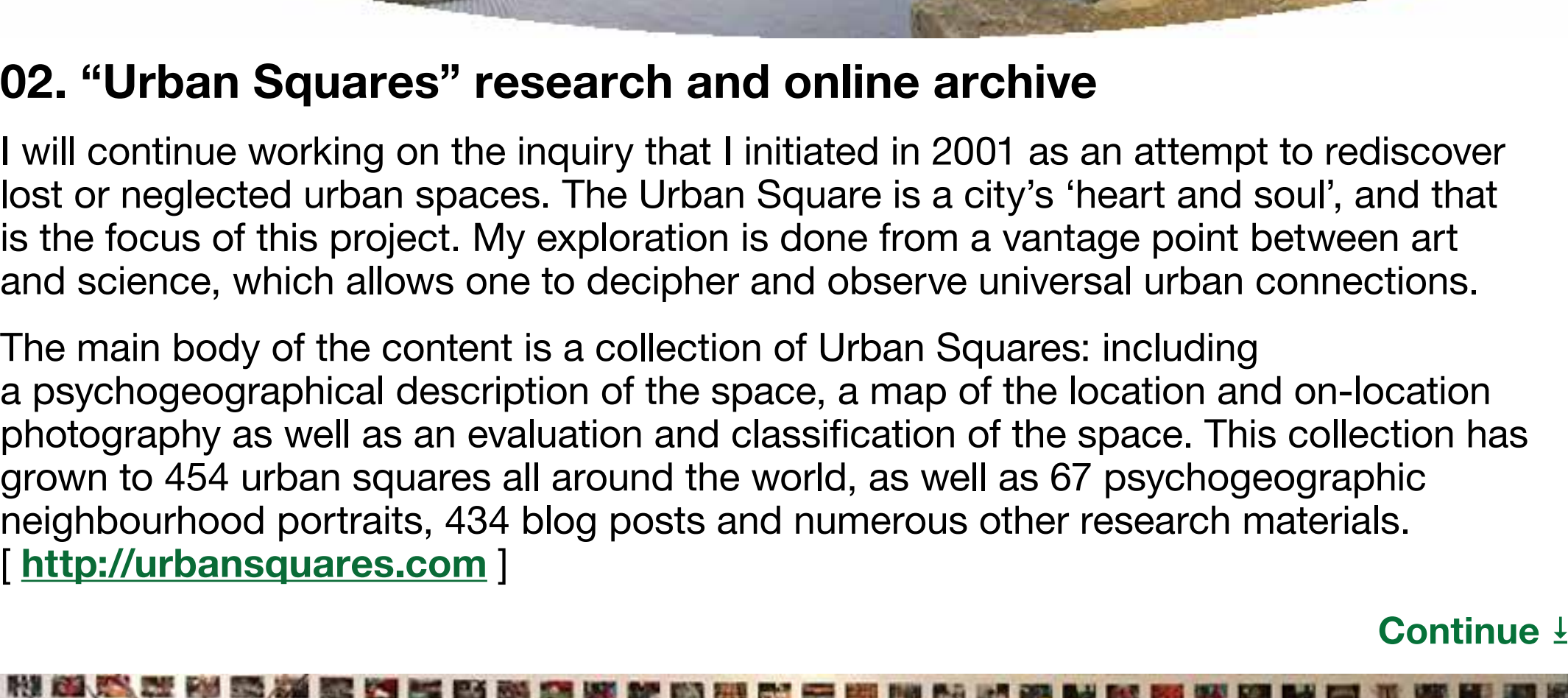


1. A series of carved wood objects called "Green Hair Toys".

Through the use of natural, recycled materials, mostly found wood that would otherwise be refuse, and creating no waste in the production of these artworks, I am honouring the potential found in organic materials all around us. Recently, my 8-year-old granddaughter, has joined in, so we will continue this work together.

As **Robin Wall Kimmerer**, an Indigenous writer and distinguished professor of Environmental Botany, Director of the Center for Native People and the Environment, said: "It was through the action of reciprocity, give and take with the land, that the original immigrant became indigenous. For all of us, becoming indigenous to the place means living as if your children's future mattered, to take care of the land as our lives, both material and spiritual, depended on it."

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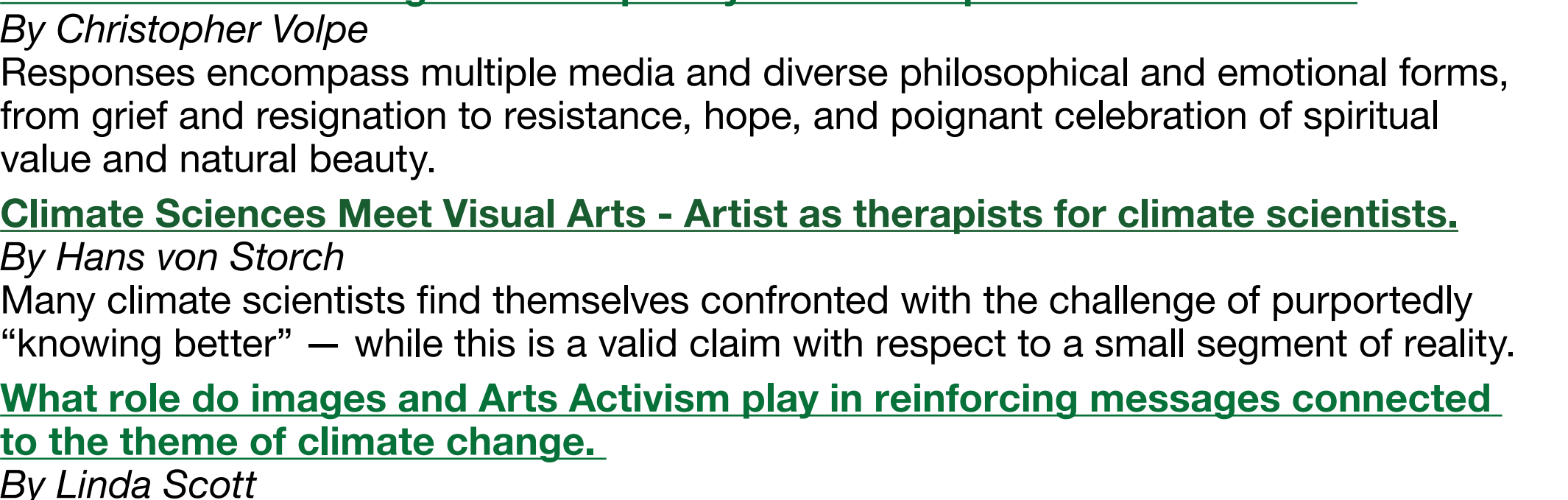


02. "Urban Squares" research and online archive

I will continue working on the inquiry that I initiated in 2001 as an attempt to rediscover lost or neglected urban spaces. The Urban Square is a city's 'heart and soul', and that is the focus of this project. My exploration is done from a vantage point between art and science, which allows one to decipher and observe universal urban connections.

The main body of the content is a collection of Urban Squares: including a psychogeographical description of the space, a map of the location and on-location photography as well as an evaluation and classification of the space. This collection has grown to 454 urban squares all around the world, as well as 67 psychogeographic neighbourhood portraits, 434 blog posts and numerous other research materials. [<http://urbansquares.com>]

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03. I will continue to follow on others working in adjacent fields.

Here are links to three essays which have inspired me:

[Art and Climate Change: Contemporary Artists Respond to Global Crisis](#)

By Christopher Volpe

Responses encompass multiple media and diverse philosophical and emotional forms, from grief and resignation to resistance, hope, and poignant celebration of spiritual value and natural beauty.

[Climate Sciences Meet Visual Arts - Artist as therapists for climate scientists.](#)

By Hans von Storch

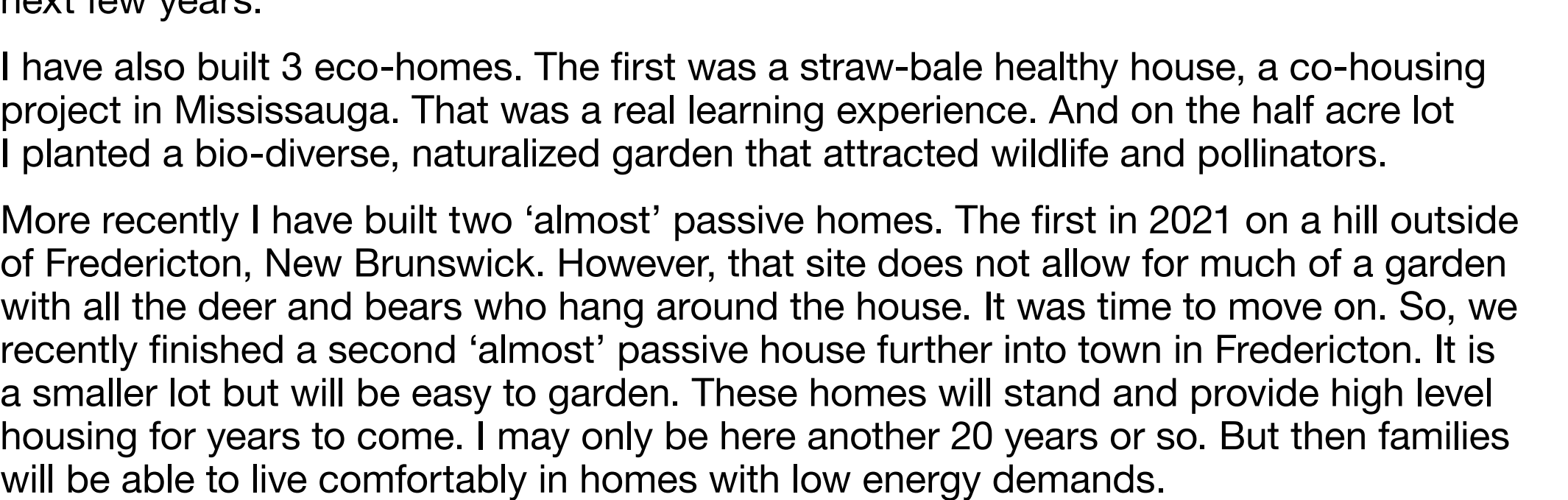
Many climate scientists find themselves confronted with the challenge of purportedly "knowing better" — while this is a valid claim with respect to a small segment of reality.

[What role do images and Arts Activism play in reinforcing messages connected to the theme of climate change.](#)

By Linda Scott

The main focus of this research will be on the role that Illustration, Animation and Art might play in raising awareness of Environmental Issues with a particular emphasis on Climate Change.

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04 - How I want to build a resilient future

By Cheryl Bradbee, BPhil, MCS, MDiv, MLA, PhD

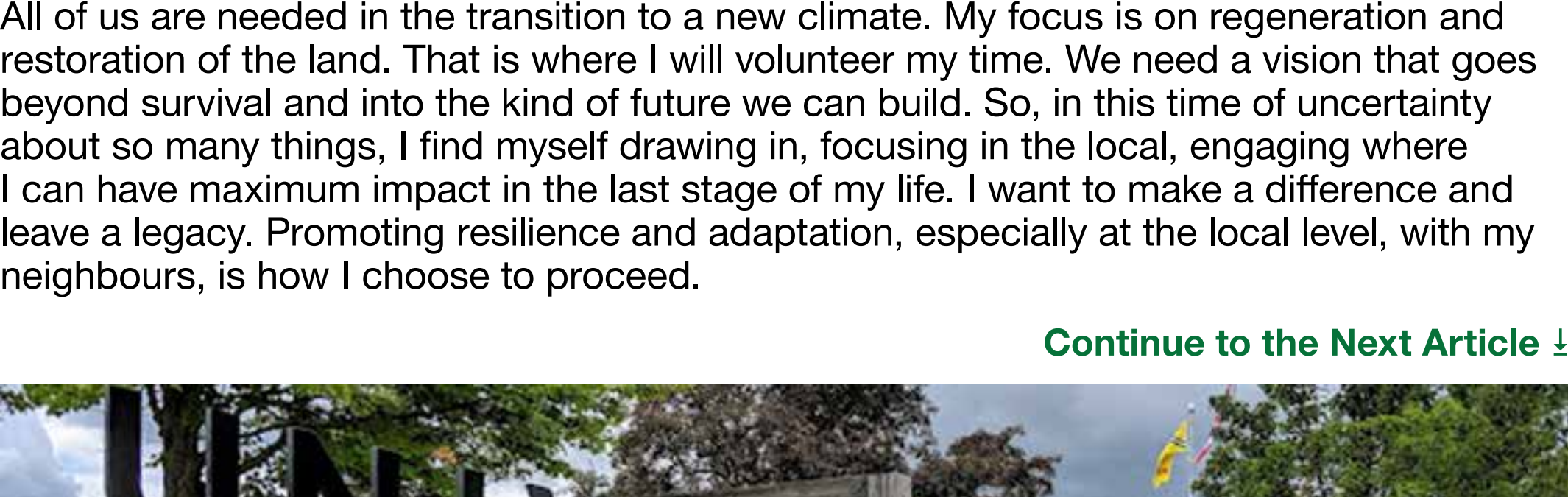
I am in the last stage of my life, on the edge of a late retirement. However, I am firmly focused on the future. Not so much for me but for those who follow. I am beginning to shift my activities.

I have spent 20 years teaching climate adaptation and resilience in any forum open to me, in any course I taught on any topic and in courses I specially created on the topic. I am privileged to now work at the University of New Brunswick, where you guessed it, I am inserting climate adaptation anywhere I can. However, that will be winding down over the next few years.

I have also built 3 eco-homes. The first was a straw-bale healthy house, a co-housing project in Mississauga. That was a real learning experience. And on the half acre lot I planted a bio-diverse, naturalized garden that attracted wildlife and pollinators.

More recently I have built two 'almost' passive homes. The first in 2021 on a hill outside of Fredericton, New Brunswick. However, that site does not allow for much of a garden with all the deer and bears who hang around the house. It was time to move on. So, we recently finished a second 'almost' passive house further into town in Fredericton. It is a smaller lot but will be easy to garden. These homes will stand and provide high level housing for years to come. I may only be here another 20 years or so. But then families will be able to live comfortably in homes with low energy demands.

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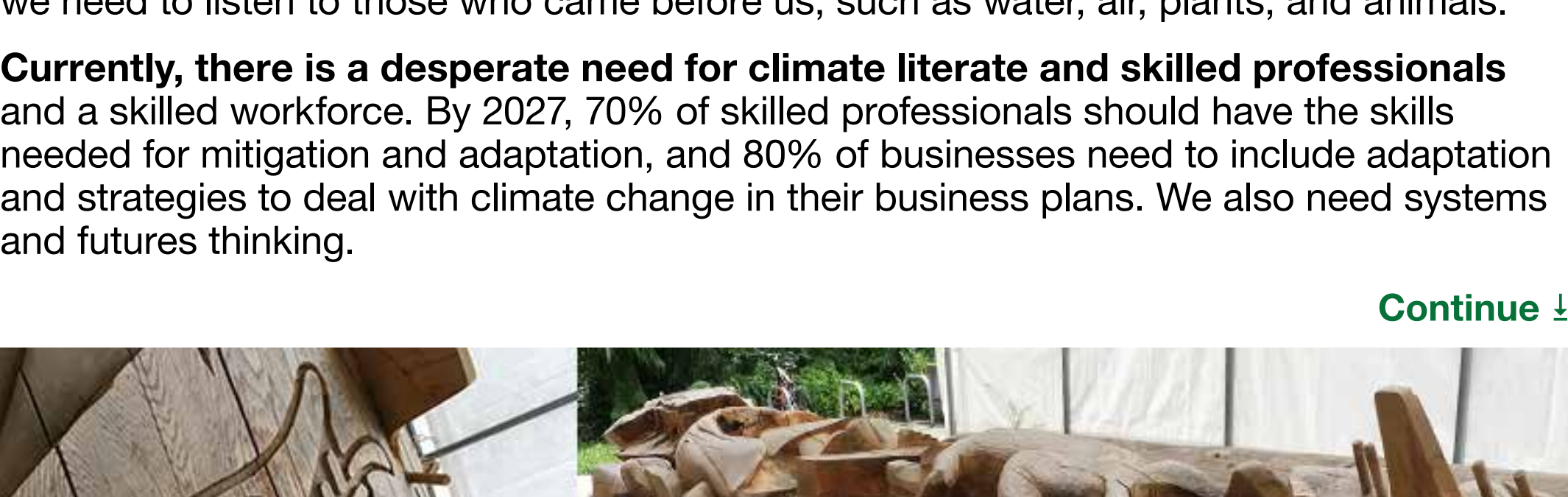


But now the garden becomes key. I am trained as a landscape architect and have experience gardening. But to gain every more knowledge and skills I have begun the courses that will allow me to become a Master Gardener. I will also create an intensive, food producing and beautiful bio-diverse garden on my new home site.

Climate change and economic disruptions threaten local food supplies. Everyone will need to grow whatever food they can. Thankfully, lawns are finally going to go extinct. Beyond food, we need to reconnect with the land, do all that we can to enhance biodiversity, and create beauty. Backyard gardens are the front-line laboratories to figure out how to feed ourselves during climate chaos. There are many people working on this issue from local community gardens to vertical farms. I hope to join this community of growers and contribute to the well-being and future of my new hometown.

All of us are needed in the transition to a new climate. My focus is on regeneration and restoration of the land. That is where I will volunteer my time. We need a vision that goes beyond survival and into the kind of future we can build. So, in this time of uncertainty about so many things, I find myself drawing in, focusing in the local, engaging where I can have maximum impact in the last stage of my life. I want to make a difference and leave a legacy. Promoting resilience and adaptation, especially at the local level, with my neighbours, is how I choose to proceed.

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05 - University of Waterloo's National Forum on Climate Education

By Elaine Bradbee

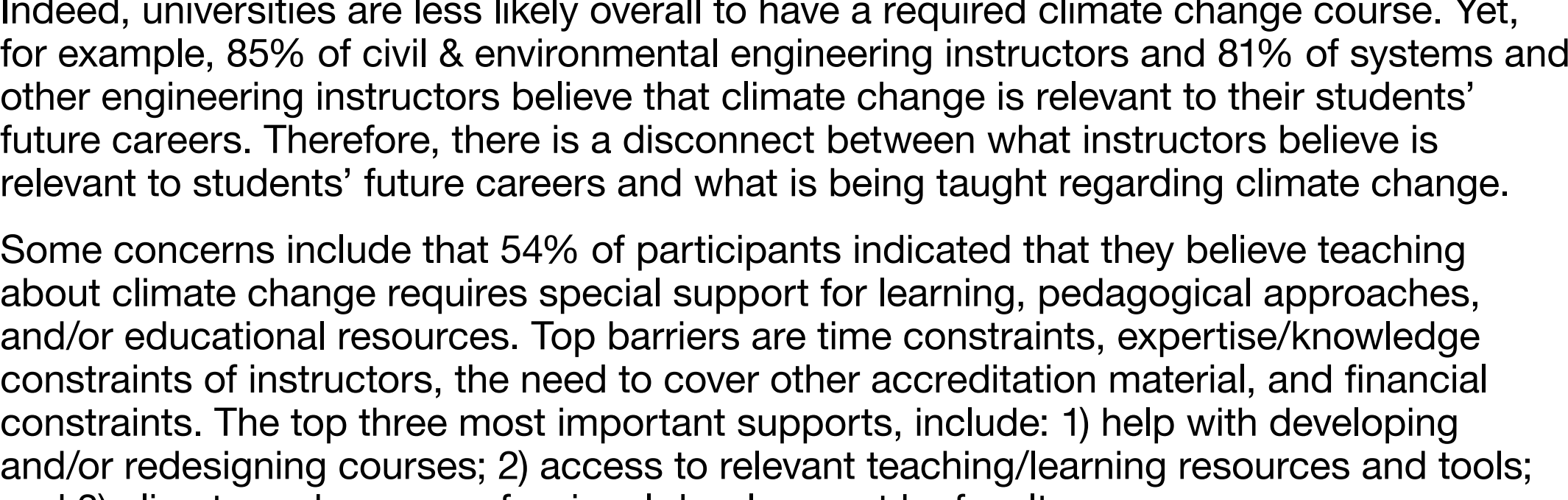
On April 8, the University of Waterloo Climate Institute held a virtual conference on climate education in Canadian universities. The Climate Institute is the largest university climate change research institute in Canada involving six faculties. You can find them here:

It's research strengths are: deep decarbonization and sustainability transitions; climate risks, resilience and adaptation; and climate science, modelling and observation. They also incorporate Indigenous knowledge in climate education.

Elder Myeengun Henry gave a keynote address that spoke about the earth's needs and our need to keep the Earth as healthy as possible for our children and future generations. One thing that struck me is that he said that humans came last, and that we need to listen to those who came before us, such as water, air, plants, and animals.

Currently, there is a desperate need for climate literate and skilled professionals and a skilled workforce. By 2027, 70% of skilled professionals should have the skills needed for mitigation and adaptation, and 80% of businesses need to include adaptation and strategies to deal with climate change in their business plans. We also need systems and futures thinking.

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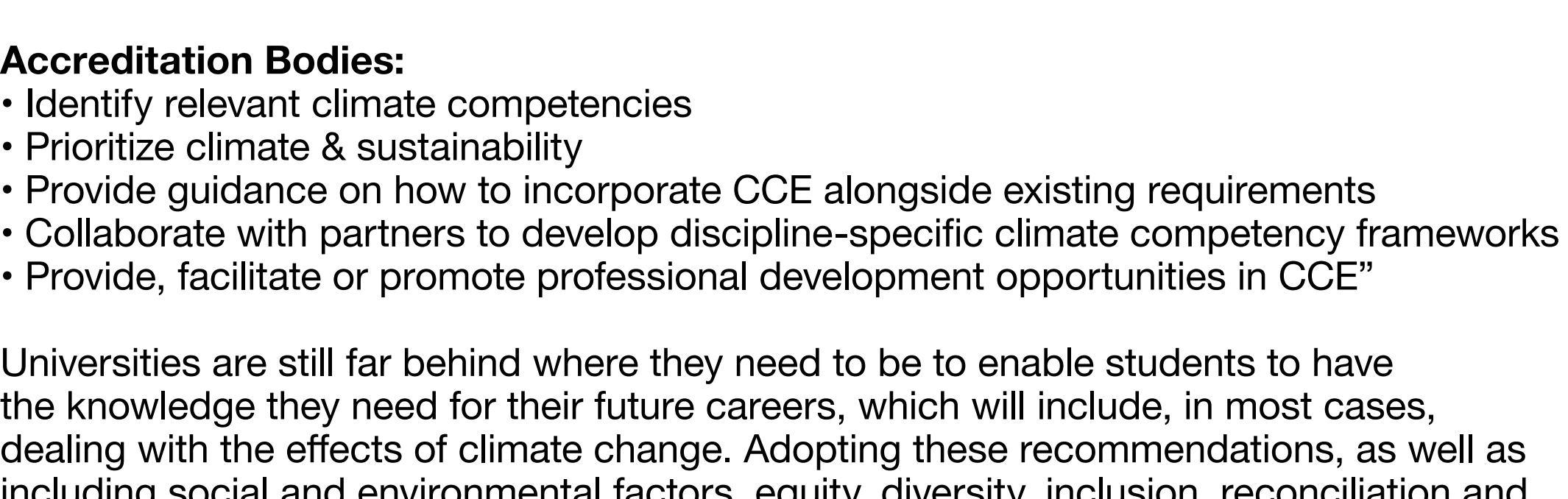


We need to adapt across all sectors of the economy, including, designing and building infrastructure that can withstand climate disasters, e.g. storm water drains no longer have the capacity to deal with current rain events, and municipalities need to regularly update flood maps. We need to develop nature-based solutions and reimagine how we interact with the world. While climate risk and adaptation need to be taught, we also need to take a long-term view and a systems approach.

From a survey across Canada, which surveyed faculty in accounting, architecture, engineering and planning. They found, for example, that climate change education is included in just over 40% of systems and other engineering and 50% of civil and environmental engineering. The rest said that while climate change education is not included in the overall program learning outcomes, it is included in some courses. The other faculties also had gaps in providing climate change education to their students. Indeed, universities are less likely overall to have a required climate change course. Yet, for example, 85% of civil & environmental engineering instructors and 81% of systems and other engineering instructors believe that climate change is relevant to their students' future careers. Therefore, there is a disconnect between what instructors believe is relevant to students' future careers and what is being taught regarding climate change.

Some concerns include that 54% of participants indicated that they believe teaching about climate change requires special support for learning, pedagogical approaches, and/or educational resources. Top barriers are time constraints, expertise/knowledge constraints of instructors, the need to cover other accreditation material, and financial constraints. The top three most important supports, include: 1) help with developing and/or redesigning courses; 2) access to relevant teaching/learning resources and tools; and 3) climate pedagogy professional development by faculty.

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Recommendations from Sara Burch, U. Waterloo, Climate Institute:

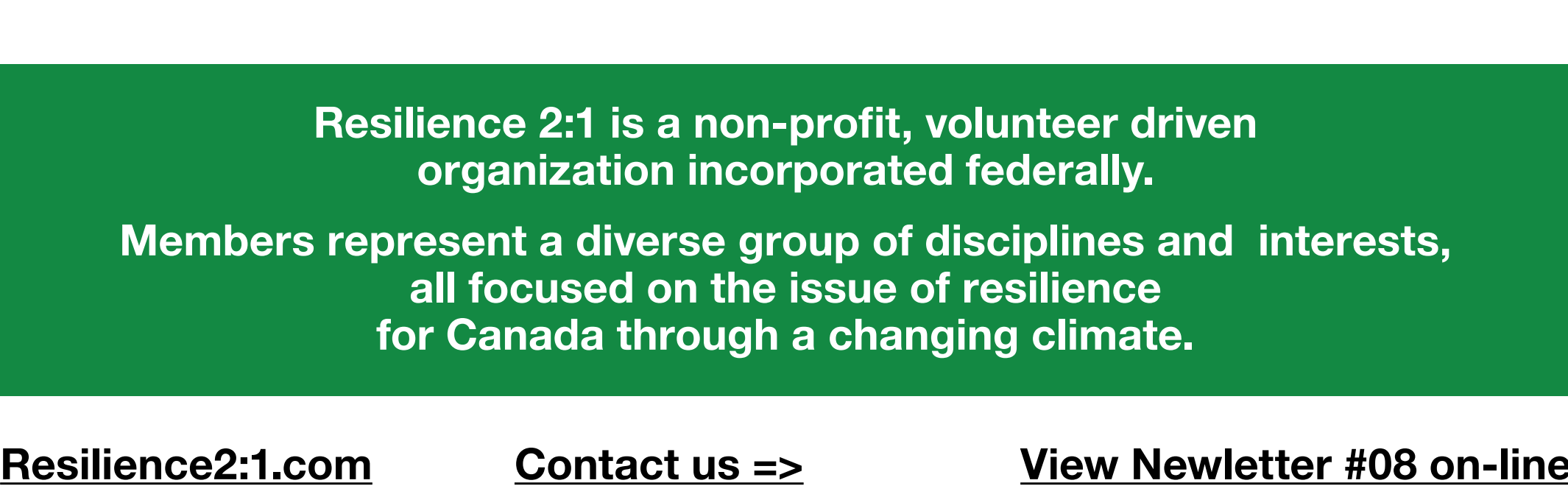
Institutions and Departments:

- Help faculty members access existing climate change education (CCE) resources
- Offer CCE professional development opportunities
- Encourage collaborative approaches
- Hire faculty members with CCE expertise or collaborate across disciplines
- Support faculty members in acquiring funding to pursue CCE
- Disiplinary Networks and Professional Associations:
- Develop and share discipline-specific teaching and learning resources
- Provide discipline-specific guidance in course design/development
- Offer professional development opportunities related to CCE
- Offer networking opportunities to connect faculty members across institutions

Accreditation Bodies:

- Identify relevant climate competencies
- Prioritize climate & sustainability
- Provide guidance on how to incorporate CCE alongside existing requirements
- Collaborate with partners to develop discipline-specific climate competency frameworks
- Provide, facilitate or promote professional development opportunities in CCE"

Universities are still far behind where they need to be to enable students to have the knowledge they need for their future careers, which will include, in most cases, dealing with the effects of climate change. Adopting these recommendations, as well as including social and environmental factors, equity, diversity, inclusion, reconciliation and decolonization among other current issues within climate change education will give students confidence in facing the future.



CONCLUSION

Thanks again for joining us for this part of our journey. We have all learned from one another. As we each take next steps we will encounter new people, learn new things, do new things. The world is in a time of transformation. We can all work to make it a better place. Drop us a line about your own plans. What will you be doing in the future?

For us, this is the final newsletter. The site will be active until sometime in the fall. We appreciate that you have found this site useful for you. The good news is that there are many more people working on climate adaptation and resilience now. Many more sites to engage with. **And much more to do!**

Stay **connected**. Stay engaged.

Cheryl Bradbee and a rest of the board members, Aleksandar Janicijevic, Oruba Alwan, Hadi Ismail, Ivan Martinovic and Elaine Bradbee.

Resilience 2:1 is a non-profit, volunteer driven organization incorporated federally.
Members represent a diverse group of disciplines and interests, all focused on the issue of resilience for Canada through a changing climate.

Resilience2:1.com

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