

LEARNING FROM LIMBWALKERS:
ARBORISTS' STORIES IN SOUTHERN ONTARIO'S URBAN FORESTS

ADRINA C. BARDEKJIAN

A DISSERTATION SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

GRADUATE PROGRAM IN ENVIRONMENTAL STUDIES
YORK UNIVERSITY
TORONTO, CANADA

APRIL 2015

© ADRINA C. BARDEKJIAN, 2015

Abstract

Urban forestry (UF) contains dominant stories of adaptive management, ecosystem services, valuation, green infrastructure, planting mandates, and citizen engagement. Inspired by political ecology, this study examines the marginal and under-represented stories related to language, labour processes, human and non-human agency, and educational norms in UF in Southern Ontario, Canada. With a focus on arboricultural practice, I explore how communicating underrepresented narratives informs a more socially inclusive urban forest integration. Methodology uses theoretical reflection, primary and secondary research, and 24 semi-structured interviews, participant observation and site-visits with 50 field arborists and urban foresters. Using phenomenology, political ecology, ethnography and discourse analysis, I examine arborists': representation in language; working activities and relationships with co-workers; negotiations in the urban forest, physically and emotionally as a place of work; and, feelings about available education versus existing UF and arboriculture programs. Results reveal that: i) language and metaphors surrounding arborists can perpetuate negative perceptions; ii) political climates surrounding UF operations favours male, non-field workers; iii) arborists' have a physical and emotional relationship with the urban forest; and, iv) lack of standardized comprehensive and inclusive UF education creates knowledge gaps leading to unsafe environments for trees and people. Findings suggest that re-imagining UF practice and communication influences its praxis towards more sustainable, ethical and transdisciplinary directions by: i) raising urban tree worker profiles through accurate terminology in marketing and communications; ii) aligning health and safety policies with field worker perspectives; iii) developing better UF decision-making systems and management practices by understanding arborist perspectives on non-human agency; and, iv) providing a solid baseline of formal education and incorporating critical social theory to better reflect the transdisciplinary aspects of the field. Inspired by Thomas Kuhn's (1962) notions of how professional fields need paradigm shifts to progress beyond regular or normal avenues, I argue that seeing UF through narratives of lived experience by field workers can better integrate social and ecological considerations in urban forest research, management and education. My research moves beyond existing models of planning, with lessons from the social sciences, by way of critical reflection and participatory learning, offering a new conceptual framework for UF praxis.

Dedication

This dissertation is dedicated to my uncle Arto Okutan:
You always saw the best in others and believed that everyone deserved an opportunity to be heard. You taught me that the journey in life is more important than the destination, and that the people around us make all the difference.

And to Julian Ambrosii:
For introducing me to forestry and arboriculture,
and for teaching me how to see trees, forests and their people, differently.



Acknowledgements

First and foremost, I want to thank the many arborists who sat with me for an interview at the end of a very long day – without you, insights would not have been possible. I heard you when you shared your stories and I hope the following pages have done justice in relaying your stories in such a way that will shake the grounds you work on and the trees we have all come to love.

I would like to thank my Advisory Committee for shaping my work. First, I would like to thank my supervisor, **Dr. L. Anders Sandberg**. His insights and expertise in political economy and ecology of resource management and conservation guided me through my research over the past six years. He continually challenged and encouraged me to critically analyze and question my surroundings; and he introduced me to the “For whom?” and “By whom?” questions which ground this dissertation. I am grateful for his insights and direction and for the opportunities and projects on which we collaborated during my scholarship. I also feel much gratitude towards **Dr. Cecil Konijnendijk van den Bosch** for inspiring my research in urban social forestry. His research (2008) on urban forest cultures, parks and landscapes and his work and expertise in the European political frameworks with respect to urban planning and greenspace governance are excellent models to consider in a Canadian context. Thank you to **Dr. Leesa Fawcett**, whose expertise in cultural studies and environmental education informed my work with respect to cultural diversity, social perceptions and their implications on community learning. She also provided much-appreciated personal support through this program as well as candid perspective and insights into the politics of academia, while offering positive encouragement as I embarked on my first course directorship. Thank you to **Dr. Don Dippo** whose research and expertise in the sociology of knowledge and issues related to community relations informed my work with respect to curriculum development. It is with their direction within the interdisciplinary Faculty of Environmental Studies, that my work throughout the program was infused with innovative, engaging and solid strategies and content.

I also offer many thanks to the mentors I encountered, both new and familiar, outside the doctoral program: **Dr. Andy Kenney** who introduced me to the concept of urban forestry during my Master of Forest Conservation; **Dr. Pierre Jutras** for constantly challenging me with the question: “What do you want to be an expert in?” and for offering much-appreciated coffee breaks and critical insights; **Dr. Sandy Smith** for encouraging me to finish writing when I needed that extra push during my final year; **Dr. Kathleen Vaughan** for reminding me that everything is “fabulous” and for being the voice of reason when I needed it most under the shade of a Manitoba maple (*Acer negundo*) and the lattice of a friendly gazebo, and giving me a light to look forward to for future collaboration; **Michael Rosen** for continued support and acknowledgement of my affiliation with Tree Canada; **Safoura Moazami** for her friendship, warmth, and kindness, and trusting my film-making debut with “*Partners In Action: A Shade Policy for the City of Toronto*”; the **Ontario Urban Forest Council** – particularly **Peter Wynnyczuk** and **Toni Ellis** for technical insights, support and positive encouragement; all the staff and faculty at the

Humber Arboretum & Centre for Urban Ecology, for welcoming me into their place of work and for sharing their stories with me – I am humbled by the passion and care with which they embrace their vocations; **Jim Skiera**, Executive Director of ISA International, for providing much-needed background information and resources; the **International Society of Arboriculture (ISA) Ontario Chapter**, for taking an interest in my work and supporting my participant requests; and the **organizers** of the 64th Annual ISA Ontario Chapter conference for providing me with a platform to discuss my initial findings – having my work received positively by attendees and the arborist community was motivating to push forward.

My family and friends have witnessed my need to pursue research in urban forestry and their unwavering support was instrumental to my success in completing this work: my loving parents, **Dr. Berj and Aida Bardekjian** and my sister, **Alyssa Bardekjian Lempera**, for constant encouragement and long-distance phone calls; my niece and nephew for the light-hearted giggles that only children can provide; **Gina Okutan**, my aunt who has earned my graduate degrees alongside me, for being my sounding board for every presentation and lecture; and finally my life partner, **Chant Asaduryan**, for his continuous support, infinite patience, advice and surprise breaks in the form of bicycle rides, karate in the park, and photography trips, among countless more. Amongst my friends: **Anthony Zolfo** for baking breaks and lasagne dinners; **Sadia Butt**, friend and urban forestry colleague, and one of the most generous, selfless people I have ever known, for all her support in helping me realize every random idea I have, not least, the UFPE Conference 2013; **Rosa Lisa Iannone**, my editor and one of my oldest friends, for being instrumental in keeping me on track during my writing process and for her dedication and infinite generosity with her time; **Dana Craig** for her support with my students throughout the years and for fielding my often overwhelming need for getting things done, “now!” – my research during late hours depended on her solid rationality, and unparalleled information-sharing skills; **Andrea Brauner** fellow Faculty of Forestry Alumni and friend, for her support and creativity in tirelessly digitizing my conceptual framework, iteration after iteration (Figure 8.1); and **Nicolas Marc Billon**, one of my oldest friends for his insights on titles and alliteration, and for continually being an inspiration as a creative writer. Finally, I thank my fellow **karatekas** and our **Senseis** who have trained (with) me over the years – the camaraderie in the dojo and intense training was always a welcomed respite.

Last, though certainly not least, I want to thank the administrative and support staff at the Faculty of Forestry, University of Toronto, **Amalia Veneziano** and **Ian Kennedy**, and at the Faculty of Environmental Studies at York University, **Josephine Campanelli Zeeman**, **Tricia Fuller-Davidson**, **Jordan Tanaka**, **Tiffany Lord**, **Teresa Masucci**, **Sharrieffa Sattaur**, and **Peggy McGrath** for their service throughout my graduate work – I will not forget their patience and endless organizational, administrative and moral guidance.

Thank you all for being part of this journey.

With much appreciation and gratitude,

Adrina C. Bardekjian

Table of Contents

Abstract.....	ii
Dedication	iii
Acknowledgements	iv
Table of Contents	vi
List of Tables.....	viii
List of Figures.....	viii
1.0. Introduction	1
1.1. Of pine trees and poetries: Personal motivations.....	1
1.2. Transects and narratives of the urban forest: Transformations and turbulence.....	6
2.0. Exposed roots: Objectives and research orientations	12
2.1. Background research and questions.....	16
2.2. Evolving natures: Objectives of my study and case profile.....	19
2.2.1. <i>Significance to academia</i>	21
2.2.2. <i>Significance to the arboricultural industry</i>	22
3.0. Methods, process and considerations	23
3.1. Research design and methods	25
3.2. Limitations	28
3.3. Participant and site selection.....	31
3.3.1. <i>Consent and confidentiality</i>	31
3.4. Fieldwork and interviews.....	32
3.4.1. <i>Participant observation</i>	34
3.5. Analyzing the research material.....	34
3.6. Producing the film: <i>Limbwalkers</i>	36
3.7. Producing the photography collection: <i>ArborEscapes</i>	38
4.0. Shaping identities: Influences of metaphor and language.....	39
4.1. Introduction.....	39
4.2. Background.....	40
4.2.1. <i>Cultural conduit and filtered experience</i>	41
4.2.2. <i>Language</i>	42
4.2.3. <i>Metaphors</i>	44
4.3. Results and analysis	46
4.3.1. <i>Cultivating identity constructions</i>	47
4.3.2. <i>Imbuing identity influences</i>	54
4.3.3. <i>Propagating identity paradoxes</i>	60
4.4. Implications	67
5.0. Contemplating labour: Arborist perspectives	69
5.1. Introduction.....	69
5.2. Background.....	70
5.3. Results and analysis	73
5.3.1. <i>Polarized perspectives from pole-pruners to policies</i>	73
5.3.2. <i>Safety and security: Challenges, limitations and long-term health impacts</i>	83
5.3.3. <i>Gender inequality: Sexualization and stigmas</i>	92
5.3.4. <i>Lack of mandatory licensing</i>	97
5.4. Implications	101

6.0. Negotiating agency: Wuthering woods and uncommon clearcuts.....	103
6.1. Introduction.....	103
6.2. Background.....	104
6.2.1. <i>Nature/culture: Consumption and metabolism.....</i>	<i>106</i>
6.3. Results and analysis.....	110
6.3.1. <i>Culture of arbori-culture: Unique interactions and experiences.....</i>	<i>110</i>
6.3.2. <i>Agency: Knowing, control and vulnerability.....</i>	<i>113</i>
6.3.3. <i>Tree spaces and places: Of work, play and politics.....</i>	<i>137</i>
6.3.4. <i>Ethics: Nature, work and conventions.....</i>	<i>141</i>
6.4. Implications.....	145
7.0. Sharing knowledge: Towards transdisciplinary education	147
7.1. Introduction.....	147
7.2. Background.....	148
7.3. Results and analysis.....	151
7.3.1. <i>Urban forest and arboricultural education: “For whom and by whom?”.....</i>	<i>151</i>
7.3.2. <i>The Field Arborist as Educator: Community Learning.....</i>	<i>160</i>
7.3.3. <i>Transdisciplinary education.....</i>	<i>166</i>
7.4. Implications.....	171
8.0. Discussion	172
8.1. Fluid understandings: Emergent multi-modal process model.....	178
8.1.1. <i>Roots.....</i>	<i>181</i>
8.1.2. <i>Limbs and branches.....</i>	<i>182</i>
8.1.3. <i>Leaves.....</i>	<i>183</i>
8.1.4. <i>Fruits.....</i>	<i>184</i>
8.1.5. <i>Stem.....</i>	<i>184</i>
9.0. Research contributions	187
9.1. Outputs of my study.....	190
10.0. Future research directions.....	193
10.1. Future research considerations: Towards social arboriculture.....	193
10.2. Future research considerations: For inclusive urban forestry.....	196
10.2.1. <i>Strategic steps or political pantomime? The Canadian Urban Forest Strategy in Transition.....</i>	<i>197</i>
10.2.2. <i>Organizational cannibalism: From “preaching” to operationalizing the converted.....</i>	<i>200</i>
10.2.3. <i>Narratives of heritage (and) trees: Connections and familiarity.....</i>	<i>202</i>
10.2.4. <i>Creative and Artistic Interventions in the urban forest.....</i>	<i>205</i>
10.3. Future research considerations: Beyond my case study.....	207
References.....	210
Appendices.....	250
Appendix I: Interview Guide for Arborists.....	250
Appendix II: Informed Consent Form for Interviewees.....	254
Appendix III: Demographic Profile Survey.....	256
Appendix IV: Personal Release Form for Film Participants.....	258
Appendix V: Example of City of Toronto job posting for Arborist II position.....	259
Appendix VI: Example of Urban Forestry Course Outline with Social Inclusion.....	261

List of Tables

Table 3.1. Budget for <i>Limbwalkers</i> Documentary.....	37
Table 4.1 Metaphors revealed by case study participants.....	52
Table 6.1 Reasons for preferred time of year – selected	130
Table 7.1. Common employment positions and qualifications for arborists and urban foresters	152

List of Figures

Figure 1.1. Silvicultural thinning camp: near Atikokan, Ontario, photo. Source: Adrina Bardekjian and Julian Ambrosii, 2001.	3
Figure 1.2. Urban forestry origins and outputs. Source: Faculty of Forestry lecture presentation during MFC program, University of Toronto, 2004.....	8
Figure 2.1. Visual depiction of frequency of word use in a collection of 40 abstracts of most-cited urban forestry journal articles. Source tool: http://www.wordle.net	16
Figure 2.2. Background research diagram and situated contribution.....	18
Figure 3.1. Methods and approach.....	27
Figure 3.2. Interviewees by arborist type	33
Figure 4.1. Julian Ambrosii. <i>A Day in the Climbing Life: Humber Woods</i> , (2013), photo. Source: Julian Ambrosii, 2003.	39
Figure 4.2. <i>Men in Trees</i> , TV series, (2006-2008), poster.....	64
Figure 5.1. Arborist sitting atop a removal in progress: Toronto, Ontario, <i>photo</i> . Source: Adrina Bardekjian, 2010.....	69
Figure 5.2. Age range of participants.	85
Figure 5.3. Spruce removal, rigging system: near Toronto, Ontario, <i>photo</i> . Source: ATSI, 2012.	87
Figure 5.4. Grounds team looking up at climbers: near Toronto, Ontario, <i>photo</i> . Source: ATSI, 2013.	91
Figure 6.1. Adrina Bardekjian, <i>Contention</i> : Toronto, Ontario, (2012), <i>photo</i> . Source: Adrina Bardekjian, 2012.....	103
Figure 6.2. Climber perspective: near Toronto, Ontario. Source: ATSI, 2012.....	117
Figure 6.3. Adrina Bardekjian, <i>Locust trees and bench</i> : Toronto, Ontario, (2011), <i>photo</i> . Source: Adrina Bardekjian, 2011.....	120
Figure 6.5. Participants' preferred time of year.	129
Figure 6.6. Haida Gwaii landscapes 1: Haida Gwaii, <i>photo</i> . Source: Adrina Bardekjian, 2010.	139
Figure 6.7. Haida Gwaii landscapes 2: Haida Gwaii, <i>photo</i> . Source: Adrina Bardekjian, 2010.	140
Figure 7.1. Arboriculture students from Humber College training at YMCA grounds, <i>photo</i> . Source: Adrina Bardekjian, 2013.....	147
Figure 7.2 Social and emotional learning (URL: http://ecologyofeducation.net/wsite/).....	150
Figure 8.1.a. Conceptual framework for urban forestry. Source: Bardekjian, 2014. Artwork: Brauner, 2014.....	179
Figure 8.1.b. Conceptual framework for urban forestry - stem. Source: Bardekjian, 2014. Artwork: Brauner, 2014.	180
Figure 10.1. Walnut tree (<i>Juglans regia</i>): Haghartsin Monastery, Armenia, <i>photo</i> . Source: Adrina Bardekjian, 2007.....	204
Figure 10.2. Artistic installations in the urban forest by various artists, <i>photos</i> . Source: Dr. Paula Meijerink's "The Urban Forest" (Figures 10.2a1 and 10.2a2); Sean Martindale's "Outside the Planter Boxes" (Figure 10.2b); and Noel Harding's "Elevated Wetlands" (Figure 10.2c).....	206
Figure 10.3. <i>Before the Fall</i> . Red Oak (<i>Quercus rubra</i>) sentient: Mount Pleasant Cemetery, Toronto, Ontario, <i>photo</i> . Source: Adrina Bardekjian, 2004.....	209

1.0. Introduction

*If you are a dreamer, come in.
If you are a dreamer, a wisher, a liar,
A hope-er, a pray-er, a magic bean buyer . . .
If you're a pretender, come sit by my fire,
For we have some flax golden tales to spin.
Come in!
Come in!
~ Shel Silverstein, *Where the Sidewalk Ends* (1974)*

1.1. Of pine trees and poetics: Personal motivations

I am a collector. Some people collect stamps, cars, watches and coins. I collect and compile stories, stories of passion, sacrifice, injustice, love and longing - but mostly, I collect stories of trees and their people and of people and trees. I decipher patterns and search for meaning in these individual yet universal narratives. Together, they tell a whole new story.

I have been writing for as long as I can remember. At age 12, my parents and teachers encouraged me to share my thoughts with a wider audience and it was then that I entered my first poetry competition. I remember being so happy about having been heard and having been acknowledged for my own insight into the feelings of people on the front-lines, of loss and grief and camaraderie. Yes, the Royal Canadian Legion bestowed on me my first prize and with it, the knowledge that writing down intimate stories could be powerful. But what did I know? I was 12. In any case, I kept writing – about people I met and places I visited. I have boxes full of journals and diaries filled with angst-ridden murmurs and heart-warming wishes.

“I think that eating broccoli represents the epitome of human consumption of the natural world (because they look like trees); but I have to admit that I love it; therein lies the paradox”. I first wrote this sentence in 1997 when I began my Bachelor of Arts in Creative Writing at Concordia University in Montreal. Little did I know that my professional and academic career would steer me towards this very

exploration: the meaning of physical space as it relates to both individual and collective identity; and social and ecological identity. During a trip to Haida Gwaii in 2009, I heard someone refer to her surroundings as a “soul home.” Intellectually I knew what this should mean, but it was not until I returned to Montreal in 2010 that I felt it. It is not a place where you belong, but a place you belong to.

My academic journey towards environmental research began when I wrote my first novella, *Grounded*¹, while completing my undergraduate degree. Through an exploration of wildlife conservation and human behaviour for the narrative, I realized that my vocation for the natural world needed to be cultivated throughout my life and my professional and academic careers.

When I graduated from Concordia University (2001), armed with a Bachelor’s in Creative Writing, I travelled, with my partner at the time, to Northern Ontario. He was a tree planter and silvicultural thinner. I went with him to write accounts of silvicultural workers in what became my series of “37 notebooks from the bush.” We travelled by bus to Thunder Bay then to Dryden, and through all the smaller towns in between. From our bus window I remember seeing the welcome signs of each town pass us by, and the population count delineated in big white letters. By the time we got to Atikokan, the population count was down to a couple of thousand. We then drove another hour west and arrived at our bush camp; what was to be our home for the next 3 months.

¹Set against the backdrop of political unrest and poverty in Peru, the story centers around Dr. Cecile Benton, an ornithologist, who traverses nature/culture dualisms and the social psychology surrounding the ownership of companion animals in domestication. While in pursuit of environmental justice, Cecile’s idealism is tempered by her connection with Luis Vega, a local photographer and mercenary. Coupled with her relationship with Atlas, a blue-and-gold macaw, Cecile deals with love, loss, obsession, the cyclical struggle between different perceptions of right and wrong and the treacherous, yet often-imperceptible path towards insanity. *Grounded* is an intimate story of our conflicted relationship with nature and ourselves, and our resilience in the face of adversity.



Figure 1.1. Silvicultural thinning camp: near Atikokan, Ontario, photo. Source: Adrina Bardekjian and Julian Ambrosii, 2001.

We set up our camp. In addition to us, there was a camp cook named Barb and 27 men, all with families and wives back home. Barb's cooking trailer was the first *establishment* to get set up, then the work tent for all the equipment; then our smaller personal tents speckled the forest. Our tent was a little ways across a river on top of a hill, but if you knew to go around, you didn't actually have to cross the water.

We were surrounded by the southern edge of the boreal forest. Some foresters call it the Boring Boreal because it predominantly has only nine species² of trees (mostly conifers), but it was vast and the scent of spruce resonated across our camp, especially in the early mornings as we were making our coffee by our tent

² These include: Black spruce (*Picea mariana*), White spruce (*Picea glauca*), Balsam Fir (*Abies balsamea*), Larch (*Larix decidua*), Lodgepole pine (*Pinus contorta*), and Jack pine (*Pinus banksiana*). Some broad-leaved species include: Trembling aspen (*Populus tremuloides*), Paper Birch (*Betula papyrifera*), and Balsam Poplar (*Populus balsamifera*).

over a little fire. If we were lucky, sometimes we'd hear the two beavers, who lived down the river, slap their tails on the water. After that, we would walk over to meet the others, have breakfast and pack lunches for the day then drive off to our blocks of land. Some days I stayed behind with Barb and explored our part of the forest. Every now and then Barb would have to go to town to get supplies, and by *town* I mean Atikokan, so she'd be gone for a few hours. Those days, there was no one around for miles.

One early afternoon, when everyone had gone out and I had stayed at camp to write, I went back to my tent to make another coffee. As I lit the little fire to boil the water, I heard it: a truck coming down the road into our camp. First, I thought it was one of the vans coming back; I thought someone must have forgotten a belt or a brushsaw. But that didn't seem right. So I went into my tent and peeked out from the front zipper and waited. It was a dark grey pick-up truck, with five lights across the top. It stopped by Barb's trailer and three men wearing camouflage vests, each holding a rifle, got out of the truck.

I hadn't been scared of the bears sniffing along our tent at night, or the moose that we had stumbled across during a hike; I wasn't even scared of the true isolation you feel when you actually find yourself alone for long periods of time. But the isolation you feel when you are faced with people in that vast environment... it's a feeling I'd never had before. And I was very young. So I stayed in my tent, and I watched: they went into the cook's trailer. I heard them laughing. The seven-and-a-half minutes I waited for felt like an eternity. I remember thanking my partner under my breath for choosing this spot, but most of all, I remember thinking: *"I hope they don't smell the coffee in the afternoon breeze."*

And they didn't. They left and we never found out who they were, or what they were doing out there. And in those moments, when the hunters first got to our camp and I decided not to be seen, I remember thinking: *"Had I been a man, or even a little older, would I have felt and acted differently?"*

This is where I first became exposed to forestry as a profession, and, in particular, to the labour concerns and intimate stories of this lifestyle; I also became hypersensitive to gender roles. And so forests, to me, became evermore-interesting

places. That experience was the root of my wanting to study and explore human connections with treed places and how the physiology of those spaces shape human behaviour.

After we returned to Toronto, I pursued Horticulture at Humber College and began volunteering in the environmental sector for the Canadian Parks and Wilderness Society (CPAWS); it was here where I learned about the Master of Forest Conservation program at the Faculty of Forestry, University of Toronto. And so, as I pursued graduate school and a career path towards urban forest management planning, my partner pursued operations in arboriculture.

Over the years, we worked at opposite ends of the same field. As I worked with non-profit organizations, municipalities, and consulting firms, I began to see the various social divisions and tensions among working groups and organizations in urban forestry. I learnt that there are many facets to urban forestry. Much of the field relies on applied management planning, and scientific measures, that fall under the discipline of conventional industrial forestry but the emphasis is on individual trees as management units. Professionals often speak about bridging gaps and working together but few strategies have been developed to accomplish this type of collaboration.

In addition, I was involved with many groups, boards, and educational projects. I had the opportunity to see across disciplines and through those experiences I developed a unique perspective and overview of urban forestry. I kept noticing a disparity in the way work was thought of and being done, the way people were being treated and the way certain stories and groups were overlooked. I began to reflect critically on these practices by questioning their purpose and viability as they were being managed. I felt, in particular, that arboriculture, specifically the voices of field arborists, was largely missing from the broader urban forestry discourses and in the popular media in Canada. For example, how workers felt about their work and their positions on trees; their depth and breadth of knowledge rarely got attention. I also recognized that just because I was feeling that way, it did not

make it true – I wanted to explore whether it actually was true from arborists' perspectives, which became one of the objectives of my research.

1.2. Transects and narratives of the urban forest: Transformations and turbulence

Urban forestry and arboriculture date back to before what we would now consider traditional or conventional forestry practices for timber production. Indeed, basic urban forestry practices that are common today date back to ancient times. The development of tree care practices is attributed first to a practical use of trees for food and protection and second to the reverence of trees as gods (see Altman, 2000; Philpot, 2004). Urban gardens, parks and other greenspaces were developed as visual amenities in many cities, particularly Western Europe. The practice of urban forestry subsequently spread to colonies in Africa and Asia. Urban park systems were the starting point for urban greening in North America as well. In the late 1800s there was a push toward the establishment of many major urban parks like High Park in Toronto (est. 1873); Mount Royal Park in Montreal (est. 1876); and Stanley Park in Vancouver (est. 1886). There was need to create recreational opportunities for the public. Since the *Hanging Gardens of Babylon*, now believed to have been built in modern Iraq in the early 7th century (Dalley, 2013), urban greenspace management has existed for human aesthetic purposes; any peripheral benefits to non-human species were an *accoutrement*.

With forestry established early in the 20th century, the meaning of conservation turned to individual trees in the urban centres. Urban forestry emerged as a field of science and practice during the 1970s and 1980s in North America (Morsink, 2011), perhaps as a response to the threat of Dutch Elm Disease which decimated elm trees across major North American cities throughout the 1960s and earlier (Konijnendijk, Ricard, Kenney, & Randrup, 2006). Another catastrophic event included the 1998 ice storm in Eastern Canada; the response to such *natural disasters* proliferated an acute need to put urban forestry at the forefront of political agendas by communities, ENGOs and individuals in the 1990s.

Since the 1990s, advancing urban forestry efforts in Canada has remained a priority. In the past ten years alone we have seen a significant increase in urban greening efforts by ENGOs and communities; increased corporate sponsorships; and increased enrolment in university programs. Canada's leading ENGO for urban forestry efforts is Tree Canada (est. in 1992), a group that works to raise awareness and offer support for urban greening projects across the country, as well as to build partnerships with municipalities and other ENGOs. Tree Canada is Canada's only ENGO that focuses on urban forestry at the national level and offers many programs to help build community green spaces in spite of little federal support. In 2003 urban forestry was integrated into Canada's *National Forest Strategy*, which resulted in the development of the *Canadian Urban Forest Strategy* (2008), for which Tree Canada is the secretariat.

In Canada, the province of Ontario can be considered a leader in urban forestry efforts. Organizations like the Ontario Shade Tree Council (OSTC, est. 1963), now known as the Ontario Urban Forest Council (as of 2000), formed and became leaders in finding controls for introduced diseases and preserving shade trees across the province; the need for such groups was perpetuated by the lack of awareness and appreciation of natural heritage (an emerging concept) and the increase of urbanization and loss of greenspace. Urban forestry has been defined and redefined many times. Konijnendijk and his colleagues (2006) offer a comprehensive look at definitions and the evolution of urban forestry in North America and Europe. Since the 1980s, urban forestry has gained recognition in both practice and in academic research worldwide, and urban trees have become an integral component of municipal planning and, more recently, as green infrastructure (a construct that stress the importance of trees in urban environments).

Urban forestry is practiced and researched by a number of disciplines as well as supported by numerous environmental greening organizations (e.g. Tree Canada, LEAF in Toronto), leading municipalities (e.g. Ottawa, Toronto, Vancouver) and networks such as the *Canadian Urban Forest Network*, established in 2006 following

the *Canadian Urban Forest Conference* in Winnipeg in 1993. The first official urban forestry conference in Canada was held at Laval University in Quebec City in 1979. Thus, urban forestry is an interdisciplinary field comprised of conventional forestry, arboriculture, horticulture, planning, engineering, and landscape architecture – though not exclusively. Figure 1.2 conceptually illustrates this interdisciplinarity.

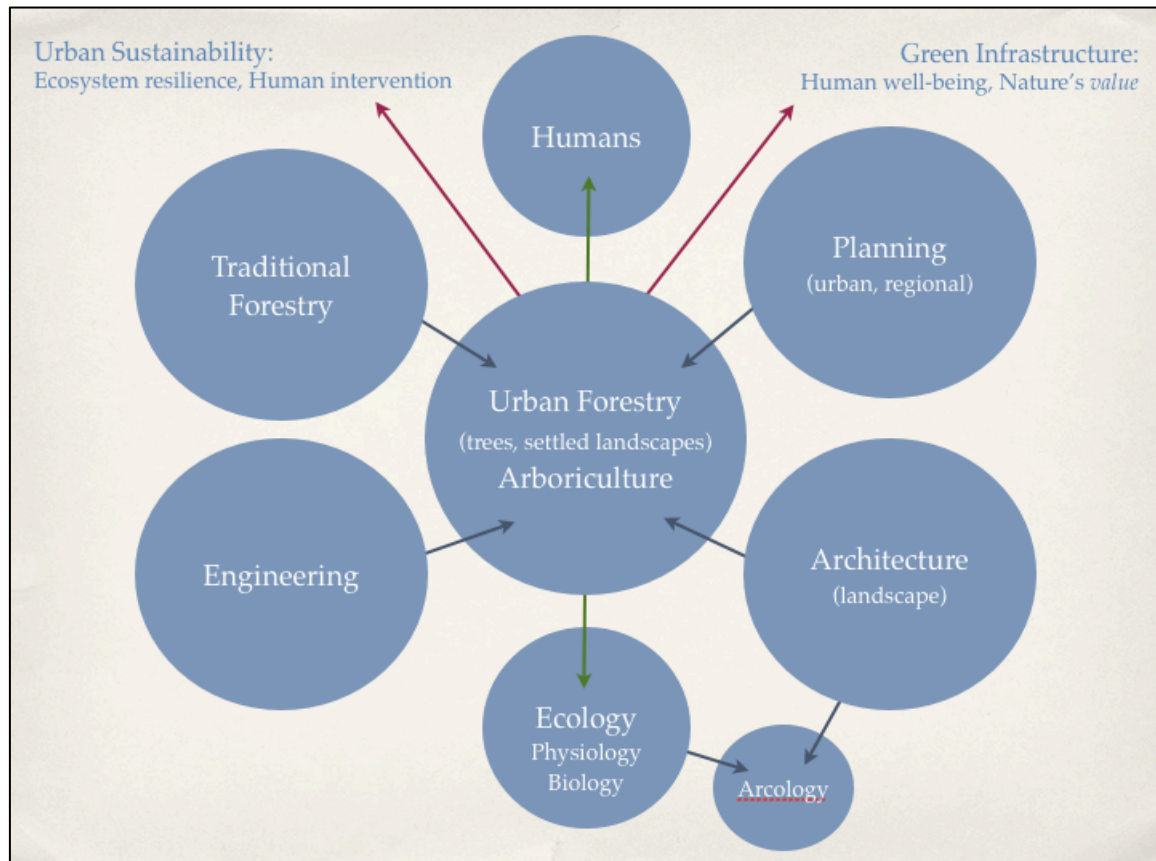


Figure 1.2. Urban forestry origins and outputs. Source: Faculty of Forestry lecture presentation during MFC program, University of Toronto, 2004.

Since Erik Jorgensen, the first urban forester in Canada, coined the term “*Urban Forestry*” in 1965, it has evolved into an applied field of technical and technological expertise. Where Erik Jorgensen’s first definition (1974) of urban forestry focused on the management of trees and their contribution to human life, the definition has evolved to consider the tree as having value in itself to the surrounding non-human environment. Combining conventional forestry with sociological synthesis, urban foresters now focus on tree inventories, strategic

planning and community advocacy. As of 2013, the *Canadian Urban Forest Strategy* (CUFS) considers urban forests to be: “trees, forests, greenspace and related abiotic, biotic and cultural components in areas extending from the urban core to the urban-rural fringe” (p. 3). This is the leading definition in Canada; it is also the definition that most of my interviewees relate to as a signpost for their own understanding. I do not want to be restrictive, my thesis is not about categorizing, rather it is about weaving (un)common threads, on many levels (applied and conceptual), toward more inclusive urban forest communities.

The concept of Urban and/or Community Forestry is much more prominent in the US and Europe than in Canada, although it has been gaining ground in Canada with the emergence of environmental groups making concerted efforts to engage homeowners and neighbourhoods in greening initiatives (e.g. LEAF, *Neighbourwoods*). Research in the US has focused on the participation and involvement of private citizens and groups, which have recognized that effective and economically sustainable urban forest management must be inclusive of the citizens who serve those greenspaces; this approach is considered integral for informing equitable governance (Rowntree, 1998; Elemendorf & Luloff, 2001; Kenney, 2003; Carreira, Song, & Wu, 2008). Urban forestry research in Europe (e.g. UK, Nordic countries, Netherlands) has focused on the socio-cultural aspects where woodlands are concerned (Konijnendijk, 2013).

Urban forest research does not typically take into account urban or social theories, nor does it problematize processes. Whether it is for single-tree management of street trees, conservation of woodlots, developing curriculum for school boards or sociological synthesis on cultural perspectives, there is a systematic exclusion of certain points of view in Canada. Current research is a compilation of existing models or concepts applied to new cases, species and/or locations. Research in urban forestry typically focuses on applied or sociological studies such as: modeling and visibility of urban forests (Yang, Zhao, McBride, &

Gong, 2009); valuation³ of ecological services (Dwyer, Schroeder & Gobster, 1991; Dwyer, McPherson, Schroeder, & Rowntree, 1992; Nowak, 2002; Donovan & Butry, 2010; Millward & Sabir, 2011); implementing tree planting initiatives (Pincetl, 2010); preservation of existing and the allocation of new urban greenspaces (Jim, 2004; Yokohari & Bolthouse, 2011); public attitudes in supporting urban tree programs (Zhang, Hussain, Deng, & Letson, 2007); public attitudes in relation to use and social values (Coles & Bussey, 2000; Jorgensen & Anthopoulou, 2007; Weinstein, Przybylski & Ryan, 2009); and urban forests and public health (Ulrich & Parsons, 1992; Sorte, 1995; Kaplan, 1995; Kuo & Taylor, 2004; Ryan & Weinstein, 2010; Donovan, Butry, Michael, Prestemon, Liebhold, Gatzliolis & Mao, 2013). Given the examples listed above, urban forestry as a field hovers in limbo between the applied and theoretical sciences. There is a lack of consideration of social complexities and this dissertation endeavours to remedy that lack.

Even as society evolves, urban forests continue to be taken for granted and associated processes of forest work and the position of forest workers are rarely acknowledged. Local governments typically assert that urban forests are green infrastructure and natural capital; these concepts are social constructions that categorically reduce urban greenspaces into tools that serve functions. The benefit to this type of categorization is that urban greenspaces are now seen as integral to community development and success (Ulrich & Parsons, 1992; Nowak, 1994; Sorte, 1995; McPherson, E., Nowak, D., Heisler, G., Grimmond, S., Souch, C., Grant, R. and Rowntree, R., 1997; Grahn & Stigsdotter, 2003; Kuo, 2003). The problem is that trees are predominantly viewed as management units and public utilities aimed at maintaining ecological integrity (Holling & Meffe, 1996), absorbing carbon emissions, providing shade, and human emotional support (Halpern, 1995). Overall, there is less attention paid to how the urban forests and trees have come to be constituted as green infrastructure and to current definitions and uses of urban forest research as scientific analysis of ecological functions (Nilsson, 2000; Konijnendijk, 2008; Zipperer, Sisinni, Pouyat & Foresman, 1997; Matheny & Clark,

³ Monetary value and pricing.

1999). There is also little focus on who has access to the urban forest and how urban forest policy is implicated in the differentiated cover and maintenance of urban forests across urban landscapes (Heynen, 2003; Sandberg, Bardekjian & Butt, 2014). The implications for this are clear: there is a lack of consideration for the layers of social and ecological complexity that comprise urban forest communities.

Moreover, current urban forestry research and public awareness centre around benefits for collaboration, tree physiology or new applied technologies for management planning. Three relevant academic journals include *Urban Forestry and Urban Greening* (Elsevier, Germany), *Arboriculture and Urban Forestry* (International Society of Arboriculture, USA) and *Arboricultural Journal: The International Journal of Urban Forestry* (Taylor & Francis, UK). In addition, many stories can be found of community involvement saving an urban tree or *new* models of tree planting initiatives (e.g. Town of Oakville, 2012). Media coverage seldom goes beyond a general celebratory model of advocacy or a negative spin on development pressures. New and existing organizations and programs continue to promote tree planting without adequate parameters to accommodate funding and maintenance. These political, social, ecological and educational inconsistencies pose notable implications for urban landscapes, as social-natural links are vital in urban communities. Working within existing confines without questioning the frameworks of those confines, coupled with the lack of critical thinking with respect to ecological and social integration, is detrimental to management practices and decision-making processes (P. Jutras, personal communication, 2009, 2010, 2011).

2.0. Exposed roots: Objectives and research orientations

I come from a background in English Literature, Creative Writing, Anthropology and Forest Conservation. Throughout my studies, much of my experience and training has focused on creative, applied, and technical models. If I was not performing in theatre or reciting poetry on stage, I was trudging through the bush with an increment borer and clinometer to measure tree density and conduct tree inventories. Delving into theoretical frameworks was a completely foreign activity to me until I decided to pursue my doctoral studies at the Faculty of Environmental Studies at York University.

There are two theoretical frameworks by which my research is inspired: Social constructionism and political ecology. Before reviewing and discussing my theoretical orientations, I highlight again my interest in this topic in order to explain why these particular theories were useful. Focusing on language, labour (working conditions), agency and learning (education), it was useful, in general, to study political ecology and social constructionist literature in order to communicate complex ways of identifying, knowing and understanding marginal(ized) narratives. I say *marginalized* to denote that these narratives, although peripheral to dominant urban forestry discourses, are also marginal as a result of others' behaviour and/or decision-making (or lack thereof). Through this exploration, I found adequate language and meaningful substance that helped elucidate the importance of the stories that emerged from my research and explain the distinction that my case reveals for urban forestry.

Exploring the theoretical terrain of social constructionism allowed me to better understand where the representations of forests come from and the relationship between nature and culture; what the implications and influences of these cultural constructions are on human perceptions and experiences towards the natural world; and, where the roots of our nature-culture divisions stem from. By exploring various definitions of nature and understanding how they influence the interpretations of our surroundings, it became apparent to me that applying this framework to urban forestry would enhance opportunities for environmentally

conscious designs and management practices. Moreover, considering social constructionist theory as it relates and contributes to language and identity was integral to understanding worker psychologies behind urban forest practices (see Chapter 4).

Alternatively, political ecology helped contribute to my understanding of the complex dynamics in the development and management of municipal and community urban forestry. As a field of study, political ecology examines connections and interactions between human and non-human ecologies. It strives to understand types of environmental influences across space, scale and time, by examining the relationships between political, economic and social (f)actors within environmental issues. Political ecology contends with issues about access and control; marginality; language; scales and networks (McCarthy, 2002). It can be used to interrogate various stories within urban forestry that we see, experience and contribute to on a daily basis. Examples include: contentions about invasive species; debates surrounding urban wildlife management; and conflicting conclusions about placing value on trees for aesthetic reasons. In addition, political ecology wrestles with a variety of arguments including: the possibility for community collective action; the role of human labour in environmental uptake; the nature of risk-taking and risk-aversion in human behaviour; the diversity of environmental perceptions; the causes and effects of political corruption; and, the relationship between knowledge and power. As such, the dominant narratives within political ecology include degradation and marginalization, environmental conflict, conservation and control, environmental identities and social movements (Robbins, 2004).

An urban political ecology perspective (Keil, 2009) helps to expose the political dimensions of urban forest narratives and includes an exploration of urban forestry practices through public officials, environmental organizations, community groups, residents and industry professionals as stakeholders in urban forestry. It examines environmental conflicts and political struggles over access and control of urban natural resources that help clarify issues surrounding justice and governance (Watts, 2000). But it also focuses on the discourses, narratives and language that

frame urban forestry as a concept and practice (Robbins, 2004). Finally political ecology takes account of non-human nature as an actor (see Chapter 6); in urban forestry such agency includes ecological elements, such as invasive species, tree senescence, pests and diseases. These elements create unexpected pathways through which humans view the urban environment; humans are part of the natural world, not separate from it (Peet & Watts, 1996); urban forestry is a multi-tiered actor-network that includes social actors, the narratives they create, and the urban forest itself. Urban foresters are fixated on applied management techniques and the political ecologists focus on connections, problems, decisions, scale and injustices (Peet & Watts, 1996; Vayda & Walters, 1999; Robbins, 2004; Grove, 2009; Rangan & Kull, 2009; Neumann, 2010). Some contemporary scholars in political ecology have begun to focus on urban ecology or urban forests specifically, these include: issues of justice and nature in the city (Bickerstaff, Bulkeley & Painter, 2009), citizen rights and public access to urban nature (Whitehead, 2009); issues of injustices with respect to greenspace and property (Heynen & Perkins, 2003; Heynen, Perkins & Roy, 2006), the presence of nontimber forest products (Poe, McLain, Emery & Hurley, 2013); the production and use of edible landscapes (McLain, Poe, Hurley, Lecompte-Mastenbrook & Emery, 2012); and questions of contested benefits of invasive species (Foster & Sandberg, 2004). These deeper inquiries and contestations into urban forestry offer unique insights for the field, but such studies are few and far between in Canada.

As a strategist who focuses on problem-solving and urban forest management planning, I appreciate that the foundations of political ecology as a theoretical framework are situated within an action-oriented praxis (Rocheleau, 2008) – praxis being the process by which a theory (or concept) is integrated or embodied in an experience (e.g. the Alternative Campus Tour at York University). But I do not mean to suggest that all problems associated with urban forestry can be solved by political ecology praxis. I recognize that capitalism and an ingrained class structure are part of urban forestry procedures and networks. Issues regarding language and interpretation, labour processes and policies, human and non-human agency considerations and educational norms are all entangled in these systems.

However, I argue that seeing urban forestry through narratives of lived experience by fieldworkers can nevertheless better integrate social and ecological considerations in urban forestry research and practice. The applied and theoretical sciences need to co-exist within strategic planning to dissolve the silos occurring in urban forest research, education and management. Given my background in applied science and strategic visioning, I sit in the middle of the theoretical scientists and the applied scientists' discourses. And so, I spot an opportunity, for positioning this research to move beyond existing models of strategic planning, toward a more inclusive and transdisciplinary urban forest management by way of critical reflection and participatory learning. Initially, finding myself in this position has been challenging; but I have come to realize that this is exactly where my research needs to be situated. I want to speak to both audiences (political ecologists and urban forest practitioners) through my own application of constructionism and political ecology to urban forestry and to create a conceptual framework for a more inclusive urban forestry research and community (see Section 9.1).

I want to draw attention to the term "Limbwalkers" in my dissertation title (described in more detail in section 5.3.1.3 and again in section 9.0). This metaphor is central to my work as it portrays for me, both as a verb and a noun, the multiple dimensions that urban forestry workers experience in and about tree care with respect to social dimensions, political considerations and physical extents. Thus, being the overarching lens through which my research is examined, political ecology helped me to understand and build on the methods employed in urban forest practices that I witnessed as an active participant for the past ten years while working for various government and non-profit organizations. Inspired by Thomas Kuhn's (1962) notions of how professional fields need paradigm shifts to progress beyond regular or normal avenues, and Eisenhart's (1989) notions of building theories from case study analyses, I argue in this dissertation that seeing urban forestry through narratives of lived experience by field workers can better integrate social and ecological considerations in urban forest research, management and

abstracts. Based on the different databases (e.g. Ulrich, Web of Science), and journal citation reports from peer-reviewed, English-language articles, using keywords (i.e. forest and urban forestry), I was able to find out some of the most frequently cited academic peer-reviewed journals with the subject related to urban forestry. And those 6, all highly ranked, include: *Landscape and Urban Planning*; *Urban Ecosystems*; *Canadian Journal of Forest Research*; *Forest Ecology and Management*; *Forest Products Journal*; *Journal of Forestry*; and *Urban Forestry and Urban Greening*. However, because of my own literature review and research, I added to the list: *Arboricultural Journal*. I would have also added, *Arboriculture and Urban Forestry*; however I could not find an index to search most cited articles for this journal. These last two journals are not listed in journal citation reports, since not all journals are ranked there. Thus, I have a working list of 8 journals for which I found the top 5 cited articles for each. It is important to note that there are problems with journal rankings due to inconsistencies, publisher bias and access. Methods for matrix metrics are controversial and faulty (e.g. open source journals are excluded), however; measuring the impact factor is the best process that we currently have in academia and this is one way to get to more relevant journals (D. Craig, personal communications, March 2014).

While conducting my background research, and considering the roots of urban forestry outlined in Figure 1.2 (e.g. forestry, planning, architecture, ecology, engineering), I was able to group my research into four main areas: Arboricultural studies focus on operational techniques and tree physiology; Socio-political forestry studies contend with marginalization, constructionism and often contest conformity; social geography looks at socio-economic disparity in urban forest planning; and, urban forestry research is predominantly concerned with strategic management planning, inventory tools, policy development, or more recently, ties to human health as stated in the previous sub-section and in Figure 2.2.

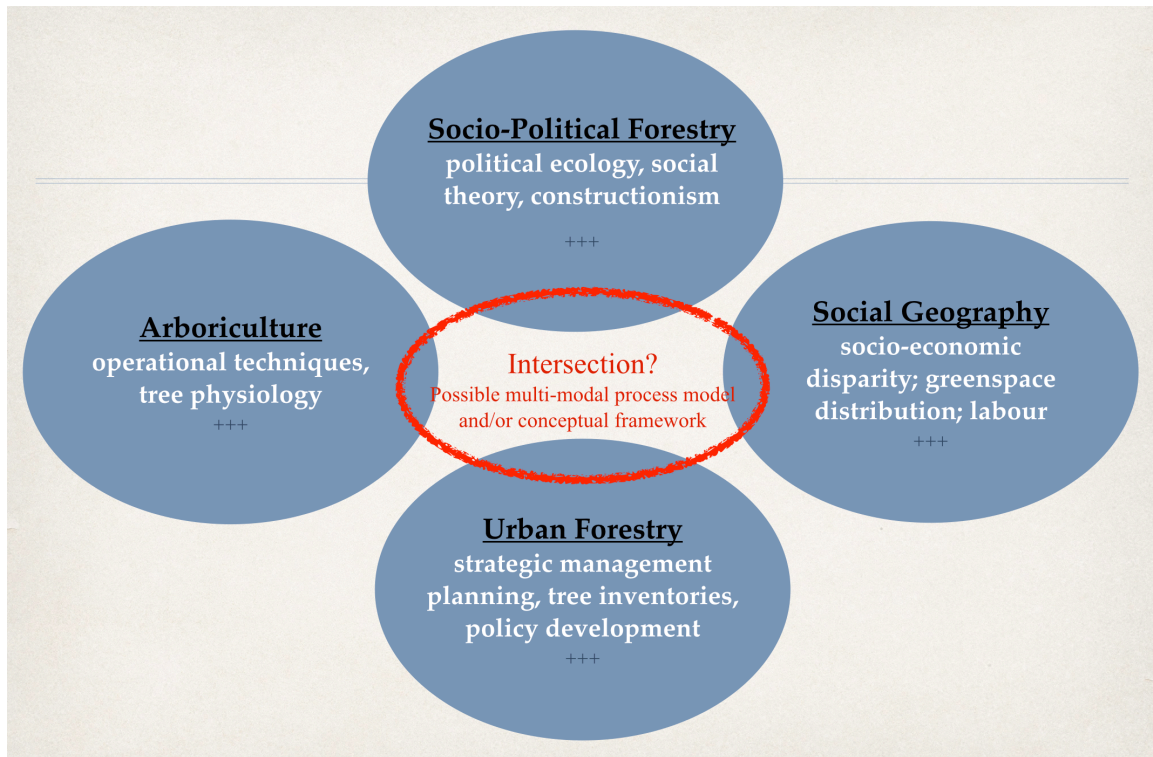


Figure 2.2. Background research diagram and situated contribution.

My research is situated in the intersection of these studies with respect to tree work and the people performing that work in urban areas. Research has shown that within industrial forestry (timber harvesting and production) there are many political, economic and ecological factors that influence foresters' perspectives towards their work and their employers (Dove, 1994, 1995; Sandberg & Clancy, 2000; Ekers, 2009). Similarly, these factors impact many external assumptions made about foresters' working conditions, ethics and intentions. As such, there is a significant gap in urban forest research with respect to labour and social values of arborists; empirically, my research contributes a new dialogue to this body of knowledge. Following my theoretical explorations, there were many questions that peaked my interest and concern, identified under three dominant aspects; political paradigms, social inequalities and ecological metabolization – the latter meaning how nature is interpreted, experienced and processed. Though I recognize that there are a plethora of contentions and gaps in research that must be realized within urban forestry, I can only focus on the few that emerged as acute and substantial

through my interviews. Hovering at the interface between academia and practice, my main research questions thus became:

- a) In what ways can the field of Political Ecology inspire new questions about urban forestry, especially about under-represented narratives, such as those of field arborists and arboriculture?

- b) In what ways can the views of field arborists inform a more socially and ecologically inclusive urban forestry?

Coupled with phenomenology, ethnography and discourse analysis, my background research was helpful in inspiring my research questions and working towards an emergent conceptual framework (described in Section 8.1), to better describe the paradigm shift I am proposing.

2.2. Evolving natures: Objectives of my study and case profile

Urban forestry contains dominant stories that are seen as the normal in the management of urban trees. However, there are also marginal(ized) and under-represented stories relating to the language use, labour processes, the agency of trees, and the educational norms of the profession and practice. This suggests that the urban forest can become a more socially and ecologically integrated field by examining and taking into account the under-represented stories within this field. My research shows that the most recent manifestation of this evolution of the arboricultural field (what some of my interviewees called, “*virtual forestry*”) has created a division in labour: between the people component and their work. This is considered a positive development within the field because we have moved towards more efficient strategic urban forest planning frameworks; however, what has been forgotten in this evolution is the connection between the person who is working on trees and the actual work that is being performed (Braverman, 1974), and most

importantly, how people feel and think about their work (see also Uusitalo and Orland, 2001).

Against the backdrop of two theoretical frameworks, social constructionism (sense of identity, space and place) and political ecology (power, marginality, discourse, language, and non-human agencies), my dissertation is a study of capturing and elucidating under-represented urban forest narratives by exploring arboriculture in Southern Ontario (with particular actors and networks) as a case study and offering suggestions for more inclusive research and practice. At the theoretical level, I offer a different way of thinking about the existing systematic processes in urban forestry with respect to:

1. *Language* (social integrity within worker metaphors and identity constructions),
2. *Labour* (polarized and gendered perspectives, inequality and political contentions about the work itself)
3. *Agency* (worker connections to non-human organisms and how that influences their work)
4. *Learning* (inclusions and exclusions in urban forest education and institutional accreditation)

By profiling the professional and personal lives of municipal- and private-sector (i.e. commercial) field arborists in Southern Ontario, my work reveals deep division in the field and exposes the impacts these divisions have on the workers and the urban forest itself. I document an oral history and create an opportunity for arborists to share true and constructive stories that contribute to a better understanding of arborist workplace conditions, behaviours and ethics within urban forests. Interviews with urban forestry workers revealed insights into: the culture of practice; education and training; passions and motivations; personal contentions; governance and conduct; technologies for advancement; and risks and challenges. Using the dominant themes in political ecology as launching points for discussion, I examine these narratives more closely to shed light on many of the social, political and ecological marginalization in the field of urban forestry. Understanding the

urban forest through the eyes and voices of arborists provides valuable insights into research, management and education for urban forestry.

2.2.1. Significance to academia

By exploring the place of trees and of arborists in the urban forest itself, and the place of arboriculture in the broader urban forestry field, I have attempted to give arboriculture a (socially) scientific voice that does not focus on natural, applied science, as this has not been tackled to date. Thus, the objective of my dissertation is threefold: First, it is about addressing the academic community by examining urban forestry through two theoretical frameworks – political ecology and social constructionism; Second, it is about suggesting a multi-modal process model, highlighting emergent connections and networks which should be considered in research and practice in urban forestry; and, third, it is about communicating and promoting these messages to the urban forestry community and practitioners. The latter is achieved by offering a variety of outputs to a broader audience, namely to the scholarly community through academic peer-reviewed articles, and to the practicing urban forestry community through popular media pieces (i.e. film and photo essays).

There is constant pressure on the scholarly community to communicate research and make findings accessible to a broader audience; most especially to practitioners within the disciplines we traverse (Monahan, 2010)⁴. I am not proposing this dissertation as an end in itself but as a means to significantly contributing to this bridge. Ubiquitously and inevitably, yet mindfully, I have maintained my own personal narrative throughout my dissertation. Through a series of related activities and initiatives, including: my role as *Program Manager, Urban Forestry*, for Tree Canada⁵; my role as a Course Director for *ENVS 3740 Urban*

⁴ Community groups often turn to scholarly research for evidence when leveraging for funding, which is another critical reason for greater access to empirical studies and research. Through being at York University, specifically FES, I began to notice that I could not only communicate this research, but also be a part of conducting this research and sharing the various messages emanating from it with both sides; thus, the multi-modal results became a clear choice.

⁵ A role in which I manage the national urban forestry portfolio for Tree Canada. This includes the Canadian Urban Forest Strategy, Network and biennial Conference.

Ecology at FES⁶, organizing the *Urban Forests & Political Ecologies*⁷ Conference (Sandberg, Bardekjian & Butt, 2014), writing articles and blogs⁸, sitting on various Boards⁹, and my involvement with the *Alternative Campus Tour*¹⁰ at York University (Bardekjian, Classens & Sandberg, 2012), I hope that my resonating motivation, vocational commitment, respect and reverence for raising awareness, building bridges and sharing knowledge can be realized.

2.2.2. Significance to the arboricultural industry

By profiling the professional and personal lives of municipal and private sector arborists in Southern Ontario, Canada, I examine how the relationship between the worker and the urban forest changes as new biotic and abiotic factors come into play and I analyze the discordance occurring by aligning the top-down and bottom-up philosophies in urban forest governance. In addition, I offer recommendations based on arborist perspectives and insights on what can be done to foster better communication, collaboration and education in the field. These findings have led to an informed discussion and examination of the social and labour tensions that take place in urban forest culture as a result of social divisions and lack of ecological and social integration within the broader community.

The process, practice and education of urban forestry currently prioritize professional agency and expertise. No significant or comprehensive study has come to my knowledge that has focused on the social aspects of the arborists working the front lines. Arborists are the front line workers that carry out the recommendations created and implemented by others in decision-making hierarchies. I explore the social positions and perspectives of this group of people and attempt to offer recommendations to bridge top-down and bottom-up perspectives and approaches.

⁶ ENVS 3740: Urban Ecology (Winter term 2012) – Faculty of Environmental Studies, York University.

⁷ Urban Forests & Political Ecologies: Celebrating Transdisciplinarity (April 2013): www.ufpe.ca

⁸ See web page: http://www.adrina.ca/Adrina_Bardekjian/Writing.html

⁹ Ontario Representative for the Canadian Urban Forest Network Steering Committee; Advisor for the Ontario Urban Forest Council; Advisor for Faculty of Forestry Alumni Association; Member of the Toronto Cancer Prevention Coalition, Shade Policy Committee.

¹⁰ See web page: <http://alternativecampustour.info.yorku.ca>

Empirically, my research has provided valuable insight into how arborists perceive, influence and engage with the urban forest and it communicates those insights to a wider audience by raising the profile of arborists in society and in broader urban forestry discourses. In addition, I have contributed a concept/process model for consideration in urban forestry when conducting research or considering practices (see Section 9.1). A presentation of initial findings was well received at the 64th Annual International Society of Arboriculture, Ontario Chapter, Conference in Niagara Falls, in February 2013 (Bardekjian, 2013b). A preview of a documentary film was also screened during this presentation (Bardekjian, 2013a).

3.0. Methods, process and considerations

For my dissertation, I chose a combination of phenomenology (Creswell, 2013; Finlay, 2012), metaphorical analysis (Schmitt, 2005), ethnography and participant observation (Atkinson & Hammersley, 1994). I explored how arborists speak about themselves and each other; how others speak about them; and, how they are represented in language (discourse analysis); b) I examined arborists' activities, relationships with co-workers and working conditions (ethnography); c) I examined how arborists negotiate the urban forest, physically and emotionally as a place of work; and, d) I explored how arborists feel about their education in retrospect, and reviewed current curriculum for college and university level urban forestry and arboriculture programs.

I wanted to validate and capture lived experience and location and explore meanings in the diverse worlds of my participants. As Finlay (2012) states:

"...phenomenological research is phenomenological when it involves both rich description of either the lifeworld or lived experience, and where the researcher has adopted a special, open phenomenological attitude which, at least initially, refrains from importing external frameworks and sets aside judgments about the realness of the phenomenon." (p. 19).

I did this by listening to participant stories. What makes a story? How does the flow of the plot change by the voice and emphasis of the storyteller? Are any one of these aspects more important than the other? For me, it emanates from the plot itself. What is being communicated? What is included and excluded in the delivery? How do some of these things get lost in the delivery?

Research has shown that stories are powerful: they are universal and bridge language, culture and age; they resonate naturally into human minds; they nurture our sense of identity and foster community by building emotional connections (Roche & Sadowsky, 2003). Yet, no story is ever *true* or *real* in the way we understand the literal meanings of such words. Narratives are versions of truths and different realities based on the perspective of the storyteller or the production of that knowledge. Stories evolve with language and some stories can get lost and forgotten, as we grow older and society changes around us; this process can harden our hearts as it robs us of our cultural, social, ecological and personal identity. Our perceptions of temporal-spatial relations vary and alter as we evolve. This is particularly resonating when it comes to our physical landscapes and surroundings. And so as I journeyed through my participants' stories, I became particularly interested in the notion of counter-narratives (Andrews 2002), as my interviews continued (this is further discussed in Chapter 5). Many of my participants shared stories, during interviews or as they worked during my observations, of experiences that directly opposed concepts to which other arborists steadfastly adhere.

I particularly like the practice of telling stories with objects – a familiar exercise to anyone who has worked in the performing arts. In his introduction to *Uncommon Ground* (1996), William Cronon describes the method of the contributors beginning with Donna Haraway's idea of 'found objects'; a process where each participant brought material objects/artifacts to the table in order to shape their discussions about nature and examine their personal perspectives towards it. The reason this process is so effective as a launching point for discussion is because we easily/effortlessly identify with and connect nature through material objects which in turn are representations of ourselves and our relationships with

the world around us. Participants attributed many interesting stories around their hand saws, carabiners, work boots, safety glasses and many others. The stories that peaked my interest have honest social value, for the arborists, for the urban forest and for the broader communities served. My participants' stories humanize the urban forest and advance society's understanding of issues such as invasive species, physiological impacts, gender roles, health care, and cultural diversity, while maintaining the material reality and integrity of nature itself.

By working with four methodological frameworks (phenomenology, political ecology, ethnography and discourse analysis), my intention is to offer insights that will help inform, connect and mobilize further participatory research in urban social forestry and arboricultural labour. In addition, I want to use my professional and personal networks to not only build on existing relationships but to create new opportunities for collaboration and meaningful insights into the field.

3.1. Research design and methods

When I first designed my doctorate research proposal, I wanted to contest several narratives in urban forestry with respect to language, labour and learning by using three separate case studies. My first case study was going to be a metaphorical analysis of conceptualizing arboreta as museums and how, if at all, these realizations influence our perspectives towards and experiences of tree places. My second case study was an ethnographic study of arborists to better understand workplace conditions, behaviours and ethics within urban forests. My third case was a study of student engagement and motivations in university woodlots. Yet, between conducting my formal interviews in Autumn 2012 and participant observation over the past two years, I had spoken with approximately 50 arborists across Southern Ontario. It was apparent to me that there was much empirical evidence that I could draw on to still frame my work in political ecology, while offering perspectives on metaphor and language, labour, agency and education within the context of arboriculture as the main vehicle or case study. This would alleviate my committee's

initial concerns that my scope would be too broad (characteristic of an energetic PhD candidate, at the start of her research).

That being so, it was my full desire to keep the methods of inquiry as multi-disciplinary and multi-modal as possible. As a result, I dedicated to producing a documentary film entitled, *Limbwalkers* and a compilation of photo essays entitled, *ArborEscapes*. These popular media components were inspired by my academic research; yet, they are stand-alone works in themselves and serve as both evidence and tribute to an all-permeating and ubiquitous narrative of my dissertation; *affect*. Affective processes embody that which makes up our emotional connections: to trees, to one another, how we feel about the landscapes around us, other cultures, the journey of life-long learning, etc. (Jones, 2014).

My methodology is primarily qualitative and centres on theoretical reflection, primary and secondary research, a series of in-depth (semi-focused) interviews and site-visits with urban foresters and field arborists. I needed a qualitative approach to answer the ‘how’ and ‘why’ of my study. I wanted to present stories and so I needed to hear them. Stories are powerful (Kearney 2002) so they need to be captured through interviews where questions can be asked and modified “in real-time” (i.e. not a questionnaire where you’re looking for simple answers and can’t add any questions). My rationale for site selection and criteria for specific study participants was influenced by personal interest, access and need. Data sources included: a) in-person and phone interviews; b) participant observation activities at work sites, and; c) review of policy documents, urban forestry programs and curricula. Participant observation included weekly visits to job sites and taking field notes.

To acquire research participants, I disseminated a request for volunteers who wished to be interviewed. I sent a notice to the International Society of Arboriculture, Ontario Chapter, and they posted it on their website; in addition, I sent a request for participants through the Canadian Urban Forest Network (CANUFNET) list serv. The invitations were open from August 2012-October 2012. Interview questions were open-ended and tailored for each group (see Appendix I for interview guide). Questions were formulated based on examples from methods

texts as well as a workshop hosted by a visiting methods professor at York University, Dr. Jessica Fields (2012). I conducted a pre-test to see how effective the interview questions were and to determine whether there was any bias or ethical considerations. My interview guide was reviewed and approved by my dissertation committee.

Qualitative research practice is intricately complex. My process involved: conducting extensive desk research; determining gaps in knowledge in terms of the current discourses; choosing and designing an appropriate research methodology which would suit my abilities while serving the research objectives; determining my geographic area of concentration; identifying interviewees; developing interview guides and surveys; corresponding with my professional networks to circulate requests for participants; conducting interviews; gathering information; engaging in participant observation activities; compiling data; analyzing collected data; and, finally, writing-up my findings. Figure 3.1 illustrates my process.

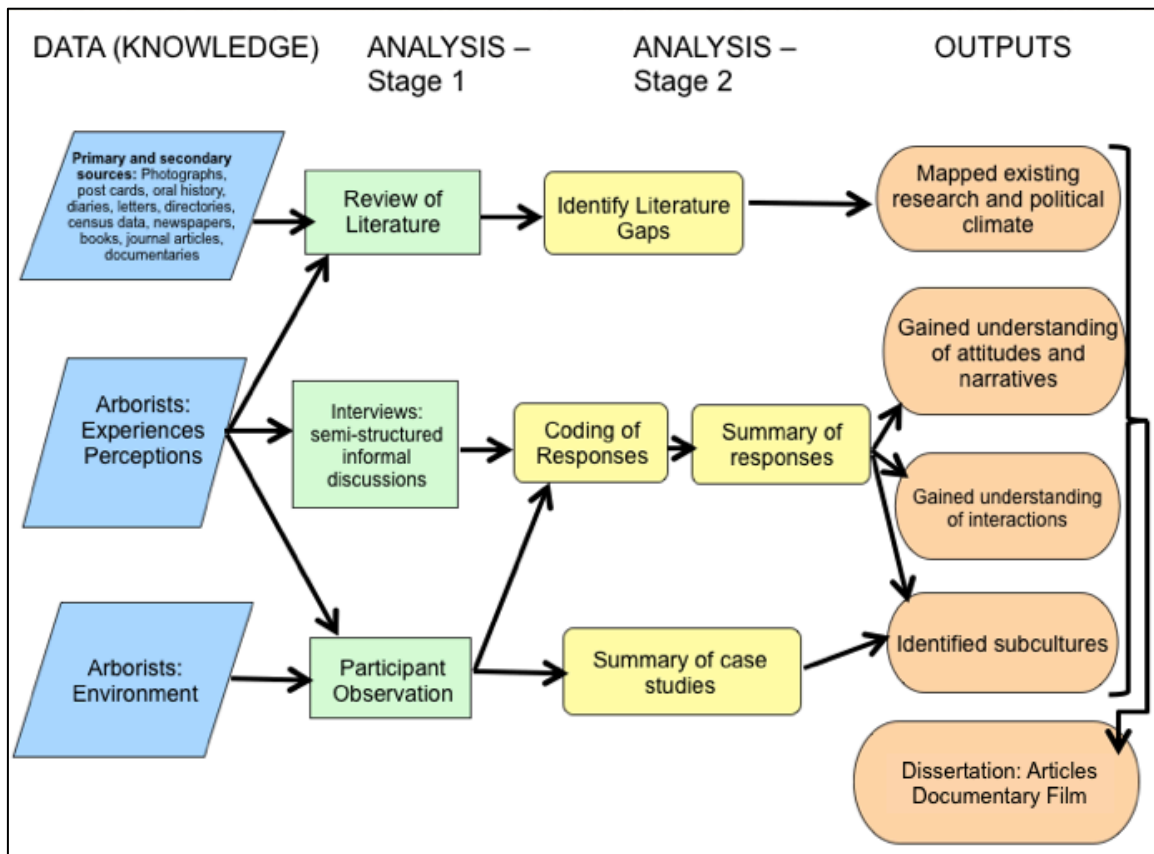


Figure 3.1. Methods and approach.

In addition to reading broadly on the history of arboriculture, and arboricultural operations, I reviewed primary and secondary sources of information for municipal urban forest management procedures and policies in Ontario as well as theoretical texts and compilations. I examined sources such as documents, photographs, texts, articles and documentaries. Many an evening was also spent perusing tertiary sources such as *Arborist News* and other publications produced by the International Society of Arboriculture. Lastly, Eisenhardt's (1989) model for building theory based on case study research resonated with me during my journey and greatly influenced the building of my own process model for urban forestry research and practice (see Section 8.1).

3.2. Limitations

In terms of the literature review, I stumbled on a slight setback as York University does not subscribe to the two most relevant journals that I needed for my research: *Urban Forestry & Urban Greening*, and *Arboriculture & Urban Forestry*. I pursued formal channels with the library to change this, however, York expressed that the demand was not high enough to subscribe to these journals. As a result, I decided to obtain personal subscriptions to these journals, which was hugely beneficial to my dissertation and also, every other direct output from this doctorate research. My hope however is that the current research and identification of this particular limitation can actuate access to these fundamental sources of knowledge in future researches in forestry conducted at York University and the Faculty of Environmental Studies.

Prior to meeting with each interviewee, I had asked that they keep a diary of their workweek to be added as a data set that could complement interviews and deepen the anthropological feature of the research methodology. The task involved writing a few sentences each day for the week leading up to the interview. However, this did not prove to be a viable endeavour as many participants, although willing to dedicate time to interviews and follow-ups, were reluctant to do "homework", which

was a response I did not anticipate. Despite this, the fact that they were willing to participate in follow-ups resulted in me overcoming some of the setbacks from the loss of diary data. I could ask them verbally about their workweek and also had the opportunity to delve deeper into specific areas of interest and found that the information I collected was rich. In future however, I will consider other forms that can be more playful and interactive should I plan to ask for diary records from participants. These could include the use of social media to record daily work activities, such as through [foursquare.com](https://www.foursquare.com)'s "check-in" feature, that could then link through a private social networking group (so as to ensure participant anonymity).

Determining how many interviews would be enough initially posed a challenge. In addition to guidance from research method texts, I asked a methods professor this question and she responded with: "When you begin to hear repetitive statements and start seeing a pattern, you're almost there" (J. Fields, personal communication, 2012). And so this is the 'saturation point' measure by which I determined whether I had spoken directly with enough participants. I began to see repetition of certain perspectives after very few interviews, but I continued to conduct interviews to ensure that the similarities in responses were in fact forming a pattern.

Human agency and experiences ensure that everyone will answer my questions uniquely, but because of the complexity of human emotion and experience, it is difficult to "control" variables and determine what parts of my data can be replicated. Thus, interpreting and elucidating data can be biased. To minimize this in my analysis, I transcribed and triangulated my data to accurately decipher patterns and unify experiences.

I recognize that my presence during participant observations could have an effect on activities. Participants may have behaved differently knowing that I was there. In order to try and minimize this, I asked permission to be on-site during larger windows of time, for example between 7am and 3pm, but I would not tell them exactly when I would show up. Furthermore, I came to sites more than once or twice, so here again I sought to make myself a "known" presence (rather than an

“observing” presence) to the point that participants could go about their work without feeling judged or audited or even “observed”, in the clinical sense of the verb. I constantly looked for cues that could signal my perceived role in the groups being observed; having been a part of “their” world of practice prior to and throughout my doctoral research also helped establish trust quickly.

However, because of my own bias, particularly due to having experience in the field, I continually and constantly reflected on the viewpoints of my participants and how they stood alongside/uniquely from my own; thus, I had to go through a personal reflection when choosing my quotes for this dissertation (as an example) to make sure I was not choosing those that reflected my own views but that they identified the views of my interviewees and the narratives they were communicating to me. My intention was to share knowledge to a broader audience, (i.e. bridging uncommon audiences), so bias had to be minimized. To help further, the number of interviews and follow-ups helped triangulate and validate the viewpoints quoted in this research.

I was particularly sensitive throughout the writing of this dissertation to take care to represent each story as truthfully as it was communicated to me. At times, I struggled with my own role and critiquing the field of urban forestry. As a highly visual and hands-on person, this process did not come intuitively, easily or even comfortably to me. However, by engaging in discussions with academic colleagues and practitioners in my field, and trusted colleagues in the research community outside of my field, a balance in the critiques presented could be achieved. In fact, this singularly helped me become more critical overall.

Lastly, conducting qualitative research is very time consuming and this is a limitation all researchers need to negotiate. I planned in advance so as to ensure I had ample time for interviews throughout the months of October and November 2012, with another two years to analyze and write my results, while tending to my many other responsibilities. To overcome some of the tough timeframes, I communicated openly with those I worked with and also asked for help whenever needed. I had to let go of some of my personal disappointments when not realizing

all my targets, and recognize this is a limitation that will forever be a work in progress.

3.3. Participant and site selection

All participants in my research were municipal and private-sector arborists and urban foresters working in Southern Ontario. Most of them were engaged in actual operational tree care and some were also involved in management and strategic planning work. I knew some of the participants through my professional and academic networks; some were invited to participate due to their expertise and reputation in the field. In all instances, the participants were recruited over email and/or phone and I arranged a time to meet with each in person or by phone. All participants were asked to answer a set of interview questions as well as engage in a free-ranging discussion. In total, this process required no more than one hour of their time (inclusive of the discussion).

3.3.1. Consent and confidentiality

This project provided valuable insight into how arborists, working in urban environments perceive, influence and engage with the urban forest. Through speaking with me, participants were confronted with varied perspectives on the urban forest and they had the opportunity to comment, agree and take issue with them. Many of them appreciated this opportunity. Informed consent was obtained from all participants prior to taking part in the study by way of a *Written Informed Consent Document* (see Appendix II) devised according to York University templates. All data collected during the research were held in confidence on a secure network and the names of all participants will remain strictly confidential¹¹. Pseudonyms will be used in all reports and publications associated with this research, unless the

¹¹ Maintaining the anonymity of my participants is very important to me. Arboriculture in Southern Ontario is a “small world” and I did not want to risk my participants’ identity being guessed by other practitioners.

participant requested otherwise. The data was collected through handwritten notes and audio recordings. The data will be kept archived for up to five years and then destroyed.

3.4. Fieldwork and interviews

During the months of October and November 2012, I conducted semi-structured interviews with municipal and private sector arborists across Southern Ontario. I used a combination of random and snowball sampling for connecting with interviewees. First, I put out a request over CANUFNET, the Canadian Urban Forest Network national listserv (500 subscribers) as well as a posted notice on the International Society of Arboriculture, Ontario Chapter website, and asked for volunteers; I was pleasantly surprised with the response and interest I received. Interviewees were asked to answer a set of questions and engage in a free-ranging discussion. Interviews ranged from one to two hours in length and were carried out in parks, offices, homes and arboreta. In all cases the location was chosen out of convenience and where the interviewee would feel most comfortable. At the end of each interview, I asked them if the process was positive; I also asked each person for two names of other arborists they could recommend as participants. This process established a chain of reference and trust.

After each interview, I also asked participants to fill out a demographic survey (see Appendix III). This survey asked questions that allowed arborists to reflect on their own position within the field. The survey included topics such as income, education, and relationship status. This quantitative information was important to collect in order to establish a background framework for qualitative answers. My interviewees comprised of a wide range of participants including field arborists and consulting arborists in all different stages of their careers, different ages and educational backgrounds. See Figure 3.2.

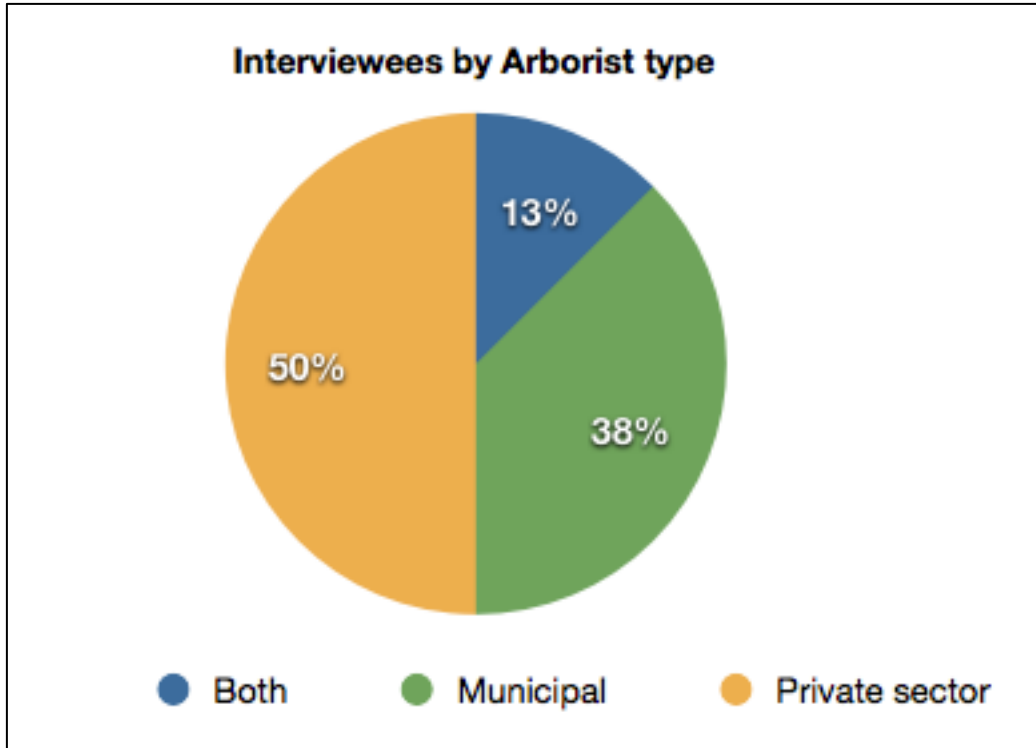


Figure 3.2. Interviewees by arborist type.

Participants also represented a balanced mix of private sector and municipal employees: 85% were men; 63% grew up in urban areas; and, 95% were certified by the International Society of Arboriculture (ISA).

Thus, I proceeded to conduct a series of extensive semi-structured interviews across Southern Ontario. Many of these discussions were informal. I conducted 24 formal interviews; yet I have spoken with approximately 50 arborists through participant observation activities and informal conversations at the conference circuits, which occurred between formal interviews. I chose to not conduct interviews with the managers and employers in the municipal departments and private companies where I interviewed arborists, specifically because I can access that information from other primary and secondary sources. I also felt this decision would take me off-course.

Throughout all my fieldwork, I shared information with participants about my thoughts on urban forestry and arborists in the industry. Many of the stories I was told were often quite personal. Given my own background and attachment to

the industry and its workers, I remained emotionally engaged in my journey through this process. Participants expressed their gratitude to me on more than one occasion for this sincere engagement.

3.4.1. Participant observation

As a participant observer, watching on the sidelines how arborists normally or typically behave on the job, I explored the days in the lives of urban tree climbers and grounds workers. I spent long days outside with them during summer and winter months, at times I helped with pruning and hauling brush to the chipper and on two occasions I was helped into a climbing belt and pulled high into the tree tops to gain better perspective. Over the last several years I have had various opportunities to watch arborists work - both in the field and in office environments. My access to crews in the field was integral in shaping many of my perspectives. Even as I travelled to different cities, if I noticed tree work being done, I would stop and watch, and speak with the arborists. These conversations shaped the questions and concerns I had about the field and also peeked my curiosity to learn about arborist perspectives from arborists themselves.

I have to admit, however, that it was difficult to leave my fieldwork behind. I spent many hours watching, writing and reflecting and after a while, the window or frame through which you view your “work” or “subjects” begins to dissolve. Delamont (2004) argues that “...*once the fieldsite feels like home, it is time to leave: fieldwork should be uncomfortable. Once it is feeling familiar, it is time to move on.*” And so, researchers often overlook leaving or the *exit strategy*. It was an interesting learning experience to come to terms with this, emotionally and intellectually.

3.5. Analyzing the research material

Throughout my observation process and during interviews, I used mainly direct interpretation (Stake, 1995, p. 78) to code data and highlight patterns. I used coded concepts to guide my attention, as follows: motivations, metaphor, mimicry,

education, gender, safety, camaraderie, injustice, work place conditions, risk and fear. I chose these categories because they were the dominant themes emerging during my participant observation and throughout my interviews. I used open coding (e.g. things that were interesting) and focused coding (e.g. fear) to extract information. I did this conceptually to ensure that before I began making claims about, for example, fear, I had actually looked at what everyone had said about it.

Given that I use an *Apple* computer, I had considered *Dedoose*, a user-friendly program similar to the PC-compatible NVIVO software; however, all data needs to be housed on external servers and users need to be online while using the software. As a result, for ethical reasons and logistical reasons, I did not pursue this and this closed my options in terms of locating a viable qualitative analysis software tool that did not require a huge amount of time and financial investment. I was, however, able to analyze my research material using an interpretive method as well as *Numbers*, which is *Apple's* version of Microsoft Excel.

As I began to transcribe my interviews, I made notes, and then notes of notes, reflecting on the data I had transcribed. I developed a process where I would pick something from my notes and generate a free write (1-2 pages) on the subject. Granted, this was not always cohesive, but the process enabled me to extract tangential and marginal information from my mind. I also used categorical aggregation (Stake, 1995) to dissect my notes after all interviews were complete, as illustrated by the tables and charts based on survey data. I was conscious of not counting statements, since the intention of this study was not quantitative. Rather, I wanted to capture the essence of emerging trends and dominant concerns.

However, transcribing interviews into a spreadsheet was not an intuitive process for me. Reading text does not capture the tonality and nuances of face-to-face discussion; thus, listening to the audio files while reviewing my hand-written notes, was much more productive. I enjoyed speaking with each participant because there were certain questions to which they responded with more excitement and, at other times, more reluctance. I often re-played the audio to make sure I had captured the tonality of what was being said. As I listened to all the interviews, I

pulled out the most emotive statements. I wanted to let the emotions drive the stories that are being told. Most of the quotes used throughout this dissertation from my interviews were said with distinct expression: happiness, excitement, pride, resentment, sadness, apprehension, regret, and/or anger. Depending on the topic being discussed, most interviewees expressed all these emotions at one point or another during our conversations; I also noted body language, and nuanced expressions such as sighs, short intakes of breath, and indirect eye contact. Such were the drivers that inspired me to consider affect as an overarching narrative in this work.

3.6. Producing the film: *Limbwalkers*

In order to showcase some of the narratives captured in my doctoral work to a broader audience, I chose to produce a short documentary film, called *Limbwalkers*¹². My personal motivation in creating a film about field arborists was to raise awareness about the important work being done in urban forests and to create an opportunity for arborists to share their own ideas and perspectives about their work and about their relationships with trees (see Appendix IV for film release form). I have a strong sense of obligation to the people I am representing and I am very thankful to all the arborists who agreed to be interviewed on-camera and to share their stories and insights about the industry.

This film has been in production for almost two years. I chose film as the medium because it can reach a broader audience, particularly due to the nature of the imagery currently being explored. Since the output is multi-modal, this is important to continue for future research. Given that my research interests are situated within a political ecology framework, some of the stories in the film deal with the dominant narratives (e.g. identity and language). This is further discussed in Chapter 4.

¹² To view the trailer, please visit: <http://vimeo.com/adrinabard/limbwalkers>

The main challenge in the production of the film was financial. The only funding source was my personal student income from the Faculty of Environmental Studies at York University. Needless to say, applying for funding for this film was arduous and elaborate. Having personally absorbed all the research, travel and overhead costs, the estimated breakdown of funding allocation was as follows: research (\$600); production (\$3100); honoraria or stipends for participating arborists (\$1000); post-production costs (\$4000); marketing and disseminating research results of overall findings through various networks (\$1300). See Table 3.1 below.

Table 3.1. Budget for *Limbwalkers* Documentary

Item	Cost
Research	\$600
Production	\$3,100
Personnel: Honoraria for arborists (participating in the film)	\$1,000
Promotion and administration	\$1,300
Post-production	\$4,000
Total estimated expenses	\$10,000

Much like applying for employment, success for funding can depend on the pool of competitors, however, by not receiving funding for this project, it only validated that the human and social aspects of urban forestry workers is not prioritized. I also applied to the Canadian TREE Fund, without success. Finally, Jim Skiera, Executive Director of the International Society of Arboriculture, after hearing my presentation at the 64th annual ISA Ontario Chapter Conference in Niagara Falls on February 14th, 2013, asked me to apply directly to ISA International. Moving forward, the production schedule has been delayed due to financial constraints. I intend to have an invitation-only focus group with guided questions after an initial screening before the main release and final cut of the film. I am aiming towards a submission to the *Canadian Labour International Film Festival*.

3.7. Producing the photography collection: *ArborEscapes*

Similar to my motivations for producing a film, I have also been producing a collection of photo essays with three other photographers. The goal of the book is to communicate visually, through framing and post-processing techniques the various nuances and tensions in urban forest landscapes; the focus is on treed places - toying with concepts of natural and manufactured spaces for aesthetic appeal of functional services. Post-processing images and using techniques such as structure, contrast and saturation to emphasize different aspects in the composition. Some of the images are also freeze-frames from the documentary – these are not as high-quality still-shots, but evocative nonetheless given the unique perspective of the camera. In early 2011, I circulated proposals to several publishers to no avail. I am happy to say that our team of photographers has agreed to self-publish this book in the coming year.

4.0. Shaping identities: Influences of metaphor and language

Words are but symbols for the relations of things to one another and to us; nowhere do they touch upon the absolute truth. – Friedrich Nietzsche



Figure 4.1. Julian Ambrosii. *A Day in the Climbing Life: Humber Woods*, (2013), photo. Source: Julian Ambrosii, 2003.

4.1. Introduction

My first narrative explores metaphor as it relates to identity and examines how this impacts arborists' self-awareness. Using discourse analysis from semi-structured interviews with field arborists in Southern Ontario, and drawing on details from participant observation, I examine how metaphors: a) cultivate identity constructions; b) imbue/permeate identity influences; and, c) propagate identity paradoxes. Language is any method of communication - it can be reflexive and inherent, it is not only spoken words, but gestures and nuance. For the purposes of this chapter, I am using the term *language* to refer to verbal and written utterances that ultimately form a culture of understanding around a particular field of study or

profession. Inspired by Larson's work on sustainability metaphors (2006), I argue that (the use of) metaphors in urban forestry must be used with caution. Language is dynamic and terms are often adopted, branded and contorted depending on the intended use, which is sometimes altogether unintentional. We need to recognize this and redefine these terms if, in their common conceptions and uses, they do not serve accurate representations. As such, this chapter provides a close look at: a) the metaphors that shape the culture surrounding field arborists; b) how such metaphors constrain the way in which worker identity is understood and experienced; and, c) divulging some of the paradoxes surrounding representations of arborists in popular culture. This chapter reveals how language and metaphor are powerful tools in shaping our concepts, biases and contentions about urban tree places and the people who care for them.

4.2. Background

Foremost this chapter is largely influenced by the notion of social constructionism and the impact of cultural and language constructions on urban nature, and by extension, urban forestry field workers. There are two basic social constructionist arguments: The first is that we only know and recognize nature through "culturally specific systems of meaning and signification" (i.e. through *our* history, gender, society, ethnicity, language); the second is that nature is continually fabricated, shaped and redefined materially for economic gain and social power (Castree & MacMillan, 2001). On the one hand, the social construction of nature refers to the constructions of our concepts of nature, and on the other, it refers to the process of constructing nature physically and materially (Demeritt, 2002). Because of this, we often think of urban spaces as manufactured landscapes that are designed, confined and manipulated; urban trees and forests are social and cultural constructs (Latour, 2004). Soper (1995) also proposes two ways in which to consider the construction of 'nature': The 'culturalist' perspective and the 'realist' perspective. The culturalist perspective presupposes that humans have a specific character, a specific nature that is true, authentic and particular to their *human*

culture. In the realist perspective “nature refers to limits imposed by the structure of the world and by human biology upon what is possible for human beings to be and do” (p. 34). Constructions of nature debates are varied and have conflicting points, however, both constructionist perspectives are human centric.

4.2.1. Cultural conduit and filtered experience

Given that each individual brings the weight of their own history, culture, gender and society into any perspective taken, narrative told or decision made, the various lenses through which we perceive and experience nature are endless. As Proctor puts it: “There certainly is a nature “out there,” but we cannot say anything more about it without relying on human modes of perception, invoking human conceptual apparatus, involving human needs and desires - in short, when we speak of nature we speak of culture as well of the meanings we attribute to nature” (Proctor, 2001).

Our experiences toward nature are defined and shaped by how we are taught to connect with or view nature, for example, through media, literature, poetry and cinema (Cronon, 1996, p. 55). In his article, *The Trouble With Wilderness or Getting Back to the Wrong in Nature* (1996), Cronon illustrates this through visiting the historical narratives through which “wilderness” was constructed. It is learned behaviour through a filtering of thought processes and information we are bombarded with through our lives. For example, being in a forest at night *should* make you feel scared due to unforeseen threats. Yet, romanticizing nature as a liberating power, experience or way of life outside of cultural norms or practices, is in itself counter-intuitive, irrational and dangerously narrow-minded (Soper, 1995); on the one hand it presupposes our distinct separation from “other” nature, and on the other hand, it encourages the alienation and condemnation of those individuals who do not conform to social norms.

Culture encompasses material production, symbolic systems and most importantly sociological differences such as ethnicity, religion, history, ethics, identity, gender, language. Culture is defined as an integrated pattern of human

knowledge, beliefs and behaviour whereby we share attitudes, values, goals and practices - it is our capacity for symbolic thought and social learning (Alfred & Corntassel, 2005). Who we are, as individuals, partly defines how a culture is composed, constructed, and internalized. Alfred and Corntassel (2005) state that “*Identity choices are made by individuals as they respond to social, economic and political influences around them.*” Thus, the role of culture and formative conceptions of nature are interconnected. The production, interpretation, evaluation and consumption of nature are learned behaviour that differs between societies and over time (Macnaughten & Urry, 1998, p. 19-21).

One of Cronon’s most resonating theories is his emphasis on narratology. He highlights that it is people who construct narratives or *parables* around nature to make sense of the world around and within us (Cronon, 1996: 50). In all instances, we attach meanings and morals to experiences to better understand ourselves and our relationship with the natural world. Nature is constantly (re)defined and represented socially, culturally and scientifically through invisible, yet rational filters. These assumptions are contextualized through our individual and collective histories, geographies and cultures. Our perspectives on the natural world are determined by preconceived notions which are shaped by our time and our place in society. One of the principal and formative ways in which we do this is through language and more specifically, metaphors.

4.2.2. Language

Language is arguably the most important aspect in the cultural melange that cannot be ignored. As Braun and Wainwright (2001) describe, Swiss linguist, Ferdinand de Saussure instigated the concept that language and meaning cannot be separated; that there is always a *signifier* and a *signified*. Discursive constructions typically take the ‘role of language in the construction of social reality’ into account; they infer that we are and *always will be* constrained by the limitations of language and as a result may never know what nature actually is in and of itself, only that it exists (Demeritt, 2002). This concept is particularly relevant to urban forestry when

discussing multicultural environments and multilingual populations grouped together in urban areas.

For example, the dichotomous relationship between *social agency* and *nature's agency* has been widely debated (Jones and Cloke, 2002). Yet, the language that has been used to discuss agency is confusing. Given that *social* is used as an adjective and *nature* is a noun, the way these two seemingly opposing concepts are presented creates its own dichotomy. If we considered the term *Society's Agency*, there is an immediate connotation of ownership. Why, by using the term *Social Agency*, do we attempt to convey a timid modesty here, unbecoming of our anthropocentric tendencies for undervaluing *nature's* agency. The problem this presents, however, is that language influences how we think (Deutscher, 2010). I propose that we begin thinking about using comparable terminology to avoid confusion. For example, *social and natural* or *nature's and society's* - this language more clearly illustrates the dichotomy that the concepts are attempting to present.

Perceptions and observations have multiple dimensions as language serves to describe various characteristics and communicate meaning. As a more obvious example, a photograph exhibited in colour as opposed to its grayscale version invokes a different emotion or feeling; this communicates a completely different message than its colour counterpart; the same image, displayed differently (whether by the colour palette or texture) resonates differently. Language, as a vehicle, operates in the same way, particularly in the age of emails and texting, where the awareness of nuance is less obvious in the choices made when using words and metaphors. Generally, there is a lack of consciousness with respect to the inferences and causal relationships that choices in diction make with our brains. Most people do not analyze or consider the way they use words in casual communication.

Language is powerful; it can create imbalances in understanding, interpretation, meaning, and resonance. In addition, the knowledge of multiple languages allows us to think differently, in more depth and breadth; yet, there are many gaps and leftover words without translations and concepts that cannot be properly explained across cultures (Deutscher, 2010). This presents its own set of

challenges and opportunities with respect to urban forestry and close-knit multicultural environments in Southern Ontario; however, due to the scope of my research, I will not be addressing this in my dissertation, but offer it as suggestion for future research. It is important to note that some scholars are also looking beyond the impact of language, to affect and embodiment (Jones, 2014), but for the purposes of my dissertation, I am focusing on language, particularly metaphor and how it shapes collective and individual identity in urban forestry field workers. In addition, the language surrounding urban forestry as a field, contributes to identity constructions: Van Herzele and Aarts (2013) state:

In this case, the institutionalisation of urban forest discourse - and its subsequent translation into numerical targets, maps, budgets, regulations, etc. - has led to a formalisation and standardisation of discourse. The discourse gradually became enclosed within the formal structure of institutions, including its sets of rules, competences, procedures, techniques, vocabularies, etc., which ultimately limit or condition the possible ways of looking at a problem or situation (Van Herzele & Aarts, 2013, p. 63-81).

4.2.3. Metaphors

Metaphors are linguistic tools and conceptual associations used for description and illustration; they make relational connections and affiliations. We use metaphors daily to conceptualize and understand our surroundings. For example, language around education relates to *building*: “students need a firm *foundation*” (Hurley, 2012). Yet, in some cases, metaphors can be misused, contributing to poorly established forms of meaning. Larson (2011) argues that ill-considered metaphors used over time for environmental sustainability have negative impacts for our future. His exploration and critique of language and use of metaphors in science reveal an evolution toward capitalist and fear-mongering tendencies that shape societal consciousness. More specifically for this chapter, metaphors, as linguistic tools, are central to the production of knowledge (Lakoff and Johnson, 1999; 2003); thus, they create a hegemonic language that precludes other ways of seeing urban forests and their communities.

Drawing on Larson's work (2011), while reflecting on my interviews, I became interested in exploring the narrative of metaphors in urban forestry discourse and how its consideration is largely missing. Metaphors are a reflection of how we think and interpret our surroundings (Lakoff & Johnson, 1980). Many people today become emotional when speaking about their ties and connections to trees and tree places, but what about the people who actually work with those spaces? How does metaphor shape and influence urban forestry practice and its practitioners? The urban forest is living, breathing, moving, evolving, and constantly changing – how we consume a space is largely influenced by how we think about that space based on lived experiences and learning. As interviews revealed, metaphors shape, construct and influence identity for urban forestry workers. Given the importance of language in understanding culture and analyzing self-identities, I was keen on determining *how* particular metaphors, used to describe arborists, shape their own self-awareness and identity.

The mainstream literary metaphors pertaining to arborists are Don Blair's¹³ Oak Men and Euc Men (1993). The iconized Oak Man and Euc Man were first created to reflect the differences in tree workers: some were "rough", "tough" and thought with their chainsaw first, but highly skilled (i.e. the Euc men) and the others were more refined and considered preservation and aesthetic pruning before taking severe action (i.e. the Oak men). Both groups are necessary, knowledgeable and work towards a common goal to care for treed places, though no one is purely one or the other: "*Most are Euc with Oak tendencies or Oak with severe Euc tendencies*" (Blair, 1993: 7). Blair goes on to say that:

Euc tendencies are important. They are the guts, grit and determination that provide the 'fire in the belly' that fuels the confidence and toughness necessary to get through many of the days that we have in tree work. Euc fuels the innovations that have enabled many of us to attempt the impossible with next to nothing. Euc wades through poison oak to rescue a dropped pack of Marlboros. Oak is the soul and conscience of the profession. Oak

¹³ Don Blair is a Consulting Arborist in Hagerstown, MD. His book, *Arborist equipment: A guide to the tools and equipment of tree maintenance and removal* (1995) is considered a very important contribution to the roots of arboriculture.

built the ISA Research Trust and the rode bicycles for all those painful miles of the first Tour des Trees in 1992. The Euc counterpart would have been a run on Harleys. Oak dreams the dream of what arboriculture could be. Euc is what it is. The Oak and Euc of arboriculture provide the balance and equilibrium (Blair, 1993: 7-8).

Given these romanticized images of forest workers, I wanted to explore what urban forest field workers thought of themselves, what they thought others thought of them, and these literary personas that depicted a sort of arboricultural heroism. After conducting interviews, these reflections begged the question, why have more contemporary metaphors, in Southern Ontario, fallen so far from the tree? (pun intended).

4.3. Results and analysis

...Metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature. The concepts that govern our thought are not just matters of the intellect. They also govern our everyday functioning, down to the most mundane details (Lakoff and Johnson, 1980, p. 287).

Given that the culture of urban forestry and within that, arboriculture, varies among municipalities, provinces, states and countries, it is important to note that the US is further along in the recognition of this field, largely due to the International Society of Arboriculture (ISA). The ISA has been the primary organization to construct public awareness about arboriculture throughout North America, Europe and more recently in South East Asia. They have contributed to raising the profile of the industry and continue to be a major source for arboriculture education and certification (see Chapter 7).

Before inquiring about worker identity and self-reflections, interviews began with examining the urban forest as a whole to determine how field arborists spoke about the urban forest as a place of work. For many participants the motivations for getting into the field played a large role in how they perceived the urban forest;

these perceptions changed over time. Many respondents spoke reverently about the trees as living organisms (see Chapter 6 for discussion on agency), and others admitted to feeling at home outdoors in the open air and elements. Despite the construct of my inquiry (i.e. at once wanting to understand perspectives, but then phrased in such a way that framed the urban forest as a separate space), some participants admitted that they did not see the urban forest as a different place (i.e. a place of work) some saw it as an extension of home, or being close to nature and tending their community. Many office workers say that they cannot wait to get outside after a long day inside - there is a negative and confining feeling about that space. However, in contrast, not one participant in my study felt the need to remain indoors after a long day working outside.

When asked: Why arboriculture? Respondents were emotional and passionate. Most responses included memories of childhood and various cultural ties to specific trees or greenspaces. Everyone's reasons were different for getting into the field but not one interviewee indicated that they would want to do something else. When asked: What do you like most about being an arborist? Responses ranged from: "my love for trees", "the challenge", and "the adrenaline rush." In all cases, this question invoked an emotional response. However, interviews revealed that current metaphors cultivate identity constructions; permeate identity influences, and, propagate identity paradoxes. The following sections will explore these notions. Drawing on ethnography and discourse analysis, I attempt to explore some of the metaphors used to describe tree workers, and reveal how participants have been impacted by their use in urban forestry practice.

4.3.1. Cultivating identity constructions

ARBORIST — An expert in the care and maintenance of trees and includes an arborist qualified by the Ontario Training and Adjustment Board Apprenticeship and Client Services Branch, a certified arborist qualified by the International Society of Arboriculture, a consulting arborist registered with the American Society of Consulting Arborists, a registered professional forester

or a person with other similar qualifications as approved by the General Manager.

(Source: http://www.toronto.ca/legdocs/municode/1184_813.pdf)

Interviews revealed that the effects of language (mis)use have contributed to shaping collective and individual identity in urban forestry workers. To begin, I wanted to see how arborists self-identified in this work. The above definition is taken from the City of Toronto's municipal code. It is inclusive of all types of qualifications for tree workers; yet, in examining this definition, it is clear that there are no clear guidelines or designation as to what "an expert in the care and maintenance of trees" is. Interviews revealed that much of their time with prospective clients is spent explaining what the term "arborist" means, as one participant shares:

'Arborist' is no longer a respected term for some people. Any tree cutter can take the ISA exam and become a "certified arborist." Even if the public cared to ask, which they don't most of the time; it makes them look professional but it doesn't always mean anything.

This sentiment was echoed throughout many interviews. Participants felt strongly that the lack of awareness and misguided stereotypes were driving negative impressions. The term "arborist" itself proved to be non-intuitive for many participants and their feelings about how others viewed them; the term did not often resonate with clients:

They ask: You're a what? An arsonist?! Most people don't know what an 'arborist' is - the word needs to be used more (Interviews, 2012).

There is a lack of integrity in the language being used and interviews revealed that it is causing discomfort among workers and confusion for homeowners. Many participants explained that clients may often express interest in having a tree removed, but that they do not want an "arborist" so they can avoid a large cost. Thus, on the one hand, some people do not know what an arborist is, and on the other, it carries unfavourable connotations that they are either uneducated or

too expensive. There are layers of complexity in how the language barriers, misconceptions and misuse impact how field arborists see themselves in their work, and in the broader fabric of urban forestry.

4.3.1.1. “Arborist” vs. “urban forester”

Interviews revealed that arborists and urban foresters serve different functions in and for the urban forest. More often than not, interviewees revealed that these terms were used interchangeably if at all, given the limited understanding and recognition in the general public of both urban forests and tree work (Interviews, 2012). To be clear, these are different specializations; within the profession, there is a distinction between “urban foresters” and “arborists”. Where *urban foresters* typically deal with long-term planning at the landscape level, policy development and overall management, *arborists* deal with operations and consulting on individual tree-related issues. As one participant eloquently describes:

While arboriculture often times focuses on individual tree or site care, urban forestry often takes a much broader scale in terms of resource management. Arboriculture usually focuses primarily on the skills and knowledge of private commercial companies while urban forestry requires the input and resources of local, state, or federal governments. In general, urban foresters focus more on planning and management and arborists focus on plan implementation or operations. This distinction may seem trivial but in reality it makes a large difference on how questions are asked (i.e. how management priorities are set), what resources are available to address those questions (e.g. human and fiscal), any political barriers to solving the problem(s), the scale of management (i.e. the proportion of the resource being managed in a given community), and how the value of trees is defined by a community. It is obvious that urban foresters and arborists interact and overlap, but illustrating to the general public that the resource is important enough to have various levels of professionals provides complexity to our fields and highlights the inherent value of the urban forest resource itself (Interviews, 2012).

This statement also reveals that field arborists do not self-identify as "urban foresters" per se. They call themselves "arborists" and many feel very strongly about using proper terms to raise the profile of arboriculture. In addition, some participants raised the issue of their trade being associated with a certain social class in the eyes of the public - where being *labeled* an urban forester was thought to be more prestigious than being labeled an arborist.

Of late, the language around urban forestry focuses on curbing insects (e.g. Emerald ash borer) and natural disasters (e.g. ice storms) and overall planning for and damage control. Language constructions also include concepts such as "green infrastructure," a term that has become as popular as "sustainability" to move political agendas forward. Similarly, the language constructions around arboriculture focus on "risk assessment" and "hazard tree abatement" of individual trees within the urban forest that make up the whole. One participant stated: *"If we continue to use language like this then we're sending the wrong messages"* (Interviews, 2012). Language is very important. Language can entice and inspire, but it can also confuse, mislead and oppress. It was interesting to see how my interviewees situated themselves in this dialogue – how they spoke about themselves and about one another.

4.3.1.2. With whom do field arborists self-identify?

I don't even like being called a climber. A climber is not an arborist. A true arborist is more of a journey than a destination - somebody who is still working on stuff (Interviews, 2012).

To first address this concept, I wanted to explore how field arborists saw themselves in the urban forest. Given the way in which interviewees described their jobs, the implicit comparisons were akin to firefighters (danger/athleticism), and parents (nurturing). First, participants described themselves as **environmentalists** and activists who love trees and want to nurture them. Studies have shown that this type of reflection or analogy is not uncommon in forestry workers but has many complexities with respect to employment, class and economic drivers (Dunk,

1994b). Some participants described in detail that they were “*minimalists*” in the trees, preserving everything possible and only taking out what is necessary; they saw themselves as having a major role in “*front-line nature conservation*” – and they were quite proud of it, but they also described how this sense of pride came over time. This concept is an interesting contrast to the fact that arborist work sometimes involves cutting trees down. The term “tree hugger” came up in these discussions and one participant stated:

I hate ‘Tree hugger’ - there’s a certain stereotype with ‘tree hugger’ and I don’t feel I fit that mold...” (Interviews, 2012)

This quote echoes Dunk’s argument about the complex components that are often overlooked in the environment/labour debates surrounding forestry in Northern Ontario. On the one hand the environmental debates commonly advocate for preservation and the labour debates are often seen as opposition due to the nature of industrial forestry (Dunk, 1994b). My interviews revealed that though different in scale, the arguments in urban forestry in Southern Ontario are similar.

Second, many field arborists spoke about themselves as **industrial athletes**. In addition to their daily duties of climbing on the job, activities included participating in regional and international tree climbing competitions as well as recreational tree climbing with friends and family. Their day-to-day performance at work enabled them to stay fit with a competitive edge on colleagues: “*It’s an extreme sport that you’re paid to perform every day. It’s hard work, honest work, and keeps me physically healthy*” (Interviews, 2012). This has many implications to safety concerns - for themselves and the trees (see Chapter 6).

Third, a pattern emerged whereby participants compared themselves to **emergency service providers**. In being self-reflexive in their roles as “*public servants*” providing a service, many participants likened themselves to firefighters. This was not a direct question during the interview process and informal discussions, rather participants more often than not, in attempting to explain to me their own positions, would make this analogy. In some cases this metaphor was used explicitly, in other cases, through language around “*emergency response*” and

“being out in the field” and *“being mostly men”*; this was partially the point of comparison – the level of danger and providing a necessary public service. Given that participants saw themselves in a particular way, it is important to note that the emerging contemporary metaphors did not always reflect these perceptions.

4.3.1.3. Metaphors and (mis)conceptions

When arboriculture first began, tree workers were known as “Tree Experts” or “Tree Surgeons.” These terms actually reflected the practices of the time: such as pruning and cavity filling (ISA, 1999). However, current examples provided by participants, and revealed through a variety of informal conversations, have negative connotations (see Table 4.1). The neutral column is based on terms that have impartial meaning. For example, “lumberjack” and “logger” were not thought of as positive or negative.

Table 4.1 Metaphors revealed by case study participants

Metaphors for field arborists revealed by interviewees		
Positive	Neutral	Negative
tree doctor	lumberjack	weekend warrior
tree surgeon	timber feller	wack-n-hack
tree whisperer	logger	glorified landscaper
tree expert		buzz boy
limbwalkers		Joe Cutter
		tree cutter
		cowboy
		Johnny-bag-of-donuts
		bush monkey

It was interesting to see how my interviewees situated themselves in this dialogue - how they spoke about themselves and about each other. The following examples describe how language has shaped feelings and sense of identity for participants.

In 1901, John Davey, founder of Davey Tree Expert Company, self-published a book called “The Tree Doctor” where he compared arborists to surgeons. This

concept was commonly thought of as ahead of its time and is still used in Europe - it is used as the title for national certification in the United Kingdom. Interviews revealed that the implications for metaphors such as “**tree doctors/tree surgeons**” is that it connotes a positive impression for the industry and its workers. Participants were in favour of this depiction and felt that if this were the common public notion, than the education system would also be better standardized to reflect the rigour the industry deserves (see Chapter 6 and 7). Interviews revealed that in Southern Ontario, the culture of arboriculture has moved away from this positive metaphor.

In contrast, the second metaphor which came up on many occasions was, “**weekend warrior**”. This term in particular was used to describe (would-be) arborists who do not share the values of “true” arborists. In the course of my interviews and field work, I also heard several homeowners refer to arborists as “glorified landscapers”. This begs the question, if arboriculture is not well-known to begin with, then why does the field and its workers have negative impressions? Some participants felt that this was because “in general” the public looks unfavourably to physical labour. The metaphor of “tree doctor” is iconic and echoes Don Blair’s illustration of the *Oak man*. Similarly, the metaphor of the “weekend warrior” echoes the polarized version of Blair’s *Euc man*. The main distinction here, is that the need for both is less apparent. These metaphors shape people’s perceptions and construct a body of knowledge that is sometimes inaccurate and other times, completely valid. Field arborists, who are established, reputable and “true” arborists are concerned with having their reputations tainted by the “weekend warriors.”

Lastly, the title of my dissertation includes the metaphor, “**Limbwalkers**”. When participants spoke about *limbwalking*, they only ever used it as a verb to describe the act of walking along a lateral limb or branch of a tree. It was not used as a noun or metaphor to describe themselves. I intentionally use this term because all arborists, at each stage and every level of their careers traverse a fine line with respect to politics, social and ecological interactions with people and trees. The term

limbwalkers suggests that forest work is not only about executing pre-determined technical skills but a political *thing*. Forest workers' work is political just like their policy colleagues' work is political. Thus, "*Limbwalkers*" is one of the more poetic metaphors I use to talk about arborists – climbers and non-climbers. Limbwalking is considered an art for climbers - but I argue that it is also an art for non-climbers who tend to deal more with politics and must navigate in social/political circles; hence the term can be used to describe walking a fine line (literally and figuratively) for all (see Section 9.0.). I include myself in this discussion given the projects I have developed for the various organizations with whom I am affiliated.

Overall, the professionals involved with these practices have internalized and normalized these metaphors in the way they think and speak about their work. Thus, I wanted to explore narratives that focused on contesting notions of arborists as being uneducated and unsuccessful – notions that are largely untrue based on my research, and perpetuated by an overall lack of awareness about the field, the work it entails and by a lack of professionalization.

4.3.2. Imbuing identity influences

Sticks and stones will break my bones, but names will never hurt me. – G.F. Northall, *Folk Phrases of Four Counties* (1894).

As children we want to believe this; as adults we want to believe this. But at every stage in our lives we somehow know that it is not quite true. Some researchers have looked at the complexity within metaphors and how they can include and exclude (Proctor and Larson, 2005). This section sheds insight into the following question: *How do metaphors impact the way in which worker identity is created, understood and experienced by field arborists, and by others?*

4.3.2.1. Sustaining stigmas of past experiences

It is no secret that outdoor field workers suffer from being treated and looked-down on as 'grunts' and 'blue-collar' labourers; I'd like

to see a 'suit' come out of his air-conditioned office and do what we do (Interviews, 2012).

Interviews revealed that current language and use of metaphors surrounding field arborists and tree care workers, in Southern Ontario, has perpetuated stigmas related to **past lives and experiences**. As an example, some participants, when asked how they got into the field, tended to undervalue their achievements by prefacing their responses with *"I was never really good in school..."*. Or spoke about *"falling"* into the field; which gave the impression that it was not a preferred choice. When explored deeper, interviews revealed that some participants came from broken homes, lower income families and struggled and worked hard to get to their current positions. The use of metaphors that perpetuate negative feelings toward self-worth, undervalues the people and therefore the work being performed; this is a story rarely considered or revealed in urban forestry.

Being a tree worker, has always been a passion for a certain segment of employees in the tree care industry (like loggers, a certain percentage of the population of the rough, tough logging guys who scale trees and cut off the tops – there was a certain number of them who were very passionate) but there was a large segment of those people who were doing it because it was work, and they needed work. And in the tree care section at that time, many tree workers looked at tree care as a job until they found something better - and especially for instance the private tree care sector until they got a city job. In all reality, a lot of them were fun-loving people who had a good time after hours, some of them were pretty heavy drinkers. They were gypsies, a lot of them, they moved around – either from company to company, from city to city or across the country. And they were first and foremost physical people. Because of the way we worked, they were no strangers to taking major chances and major risks (Interviews, 2012).

This excerpt by an older participant reveals that historically, many outdoor forestry or tree workers, took the job because they needed a livelihood; with the hope or anticipation of one day finding government work. This raised the question: *What is the aspiration of every urban tree climber? To progress to management?*

Discourse analysis revealed that this feeling could develop over time as a climber gets older and wants to move away from physical labour because of health impacts. As a counter-narrative, many older participants described leaving the operational side of tree work as though they were grieving a death (see Chapter 6).

The quotes above and below raise a point about the culture of tree work and emphasizes the duality that Don Blair described with his Oak and Euc characterizations. We have to be careful with using certain terms too much considering the connotations that it shapes.

There's a sub-culture in our culture. We work hard and sometimes need to party hard to make it worth while. We've been known to drink and smoke - (pause, looking down) my bones hurt (Interviews, 2012).

Language impacts identity and ultimately how people feel about themselves and each other; interviews revealed that, in general, we are moving from a situation where people are connected to their work toward a situation where physical work is being undervalued through social constructs. This is alarming because marginalization among arborists and workplace dissatisfaction in urban forestry practice are on the rise and can include harmful and self-destructive behaviours, such as drug abuse, alcoholism, harassment of others and by others, and abuse of power (Interviews, 2012). Through my research, it came to light that union support, health benefits and opportunities for sick-leave or addiction clinics are available to municipal and some private sector employees, but those solutions do not tackle other socio-economic conditions, such as the (sub)culture of feeling disrespected, resented and excluded.

Interviews also revealed that negative metaphors influence pride and can foster subservient and self-deprecating behaviour; this is a narrative that is not at all outwardly discussed in urban forestry in Southern Ontario; it may make some uncomfortable given that the urban greening/forestry movement in Ontario is driven by good will and as one participant put it, "*feel good intentions*". Yet feeling undervalued is a persistent and marginal narrative as evidenced by my research.

4.3.2.2. Raising the profile

People don't know what an arborist is. They don't know what arboriculture is. To some people it's crazy. Either people know, or they have no clue (Interviews, 2012).

Urban forests have social and ecological significance; interactions with them: bridge the urban/wilderness divide; they change and shape our perspectives about tree places; allow us to think critically about inclusions and exclusions, conceptually in narrative and physically on the ground; and they promote self-reflexivity and enable us to consider our own positions within our immediate environments. Specifically, it is important to note that the identity of trees (or the constructed identities of trees) is inextricably linked to arborists' identity and self-perception. Interviewees felt that there was disconnect between how people view trees (in the positive light) and how people view trees' caregivers (themselves)(in a negative light). To be clear, all participants took great pride in their work, despite the varied and sometimes contentious terminology surrounding the culture of their work in Southern Ontario; but some felt *un-or-under recognized* (contrary to experiences in the US as described by an arborist on the ISA LinkedIn page in response to seeing my film's preview). One participant shares this story:

I was doing a very large removal of a white pine in a trailer park. It took us a whole day, we had a whole crowd of people watching us. So, we got this thing down – no damage at all, it was perfectly done. And right at the end, the lady walks out from her trailer, which she was under the whole time, she walks out and says: 'that looks like hard work, I bet you wished you stayed in school'. And I just – I did a vibration [fists clenched and shaking to emphasize frustration]; I just got so frustrated that someone wouldn't understand the skill involved in what we just did. Yes, it is physical labour, but just 'cause you do physical labour doesn't mean you're not educated as well (Interviews, 2012).

Studies have shown that urban greenspaces provide many benefits to humans, and it has been proven through sociological studies that urban greenspaces

are also perceived positively by the public (Hull, 1992; Kuo, Sullivan, Colley & Brunson, 1998; Fraser & Kenney, 2000; Schroeder et al, 2006). *Why then do people not place considerable importance on the men and women who are responsible for the care and maintenance of such places* (as evidenced by the story above)? The limitation to my research here is that I did not formally interview a series of lay people about their perceptions – but this is an opportunity for a new in-depth study.

We're seen as beer drinking, rough around the edges. Not as a professional trade. In general, I think we do that to ourselves. There's a lot of room for improving our professional image. The ISA is making good progress. The members have to make those changes also. People are fascinated when we talk to them about the level of knowledge and skill we bring to the table (Interviews, 2012).

Interviews revealed that language surrounding urban forestry and arboriculture in general can be vague and open to interpretation by the interchanging use of syntax. For example, the interchangeable use of words such as: 'standards, licenses, certification' and 'profession, trade, field, industry', makes it difficult to decipher meaning. Participants felt that clarification is needed to standardize the way the industry is spoken about, and one way to do this is to raise the profile from both inside and outside the field. Urban forest discourse analysis revealed that identity influences do not only pertain to field arborists themselves, they can reflect on the trees also, which has an impact on long-term forest health:

Terms like "risk assessment", "hazard evaluation", "liability" - as these gain more importance in arboriculture, people start looking unfavourably to keeping trees on their properties, they start looking at it as something to remove. We need to change the way we talk about trees in urban areas, on private properties. We have to be careful with using certain terms too much (Interviews, 2012).

Participants felt that there is a considerable lack of public awareness regarding the terms: *arboriculture* and *arborist* in general, and given that field arborists are the first point of contact with the general public, interviews revealed that the awareness of field arboriculture needs to be raised. We often think of

Community Urban Forestry as it relates to neighbourhoods or Neighbourhoods¹⁴ (Kenney and Puric-Mladenovic, 2001) – but my research has shown that there is a disconnect in this recognition regarding the urban forest *worker* community? Hence the need for increased education and awareness to foster respect that is fundamentally deserving (Interviews, 2012).

When asked how participants felt the profile of arboriculture can be raised, and legitimized, from inside and outside, the field, interviews revealed the following: using accurate terminology and staying away from metaphors that stereotype; behaving in an appropriate manner on job sites; better marketing and communications through social networking and popular media; better integration in conference collaboration (urban forestry and arboricultural topics); and, new health and safety requirements (see Chapter 5). In addition, seasoned participants shared advice on what they would say to younger arborists starting out in the field, this included: take care in how you present yourself, be professional, communicate and never stop learning. The desire to impart this knowledge underscored the need for better mentorship and apprenticeship which speaks to arborists' roles as educators (see Chapter 7).

Messages that arborists receive through their own newsletters and continuing education are also a point of interest. For example, a recent article in *Arborist News*, using baseball as a metaphor, speaks about “Keeping Your Eye on the Ball” and conducting periodic SWOT (strengths, weaknesses, opportunities and threats) analyses and reflection for business owners. Though an excellent recommendation for internal team building and business growth potential, this recommendation does not contest or consider the external pressures that directly influence a SWOT analysis such as ability and willingness to trust and share, on behalf of employees (see Chapter 5). To be clear, I am not against this type of strategic process – in fact it is imperative, but it is based on broad assumptions about human behaviour. In addition, the use of the baseball metaphor reinforces

¹⁴ A protocol by which neighbourhoods are enabled and encouraged to inventory their own trees.

conceptions of arboriculture as a sport and thus can foster an unintentional spirit of competition that may not necessary be conducive to the very notion of a SWOT analysis and team building.

Finally, participants also raised questions about where they “fit” as technical specialists and how what they do on a daily basis impacts the bigger picture of urban forestry. They are the voice of reason that offers a social likeness to rethink our position and judgment over other species and that can fundamentally re-shift how we think about our relationship with intrinsic nature beyond use and personal gain (see Chapter 6).

4.3.3. Propagating identity paradoxes

It has been said that even bad publicity is still publicity, and yet, understanding some of the dichotomies and paradoxes surrounding representations of arborists in popular culture is helpful in determining how persistent certain metaphors are. On the one hand field arborists feel undervalued by certain portrayals, but on the other hand people are iconizing aspects of tree work (e.g. climbing, trees). This “removed admiration” feeds into an internal struggle of identity; as such, I attempt to provide some insight on the paradoxes of such constructed identities in popular culture and media.

4.3.3.1. Portrayals and mimicry — tribute or identity theft?

While presenting my paper, *Of Arboreta and Arborscapes*, at the McMichael Gallery during the 11th annual Art History Student Association symposium on the Tree (Bardekjian, 2012), I met a group of women who call themselves, *The Arbornauts* (2013). A spin-off, Astronaut-superhero-style, *a la* Captain Planet-gone-Superwoman meets The Jetsons, these women climb trees for community engagement. They have created a uniform and a purpose for their project which began in Fall of 2011 (White et al., 2013). They state that people “naturally” feel the urge to join them on their “adventures for the project.” As a community member I can see the allure to this activity. Their driving question is, *If people want to climb*

trees, why don't they? However, as someone who has known and worked with arborists, this project evoked a hyper-critical pause (with raised eyebrows and reserved mirth). Also, I recognize that given my practicing position in urban forestry, my associations with tree climbing relate to tree work and arborists, although this is not always the case. The thought of climbing trees invokes a sense of nostalgia for childhood; tree climbing resonates with some people, it also inspires. In addition, research has shown that tree climbing can be beneficial as a recreational activity (Gainright et al, 2005).

Yet, when asked what they thought of this project, some participants felt that it devalued not only their position as professionals, but the tree's position as a living organism. Unless specifically building the culture of arboriculture into the project thesis, participants felt this initiative undervalued the fact that there are men and women who do this for a living, and as a living.

An artist can do whatever they want - some of them fly in the face of what is sensitive and what reflects all of the aspects they look at. It's an art form perhaps. But, in my opinion, what it does, is it turns the tree into an inanimate structure that you can attack, you can climb like a building. Because if they thought about it, if you wanted to get in touch with trees, you probably would meditate in front of the tree, you probably would revere it from a distance, you would talk about the fact that all of you walking in the soil you would compact the soil, especially if it had rained the day before. I mean, there's this total lack of true understanding and respect for a tree as a living organism that is going to hurt when you're done. No question about it... putting art in that perspective [of climbing trees], I don't agree with that because you're actually going to use it and you may abuse it or impair it and it's like you don't really care (Interviews, 2012).

Arguably, this type of project may examine the gender division issue in arboriculture (see Chapter 5), in addition, the fact that they wear superhero costumes may make interesting connections for arborists – from my perspective it has great potential in terms of lateral portrayals. Yet, there is a fine line between portrayal and education. Teaching people to climb trees (like Tree Climbing Planet in Oregon), and dressing like super-heroes to engage/remind people in tree

climbing are just glimpses and abstractions into the subculture and nuances of working arboriculture. Representations like this do draw positive attention, and this is a real manifestation of the tension that exists in this identity formation and legitimation (they are almost like illegitimate fringe workers). Yet, in an age where primary experiences with trees and nature are being replaced by abstractions and mediated experience, statistics and information (Turner, 1996), the value of such a project can be contested. This project is naive with its approach by romanticizing and encouraging mythical approaches to something that *is* - because in reality they lack a true identity and a true legitimization. This raised the question: *In the struggle to raise the profile of the industry, are these efforts adding or eroding the professional identity and integrity that is still emerging for urban forest field workers?* To further this dissertation's thesis, there's a need to go back to the original source.

4.3.3.2. Popular media: entertainment and added value?

As arboriculture gains ground in mainstream media and more videos and digital representations enter the public's domain, another area where arboriculture and urban forestry identities are propagated is through popular media, such as television shows. Mainstream television, good or bad, educates, however inaccurately and improperly, the general public. Reality shows, like *Ax Men* (2008), are variations and highly dramatized interpretations contorted for shock-value. This "reality" series follows four logging crews across the Northwestern United States and highlights the dangers confronted by the workers and portrays their lives in highly dramatic situations. Interview participants felt that these shows, although entertaining, did not showcase the human sensitivities and sensibilities to trees which arborists employ. As one respondent states: *"What makes good television is stuff going wrong. And the truth is that if you do a good job and respect the tree, things don't go wrong all that often"* (Interviews, 2012). These shows, to an unknowing and unsensitized public, distort perceptions and feed into the negative stereotypes that perpetuate the stigmas of negative metaphors. On a recent episode of the Rick Mercer Report (October, 2013: [62](http://www.youtube.com/watch?v=4CW-</p></div><div data-bbox=)

[FTtAHCE&feature=share&list=UUt3Ag7rdgR6mtzOMEhd_v6g](#)), Rick Mercer visits Kingston, Ontario, for the 2013 ISA Tree Climbing Championship. The episode is “tongue in cheek” and meant to highlight the excitement and dangers of tree climbing while Mercer, in the middle of it, is the object of humour and ridicule. Even though the episode is intended to be informative, I’m not sure that this was necessarily a positive portrayal. Lastly, in the news, often the only time we hear about arborists is when there is a “natural disaster” and trees are considered an “obstacle” due to fallen limbs (see Chapter 6 for further discussion on this). Thus, popular media propagates the identity of urban tree workers and either romanticizes them, or vilifies them depending on the current *tree climate* in the media - this type of portrayal also seems to vary seasonally. For example, during the spring and summer months, trees are beautiful and necessary for shade, so cutting is wrong (i.e. vilifying arborists); but during the winter months, when trees are a nuisance (autumn leaves, snow load and ice storms), the desire to cut them down is overwhelming (i.e. arboricultural heroism to the rescue!). Yet, in both instances these polar representations temper the undertone of needing to manage and maintain trees in urban environments.

In another example, *Men In Trees* (2006-2008) was a fictional series that promised some insight into forestry workers, by the title, description, trailer and poster board (Figure 4.2). Unfortunately, the show had nothing to do with this. It focused on a writer attempting to make a living in Sitka, Alaska. The inclusion of foresters or any industry insights was marginal at best.



Figure 4.2. *Men in Trees*, TV series, (2006-2008), poster.

In popular television of late, many shows revolve around crime drama. Networks produce and air these shows because there is a demand for them. The creativity is in the angle and writing, like most entertainment. The current trend in crime dramas is the inclusion of an eccentric expert who helps a national or local authority fight crime. Examples include: *The Mentalist* - where the lead character is a hypnotist working with the police department; *Elementary* - a modern spin on Sherlock Holmes; and *Perception* - where the protagonist is a paranoid schizophrenic neuroscientist/professor working with the FBI. I do not know if bringing urban forestry and arboriculture into popular media is the answer, but given the interest in environmental awareness, I wonder how a series revolving around an urban tree expert working with authorities to help solve environmental crimes, would raise the profile of arborists, raise awareness about the profession, shed insight on the intricacies of the work and perhaps identify areas in need of policy development - not unlike ISA's "Detective Dendro®" (2004), a mystery podcast that deals with dendrology issues (<http://www.isa-arbor.com/education/onlinelearning/podcastDetail.aspx?ID=4>).

In recent years, there have been short independent films that have been circulating through social media to showcase different aspects of arborist life. These include: 1) *The Arborist* by Make Productions (November 6, 2013: <http://www.youtube.com/watch?v=cUjn615NSc0&feature=youtu.be>) which won

first place in the short film competition at the 2014 Films for the Forest. With over 6000 views on You Tube, this film follows the experience of an arborist and deals with overcoming childhood fears. 2) *We are Arborists* by Florim Ajda (May 4, 2014: <https://www.youtube.com/watch?v=tCoCNP3S9Kc#t=82>) is cinematically beautiful panning a multitude of trees throughout the film to voices of arborists stating their names and repeating the statement, “*I am an arborist.*” In response to the film on social media, one viewer writes:

I listen to their voices and think, how is it I can be asked several times a month by people what an Arborist is? or be told they don't know what one is. I think that's part of the point here, we are part of a global movement not just an industry - where a large majority of professionals take passion for their work very personally... Arboriculture is about making a difference and feeling great about that. – online comment by Concordia Tree Care Inc. (facebook page: <https://www.facebook.com/ConcordiaTC>)

This film showcases that language and simple, accurate messaging is imperative to identity. 3) *Working Man Blues* by August Hunicke (May 5, 2014: https://www.youtube.com/watch?v=a-Sl7Ja5840&list=UUSSqc6uBFz_yx-LBrjyRrvw) is about the challenges of raising a young family and balancing such a physically demanding job. With over 4000 views on You Tube, and scored to the song “*Cat’s in the Cradle*” by Harry Chapin, this film deals with the reality of family life, and the challenges that many of my own participants’ experiences echoed.

Finally, I have personally attempted to contribute to popular media by producing a short film, *Limbwalkers*. Documentaries are vulnerable because the truth of the story is entirely subjective; many people have a different idea of how that story should be told. The more polemical the subject matter, the more criticism it will incur – I had to come to terms with that. It was a learning curve to have my project, with all its good intentions lay open to criticism, but the comments were very helpful in moving forward and guiding development. Upon releasing the preview, I have had very positive responses from the arborist community. Yet, I also became conscious that the visual narrative we were portraying needed to be equal to the soundbytes, and that the overall stories of visuals (without audio) was

accurate/indicative of tree work performed by arborists (i.e. more pruning and tree care, rather than spurs and removals). For example, in the composition of the clips, it was brought to my attention that it was not apparent why the trees needed to be removed; as such, I learned that viewers need the context of the visual imagery otherwise the negative image of arborists as 'tree cutters' would be perpetuated - and this was the last thing I wanted. There was one response on the ISA LinkedIn group, that made me think about the cyclical struggle with which we are contending in terms of messaging:

If we want to raise the level of the tree worker role as a profession, we need to promote proper practices, and show people doing the work are learning and caring for a valuable community asset. Increasing the public's knowledge of industry standards, and don't hire substandard workers, are stronger messages than the apparent insignificance of the treeworker. If the trees are valued, the people that care for them will be valued. If trees aren't important, neither will be the people that care for them. – arborist on ISA LinkedIn Group, 2013.

This person makes a good point regarding stories and messages. Keeping the audience in mind (i.e. a general public), the motivation behind the film is to contend with several of the points mentioned; though it is important to also note (and to remind myself) that one short (unfunded) film can only deal with so many storylines. The last point - that if trees are valued, than their caregivers will be valued, is compelling, albeit idealistic. This begs the question: *how much does the general public actually interact with trees?* Children climb them, but then what? Raking their leaves in the autumn and looking at their beauty the rest of the year. Trees are not like flowers and garden patches; the public does not necessarily tend to, or care for the trees in their yards the way they would a vegetable garden – trees grow by themselves so there is little opportunity (or perceived awareness) to create an intimate link with trees even if they are all around us. Thus, people who are not in the industry or who have never been exposed to tree work, can have difficulty relating to the intricacies of the work involved in tree care, and so making informed decisions about which experts to hire may not resonate, even if they (the homeowner, or potential client) are somewhat educated about standards. It has

been attested to, during interviews, that more often than not, jobs were lost to lower bids/estimates, despite concerted attempts by arborists at explaining best practices, even to seemingly educated homeowners. Yet, people can relate to people - their motivations, their passions, their relationships with colleagues, their respect for trees. As such, seeing trees through the eyes of arborists can also help raise the awareness about trees themselves: I believe that these narratives are related.

4.4. Implications

Political ecology wrestles with a variety of arguments including the diversity of environmental perceptions. Language constructions influence how we interpret our surroundings, how we perceive other people and traditions, and ultimately how we behave, interact and form policies. More importantly, to my research, they play an integral role in urban forestry. In this chapter I have explored the commonly consumed metaphors that surround field arborists in Southern Ontario, and how workers feel about these constructions and representations. I also explore narratives that focus on contesting notions of field arborists as being uneducated and unsuccessful – notions that are untrue based on my research, and constructed by stereotypical metaphors and by an overall lack of awareness about the field and the work it entails. Overall, my concerns stem from adding sociological significance to a field largely associated with technical prowess. Understanding language constructions has tangible implications for broader urban forest communications and development (management, planning, education).

Finally, in the context of not being regulated (and advocating for this change – see Chapter 5), one of the comments from my interviews that stuck out for me was, *“We can do so much damage.”* Although this statement is simple – that ultimately an arborist with his tools can damage a tree – there are certainly complex implications that can be further explored. This statement permeated all the narratives that I worked with on different levels. I contemplated this sentiment for a long while given the implications this self-awareness has on urban forestry workers, practice and trees themselves.

If language constructions and metaphor influence identity and thus pride, then this statement is very powerful. It stayed with me through each of my chapters when considering: 1) emotional reflections and nuance in language constructions; 2) professional liability in the politics of labour; 3) physical manipulations and the long-term (hidden) impact of operations; and, 4) knowledge differences and the implications for green places. My intention is not to impress that social sciences are an answer in a top down manner, rather that the importance lies in weaving together social and applied theoretical considerations.

5.0. Contemplating labour: Arborist perspectives

Trees are living organisms; they grow, get old, decline, and eventually die, and our collective responsibility is to balance pragmatism, with a willingness to promote and defend high standards of professionalism. – Julian Dunster, Arboriculture and the law in Canada, 1995.



Figure 5.1. Arborist sitting atop a removal in progress: Toronto, Ontario, photo. Source: Adrina Bardekjian, 2010.

5.1. Introduction

My second narrative explores how arborists negotiate their work environment, including the pressures of policies, the labour market itself, technologies, government regulations and lack thereof, and the non-human agencies with which they are confronted. The political climate surrounding urban forestry in Southern Ontario influences and governs operations and physical labour. At the root of this story is that there are many (f)actors and conditions (both external and internal) surrounding fieldwork in urban forestry and that these affect work and personal lives. The questions guiding this chapter include: a) *How do various*

political and labour conditions impact arborists' sense of pride, independence and skill?; b) What are the social and labour divisions within the culture of arboriculture?; and, c) What is the lived experience of urban forest workers, their employment, and what is it like to be a frontline worker? This chapter provides a closer look at licensing, work conditions, subcultures and social dynamics, and the experience of women in urban arboriculture. Using accounts from semi-structured interviews with arborists across Southern Ontario and by examining field arborists' activities, relationships with co-workers and working conditions through participant observation and ethnographic field notes, I explore and reveal how arborists feel about their working environment and the labour processes and people who oversee and surround them. Findings reveal that despite dehumanizing (f)actors within the field, there are elements of resistance and negotiation, and potential for an alternative future.

5.2. Background

The urban forest includes many physical/ecological, conceptual and political considerations with the interesting questions grounded in accountability and ethics. The layers that comprise *the urban* involve the biophysical (i.e. air, soil, terrestrial, water) and human (i.e. economics, demographics, health, housing, socio-cultural) environments. The urban forest can be separated into two immediate geographic transects: urban and peri-urban. Within these two delineations there are two main political transects: public¹⁵ and private¹⁶. There is a third transect where the borders may not be as clear; the agencies, boards, commissions and divisions (ABCDs) – these can include schools, transit, health and community centers. These political transects impact considerations for ownership, management, policy, maintenance and education. Many cases and controversies can be drawn on that

¹⁵ The public or government-owned areas of the urban forest include parks, street trees and any greenspace around government buildings.

¹⁶ The privately owned areas include backyards, courtyards (e.g. in apartment complexes), and businesses.

directly illustrate the contentions between the geographical and political transects, their imbalances, inequalities and disparities.

Political ecology raises questions about environmental justice, conflict and marginality; it deals with how land, and people are often displaced and disenfranchised. Examples in urban forestry include greenspace distribution and public rights of access such as Heynen's work on *The Scalar Production of Injustice within the Urban Forest* (2003) and Mark Whitehead's *The Wood for the Trees: Ordinary Environmental Injustice and the Everyday Right to Urban Nature* (2009). Although their work does not deal with arborists specifically, their overarching arguments impact arborists' work.

After exploring the literature of political ecology, and applying it to my experience in urban forestry, it became clear to me that an exploration of power holds the answer to why there are contentions regarding the sustainable management and effective policy enforcement in urban forestry. Much like how the social constructionists ascertain that every perspective is human-centric (see Chapter 5), the landscape of power polarizes urban greenspace (Mitchell, 2002), and the urban forest, in turn, reflects changes in power structures and relations (Konijnendijk, 2008). This leads to questions of social equity and how this impacts the use and abuse of managing natural resources in relation to attitudes and practices toward urban green infrastructure, such as urban trees, parks, courtyards, school grounds, cemeteries and peri-urban woodlands. In addition, how people experience their physical spaces is guided, governed, influenced and manipulated by political and economic processes (Heynen et al, 2006). Arborists are the frontline workers in urban forestry: *What are the social implications of such a (dangerous) job?; How do arborists see the urban forest?; Do they agree with the policies and politics of urban forest decision making that they are often implementing?*

Michael Dove¹⁷ (1994; 1999), in his work on traditional foresters and the forest industry, argues that the people working within the confines of an industry or

¹⁷ Michael Dove is an anthropologist. The questions he poses in these studies (1994; 1999) are particularly relevant to urban forestry and arborists with respect to marginal worker communities.

government (i.e. foresters working for the Ministries as civil servants, rather than farmers in producing communities) are often overlooked by scholars and ethnographers as possibly having opposing voices. Robbins (2004) explains that *“their official context constrains their imagination of the world in a specific way”* (p. 211). He goes on to state, that:

...careful exploration of the social life of foresters reveals that they are often poor people, in marginal economic positions, with peculiar local ecological knowledges, situated within confined fields of agency by socio-economic structures of environmental control and power, all within conservation discourses promulgated by distant elites (Robbins, 2004).

The results of my study show that the same can be said about arborists in urban environments. Some of my interviewees were living in marginal social (and economic) positions, experiencing severe long-term health problems and daily risks of personal injury or fatality.

Urban political ecology recognizes the human element in urban forestry with respect to power. I endeavoured to explore whether there was a parallel with respect to arborists in current urban forestry discourse – that there is a disconnect occurring between physical and mental labour. By continually placing (compartmentalized) importance on trees or tree planting and the maintenance of trees for a purpose or function, urban forest practice can be seen as becoming dehumanized, whereby the focus on the worker is secondary or unimportant and thus can lead to feelings of alienation and resentment by workers (Braverman, 1974; Edwards, 1979). The common element of empathy in urban forestry discourse is directed toward children and communities (not necessarily *worker* communities) feeling good about being outside (followed by public health support). But what about the people working on those trees, developing relationships with trees, and then sometimes having to cut them down?

There are many systems (political, social and ecological) within urban forests that arborists have limited control over. Interviews revealed that despite dehumanizing (f)actors, there are elements of resistance and negotiation by field workers. I examined how arborists relate to these systems and whether they have

personal coping mechanisms to deal with, or resist, their limited control. Interviews revealed early on that the notion of a “political climate” is intensely subjective. I chose to explore outlooks of field arborists, to attempt to offer recommendations to bridge the top-down and bottom-up perspectives and approaches in Southern Ontario. Thus, Chapter 5 presents and examines contentions of urban tree workers with respect to labour in three areas, specifically: a) diversity in perspectives; b) safety implications; and, d) gender inequality.

5.3. Results and analysis

Two themes emerged from my interviews: the first revealed that arborists must work within the confines of systems that can influence their performance; the second theme centers on operational labour (e.g. hands-on, applied work practices). Interviews revealed that the existing political and economic climate surrounding urban forestry in Southern Ontario is classed and gendered, favouring male, non-field workers. Results from semi-structured interviews reveal that there are many issues with which arborists contend due to the complexity of governance structures. Stories were wrought with emotion and intense adversity. Participants shared their experiences of disrespect and mistreatment; health impacts and consequences to family life; and their views on licensing and lack of standardization in the industry. Though there were many areas that interviewees addressed, I will deal with the three most common themes, namely: a) how inter-personal relations in the work place affect the way field arborists conduct themselves and their work; b) how concerns about safety and security offer insights into personal inhibitions and uncertainties; and, c) how gender relations are expressed in the power dynamics of daily practice. Given the multitude of contentions that were raised, grouping elements in this manner offers a structure to this chapter.

5.3.1. Polarized perspectives from pole-pruners to policies

Discussions about contentions included perspectives on the role of government, existing policies and behaviour. Concerns raised influenced the way in

which participants felt about their work environment and in some cases impacted their performance.

5.3.1.1. The 'us' versus 'them' dilemma: collegial contentions

As professional 'rifts' became apparent, I began referring to these as the "versus dilemma." It was interesting to talk through many contentions that exist and that constitute an issue in the profession, something that is derived from the structure of the industry. The two most common debates shaping power dynamics that I discovered through my interviews were the divisions between consulting (or "in office") arborists versus climbers stereotyping one another due to operational/performance differences; and, municipal versus commercial sector arborists stereotyping one another due to differences in management structures.

How can you hope to develop a policy about climbing if you've never climbed a tree (Interviews, 2012)?

It is important to note that climbing arborists can also be consulting arborists and vice versa. The real contention was with working hierarchies. One participant explained it to me like this:

There are major issues between consulting arborists and climbers. The consulting arborist looks down on the foreman, the foreman looks down on the climber and the climber looks down on the grounds team. They need to understand that they all work for a team (Interviews, 2012).

In some cases, climbers and field workers were stereotyped as being uneducated and rough. On the other hand, non-climbing arborists in managerial positions were not considered "real arborists" by their counterparts (Interviews, 2012). Feelings of resentment surfaced in this discussion as field workers felt that they had more of a connection with the forest (see Chapter 6). Personal experience and history shapes these perspectives. There were many mixed responses to this dichotomy and in future research such aspects need to be teased apart to decipher the underlying issues. In this case, communication is key and has major

implications. Yet, despite the extreme stereotypes, interviews revealed that both climbers and non-climbers held each other in high esteem because ultimately the two roles serve very different functions in the milieu of arboriculture and urban forestry, and as such, there are differences in how they understand trees and their perspectives toward policies.

The second rift that emerged from my interviews was between municipal and commercial arborists. For many participants, the main difference between the two was that the practice of commercial arboriculture placed more emphasis on profits and revenue first, whereas municipal arboriculture placed more emphasis on safety first, because they had more time to do a better job since funding does not depend on production – a presumption that is not necessarily true (Interviews, 2012). Many personal contentions stem from a feeling of a lack of appreciation; for commercial arborists, it came from the competitive nature of the business; for municipal arborists it came from working in a unionized environment (Interviews 2012). One participant described the difference as “two different classes”: where commercial arboriculture was fast-paced, production-oriented, highly skilled, but suffered from high-turnover and occasional slips in integrity; versus municipal arboriculture where the environment is slower-paced with more emphasis on long-term planning, but less consideration for worker skill and continuing education. The main difference was that municipal field arborists had more time to care for trees over long periods of time. Whereas commercial field arborists are pressed for time to move on to the next job. As such, in the extreme stereotypes, commercial arborists were seen as “money-hungry” and municipal arborists were seen as “bucket babies,” the inference being that they are lazy (Interviews, 2012). In both cases, power relations and their impact on self-reflection shape these feelings.

Municipal employees are ambassadors of the urban forest rather than ad hoc, mercenaries for hire” (Interviews, 2012).

In the case of competition, interestingly, some participants felt that there is a trend in contracting out labour and not investing in a well-skilled and educated municipal ‘tree force’ (Interviews, 2012).

Practice aside, some participants felt that the culture of each environment offers its own issues: “Municipalities can be vampires to someone’s personal work ethic” (Interviews, 2012). Interviews revealed that the private sector may have more opportunities to do new and innovating things that municipalities may not be able to do given that programming allotments are typically based on what funding is available. In addition, some participants described this as “having our hands tied with red tape.” As such, field arborists who wanted to experience more areas within their industry preferred the culture of the private sector. “A municipality typically cares for their own trees, whereas a private company can care for both – they have more opportunity to care for the larger urban forest” (Interviews, 2012). This has many implications since, in the case of Southern Ontario, 80% of the urban forest is owned privately (Interviews, 2012).

5.3.1.2. Subjugation by standardization: Feeling undervalued by (mis)management

A dominant narrative in political ecology is conservation and control. Here political ecology deals with how governments and social stigmas are used to dominate and subjugate land and space for political or economic agendas. One of the main examples for urban forestry here is urban sprawl and mass development. Although some may argue that developers must make concessions, to communities and urban forests, in order to build their plans, there are many accounts of urban parks being bought by developers to appease a growing urban population. Interviews revealed that arborists’ voices are not being heard in this process effectively:

More often than not we as urban foresters and arborists have much less involvement in the design, and planning process than we should. Often we are brought to the table very late in the process, if at all. Usually we are involved after trees are declining and asked what to do. Maybe we haven't done enough to sell ourselves as true professionals? Perhaps we could do a better job in educating local officials of the skills and services we represent as a field of professionals? (Arborist on LinkedIn)

The arboriculture and urban forestry fields have evolved more and more into the office and into working with and relying on computers and technology; in doing so, it has widened the gap between operations and planning/decision making. The majority of interviewees felt that it was difficult to have a voice in the decision making process - even though they wanted to.

The front line workers are the ones who experience the things that should be changed. The regulatory bodies - they're usually in the manager positions - and they [say] things like: 'ok, we have to be more safe so we're going to disallow certain knots, disallow certain ways to climb a tree.' And that overlaps into the politics and there's always going to be controversy and conflict with regards to that. The industry is evolving and we need safe regulatory rules, but the research has to back it up as well (Interviews, 2012).

One participant shared the story¹⁸ of a knot whereby the implications highlighted that one knot can mean the difference between getting up a tree faster, easier, alleviating physical stress and thus mental fatigue, that leads to sharper reflexes, better judgment and more efficient performance. At the end of a working day, (or after about 5 additional trees on average), the worker is not as tired. This story exemplifies the lack of consideration regarding integral aspects of operational labour when formulating standardized policies. According to interviewees, regulatory bodies are sometimes in conflict with the climbers; there is not enough tie-in with the research or consideration for the people who such policies effect (Interviews, 2012). That is not to say that regulatory bodies are working against the safety of the climbers, but there is a disconnect and clear lack of communication.

¹⁸ "A situation I experienced many years ago during a competition: I had to ascend 50 feet into a tree using a foot-lock method and when I got close to the top, the knot failed and I slid all the way down... The Ontario competition now bans that particular knot because of my experience, without really researching and finding out why it happened. Fortunately there was a well-respected arborist from another province [who determined that] the further I climbed up the tree, the weight of the double line couldn't compensate [for my weight], and how that hitch makes this little bend in the double line, it straightened it out, and that's why I slid. But the regulatory body, they just banned it completely and I feel upset because it effects everybody in Ontario wanting to use that particular knot which is well known all over the world" (Interviews, 2012).

Many participants felt undervalued by their employers, and this has fostered divisions among workers and managers, thus likely lowering productivity and quality of life. There is little support for continuing education and professional development (conference attendance); little to no consideration for planning and decision-making; and low pay for the value of the job performed (Interviews, 2012).

It saddens me that our supervisors, who are supposed to be leaders of a team don't take an active role in assisting their employees. The extent of their role seems to be that of granting "leave of absences" when a particular employee finds themselves in a time of crisis. I suppose it's not surprising given that they are often not holding that position because of their education or time management skills. The reality is that a unionized environment, these days, carries people through their career. Opportunities are given to people on seniority if a minimal set of qualifications are met. Positions given out by peers, who too, have been carried by the union. Thus, the problem is systemic. I hope to witness a time when in my municipality there's as much emphasis on personal improvement and wellbeing as there is on traffic control or hydro safety. It may take many years and the death or retirement of many of these older people holding these positions of management. Perhaps if one day those in control have more education and a greater sense of responsibility to their employees, there will be less need for the protection from a union (SMA, 2013).

There are many issues that need to be unpacked in this statement with respect to health concerns (physical and mental), labour relations and governing structure¹⁹. Participants felt that better support for field arborists depends on the sophistication and dedication of their employers – this would increase morale and reduce high turnover in employment. Participants who also managed crews and small businesses, expressed that high turnover in employment fosters a transient workforce and limited worker trust in other colleagues. Employers felt disappointed that more often than not, they were training current workers for their next job, and

¹⁹ "One example of this is the simplification of the climbing techniques we are allowed to use in the field; the decision for these restrictions was inspired due to near fatal mistakes made by arborists who were poorly trained. The degree of attention that rigging and other technical facets of our trade receive, appears to depend on the technical ability and understanding of our various superiors, most of whom received field training before many of the new tools and techniques now available to a field arborist were widely known" (Interviews, 2012).

that this perpetuated an adverse cycle of management (Interviews, 2012). Bridging these perspectives through open communication may help with a better understanding of governance and organization, and consequently perhaps have a greater influence on decision-making.

Decision-making structures can be difficult depending on what the company or municipality prioritizes. The intention of policy is not always the outcome and not everything can be planned and foreseen. Interviews revealed that people who are in the political arena, do not have enough exposure to what is going on in the field. As such, there are discrepancies between what people are reporting and what is actually occurring. The voices of urban foresters and field arborists have not been captured in current publications, and therefore it creates a distance between the field and the politics that govern them.

Since my employment began with 'the Corporation', I have witnessed a consistent practice by management to keep its arborists from feeling like a valued asset in the urban environment (Interviews, 2012).

I have singled out the statement above because it reminded me of W.H. Auden's, *The Unknown Citizen* (1939), a satire written about standardization. The irony does not escape me; field workers on the one hand want mandatory regulation, effectively *standardizing* the field (for good reason), and on the other hand, feel that standardized policies suppress individualism (for good reason). This is the conundrum with which several participants expressed frustration.

A concrete example of standardization is the City of Toronto's clarified "Conflict of Interest" policy for outdoor workers (Internal memo, August 2013). To paraphrase, the policy forbids city employees, who work after hours and weekends on their own jobs, from removing trees that need city permits. One participant contacted me with a draft letter of protest, part of which follows here:

The recently updated "Conflict of Interest" clarification provided by the City Auditor's office, is an example of a deliberate effort to further harm the field arborists of this municipality. Orchestrated by those who, by generalizing the cases of un-ethical behaviour of

a few employees, would prefer to deny everyone it affects from seeking a better standard of living. This focused effort from management has financially hurt many of us who have been conducting business for years without confrontation or embarrassment to this City. As they stand, these new "clarifications" challenge Municipal Field Arborists' rights to honestly provide for their families, and only harm our prospects and our skill set.

Many municipal employees have private businesses or take on side-jobs during evenings and weekends to make additional income. This new policy limits worker ability to use their skills to make extra money. Is this right? In revisiting some of my participants on this issue, they felt that this is a “*powerplay by the City*” to limit worker capacity (Interviews, 2013). Adding to these layers of complex issues includes the idea of counter-narratives (Andrews, 2002). This is best exemplified by the different perspectives that emerged from interviews regarding the evolution of arboriculture within urban forestry in participant experiences. As one participant describes:

I think [the evolution of the arboriculture industry] it's positive in a couple of aspects. There is higher emphasis on safety. Much greater emphasis on due diligence as it drives inspections and assessment of trees. There is a positive movement towards tree protection; that's just in the last decade. We've had some wonderful work done, led by Toronto, on tree bylaws and tree protection for Canada. There's been a strong growing knowledge and respect for what trees give to society. That's a good thing for us as professionals trying to work toward sustainable landscapes (Interviews, 2012).

To be clear, I can see strong arguments for both the worker perspective and the need for a municipal “Conflict of Interest” policy; however, there is a larger issue here regarding communication, or lack thereof, between management and workers – and the cleavage of silence is expanding. Another example of this involves the lack of enforcement of the private tree bylaw in certain municipalities (Interviews, 2012). Some participants felt that though the policy is advantageous (see quote above), too many applications for tree removals are being approved. Exploring this issue would need a whole new study, but it is interesting that interviewees are

raising it and have opposing perspectives. In that same vein, if a City felt the need to stop their own employees from working after hours in order to give opportunity to private companies (speculative in the case of Toronto's Conflict of Interest policy) than it is ironic that their own field arborists would be disgruntled about too many trees being slated for removal (in the case of a private tree bylaw).

Similar stories were shared by participants regarding public humiliation, and general concerns about policies that employees have no control over, that directly impact their personal safety – such as fire-retardant clothing, as described below. Some interviewees who worked for municipalities discussed situations where they were publicly humiliated in front of other colleagues due to labour policies. Here is one story that was posted on an arborists' personal Facebook page:

Today at precisely 2:43.31pm in the afternoon, the Supervisor of the unit yelled at me from across the parking lot. I was in the lot at my pickup truck assisting the Car Service Technician get my driver-side door open. My keys were sitting in the ignition, and locked inside.

We aren't supposed to be at our personal trucks before 2:50pm as quit time for outdoor City workers is 3:00pm. By being at my personal vehicle before 2:50pm, I was infringing on one of many municipal/union enforced rules, so the opportunity to amuse himself with a loud public berating of me was not missed. It's a style of management that is childish and disrespectful. A management system that is bred from a relationship between a Municipality and two civil unions [- outdoor workers and inside workers]."

By 3:00pm this afternoon the Car Service Technician was still unable to open my door. I was keyless, without a vehicle, and without a way into my home. At 3:05 pm, I realized that my phone was locked in the building and the security system enabled. For a while all I had was my iPad and memories of my cat who was locked inside the apartment. My feet were wet and I just wanted to go to bed. I grabbed my steel spade from the toolbox and prepared to hit the rear driver side window. But the previous three times I've done that, it has cost me from \$300 and up each time. I decided to see if I could find my spare key at home. A colleague was kind enough to drive me home to pursue this avenue.

Security was reluctant to let me in. With some further investigation and my signature and driver's license number, they unlocked the door. I'm unable to leave my place tonight. I have no keys to lock up because the extra set of keys for this apartment is on that same key chain locked inside my truck. There's additional scratches and ripped rubber sealing around the door. The highway gets louder when I drive each time this happens to me. Tomorrow I'm taking a city bus to work with my extra truck key. This extra key was a pleasant relief.

*The security guard informed me that they are unable to lock my door in the morning when I leave. I have to leave by 5:45am to catch a bus to work. I'll be on a public bus dressed in my cheap traffic coned colored costume. **The quality of City issued clothing is the cheapest available and of very poor quality. We are "Outside Field Arborists" but they dress us like "Outdoor Municipal Clowns."** Not to mention the fire-retardant treated material used without any cautions or precautions with regards to its potential dangers from continual exposure. For arborists around power lines it means the difference between an open and closed casket. My colorful outfit will help the police see me as I try to leave my place from off the balcony tomorrow morning. I am on the second floor above the roof of a supermarket. The only uncertainty is getting off that roof top. I will be able to climb back up if it's not possible... but I risk terrifying the neighbor downstairs (Posted on Facebook, 2012).*

I was particularly concerned with the bolded statement above. This assertion outlines a major health and safety issue – where the objective of health and safety actually oppose existing mandates. There are social and psychological safety and wellbeing considerations that are unaccounted for in the existing mandate for required gear. There is also a connection here to the municipal vs. commercial debate (i.e. in terms of gear). The inference is that the private sector is safer because better quality gear and clothing is required or individual arborists have a choice in their wardrobe and climbing kits (Interviews, 2012).

The underlying essence is that the lack of communication fosters these dichotomies. My research shows that many arborists feel undervalued in their profession. Contrarily, as a personal example, after posting my documentary preview online, I realized that this might not hold true as a universal feeling among

tree workers in other countries. In response to the film, one arborist in a LinkedIn group reacted as follows: *"I feel an undercurrent of 'poor pitiful me' about the public perception of the profession and the low pay. You get what you ask for."* There is a disparity in how arborists feel about themselves and their work in Southern Ontario, and how others feel elsewhere. In other countries arborists may see themselves less as being undervalued, but there is no research on this, as far as I know. One reason for this could be professional certification. For example in Europe arborists have the European Tree Worker certificate, which has made a difference for professionalism, identity and pride (C. Konijnendijk van den Bosch, personal communication, 2013). Another reason for this could be funding. For example, in the US there is much more state and federal support for urban and community forestry, and as such for tree maintenance and public education – this can offer credibility to the field. That is not to say that American or European field workers have it better than Canadians, it is different. In any case, funding for urban forestry and arboriculture is entirely another issue that I will not be tackling in my dissertation.

5.3.2. Safety and security: Challenges, limitations and long-term health impacts

Everyday there's liability all around you. You're working at heights. You are working with chainsaws, even a hand saw, if you cut yourself 100 feet in a tree, you could bleed out before anyone comes to rescue you. So there's inherent dangers everywhere with the gear we're using and compliancy – there's so many connecting links. The limb that we're tied into could fail, the rope that we're using could be easily cut; we can cut ourselves out. The knot that we tie has to be secure, so there's a whole chain of how we're connected to the tree has to be safe (Interviews, 2012).

The second theme under labour contentions included diverse perspectives on personal safety, methods and techniques, stories about teamwork, and costs to life at home. Respondents' perception on degrees of risks and challenges were relative based on their positions: where field arborists were most concerned with physical safety and operational challenges, consulting arborists were most concerned with professional liability and legal issues. Many participants also made

the distinction between physical safety and security (security being emotional validation and trust in others).

5.3.2.1. Physical impacts

There's electrical hazards that we encounter, especially in the city. There's so many hazard issues surrounding the tree and things that we cannot see. Like rooting issues, you cannot see, especially in an urban environment where development... they make a house, you can't tell that they've sawed over the roots of this large tree, it looks fine - and then a couple of years later it dies and all the roots have been removed, but we still have to climb into that tree (Interviews, 2012).

Conditions of operational tree work include long hours, inclement weather, and daily tasks focused on client requests, single tree management and construction aspects involving trees. Some companies offer additional services such as ecological restoration, plant health care and snow removal. The major practices of urban tree care include tree conservation (e.g. inventories, risk assessments, consulting, education) and tree work or operations (e.g. pruning, planting, cabling, fertilizing and removals). The line between risk-taking and risk-aversion in worker behaviour is amplified in these operations. Working conditions are complex and hard; field arborists careers are like “industrial athletes”, they have a short window for hard physical labour; this was evidenced by my participants' age ranges (see Figure 5.2).

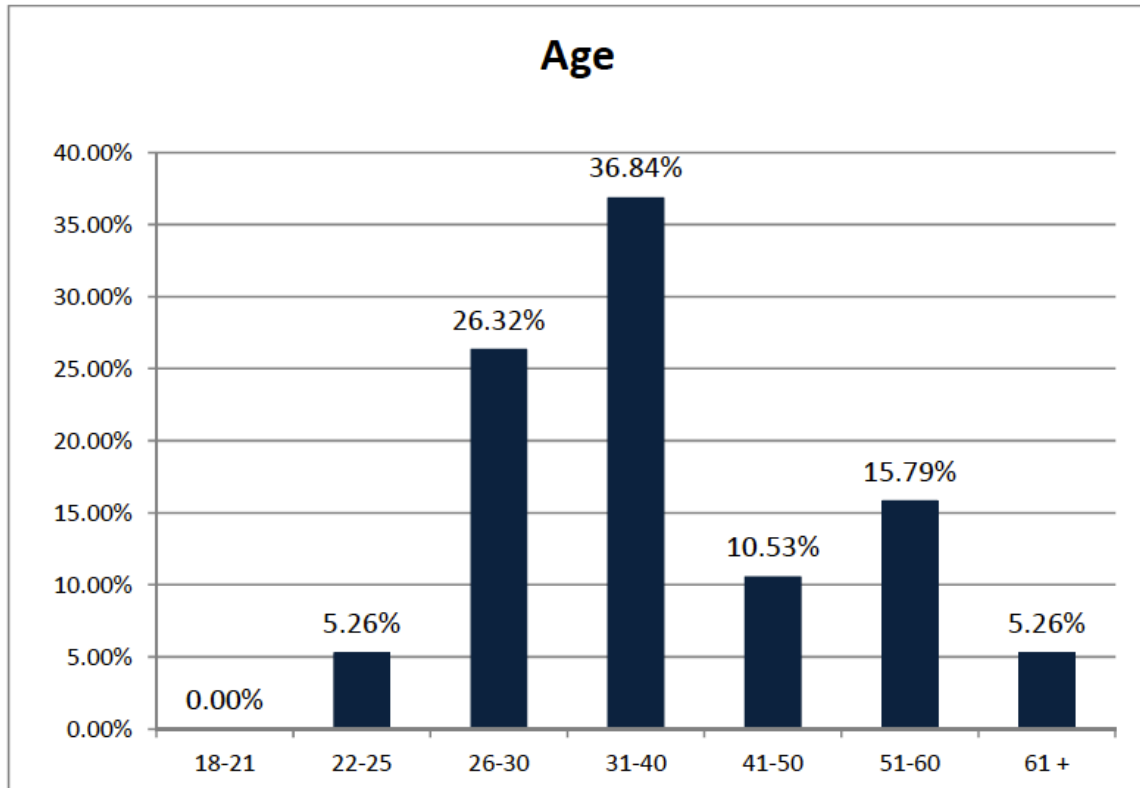


Figure 5.2. Age range of participants.

Yet, despite the obvious physical dangers that come with outdoor tree work, safety includes more than equipment maintenance and wearing appropriate clothing. Alex Julius' study (2013) about occupational hazards in the arboriculture industry sheds important insight into this component. The study focused on compliance of American National Standards for arboricultural operations (ANSI) between accredited and non-accredited tree service companies in New England. According to Julius (2013), neglect with regards to safety procedures was with Personal Protective Equipment (PPE); only 50% of arborists were wearing their gear. She goes on to say that arborists' attitude towards safety, emphasis is placed on abiding by safety regulations so that they do not get fined, but, she argues, attitude should be their personal safety first – so they do not die or get brain damaged (Julius, 2013). In my own experience, through interviews and participant observation in Southern Ontario, personal safety, and safety for colleagues was the

number one concern (secondary narratives). My own interviews revealed early on that safety is an attitude and must be ingrained in individual and collective conduct.

For many interviewees, there was a constant internal struggle between the desire and passion to perform fieldwork and physical labour, and the limitations of age and physical ability:

This is my 20th year in the industry, so my body is broken in a lot of ways with the physical work. Once a week I'm out in the field doing operations. I didn't go into this business to be a consultant, it was to do the tree work (Interviews 2012).

Post-war technology has greatly influenced and aided in this regard with the development of new systems and increased choices for tools (Dean, 2013). One participant explained the advantages of pulley systems to rig heavy limbs during removals (see Figure 5.3). For example, instead of having to lift the weight themselves, pulley systems allow climbers and grounds crews to use a fraction of their own physical strength thus reducing the chances of fatigue and potential long-term physical muscular strain.



Figure 5.3. Spruce removal, rigging system: near Toronto, Ontario, *photo. Source: ATSI, 2012.*

Despite efforts to keep themselves safe from acute physical harm and make work easier, field workers experience long-term work-related musculoskeletal disorders (MSDs) (Logan, 2012), that effect all other aspects of their lives and wellbeing.

5.3.2.2. Home life and personal costs

My hands are numb - some days I come home and I can't pick up my toddler (Interviews, 2012).

The long-term health impacts vary tremendously between the physical, emotional and psychological. For many participants work life dominated their home life and affected their relationships with family and friends. Interestingly, the majority of participants socialized mostly with friends outside the industry. Time

and fatigue were the two common issues: coming home late, not seeing their kids before bed and/or being too tired to play, or participate in other domestic activities.

Balancing the various aspects of my life has been and continues to be difficult. Working [at my regular job] consumes 40 hrs a week and my part-time business consumes another 25-40 hours a week in the field during peak season. Travel time consumes a minimum of 10 hrs a week. That's 75-90 hours on the road. I sleep an average of 5-6 hours a night. There goes another 42 hours. So I'm left with 26 hours. These 26 hours disappear very quickly. I can't precisely account for them (SMA, 2012).

One participant who owned his own businesses reflected on that fact that being a good arborist does not mean one is a good businessman, and even when a company is failing, the pressure to keep it afloat is overwhelming due to the personal investment:

Go into business and immediately you abandon a lot of your focus on arboriculture for those other mandatory requirements under the law: accounting, remitting GST, HST, WSIB, IE, CPP, payroll. There's an endless struggle to try and keep it alive, because in order to get into it and set up everything, you've committed so much that you just keep on going, hoping that it will pay off (Interviews, 2012).

This “struggle” brought with it other frustrations about income and sometimes led to compromising one’s integrity. For some interviewees, there was often pressure to be permissive; whether it was a fear of going to court; or of losing an important client (Interviews, 2012).

Interviews revealed that field arborists often contend with a “work-hard, party-hard” subculture. Many expressed problems with substance abuse (e.g. drinking too much, smoking pot daily), some revealed that they had (undiagnosed) learning disabilities (e.g. ADHD) and struggled with literacy. Some participants also revealed that they struggle with stress and anxiety due to the nature of their work. One participant stated: “People don’t realize what a hard job this is.” Some municipal workers have minimal provisions to take a leave of absence if they enroll in a city rehabilitation program, but as a result there is no assurance of anonymity, thus

making this option a deterrent for otherwise interested participants (Interviews, 2012). Participants who worked for private companies did not always have this option and would have to take unpaid leave and pay for treatments.

The majority of my peers have had difficulty in school; many managing to get through various levels of education without having their learning disabilities properly diagnosed. These learning disabilities are not often obvious in the field because of the nature of our work. This is apparent to me when I'm in a truck and I'm looking at various paperwork filled in by others, or if someone regularly asks me how to spell certain words (SMA, 2013).

Coping with these issues came in many forms: through socializing and hobbies. Not surprisingly, many participants spent their spare time partaking in outdoor physical activities (e.g. rock and ice climbing), volunteering with their communities. All participants were very family and neighbourhood oriented; they spoke about “giving back” and nurturing the landscape in multiple ways - not just by caring for trees during their “day jobs” but by engaging people after hours as well.

Team work can either assist in coping or it can actually aggravate [stress], because you work so intimately with people who trust you so much and rely on you that it can either be a way of venting or you have to be careful what you say (Interviews, 2012).

5.3.2.3. Security: Camaraderie, emotional validation and trust

You're working in a potentially dangerous trade, you're working generally with the same people, you become a closely knit team and you rely on the eyes on the ground, and I think it's really important to believe that the person on the ground, spotting for you, and supporting you is really committed to your safety... or something is wrong (Interviews, 2012).

The concept of personal safety for outdoor tree workers goes beyond physical injury and extends to feelings of security, validation and trust. Interviews revealed that, due to the nature of working together in adverse and potentially dangerous situations, field workers place particular importance on having a good

team that characterizes a unique work culture grounded in prioritizing camaraderie. I was humbled by the modesty of some of my participants and the way they spoke about their ground crews and how their lives can depend on how the rest of the team is functioning on any given day. Perspectives on fatalities were profound. Camaraderie and open communication was very important to all participants. This was apparent when discussing feelings of fear or discomfort. I was interested in exploring how/whether field workers, were open about discussing such issues.

Interviews revealed that in the last 10-15 years workers have become more forthcoming with speaking openly about having accidents and feeling scared or apprehensive about dangerous situations. The Ministry of Labour releases information on accidents and organizes opportunities to discuss Post-Traumatic-Stress Disorder (PTSD). Participants felt that this increase in openness is due to organizations, in this case the ISA, and having opportunities to network and connect with others about their experiences. What was also interesting was that the younger generation was more likely to communicate openly due to differences in generational culture (e.g. social media and online activity) - simply put, the younger generation is more accustomed to *sharing* - feelings, ideas, techniques (Interviews, 2012).

People are less afraid of looking foolish because they had an accident... if you look at the pool of older arborists who are still out there in the trenches, it may be that they're not on the inside with the groups who are interacting all the time. They're the older generation. Amongst the young people who are getting experience, there's a lot more interaction (Interviews, 2012).

The dynamics of this working relationship go far beyond an office labour environment. The influence of danger, death and the interconnectedness of the team members are bonding agents. In some cases of particularly close-knit groups, there was also a sense of 'us against them'; to non-field workers, it is not obvious of how deep the relationships are, how important the relationships are: "*Team work is everything*" (Interviews, 2012)!

Yet, despite the close-knit sense of responsibility and ideals about teamwork, interviews revealed that there is disconnect within the community among/between

arborists themselves. A big reason for this was the notion of *conscious trust* - needing to trust your team with your life and needing to trust that they have the same level of dedication and passion (see Figure 5.4). One common example was the high turnover in some companies: *“It’s difficult to get comfortable with the people around you if they keep changing”* (Interviews, 2012). High turnover in employees impacted the level of trust and confidence that some participants had in fellow co-workers. Participants expressed the importance of human resource investment.



Figure 5.4. Grounds team looking up at climbers: near Toronto, Ontario, photo. *Source: ATSI, 2013.*

Lastly, health and safety concerns did not always come in the form of physical labour, legal concerns or even trust issues. A common, and very practical,

example that came up was using the bathroom outside. One participant tried to explain how frustrating this situation can be:

Some clients are nice, they say straight away that we can use their washroom if we want, but most people don't offer. It's not realistic to have a port-o-potty in the back of a chip truck, and it's not realistic to run to a Tim Horton's every time you gotta go – so what are we supposed to do? (Interviews, 2012).

In response to this reality, another interviewee commented that clients who offered workers their homes to use the bathroom were “*not the wealthier clients*”. This raises questions about socio-economic stereotypes and privilege. Is health and safety a privilege in urban forestry? Concerns about safety and security offer insights into personal inhibitions and uncertainty. The Canadian Index of Wellbeing (CIW) is comprised of eight domains²⁰ that, collectively, can be used to measure the quality of life for Canadian populations. Though I do not deal with this in detail, there is room for future research here in urban forestry by using the CIW to inform better health policies for outdoor workers. Opportunities for safety and knowledge have improved greatly in the last 20 years, but as interviews have revealed, this area needs critical attention.

In the last three years in Canada (2011, 2012, 2013), there have been 3 fatalities in the industry where climbers have fallen from trees. In addition, within the past six months of 2013, there have been eight Critical Injuries reported to the Ministry of Labour (Arborist Safe Work Practices Committee, personal communications, group email, 2013). The Arborist Safe Work Practices (ASWP) committee met in late January 2014 to discuss the best method of addressing the prevention of accidents and fatalities in the trade.

5.3.3. Gender inequality: Sexualization and stigmas

Women need to work harder and prove themselves, where male ability is assumed (Interviews, 2012).

²⁰ Community Vitality, Democratic Engagement, Education, Environment, Healthy Populations, Leisure and Culture, Living Standards, and Time Use.

A recent study in the UK, commissioned by Stormline clothing company, found that *arboriculturalist* is considered one of the top ten “most manly” occupations (2015). The nature of fieldwork, being very labour intensive, is laden with male-dominance and pre-conceived notions of what that entails: machoism, *manliness* and bravado, wanting to feel invincible, sense of adventure and invincibility (particularly in younger men) (Interviews, 2012). Male participants admitted that this was part of the reason for getting into tree work; one participant described his role as being a “hidden hero” in and of the urban forest. Female participants did not echo the same sentiments. Studies have shown that women are under-represented in urban forestry and arboriculture and do not have the same opportunities as men (Kuhns, Bragg & Blahna, 2002; Teeter et al., 1990). According to one participant:

It's a man's land. At first, you're always given a questionable look as a woman. There's a preconceived notion that you don't have the skills or knowledge. As a woman you have to work harder and be better. The hard work does stand out, and what really establishes your credibility, is dirt under your fingernails and getting time in the trees (Interviews, 2012)

Women's first inclusion into the ISA International Tree Climbing Competition (ITCC) was on the men's 25th anniversary (Interviews, 2012). The International World Championship is held in conjunction with the ISA Annual Conference and provides an opportunity for climbers to showcase their techniques to a global audience and earn a world-class title for their region (e.g. North America, Europe, Asia).

To provide context to the demographics in Southern Ontario, using the online public access database²¹ from the International Society of Arboriculture Ontario Chapter (ISAO) website which has a public listing of 234 registered arborists across 104 municipalities, only 13% (30) are women. During interviews, what also came to light were the subtle differences, or divisions in how the role of women was viewed

²¹ ISAO online database, accessed February 16, 2015: <http://www.isa-arbor.com/findanarborist/findanarborist.aspx>

and valued. For example, with respect to differences in the municipal sector and the commercial sector, one female participant stated:

I was always told that no way would anyone hire a woman in the private sector because a lot of the people I was working with were convinced that I was only hired to fill a quota... they negated all my qualifications. So I was convinced that I wouldn't be able to leave the City. But that all changed when I went into the private industry (Interviews, 2012).

Another example is how men differentiate women. The increasing and evolving role of women in a male-dominated industry means that women have to prove themselves more (Interviews, 2012). Within the industry, some participants (both male and female) admitted that they did not feel that women are physically strong enough to perform the tasks necessary for the fieldwork aspects of the job. It is interesting to note that the value that some male participants place on women was measured against the skill set and contributions that they themselves are able to bring (i.e. physical aspects: climbing speed, strength to lift wood); although things are changing. Some participants felt that women offer a much-needed fresh perspective on existing operations; women were described as more organized, detail-oriented and more efficient at reporting:

They work smart, not hard, and they use their head instead of their muscles to get where they've got to go... Some of them have excelled right across the board as arborists and some hold very good positions in the field of arboriculture (Interviews, 2012).

In addition, there are general differences in physique and the way women approach and navigate work; for example, women climb differently due to their centre of gravity being in their hips as opposed to in their shoulders. Female participants spent a lot of time describing how they had to figure out their own climbing techniques, because the general “*tricks of the trade*” that were often passed down among men and did not apply for women’s physiques (Interviews, 2012). One male interviewee stated:

Women will take a moment and look at the tree; they plan and assess for a longer amount of time than men do; then they'll start working. Whereas men will just get up there and then troubleshoot (Interviews, 2012).

Outside the industry, women struggled with stereotypes from clients being skeptical of their ability and downplaying their authority. One female participant shared the following story:

We were standing on the lawn looking at the tree, and the homeowner wouldn't even look at me. He directed all his questions to [the male crew member] and didn't care that I was the crew leader and climber on site (Interviews, 2012).

And another:

I walk into a chainsaw dealership: the store owner will speak with the man beside me. A lot of (older) men don't want to work under a woman - they don't like taking instructions. They don't want to take advice or suggestions from a woman. There are cultural differences - society's ideas of a woman's place. It's uncommon and people are not used to women working outside. I work with a lot of men right now. We get along. We have a mutual respect for each other (Interviews, 2012).

Research about women in forestry is scarce (Reed, 2008; Rocheleau & Edmunds, 1997), and research about women and men being sexualized in urban forestry is even less available. Interviews revealed many stories about female field arborists being treated differently, in some cases being the target of derogatory or sexual jokes, in other cases being made to feel unworthy by both colleagues and clients. As one female participant shares:

Working with men in a male-dominated industry, I have great and terrible experiences. The most memorable was: 'get back to the fucking kitchen or the bedroom' - these were not jokes, they were very serious and hurtful. How do you deal with that? You roll it off. I made the mistake of expressing anger once, then I was labeled as 'too emotional' (Interviews, 2012 - female interviewee, age 30-45).

What was particularly interesting was that men also shared stories about being sexualized by clients, not necessarily colleagues. Unlike the women, men were in

favour of being perceived as the sex symbols of outdoor workers and often spoke about being invited into peoples' homes. Overall, both men and women were sexualized in different ways.

What is important to note here is that the younger generation did not have a sense of this dichotomy at all, but younger participants did see remnants of this behaviour in older colleagues. Interviews revealed that as more women enter the trade and prove that they can do the same work, the field is slowly evolving. Women are beginning to feel more welcome; but this has a long way to go. One interviewee stated:

Twenty years ago I would never have thought of being mentored by another male climber. Whereas nowadays there's lots of young women entering the field and they're being mentored not only by men, but by women, which adds for amazing support. It is a harsh, hard career choice and so that's changing the culture (Interviews, 2012).

One male participant shares:

I know a fair amount of women in the industry. I have no idea how some of them have the strength. I'm proud of them (Interviews, 2012 – male interviewee, age range 35-50).

In some cases I got the impression that female participants did not want to speak poorly about their male colleagues, despite feeling uncomfortable. This has ethical implications that reinforce the gender bias. Overall, according to most interviewees, the roles and inclusion of women has benefitted the industry. Things are changing, female experts are recognized and celebrated: this is exemplified by the annual Women's Arboriculture Conference (British Columbia, 2014).

It's interesting to see many women gravitating to key positions within organizations and municipalities focusing on planning and strategizing. That says a lot for the type of women we are attracting into a male-dominated field. You need a strong personality that can stand up to some adversity and challenges to succeed. It is not a level playing field. But I see a lot of women who have success; they're not average women: they are strong, professional and successful (Interviews, 2012).

Looking at gender differences, we are the team builders, and collegial. Tends to be women who are driving sustainable land development: nurturers, activists, multi-taskers, team builders = these skills help manage programs and move things along from an environment perspective (Interviews, 2012).

5.3.4. Lack of mandatory licensing

We need mandatory regulation of the arboriculture trade to see us safely and professionally into the next era (Interviews, 2012).

Interviews revealed that there is a profound desire to move towards a Red Seal Trade. Under the new Ontario College of Trades Act, it is the College of Trades that has the mechanism to move a trade from voluntary to mandatory or regulated licensing. All participants felt strongly that the lack of mandatory licensing in Southern Ontario was at the root cause of many of their complaints regarding labour concerns and standards. They felt that having mandatory licensing, like in the state of Louisiana (Dozier & Machtmes, 2002), the “Licensed Proficient Tree Surgeon” in the UK, the Certified Tree Worker Certificate in Europe (E. Neilson, personal communication, 2013: Tartu, Estonia), will give them a competitive market and, with it, opportunities to make a better income, achieve quality control, increase safety standards, foster positive public perception and improve the health of urban forests (agency).

Interviewees perceived two reasons for why there is no mandatory regulation: a) because trees are living organisms and therefore they’re unrated structures; *“Engineers shudder when they realize we’re climbing into a tree”*; and, b) because the industry has done a good job at self-regulating through the International Society of Arboriculture. Although it is out of the scope of this dissertation to conduct a comparative analysis; future research should focus on exploring whether the wishes or presumptions of field arborists are in fact realized by mandatory licensing.

The International Society of Arboriculture is a recognized body all over the world and provides a baseline or common ground for voluntary certification and membership. It’s a community, because

all those who are certified, you're at the same level of wanting to improve the industry with new innovations and research. The ISA has done amazing outreach to communities, to clients, to schools - so clients now will ask if there are ISA certified arborists (Interviews, 2012).

In 1992, the International Society of Arboriculture introduced and launched voluntary certification. The role of the ISA was advocated by the majority of interviewees. Participants felt that the ISA has been the industry's saving grace as well its foundational grounding. There are six voluntary certifications that arborists may acquire/achieve: ISA Certified Arborist; ISA Tree Risk Assessment Qualification; ISA Certified Arborist Municipal Specialist; ISA Certified Arborist Utility Specialist; ISA Certified Tree Worker Climber Specialist; ISA Board Certified Master Arborist. Of the 234 registered arborists on the ISAO online public database, all are ISA Certified; this is the baseline to acquire any of the others; from here, 49 (21%) have 2 credentials and 14 (.06%) have 3 credentials, 1 registrant has 4 credentials. I was unable to obtain data on age and level of education for the registered provincial population. I was only able to show statistics on my own participants for this.

Yet, despite ISA's voluntary certification process (celebrating 20 years, 1992-2012), arboriculture in Ontario remains an unregulated trade. Many participants discussed the negative impact the lack of mandatory regulation has had on their field and in their personal lives and jobs. In Chapter 4, I discuss metaphors that perpetuate negative stigmas about field workers, similarly, many participants feel that lack of mandatory licensing enables "weekend warrior" behaviour and fosters a lack of professionalism and keeps wages to a minimum, as competition is rampant. Participants who owned their own businesses wanted the opportunity to compete for jobs with companies in their own caliber. They were frustrated with continually being out-bid by less qualified, uncertified, people who call themselves *arborists*:

You don't need any certification to advertise yourself as an arborist. You just need a truck and a chainsaw and that's it. For the consumer, it's confusing and we want to raise our profession so that we can charge what we're supposed to charge because the

guy that just owns a pickup truck and a chainsaw can underbid those that are truly professionals. The higher echelon companies are all certified, we have education, we have experience, we're constantly upgrading ourselves. But there's nothing to say that we're not different from the guy with the pickup truck. Certifying or regulating it as a trade - there will be a more consistent level of service and more consistent pricing (Interviews, 2012).

Participants felt that by having mandatory licensing, tree work can be properly priced for the deserving amount, rather than “*bargain basement prices*” driven by the lowest bidders and perpetuated by clients who only want to pay the least amount: “*They're shocked when you tell them how much you charge.*”

Some participants expressed confusion and skepticism as to why standardized licensing is not in place. There is a disconnect in education and the messages being received by workers; if arboriculture is (indirectly) one of the most dangerous jobs in the world for the climbers/workers (I say *indirectly* because loggers, landscapers and roofers are among the top 25 on most lists); and the potential for damage in dense urban areas is so great; then why is it not mandatory to have a license to practice? One participant exclaims: “*You need a license to cut hair for Pete's sake!*”

The notion of mandatory licensing (shared by most field workers) is being overshadowed by the fact that the trade has been proactive in self-regulation. For instance, the Arborist Safe Work Practices Committee in partnership with Health and Safety Ontario, developed a guide for doing tree care (Standard Operating Procedures). This document, the *Arborist Industry Safe Work Practices 3rd Edition* (2010), was done so successfully that the Ministry of Labour supports the use of that document when their inspectors are for the first time coming on a tree operation and wondering what the standards are for that kind of work (Interviews, 2012).

This trade takes a lot of skill; it takes a lot of knowledge. It needs to be designated a skilled trade. I want to compete as a business - I want to compete with people that are also accredited, that should be there, that should be doing that work (Interviews, 2012).

Some participants speculated that the Ministry of Labour would prefer not to have to administer mandatory regulation because it would need more people and thus cost them more money: *“Enforcement is lacking - aren't we worth the Ministry's paperwork”* (Interviews, 2012)? However, further examination included that the Ministry of Labour can look to the industry and say that they are self-regulated so they are doing well. Despite the progress and benefits of self-regulation, interviewees felt that the lack of mandatory licensing does nothing to raise the profile of tradespeople who deserve a better income.

We can do so much damage... the sector continues to be one of the most dangerous workplace sectors in the urban forest and in urban areas. Despite all of this the controlling authorities, provincial government, WSIB, Ministry of Labour, and Colleges and Universities continue to avoid the topic of mandatory regulation for practitioners in this trade (Interviews, 2012).

The notion of mandatory regulation for the trade was important to all arborists. Yet, however practical mandatory licensing may be, intellectually, “professionalizing” a field is not always a positive feat. The notion of a profession or a discipline suggests a specific body of knowledge (or canon) that is unchanging. It has many implications, politically and ethically and even contests notions of individualism; but fundamentally, interviews revealed that mandatory regulation would provide *legitimacy* to the work and to the workers. Taking a closer look at how the notion of licensing promises *legitimacy* for the trade and its workers is important when considering the critiques against *standardization*.

Several interviewees discussed relationship between *identity crises* and legitimization: *“We would be better respected”* (Interviews, 2012). Overall, by giving acknowledgement and placing importance on the job itself, it will foster worker self-confidence in their role and pride in their work: *“I think we just have a long way to go as far as getting this as a skilled trade, getting people to recognize what we do and why we do it and how we do it and trying to get away from this cowboy mentality”* (Interviews, 2012). To be clear, in addition to setting recognized standards for themselves with respect to quality control, participants also impressed the need for regulation for public safety, consumer protection and above all, urban forest health.

As a counter-narrative, one participant felt that generalizing and creating standards for an urban area is challenging given the social, ecological, economic and political variables and complexity that cross the land. As mentioned above, some participants perceived that one of the reasons for no mandatory regulation is because trees are living organisms and therefore they are unrated structures. As such, nature's agency greatly affects the regulation of work.

5.4. Implications

In this chapter, I create an opportunity for arborists to share true and constructive stories that contribute to a better understanding of arborist workplace conditions, behaviours and ethics within urban forests. In response to various stories that are continually substantiated by quantitative analysis, I communicate, qualitatively, the lived experience of forest workers, their often precarious employment, and what it is like to feel as a frontline worker and, yet, to be excluded from many decision making processes. I was originally inspired by Braverman's dehumanization thesis (1974), seeing many examples in urban forestry, but the interviews made it evident that despite feeling undervalued and sometimes depreciated, there is pushback by workers and efforts to maintain some control in their workplace. Most obviously, this resistance occurs at the landscape level, where the statement "*we can do so much damage,*" again carries weight with respect to physical influence over trees (further discussed in Chapter 6). In this chapter I have examined the various dichotomies and conflicts with which field arborists contend. I have revealed how arborists feel about their working environment, the politics and people who manage and surround them, and how the political climate of urban forestry in Southern Ontario personally influences field workers and thus impacts operational labour.

Over the past two years, as I have been presenting my research and engaging with others about my results, field arborists have begun contacting me about their concerns. This has only strengthened the point that some workers feel unheard within their existing frameworks of employment. Nonetheless, as interviews

showed, some field workers had multiple ways of negotiating such denigration. Although *community urban forestry* is an existing concept in urban forestry discourse, I want to shed light onto the notion of the *worker* community in urban forestry – which, to be sure, is paid less attention to. By exploring three questions: a) *How do various political and labour conditions impact arborists' sense of pride, independence and skill?*; b) *What are the social and labour divisions (i.e. inequalities) within the culture of arboriculture?*; and, c) *What is the lived experience of urban forest workers, their employment, and what is it like to be a frontline worker?*, results included a closer look at labour practices, gender inequality, health and safety, individual perspectives, and impacts on home life and personal costs.

6.0. Negotiating agency: Wuthering woods and uncommon clearcuts

Deep currents of meaning swirl around our culture(s) and brush through the branches of any tree or tree-place which is being encountered, experienced, narrated or imagined at any given time.
– Owain Jones and Paul Cloke (2002): *Tree Cultures: The Place of Trees and Trees in their Place*

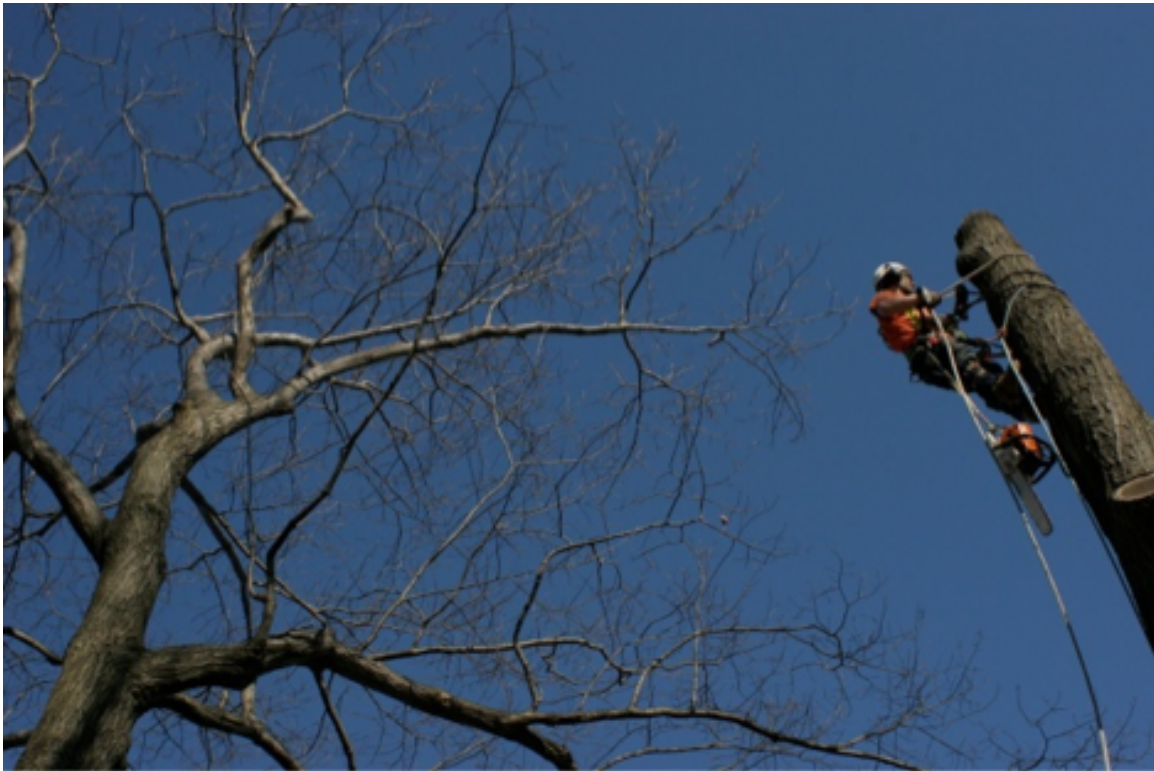


Figure 6.1. Adrina Bardekjian, *Contention*: Toronto, Ontario, (2012), photo. Source: Adrina Bardekjian, 2012²².

6.1. Introduction

This chapter provides a closer look at arborists' interactions and feelings about the external²³ (urban) nature they serve, protect, nurture and sometimes destroy. Using accounts from semi-structured interviews with arborists in Southern Ontario, and drawing on information from participant observation, I examine how

²² *Contention*: This image won the Young Professional's of Montreal 2013 photography contest.

²³ Taking Castree's definitions of nature.

arborists negotiate the urban forest, physically and emotionally as a place of work. In addition, using Jones and Cloke's (2002) model of four dominant themes, culture, agency, place and ethics, I interrogate how nature's agency impacts tree workers' experiences, and how these relationships, in turn, impact the urban forest. The accounts shared in the following sub-sections are reflections of interviews with climbing field arborists, which is important when examining agency, because they are the ones having direct contact with trees. At the root of this story is the notion/concept that nature has its own agency and that the nature/culture divide narrows at the crossroads of arboriculture where arborists and trees influence one another profoundly. Their lives and well-being depend on one another with layers of social agency complicating this dynamic; hence the use of the term "uncommon clear cuts." In conventional forestry, a clearcut is a block of land that is cut down for timber production, in colloquial language we refer to things being "clear-cut" (straightforward) or not. As such in the political arena such meanings and intentions can be evasive and ambiguous. Thus, Chapter 6 presents and examines the notion of negotiating agency in and *for* the urban forest. I have chosen to use the term "negotiating" rather than "navigating" or another synonym because, there are multiple, interwoven degrees in how workers relate to, experience and make decisions. In addition, the distinction between urban places and spaces offers a vehicle for conceptual self-reflection on personal perspectives about work, play and safety. Also, I have used the term "wuthering" to emphasize how the ebb and flow of non-human agency is prevalent in such negotiations. This chapter is about revealing the intimate physical and emotional relationship with nature that arborists have; agency pervades everything that they are talking about.

6.2. Background

Political ecology must acknowledge the agency of nature as well as its socially constructed character. It must recognize the consciousness of human subjects even while recognizing its constitution by the non-human... It means understanding ourselves in the myriad objects of the world around us (Robbins and Sharp, 2003: 124).

A central tenet of political ecology is that nature has its own agency in terms of acting independently and unpredictably of human action. It is also shaped by continual human and non-human interactions. Non-human agency refers to networks and connections to non-human organisms such as animals, soil, vegetation, etc. In one of the most comprehensive accounts as it relates specifically to trees, Jones and Cloke (2002) argue that social theory has prioritized human agency and thus excluded the materiality and agency of nature. When discussing ethical considerations, they state: *“To a significant degree, the exclusion of nature from the ‘moral community’ of modernity has been based on the view of nature being devoid of meaningful agency”* (p. 97). They argue that political favour has been given to human agency and in order to examine this domination, *“ethical imagination is required to consider trees as morally relevant”* (p. 98) (see section 7.3.2).

This echoes Schama’s (1996) accounts of the historical meaning of trees and forests in and among various civilizations. By exploring four streams of social theory; ecofeminism²⁴, social nature²⁵, social anthropology²⁶, and Actor Network Theory (ANT)²⁷; Jones and Cloke (2002) conceptualize agency in different forms using trees to ground their analyses (p. 54). They maintain that, *“trees are not just passive recipients of human interventions... they bring their own creative abilities and tendencies to various equations”* (Jones & Cloke, 2002, p. 49). Because trees have a tendency to grow, survive and reproduce apart from human management, and

²⁴ Ecofeminism considers the connections between women and nature in terms of shared value systems (nurturing and mutuality) and shared oppression (dominance and exploitation) by examining intersections of social movements such as environmental health and social justice (Gaard, 2011).

²⁵ Created by critical and social geographers, social nature considers the social constructions of nature and examines how concepts are created (both consciously and subconsciously) as a result of group dynamics (Castree & Braun, 2001)

²⁶ Social anthropology considers the way in which societies and people ascribe meaning to daily lives, routines and traditions (Hendry, 2008).

²⁷ Actor Network Theory (ANT) considers that everything is connected through relationships of series of actors and actants. ANT examines actors/actants relationally rather than separately; where multiple networks have various/infinite points of entry into the discourse (Castree and MacMillan, 2001). Ultimately, ANT creates a dialogue through hybrid spaces; where equal priorities can be placed on all actors in the dynamic chains through which they traverse (Latour, 2005).

because they have the potential to live such a long time, they move through diverse cultural spaces throughout their lifetime (Jones and Cloke, 2002). This contention is apparent when examining historical narratives of urban forests and the varying perspectives that have influenced their political and social intervention (Dean, 2014). Particularly in urban forestry, considering these relational attributes and how they connect and influence one another is integral to bridging common socio-natural dichotomies with respect to agency.

6.2.1. Nature/culture: Consumption and metabolism

The discourse of (separate) agency stems from the debates surrounding the nature/society divisions, or dualisms. Known as the “The Great Divide,” the nature-society dualism stems from much debate as to whether humans in their complex social orders and networks are within or outside of *external nature* (Castree, 2001). The belief is that nature is all that we are not: pristine, organic, self-sustaining, beyond reproach and something we (humans) must protect and revere from a distance so as not to cause it harm. However, these biases and stereotypes are rooted in social and cultural constructions. This duality is so ingrained in western thought processes and language that it is impossible to speak about nature without acknowledging the dichotomy.

Various (human) interventions have created (urban) landscapes. The very act of urban planning and development involves the material, spiritual and economic productions and consumptions of nature most pointedly. Nik Heynen and his colleagues (2006) compare this to a metabolic process. Analogous to the functions of xylem and phloem in a tree, the various components that compose a city are invariably an interconnected system of arteries; they are a circulatory system that network and mobilize actors and agencies to produce, construct, consume and interpret their surroundings. Arborists’ role in this process cannot be taken lightly (see Chapter 5).

Constructions and contestations of nature greatly affect human experiences of nature. There are many key (r)evolving themes with respect to how we

experience nature, particularly in relation to the diversity that comprises an urban environment: politics, symbology, materiality, gender, culture, sub-cultures, language, religion, ethics, animism, poverty, classism, multiculturalism and environmental justice, to name a few. As such, these themes can loosely be categorized into three areas: material reality, spiritual symbolism and economic strategy.

6.2.1.1. Material reality

The most common way of experiencing and consuming nature is through its material and physical reality. This material existence of biotic agents and actors, that humans have no control over, generally falls under the scientific discourses and disciplines. Nature is simply, *there*. As Cronon (1996) put it: "*Nature*" is itself; outside of human language, narrative and cultural constructions" (p. 55). It exists and is present in our world; we simply share space with it. For example, nature hikes, canoeing and fishing, are activities that humans typically enjoy. Thinking about and engaging with nature in this way is associated with *doing, seeing* and *being*. Human emotions towards, interpretations and analyses of nature are subjective as there are a multitude of motivations behind the reasons for our chosen activities.

6.2.1.2. Spiritual symbol

The second way of consuming nature is as a spiritual symbol. Much like Cronon's description of *Nature as Eden* (1996), it is here where the natural landscape and its agency are revered as religious icons or mystical realities. Generally, in Canada, many environmentalists seem less fixated on practicing organized religions whereby the *natural* green environment or nature becomes *the* chosen religion, not unlike the rationale behind paganism and other polytheistic religions where various deities represent earth elements or animals. As Cronon (1996) pointed out, monolithic claims to nature as a 'secular deity' are common.

6.2.1.3. Economic commodity

The third way in which we produce and consume nature is as economic commodity. “*Few cultural conceptions have had greater ecological impact*” (Cronon, 1996, p. 46). We live in a consumer-driven society where nature or constructed *ideas* of nature are bought and sold in the consumer and cultural marketplaces for economic gain. We see this commodification of nature in urban *relic* landscapes (i.e. old factories, railway lands, Brickworks in Toronto) where “revitalizing landscapes” has become the epitome of nature construction; a term that has become slightly cliché in exploiting ownership and decision-making processes. Urban-based companies, like Urban Tree Salvage²⁸, are also capitalizing on municipal tree removals. However, the commodification of nature is most obvious in the profitability of natural resources at the national and international levels; in the forest industry in particular. For the purposes of this chapter, I will focus on material reality and spiritual symbolism as they relate and impact arborist experiences, constructions and behaviour.

6.2.1.4. Collective consumptions

Despite my attempt to segregate the three most common consumptions of nature (material, spiritual, economic) as conceptualized above, they are impossible to actually separate. There are three general aspects that form the basis of our consumptive behaviour: 1) motivation and reason for doing; 2) the act itself (i.e. the what/want); and, 3) the thing that allows us to perform the act (i.e. ability, access) (Cronon, 1996). This can be as simple as one act, inspired by one motivation. Often the ability to perform the act is so common that it is taken for granted (like walking) or there is a series of actions strategized to perform a more complex act (like timber production for international export). For example, a spiritual draw is what may lead us to go hiking in a forest, but this is only made possible by our ability to pay the entry fee into the park which is, in turn, managed by a provincial government. One

²⁸ Urban Tree Salvage is a Toronto-based company that “saves” wood from the municipality to make (expensive) furniture for customers.

example of collective consumption, echoing Cronon's *Nature as artifice, nature as self-conscious cultural construction* (1996, p. 40), are urban forests and parks in particular.

I could not help seeing these paths as just one more example of the planners' ubiquitous efforts to control and manipulate my experience of their world, forcing me to conform to their sense of the proper way to appreciate this natural area that had [been] constructed on my behalf (Cronon, 1996, p. 54).

Our consumption of nature then is shaped by our physical material surroundings and our reactions to these surroundings are made possible through self-reflexivity based on our ethical and moral preconceptions.

Humans can be *collectors* and *controllers* who like routine with spurts of spontaneity. These character traits have major implications for our social interactions with and experiences of nature. If we see nature as something to exploit, sell and collect at our will, then we can never claim to be fairly judging our own supposed relational position of equality. We often treat one another (other humans) more poorly than we treat animals or even a tree – or, in the same vein step on a spider, have a butterfly collection, or cage a large parrot – speaks volumes about our own (mis)understandings and confusion about where we situate ourselves within/above/astride *external* nature. Moving away from this linear thought process while still being able to visualize it realistically, is where political ecology and ANT are helpful. As Cronon argued: *"If we wish to understand the values and motivations that shape our own actions toward the natural world, if we hope for an environmentalism capable of explaining why people use and abuse the earth as they do, then the nature we study must become less natural and more cultural"* (1996, p. 36). Despite variations in constructionist arguments, one thing remains constant: that nature cannot be separated from society.

6.3. Results and analysis

Arborists are nurturers-keepers-doctors-creators-destroyers-arbitrators of the urban forest. This fosters a symbiotic relationship between agencies. As evidenced in my findings, the material reality and variability of nature's agency influences the practice of urban forestry (as including arboriculture). Many participants shared stories of iconic specimens in residential streets; favourite trees to look at or climb, experiences of the act of climbing and stories of fears of falling. Results from semi-structured interviews reveal that a unique relationship between arborists and urban forests exists, due to the nature of negotiating agency: a) arborists attribute intrinsic characteristics to specific trees and species which in turn points to a critical role in how field arborists survive and thrive in their work; b) arborists' physical proximity to urban trees creates a unique emotional and spiritual connection/apprehension, which must be taken into consideration when planning and implementing policies that impact their working conditions (i.e. the urban forest); and finally, c) hazards to urban trees can lead to potential sources of danger to workers, which fosters both a sense of "caregiver" attitude but also a sense of fear and respect among arborists.

6.3.1. Culture of *arbori*-culture: Unique interactions and experiences

I feel proud and fortunate to have heard the whisper in my heart. I dare say most of us are proud and protective of the trees and their needs. Our biggest hurdle is conveying through words the humility and wonder that trees inspire in those of us that are privileged to be able to put their arms around these denizens of the land (Arborist on LinkedIn).

In the context of agency, the culture of *arbori*-culture as described by Jones and Cloke (2002) is situated around trees (i.e. tree-culture). But the word arboriculture in the trade is commonly conceived of as arborist-(social) culture. In the same way we are not separate from nature, we cannot speak about tree-culture and not talk about arborists and their role. When asked why they got into arboriculture, participants responded with an array of answers that included:

recounting childhood memories of playing in parks, falling into the field by chance; but the prevalent response was that they wanted “*to be near trees,*” to “*touch them and take care of them.*” Their passion for trees and physical external nature is what drew them into the field of arboriculture and urban forestry.

Temporal and sensory relativity affect our experiences with nature in diverse, complex ways. Macnaughten and Urry (1998, p. 104) discussed how various sensory mediators, such as vision, touch, smell, sound, as well as time and memory, contribute to our perceptions, interpretations and appreciation of nature; essentially they shape our collective consciousness²⁹ of nature. Thus, field arborists’ physical proximity to trees (touching trees daily), allows them to have unique emotional and spiritual connections (and apprehensions) with the urban forest itself. The reason that it is important to examine the intimacy of this relationship is because the impact of any kind of changes to practice, and thus the urban forest itself, can be better understood.

Some participants expressed that there is a constant power struggle between human and non-human agency. This may have always been the case in urban forestry operations, but the consciousness about this is not widely represented or documented. For example, Irus Braverman (2014) suggests that the root systems of street trees are neglected in the urban foresters’ vocabulary. She argues that the methods, perspectives and need for discipline of above and below ground trees is dealt with in different ways (p. 132-147).

In general, people are most attuned to nature’s agency when the threat of a natural disaster is upon us. Arborists are typically valued and celebrated in the lime light when trees are considered the “enemy” in case of emergencies or “natural disasters” (e.g. ice storms in Eastern Canada, 1998 and 2013). Even the terminology should give pause: that something *natural* is a *disaster* only because it opposes and even threatens human notions of normalcy; it disrupts ideas of the familiar way of, and routines in, life. The paradox of people’s perceptions with respect to urban

²⁹ The collective conscious refers to shared beliefs and moral attitudes hyper-sensitized by group dynamics. The concept was conceived by French sociologist, Emile Durkheim, then later the term was coined by his nephew.

forestry is never more apparent or acute than in these situations. Whereas on a regular day, the general notion is that trees are good/beautiful and the arborists pruning or removing trees are bad/destructive (see Chapter 4), when a storm strikes, the perception changes to trees being the enemy and arborists are the heroes. For example, during December 2013, when 195,000 Ontarians still had no power, Toronto Hydro spokesperson, Vanessa Nero, claimed that: *"Trees and fallen branches are our biggest obstacle to restoring power."* The language used when discussing trees in these situations shapes the way people begin to see the trees.

City employees were working 12-hour shifts, and Toronto Hydro had deployed 63 private companies to help with the restoration and tree clean-up. The dominant question that arose in this situation through the media was: *How prepared were we?* Inquiries revolved around whether the City had been adequately prepared for this situation, more specifically, had the Forestry department been doing a good job trimming trees beforehand. Should foresters have been working harder before such a storm to reduce potential hazards? This implies that the fallen trees and branches were seen as hurdles and, as such, the people working hard to fix the problem were again undervalued because in reality, *"they should have been working harder before the storm anyway."* In contrast, when the City of Toronto was taking preventative measures against the threat of the Asian Long-Horned Beetle (ALHB) in 2008-09, arborists were threatened by homeowners and in some cases accosted by clients to save their trees from the chainsaws (Interviews, 2012). This begs the question: *Why can't people make up their minds about the trees and the people who care for them?* I do not mean to perpetuate the "us versus them" dilemma (i.e. tree workers vs. everyone else), and this is not to say that there is only one way to conduct urban forestry and arboricultural operations (e.g. invasive species, pruning, removals, etc.). Instead, there are different perspectives within the professional on how to deal with operations and planning; thus the culture of arboriculture has many layers with respect to agency depending on whose perspective is being showcased, be it the arborist, the tree, the community, or the homeowner. Interviews revealed additional counter-narratives (Andrews, 2002) due to these dichotomies.

The desire or ability to place value, or be conscious of nature's agency, stems from the evolution of culture and from arborists' motivations:

We've now come to a situation where the last couple of generations have looked back at what their parents did and what's happened in life and looking forward have decided that they want to do something that they like and is good for the world. A lot of people in the tree care business have come to this field because they want to do something they enjoy, something that gets them outside, out of an office cubicle or work station, working in front of a computer, they want to do something physical. And now so they are committed - they've decided on tree care and they very quickly demonstrate their long-term commitment to trees and the urban forest (Interviews, 2012).

6.3.2. Agency: Knowing, control and vulnerability

To better understand how arborists can shed insight into *knowing* nature, we must first examine how *we*, the collective *we*, have come to understand it. Nature has been defined and redefined by and for many people. Philosopher Kate Soper (1995) denoted that there is a presumption that begets the idea that we know *what* nature is. On the other hand, critical geographer David Demeritt (2001) suggested that we can never truly know nature. In short, *nature* seems to be *everything*; even well-defined versions of the term are so different one to the other that the real meaning (whatever it is) tends to get lost in relativity or cyclical philosophical debate. According to Demeritt (2002), one of the main sources for confusion is the lack of clarity in terminology when we speak about nature. This is, or must be, also coupled by a qualification of the context within which we situate the *nature* we are describing.

Noel Castree (2001, p. 9) argued that the “facts of nature” vary according to diverse perspectives. He defined nature in three ways:

1. External nature, whereby nature is external to, and different from society: here, nature has its own agency. There are biotic and abiotic actors that are real in and of themselves (i.e. herbaceous and woody plants and trees,

insects, mammals, aquatic life, water, rain, soil, air, wind, landscape formations, mountains, etc.).

1. Intrinsic nature, whereby nature is an inherent and essential quality or attribute that is fixed and unchanging: here, nature is described as the character of someone or some being (other than human).
2. Universal nature, whereby natural characteristics are referred to in general and not particular terms: here, nature is referred to as generalized behaviour or thought-processes insisting that things are simply a certain way and that those “ways” are normative.

The various interpretations and understandings of the term *nature* are the basis for much sociological and political debate due to the implications it has for establishing truth and science (Demeritt, 2002). Empirical or *hard* science is often looked at as truth, irrespective of the notion that scientific methods, measurement techniques, and equipment are created by humans (Cronon, 1996).

As such, the differences between *external* and *intrinsic* nature are more obvious; this division is further polarized in various disciplines such as physical geography and anthropology; where one discipline is rooted in quantifying physical landscape attributes and the other in subjective qualitative analysis of social behaviour. However, the difference between *intrinsic* and *universal* nature may not be as clear. Since nature is defined against culture, these two natures are largely defined and represented through temporal and spatial conditions and differentiations (Demeritt, 2002; Macnaughten & Urry, 1998). Simply put, people and perspectives change over time, throughout history, so too then do ideas and concepts about nature.

It is no wonder then that nature and culture are two of the most complicated words in the English language (Williams, 1976)³⁰. For the purposes of this chapter, I use the term ‘nature’ to refer to *external nature*. That is to say the “natural”

³⁰ Williams, R. (1976). *Keywords*. Glasgow: Fontana. Introduction to Section 6, The Global Cities Reader.

environment that consists of biotic and abiotic agents and actors in wilderness, prairies, oceans, urban forests and greenspaces (i.e. back yards, parks, corridors, ravines, woodlots). More pointedly, the term nature is often interchanged and relationally associated with *forests* and *trees* specifically, in the physical sense. For the purposes of this chapter, I take this to a greater level of specificity to focus on *treescapes* or *arborscapes* in the urban forest.

6.3.2.1. *Knowing: scale, space, species and intimacy*

I personally feel concerned about the number of the public that don't understand how dependent we are on their [trees] presence, let alone their by-products and aesthetic contributions. Being human, we are tasked with the care of all other organisms "below" our stature before... (insert personal deity here). I fear for all when we so misunderstand the most obvious of wonder (Arborist on LinkedIn).

Trees are place makers, as markers of time and representations of place; trees span spatial and temporal scales more than any other living organism in an urban environment. They live for hundreds of years and they contribute physically and culturally to the communities around them (Jones and Cloke, 2002). Trees live through time and space in ways we cannot imagine. More pointedly, they live through temporal/generational changes as well as physical and geographical changes. For example, a tree living for 200 years will survive a forest, a farmland, and perhaps a sub-division development. The continuous physical changes over time also have many social and cultural variances that impact and influence the tree.

Rangan and Kull (2009) argue that scale has many variables dependent on space and time evolutions that lead to political change in socialized landscapes – trees bring their heritage and energy to a space. Their majestic presence is often; even though onlookers may not know the tree's history, they *feel* something. This interpretive moment speaks to Rangan and Kull's (2009) description of the moment of transition within scale. Building on this notion, place identity research is also exploring and finding that urban trees are a significant contributor to the notion of a

sense of place (Ardoin, 2006; Hull, 1994; Proshansky). Examples of green places include: places of play, such as canopy walks; places of memorial (Cloke, 2008), such as cemeteries; and places of learning, such as school grounds and arboreta.

There was another dominant theme that emerged in the context of knowing nature. As Preston argues:

Time has a different quality in a forest, a different kind of flow. Time moves in circles, and events are linked, even if it's not obvious that they are linked. Events in a forest occur with precision in the flow of tree time, like the motions of an endless dance (Preston, 2007, p. 12).

Several climbers referred to “tree time” and described it as “being in *the zone*,” the feeling of doing something in that moment, for that that moment, when nothing else makes sense. These conversations reminded me of John Livingston’s *One Cosmic Instant* (2007), an oxymoron in itself, describing the evolution of the earth and humans’ perceived dominion over nature. I was struck by the gentle kindness with which participants spoke about the trees that they *experienced* and *cherished*.

6.3.2.1.1. Scale and space: Climbing

Arborists care for trees on a spatial level. They have both a lateral and vertical understanding of treescapes and urban environments in the physical sense. One of the examples I draw on here is the seemingly simple and straightforward act of climbing. For many respondents, climbing trees was the most exhilarating, and, in some cases, terrifying, part of their job, despite the fact that it comprised only about 15%-25% of their daily work performance (Interviews, 2012). “*It [climbing] freaks me out, but I love it*” (Interviews, 2012 - expressed with escalated excitement)!

The convergence of agencies (*society’s* and *nature’s*), as we currently understand them, occurred most significantly when my participants described climbing practices: “*Climbing makes me feel alive; there’s nothing like a long limbwalk to clear your head*” (Interviews, 2012).

At once, there is a very material/physical and conceptual/spiritual connection. Favoured trees were differentiated by “climbing trees” vs. “trees to look

at” - often the identified species differed between these two categories. Most participants identified Red oaks (*Quercus rubra*) and White oaks (*Quercus alba*) as good trees to climb due to their lateral branches, through which they could perform long “limbwalks” (see Figure 6.2). This experience offered meditative release and opportunities for reflection about themselves and the world around them; through stories, many respondents spoke about acquiring a new perspective of society from the tree tops: “I get up in a tree and I think, so this is what you [the trees] see all day” (Interviews, 2012).



Figure 6.2. Climber perspective: near Toronto, Ontario. Source: ATSI, 2012.

Several participants spoke about the ability to “see neighbourhoods from a tree’s viewpoint.” They reflected on feeling like they are part of the “tree community” observing the people “down there.” And so arborists collect snippets of internalized data that, compiled, can be thought of as unique tree personas. This theme is latent with power implications since the physical size of a tree, in some neighbourhoods,

towers over “the people” (read social agency); this is particularly telling when considering wealthier neighbourhoods and the inequalities (social, political) with which they contend (Heynen, 2006; 2007). Is there a correlation between the existence of trees in a neighbourhood and the (social) importance that is placed on nature among those community members? The idea of “out-of-sight, out-of-mind” urban planning is manifest when considering underground infrastructure and the lack of consideration for tree roots (Braverman, 2008). This begs the question: do arborists view trees as being a conceptual dominant class – in which they (the climbing arborists), for a brief moment, are able to relate to on an equal footing; or do they see themselves as being conquerors of trees and of nature, having the ability to shape and manipulate their future? Interviews revealed that perceptions included both these two standpoints depending on the species, the site and the season.

Climbing is conceptually an act of dominion over nature: an invasive act that literally penetrates the canopy of a tree in order to figure it out, experience, alter, shape or control it. In a way this objectifies the tree, a concept that has its place in urban forestry practice. This being the case, my interviews revealed that the intricacies and nuances that surround the act of climbing for field arborists were much more compelling than objectification. They were also driven by spiritual connection, awe and reverence, as we will see.

6.3.2.1.2 Species: Diversity

What was particularly interesting during interviews and discussions about agency was how the variability of nature plays such an important role in the work being done in the field and in how field arborists felt about this work. The variability with which arborists contend was not solely about weather; rather, it also involved attributing intrinsic characteristics to the trees being cared for, and the species themselves. Tree physiology and species diversity play a critical role in how field arborists conduct their work and make specific operational choices. Alternatively, operational mechanics of the work has a major influence on trees (e.g. pruning = “wounds”).

Although all individual tree species have intrinsic value, three examples that were used more than once by interviewees were: willows (*Salix*), oaks (*Quercus*) and locusts (*Gleditsia*). These three species each represent and embody a different aspect of field arborists' experiences and relationships with urban trees.

The **oak** tree (*Quercus spp.*), without exception, was spoken about in a positive light. The Oak tree represents a place of reverence as a sentient and relic in an ever-changing, fast-paced urban landscape. Oak trees were considered a collective favourite for climbing - "*you're usually climbing a mature tree and so you can do these long lateral limbwalks*" and experience the form and shape of the tree. The structure of the oak tree was the focus of long discussions with interviewed arborists. It is apparent that this species invokes feelings of admiration. Think back to Chapter 4, and the evolution of the *Oak Man* metaphor (Blair, 1992).

The **honey locust** tree (*Gleditsia spp.*), quite frequently was the tree that was used as an example to describe the hardships of labour. It was referred to as the "*gentle nightmare*" - a paradox I had the pleasure of experiencing first-hand during fieldwork. The delicate compound leaves offer a soft lace-like pattern of shade on the ground, but the bark has sharp ridges that shatter when disassembled or cut. This prolongs the time it takes to clean up and rake a site. This species invoked feelings of reluctance towards work, as recounted by those I interviewed.

Lastly, some species of **willow** trees (*Salix spp.*) were referred to as "*widow makers*", due to their weak wood and hydrophytic³¹ tendencies (this brings to my mind images of miners and the daily dangers associated with that work). The running "joke" was that: "*you never wanted to climb a willow because you couldn't know if you were coming home*". Ironically, in tree iconography and symbolism, the willow tree represents fertility, femininity and healing. This species invoked feelings of apprehension in interviewees.

These applied characterizations and social associations showcase different aspects of field arborists' relationships with trees. In each case, what was interesting

³¹ Hydrophytes are woody and herbaceous vegetation that like their roots in moist soils.

was that participants focused on the branching structure, the form and bark of the trees. Less attention or characterization was paid to the leaves - simple or compound, pinnate or palmate - it did not make a difference; the component of agency that was noteworthy in how it impacted field arborists was the woody material.

The constructions and attributions of characteristics to specific species are integral contributions to field arborists' *knowing* of nature. The attributions that are associated here shape neighbourhoods and urban/socialized landscapes in a unique way for arborists. For example, in the case of a honey locust being *messy*, changes the way in which arborists may view an urban space with a group of locusts surrounding benches (see Figure 6.3).



Figure 6.3. Adrina Bardekjian, Locust trees and bench: Toronto, Ontario, (2011), photo. Source: Adrina Bardekjian, 2011.

Lastly, in academic literature, and on-the-ground planning, the notion with respect to native species is a contentious issue. In popular media and advocacy, the tendency is to promote native species for tree plantings. Interviews revealed that these views are not shared amongst field arborists. Many participants did not

express opposition to planting non-native trees. Some participants expressed better favour towards exotic species depending on the *intention* of the planting. Overall, the focus was on aspects and characteristics of individual trees.

My favourite tree would be a large-growing shade tree that not only is suitable for the environment now, but would be projected to be suitable through the climate changing, higher temperatures and higher winds for the future (Interviews, 2012).

Overall, participants did not like the mantra of “the right tree in the right place” - many felt that it undervalued trees’ individuality and promoted an acute criticality toward particular species. For example, the Tree of Heaven (*Ailanthus altissima*) is often the target of many urban stereotypes and known as the icon for unfavourable species that grow in an unruly manner. Some scholars have questioned and compared this marginalization of a tree species to the marginalization of humans (Patrick, 2014). Interviews confirmed that the Tree of Heaven was the brunt of such stereotypes due to its resiliency to grow “like a weed” in cracks and crevices of cement and sidewalks; however, some participants also shed light on the fact that it is exactly this type of resiliency that is necessary for survival in harsher urban conditions. Interviewee reservations about this particular species did not stem from its non-native status, rather, reservations were related to the working environment that this particular tree created (given its tendency to grow in unconventional places).

6.3.2.1.3. Intimacy, spiritual connections and emotional ties

The tree wrapped its leaves around me like a comforting blanket (Interviews, 2012).

Various representations of forest iconology are shaped by social and cultural constructions; subjectivity and ethics have a plethora of interpreted messages and meaning. Old growth forests, for example, can invoke primordial feelings in us. We cannot definitively explain the reason for this, perhaps it is their size, their age, their

material existence outside of our control or capture; perhaps it is because we have been told to feel that way through poets' romanticism, mythic lore and the gothic.

The reverence of forest landscapes is epic and ageless. Throughout history people have attributed supernatural powers to trees and revered them as gods, showering them with gifts and worship. They are sacred and holy symbols in countless cultures and religions. The Celts, for example attributed a god to every tree in their calendar. In India, a sacred fig tree, that was destroyed many times, is worshipped because its epicormic shoots- have been able to revive on the same site for 2500 years. As described in *The Golden Spruce* (Vaillant, 2006), the Haida people named their tree *K'iid K'yaas*, Elder Spruce Tree, weaving the forest into their legends, myths and history. Vaillant also referred to the Golden Spruce as an awe-inspiring "arboreal unicorn" (ibid., p. 19) that was praised and adored. Thus, common in many literary representations, forests are places of mythological and magical reverence.

It is the very mystery of a pristine forest that creates an evocative draw. Those emotions that are invoked (e.g. a quickening of the pulse, hairs raised on the back of the neck) may be explained chemically and rationalized by biologists and scientists, but interviews revealed that trees and urban forests are often uncontrollable and offer the same feelings and connections. Trees are habitats. They have evolved with other organisms and they are home to inter-dependent species. Old trees in particular are an ark of biodiversity - if they are kept on the landscape, they are windows to the past in plain sight. Relic or Heritage trees are gaining social recognition because of their presence in urban landscapes.

Because trees are living, they possess energy, live energy, it's not like climbing a rock face. There's moments when you're in the tree and you just feel energized it's a spiritual moment and it's an unspoken experience amongst all arborists (Interviews, 2012).

Interviewees revealed an array of conflicting emotions surrounding their relationships with trees. As participants recounted their favourite trees, it became apparent that their connection with trees was intimate and also spiritual, outside of folklore and magical realism. In particular, interviews revealed that field arborists

have a sense of spirituality when they are climbing. The notion of “Mother nature” was prevalent through the way they described personal experiences of being in the tree tops and feeling protected *emotionally*, while also feeling vulnerable *physically*.

Many participants also described a sense of childhood reverie with specific species based on their culture and family history. These associations and perceptions of specific species influence the way field arborists see the working world around them:

My wife and I planted a crab apple in our first house, and after several years, we had our first child and then I remember that our dog used to be tied to it and the children would run around it - we watched life go by under that tree (Interviews, 2012).

6.3.2.2. Control: manipulating and shaping

Enmeshed and often hidden in arborists’ experiences is an array of activity, including labour aspects, legal aspects, and considerations for ramifications – socially, politically and economically – that goes into making the first cut on any tree. As a result, examining agency and how arborists negotiate agency is not about complicating an activity that is seemingly simple – cutting or pruning trees – rather, it brings to light the complicated activity that is not always manifest due to the simplicity – physically and even conceptually – of an arborist’s activities. The importance of doing so provides new insights into arborists’ role(s) and the potential impact of any changes to their practices and power dynamics.

Unlike the common metaphor of “tree cutter” or “lumberjack” (see Chapter 4); most arborists take pride in caring for trees as *living organisms* (Interviews, 2012). Arborists do not fell trees needlessly; they manipulate trees carefully and knowledgeably. Arborists spend time with trees, touch trees, shape and construct trees; how these decisions are made, are fundamentally based on understanding the variability of nature’s agency while at the same time contending with the fact that there is no decision-making model for the same reason.

One of the ways we can explore this is through the act of pruning. Operational mechanics of the work has major influence on trees (e.g. pruning = “wounds”). But, before we discuss this, it is important to have some basic understanding of tree biology.

6.3.2.2.1. Understanding basic tree biology

Trees produce their own food stores. The main conductors of this process are xylem and phloem - commonly referred to as the *plumbing system* of a tree. The xylem in wood has four primary functions: to conduct water and dissolved minerals (nutrients); to support the weight of the tree; to store carbohydrate reserves; and to defend against the spread of disease. The outer rings of the xylem are the ones that are active and they are directly under the bark. The phloem is responsible for the movement of sugars produced in the leaves, to other parts of the plant; it carries sugar to the roots and throughout the plant for storage and it moves relatively slow and occurs along pressure gradients (Shigo, 1989). Each branch produces and stores enough carbohydrates to sustain itself, then exports to the trunk and roots. Each branch is similar in structure and function to the entire tree crown, but branches are not just outgrowths of the trunk. They have a unique attachment form that is critical to the application of arboricultural practices such as pruning. Branches are strongly attached to the wood and bark beneath the branch but weakly attached above the branch. The annual production of layers of tissue at the junction of the branch to the stem is called the branch collar. It forms a bulge around the branch base. In the crotch, the branch and trunk expand against each other. As a result, bark is pushed up to form the branch bark ridge. If bark in the crotch is surrounded by wood it is called included bark. Included bark weakens the crotch because the normal branch to trunk attachment is not formed and decay may develop above and below the crotch. Co-dominant stems and large branches with included bark may be the single most dangerous condition in urban landscapes because branches or stems with included bark are likely to split from a tree (Shigo, 1989). Because bark is the covering of a tree’s branches and stems it acts as a protective tissue that moderates

the temperature inside the stem, offers defense against injury, and reduces water loss (by the wax and oil that are in the cell walls). So by ripping the bark, the tree becomes exposed and susceptible.

6.3.2.2.2. Pruning

The act of pruning is one of the primary operations that field arborists perform. However, due to the variability of nature, there is much debate on at least two fronts. Firstly, there is the issue as to whether pruning is an art or a science – art being the practice of recognizing each limb and branch as unique and deserving of distinctive treatment and shaping, while science being more to do with prescribed methods learnt in forestry school – and if it is both, than what is the ratio? Second, is whether pruning is necessary at all and how often?

Some interviewed arborists expressed that they felt that if the “right tree is in the right place³²” (a phrase that needs to be unpacked in itself), than it does not need to be pruned because nature will take care of it. But who determines what is right? This has aesthetic implications but is also latent with power and ethics. Others told about how they felt that nature’s influence and human disturbance impact the growth and evolution of a tree in most urban places and thus how all urban trees need pruning at some point in their lives in order to live in harmony with humans.

Most interviewees agreed that pruning serves a function first (e.g. visibility, storm damage) - the science – and that aesthetics were considered secondarily - the art. The common concept in arboriculture implies that if a tree is pruned well, the work should maintain the integrity of the tree’s natural shape. Yet, each tree “*has its own character and should be approached and appreciated with this in mind*” (LinkedIn Group).

Many participants referred to aspects of their work as being very creative. For example, when discussing *fine* pruning techniques, responses were analogous to

³² There is much debate on the accuracy of this common notion (Braverman, 2008). Yet, this phrase has become a slogan for proper tree care. It has many political connotations, not just with language - who defines what is right? - but with the overall shaping of this concept.

how a painter discusses the diversity of brush strokes between water colour and oil paintings. The main objective of pruning is not to alter the tree's shape and form, it is done to mimic the natural shape of the tree and help it achieve a strong structure and prolong its life in a constructed environment.

Tree pruning is a complex task that combines knowledge of biology, mathematics, technical skills for machinery, athletics for climbing, strategic and artistic vision, consideration of human welfare in proximity to the tree, and plant health care. However, even a very skilled arborist, who, due to knowledge and skill, can somewhat manipulate the growth and direction of a tree, cannot entirely control nature.

One arborist shared the story of "*lollypopping*" a grove of Colorado spruce trees - pruning their crowns into circles. *Lollypopping* is a term commonly used to identify pollarded vegetation in urban landscapes and gardens (Interviews, 2012). Arborists are faced with continually, yet respectfully, controlling and contorting nature for human pleasure and diverse perspectives on aesthetics. An interesting analogy that was presented was comparing lollypopping to dressage (i.e. horses). To an animal lover who is opposed to such activities, the dramatic comparison invokes a sense of apprehension. The practice of lollypopping is the single most obvious act of control. Stories showed that there was a constant struggle between feelings of controlling nature and nature controlling them - this again has ethical considerations of right/wrong - power going in one direction and then the other.

Field arborists have a profound impact on the future of the urban forest fabric. They have control over the growth (shaping, manipulation) and therefore the future of urban forest health as much as the urban forest itself has control over their fate and experiences which are tied to nature's behaviour. For example, only a well-trained field arborist can effectively negotiate and apply directional pruning methods and understand the impact this will have on how trees will grow. Thus, arborists can control some aspects of nature's future behaviour. In the extreme sense, field arborists could, very skillfully, sabotage the future of urban trees. This is latent with power implications. The urban forest policy makers are not typically running a side tree work business, as such this distance from the field creates a

detachment. This is not to say that all the responsibility rests with arborists or that all control begins and ends with arborist conduct. However, what must be acknowledged is that because of their physical proximity and connection with trees, dominance and the ability to control is a very real aspect of arborists' everyday (physical and tangible that can be observed).

Related to the metaphor of the doctor (Chapter 4), one can easily understand how a doctor has short- and long-term control over a patient's physical and mental well-being. Think for example of the responsibility and accountability society places on psychotherapists or surgeons. A doctor needs the education, professionalization and peer credibility to execute practice effectively. Similarly, arborists – if conceived of as “tree doctors” – are part of a collective infrastructure and network that is social, political and ecological (ANT) and that the power they take, the power that is bestowed onto them and the power they continually negotiate within their profession must be well examined and understood. The linkages between arborists and their subjects (trees, urban forests, communities, consumers, etc.), has significant implications for theory, practice and professionalization, as well as other areas, which is what the metaphor emphasizes and the interviewees echo.

In the same vein, physiologically trees are similar to each other even though they have different families and come from diverse geographic areas. Understanding their physiology and basic biology, thus, humanizes them as living organisms and it is here where artistic representations are exceptionally compelling. Artist Su-Chen Hung, a member of Friends of the Urban Forest, exhibited this art installation at the Museum of Contemporary Arts in Taipei, Taiwan, in February and March of 2009 (see Figure 6.4). The title of the installation was, *"Tree with Arteries."* (<http://www.suchenhung.com/gallery/environmental/treearteries/index.html>).



Figure 6.4. *Su-Chen Hung, Trees With Arteries* . Source: <http://www.suchenhung.com/gallery/environmental/treearteries/index.html>

This installation dramatically humanizes the tree on two fronts: a) the tree is bleeding and so observers are reminded of our own physiology and arterial flows, and our own mortality or physical pain by extension; and b) because the sentient tree formations are lying down on their sides, inside a building and through doorways (assumedly this was intentional for the exhibit location), we see how large the tree is; it is a direct paradox to our conceptions of size (see Section 6.3.2.3.3). Nature has always inspired artists and continues to do so (for further discussion on this related to the urban forest, see Chapter 9). Thus, thinking about pruning in this context changes our preconceived notions of cutting, manipulation and planning in context to shaping and altering living organisms.

6.3.2.3. Vulnerability

When things go wrong, they go really wrong (Interviews, 2012).

Exploring field arborist perspectives of agency was most inspiring with respect to vulnerability. Trees in urban environments are unpredictable and exposed to extreme weather, decay and displacement – as a result, trees can create exposure in arborist workplace conditions. In addition, arborist actions have a direct impact on the vulnerability of trees. These vulnerabilities greatly influence arborists’ perceptions of the urban forest as a place of work.

6.3.2.3.1. Weather

The first and most obvious impact on field workers and trees is weather. Based on survey results, the majority of participants (24) in this case study selected autumn as their preferred season in which to work (see Figure 6.5).

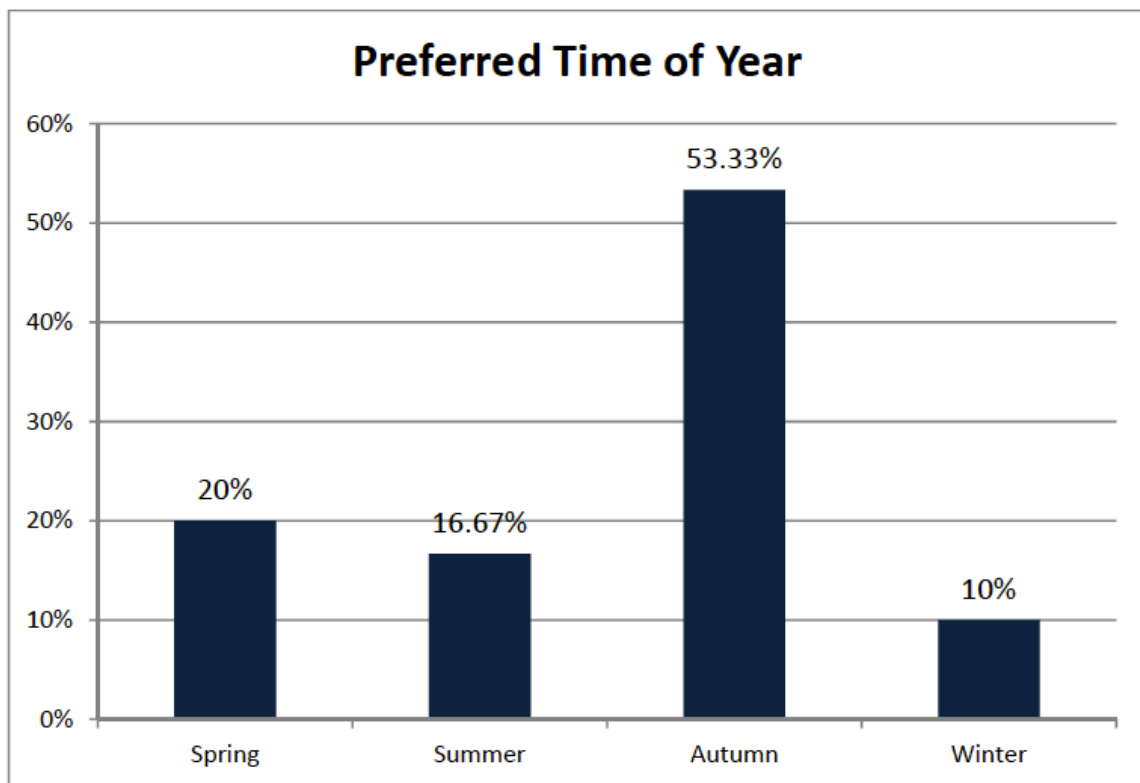


Figure 6.5. Participants’ preferred time of year.

When asked the reason for their choice, responses were descriptive (see Table 6.1). All interviewees work throughout the four seasons and experience

extreme weather conditions. A parallel can be drawn between the extremity of weather and the extremity of the work being performed - “we need balance” (Interviews, 2012) – and so a neutral or tempered environment is rationalized.

Table 6.1 Reasons for preferred time of year – selected

Quotes: Reasons for preferred time of year: Autumn
“The tail end of a hot summer with the changing of colour in the trees. Comfortable work weather. The winter is doable if you dress properly. It is very hard on the equipment and the personal spirit. On the other hand, the summer can be dangerously hot and can become a hazard in extreme heat conditions. This is why I love working in the fall, late September and October are optimal months to get the job done.”
“You can start in a sweater, work in a T-shirt and go back to a sweater, the sky is the bluest it can be and the trees look and smell great!”
“I just like autumn - mild temperatures, usually dry, beautiful colours!”
“It’s not too hot and it’s beautiful out.”
“Coolest weather, most tolerable conditions.”
“Cooler days, stunning fall colours, nature setting up for winter provides closure to another working season!”
“Weather is cooler; more hospitable for working outside (not too hot, not too cold); better for trees; gardens are going to bed; it is easier to work around trees under the gardens.”
“There are good things about every season to work in but I find you have so much appreciation for those nice sunny and warm days [in autumn], and just enjoy being outdoors so much more than you do at other times of year. Especially after a week of cold and rain, and you know there’s going to be more of that in a short time, and you get a few really nice sunny days around 8 degrees.”
“The heat of the summer has subsided and you get beautiful colours and brisk cool mornings and warm afternoons.”

Interestingly, one participant provided reasoning on preferring summer to any other season: “*Beautiful weather, trees and shrubs are fully leaved.*” This was one of the only references to leaves while all other references to trees and discussion

surrounding trees dealt with form, structure, shape and branching patterns. This has implications on how field arborists see, think about, and relate to trees.

What was also revealed through interviews was that the weather was the prime reason for workplace mood and morale on any given day. For example, in discussions about the impacts of seasonal changes, many participants explicitly discussed sun safety and heat exhaustion. In addition, it was revealed that participants appreciate the trees on which they work based on the comfort level in which they perform the work; and this can vary from day to day. Thus, weather impacts whether urban forestry workers like or dislike their jobs.

6.3.2.3.2. Fears, phantoms and “frenemies”

When you stop being scared, you die (Interviews, 2012).

Throughout time, trees and forests were also looked at as places to fear. Echoing Cronon's *Nature as demonic other*, forests have been viewed as dangerous and foreboding places where demons and monsters lived; as well as places of ritual sacrifice (Schama, 1996). For example, in the Middle Ages, forests were hiding places for outlaws (i.e. Robin Hood), hermits and persecuted people. The basis for this stems from the gothic (e.g. Frankenstein) and other reasons, including some form of 'primeval' fear (Konijnendijk, 2008). More recently, some researchers have argued that arboriphobia is present in urban areas (Fraser and Kenney, 2000; Kirkpatrick, Davidson and Daniels, 2012; 2013). The representations revolve around uneasiness and a fear of the unknown that is outside a familiar comfort zone.

Participant responses showed that having a “*healthy fear*” of the urban forest as a place of work was not only beneficial but necessary for survival and personal safety. This discussion raised concerns about the unpredictability of nature and its direct impact on field arborists' feeling of safety and comfort at work. Being careful and taking necessary precautions with equipment represented only one part of their concerns.

You need to respect and consider its [the tree's] environment. We only belong here temporarily (Interviews, 2012).

Participants were self-reflexive in their position as outdoor tree care providers. They expressed feelings of “*belonging*” among the trees (as a right to themselves), and at the same time acknowledged that they were “*passing through*” (as a right for the trees). This raises questions about ethics; feelings of mutual respect and resentment. On the other hand, tree places can also be perceived as negative. Not “wilderness” on a macro-scale, but beyond the romanticized forest, there lingers perceptions of something wild, untamed, uncivilized, rough, and dangerous - not unlike the stereotypical perceptions of tree workers themselves (see Chapter 4). Arborists are nurturers-keepers-doctors-creators-destroyers-arbitrators of the urban forest. This is a deeper understanding that goes beyond the notion that the impact is always from one to the other, for instance humans’ negative impact on trees and trees’ positive impact on humans. The common view is that people influence trees in a negative way; and that trees influence people in a positive way - and that this relationship is not symbiotic. My research suggests otherwise. There is a constant and continual wrestling going on when making decisions, but this power struggle is not always negative and can be mutually beneficial.

Trees are living creatures; they are beautiful and terrifying; they are sometimes an enemy that fights back (Interviews, 2012).

Many participants at different times felt like “*victims to nature’s revenge*” when they had experienced a close call, a fall or a friend dying from a fall. This was the urban forests’ way of taking revenge on its oppression (e.g. human encroachment, confinement and constant configuring) - and the closest targets are field arborists. Many arborists describe their work as being necessary for tree health and urban forest beautification. On the one hand, consider, instead that the tree is fighting back against its limbs being taken off.

One of the most common and obvious ways in which this was illustrated was the example of the devastating (from a social perspective) effects that storms have

in an urban area. Some field workers revealed that they are on call whenever there is a storm. As one participant explained:

It's great when people call you to remove a fallen poplar from their roof after a storm, but I don't know if they really make the connection that we're people too, and while we're saving their home, we might not make it back to ours." And another: "We're working during storm breaks [...] the number of limbs and trees that fail... we're the ones who have to climb the thing that has been compromised - the integrity is so unpredictable.

The matter-of-fact manner in which observations like this (which have so many social implications regarding identity) were expressed, were troubling (see Chapters 1 and 2). I think it is important to raise the question here whether this type of self-reflection perpetuates a hero-complex in the sense 'that the motivation and dedication behind the labour and intimate interactions with trees are admirable and are driven by the need and desire to serve communities - both trees' and humans'. I use the term *intimate* to describe their interactions because the act of *hurting* or *nurturing* involves an emotional investment, which is both latent and manifest in field arborists' interventions.

On the other hand, the relationship works both ways. The nature of tree work is such that it harms trees (to a respectful degree); and as it might be more well-considered in other cause and effect or dynamic relationships, trees' (re)action to the work done to them must equally be considered. Trees provide a lot of good to humans (e.g. ecological services and value); however, they are also harmful in some circumstances. Lyytimäki & Sipilä (2009) argue that more attention needs to be paid to ecosystem disservices resulting from ecological, social and technological changes that are occurring in urban areas and impacting the way greenspaces are experienced and managed (Lyytimäki & Sipilä, 2009). For example, pollinators in urban areas can increase reported cases of allergies.

In the same vein, tree work can be invasive in the short-term but can make a tree's life better for the long-term. It has been argued that trees in urban areas are under a lot of stress (Roberts, 1977) and that their physiological behaviour is simply reactionary to this - the difference being the lack of intent (Shigo, 1989). With this in

mind, arborists, as tree care providers do “save” trees from otherwise unfavourable situations and sometimes death. For example, one interviewee shared the following story:

We had 5 guys there that day. It was windy but we had to get the job done because the homeowner had their kids' birthday coming up on the weekend. The tree could have split down the middle of the two main leaders if a storm came, so we cabled it - 2 climbers and 3 grounds guys. We bored holes into each dominant stem and strung it together. And because it [the tree] was old and hadn't been pruned in so long, it was raining deadwood on our heads. We were there for 10 hours, but it was simple enough.

Interviews revealed various aspects of trees and the nature of tree work that caused fear or apprehension and the ramifications that came with that. It was revealed to me that participants most feared short- and long-term physical injury because it would mean they could not perform their job anymore. Many climbers also expressed “*flash fears*” of falling - but that technical training “*kicks in*” and helped them focus on getting through it (see Chapter 5). “*When you come home, that's a good day*” - said one with a chuckle followed by a sad smile (Interviews, 2012). Some participants expressed remorse about colleagues that had fallen: some had passed away, some had broken their backs. One participant felt very passionate about the lack of recognition for fallen climbers: “*We need to stand by each other more. When a firefighter gets hurt, the whole city knows about it.*”

Thus, fears of personal safety can also instil a sense of social marginalization. The continual consideration for providing for family has many socio-economic implications. On the other hand, participants also spoke about how their domestic life gave them strength and courage. And so, at once, they hurt, fear, and fulfill one another - such were the personal experiences of interviewees. Urban trees have also been known to take more subtle approaches to taking revenge and resisting human interference: bark swallowing laundry wheels in older neighbourhoods, leaves clogging eaves-troughs and roots digging through underground infrastructure and defying regulation (Braverman, 2008).

6.3.2.3.3. Decay and defenses

There are things in the tree that you cannot see from the ground - things like how the tree compartmentalizes, or seals up its wounds, and it's unique for that tree, for that species. And you're in a sense of awe; this is an evolutionary wonder. To me that's magic (Interviews, 2012)!

Trees have a number of features that serve as defence mechanisms; thick bark and cuticles, thorns, and leaf hairs. They also have a zone within the branch collar that produces chemicals that resist insect feeding, pathogen infection and decay. The chemicals come from the stored energy reserves in the living wood cells that are made up of starch and oil. This zone is not visible from the outside. When decay develops in a branch, it moves down the branch until it reaches the protective chemical zone (Shigo, 1991).

Trees compartmentalize. Unlike other living beings, like humans, where cells regenerate new tissue, compartmentalization is the process by which trees wall off decay. After a wound has been made, reactions are triggered that cause the tree to form boundaries around that wounded area. The theory of how this healing process occurs was developed in the 1970s by Dr. Alex Shigo, celebrated as one of the fathers of arboriculture, and is referred to as CODIT (compartmentalization of decay in trees). Shigo argued that trees do not heal, they “wall off” injuries (Shigo, 1991).

Poor pruning practices that encourage decay or the formation of weak branches, include: flush cutting, leaving long stubs, stripping bark or "topping trees" – an arboricultural *faux pas*, unless the intention is to remove the tree. Stub cuts and flush cuts reduce the tree's ability to heal quickly leaving time for a number of problems to set in such as cavities, cankers, energy depletion, insects and dead strips on the trunk that may continue downward to the roots. In many cases it also forces the tree to form epicormic sprouts.

Much like the trees themselves, participants spoke about compartmentalizing their vulnerabilities (e.g. fear, danger) by building defence systems that included proper training, compatible equipment and solid crews. What was interesting to consider is that tree physiology can also be a reflection of social

psychology. In the physical sense, some participants, when describing a tree removal (and compartmentalization) of a limb, related this to humans losing an arm and *cauterizing* the wound. In the psychological sense, interviews showed that the process of compartmentalization invokes emotional responses as participants often have strong attachments to the landscape and connections to trees in which they're *working*, but they need to "*shut that out*" in order to perform their jobs. As a result, participants expressed very strong feelings of responsibility for urban forest health (positive and negative).

Alternatively, nature's agency influences arborist health and labour tensions. As an example, with the increase in biotic threats such as Emerald ash borer (*Agrilus planipennis*) (99.9% death rate in trees) the impact on ash trees (*Fraxinus*) can be devastating. Hazards to urban trees (caused by human intervention at the micro level and globalization at the macro level), leads to potential sources of danger to workers. For example, this situation is a liability for municipalities; they will not be able to get the trees down fast enough for preventative measures resulting in major implications and additional pressure for field arborists. This level of pressure is often unimaginable (unfamiliar and un-relatable) and therefore unrealized by people (even working in urban forestry) who do not work outside as climbing arborists and ground crews.

Parallels can be drawn between the long-term impacts of vulnerabilities to trees and their care-givers. As one participant laments:

It would be nice if you didn't have to ever give up the physical, if you could maintain some of it as you move ahead. Because the love of tree care becomes ingrained and it's a shame when you have to step aside and you can't do it anymore (Interviews, 2012).

Older, more experienced field arborists expressed reluctance and at times resentment, at being unable to do the physical labour after years of working in the field. This is a tribute to the love they have of touching trees despite the dangers involved. *But does it also reveal something other than love?* Think of changing relationships: as we grow old and relationships evolve and sometimes stale, people

also emotionally wall off wounds in the form of denial – this creates an unexpected link to social agency and self-reflection in the work place. Another theme that emerged was the veneration of old, large trees:

You don't really know how big a tree is until it's lying on the ground, vulnerable, exposed and, at that point, dead. Then you truly appreciate its majesty even if you don't understand its worth" (Interviews, 2012).

In the same vein, there is an interesting paradox between the veneration and appreciation of large, older, heritage trees, and lack of care for small seedlings; vs. veneration of children and disregard for the elderly in Canadian society (Podnieks, Pillemer, Nicholson, Shillington, and Frizzel, 1990). I will not be dealing with this in my dissertation, but it is definitely an entry point for future multi-modal and interdisciplinary research.

6.3.3. Tree spaces and places: Of work, play and politics

Place is security, space is freedom: we are attached to one and long for the other. – Yi-Fu Tuan (2007)

The notion of space and place has been theorized actively in cultural and social geography, but less so in the application of urban forestry. Less attention is paid to reflecting on personal positions and reasons for feeling a particular way toward a certain greenspace or tree place. Or whether nature has a place in human spaces unless we specifically and intentionally put it there to serve a purpose, a function or a service; like the promotion of new tree plantings to improve human health.

How we experience, perceive, interpret and respond to our surroundings is a process: it is emotional, physical and interpretive. Most of all it is personal and relative. Space becomes a place when story is bound to it, woven through human emotions, cultural ties and environmental angst; when it is politicized, socialized or simply inhabited and frequented by people. Place hosts a plethora of dominant and

subjugated narratives (Tuan, 2007). As such, all places are multi-storied, with varying perspectives and changing voices, depending on the scale or the season, the person or the reason. Through my interviews and extensive participant observation and informal discussions, I explored the various stories of field arborists and how they situate themselves within the urban forest as a place of work. Interviews revealed that for arborists, this distinction is often blurred given their proximity and emotional and intellectual investment in these places.

The distinction between space and place is relative based on familiarity, experiences, activities and traditions. Greenspace is the *unknown*. I like to think of it as, where Ansel Adams' photography meets William Cronon's writings (1996). Ansel Adams' landscape photography in Yosemite National Park has been celebrated while William Cronon's work has emphasized the social constructions of the nature/culture divide by exploring narrative (Cronon, 1996a, 1996b, 1996c). Conceptually, space encompasses wide expanses of wilderness and represents a place to fear and all that is unfamiliar and disconnected from urban life.

Space lies open, suggests the future and invites action... space also can hold a threat, as open and free can also mean exposed and vulnerable (Konijnendijk, 2008, p. 11).

But what makes a space a place? (Tuan, 2007)

In 2010, I travelled to Haida Gwaii for the first time. I expected to experience all that those notions of wilderness promised; loneliness, a sense of abandon and vast nature (as though these are exclusive from urbanity); (see Figure 6.6).



Figure 6.6. Haida Gwaii landscapes 1: Haida Gwaii, *photo. Source: Adrina Bardekjian, 2010.*

Yet, just as I landed in Skidegate, I finished reading the *Golden Spruce* by John Vaillant. And instantly, the expansive landscape (see Figure 6.6) was known to me, or so I felt. Where something that was a *space*, I realized was very much a home to others (See Figure 6.7). So, this notion of Space became a Place.



Figure 6.7. Haida Gwaii landscapes 2: Haida Gwaii, *photo. Source: Adrina Bardekjian, 2010.*

In comparison, Place is familiar and various definitions have attributed meaning to locality. It is what leads us to form attachments and connections to these spaces. Thus, Place represents safety, community and home (Tuan, 2007).

Place can be characterized as enclosed and humanized space, as the calm centre of established values (Konijnendijk, 2008, p. 11).

It was revealed that field arborists have a connection with treed places unlike any other urban forest consumer. The urban forest has many transects and thus arborists experience those transects intimately with the trees themselves. Arborists not only move among and between, but are conscious of tree places as places of political and social controversies and boundaries. For example, weekly or in some cases on a more quotidian basis, a field arborist will prune municipal street trees, privately owned backyard trees, school grounds, and cemeteries. They may have applied for a removal permit, fought to save a hedgerow from redevelopment or

treated a single tree against an invasive pest. This diversity in activity shows how arborists traverse multiple transects, frequently. Thus, arborists negotiate places and spaces in terms of work, play and politics.

6.3.4. Ethics: Nature, work and conventions

How can we act in an uncertain world where our familiar compass bearings don't work as well as we once thought they did, and how must we change the way we think in order to reorient ourselves and act responsibly (Cronon, 1996, p. 28)?

6.3.4.1. Politics of nature and environmental ethics

Experiencing and knowing nature is very personal. As we question the existence of material and social nature and agency, and come to conclusions of how nature is accepted and normalized, it is not without the understanding that this greatly influences power and politics and has social and ecological consequences. Environmental ethics generally takes the common description-to-prescription approach. There are often common ways in which humans view, prioritize and heed the role of hard science and ecology for conservation measures.

In discussing ethical concerns and political considerations of nature, Bruce Braun and Joel Wainwright (2001) used the 'forest' as an example. The framing of what a forest is, they argued, stems from a series of determinative and quantifiable practices. The forest was discursively constructed as a space of *economic and political calculation*. This was done through the framing of sustained-yield (industrial) forestry- that only considered the perspectives of white settlers, at the onset. By the mid-1900s, Braun and Wainwright argued, the idealism of the 'forest' was so ingrained that redefining the forest as a cultural landscape or questioning this categorical 'forest-for-timber-production' would have been daunting. Through their example, the ethical and political concerns are clear. The absence or deliberate exclusion and separation of cultural considerations, or more specifically, Indigenous peoples' perspectives on and claims to the forest widened the divide. The inclusion of Indigenous land claims and historical uses highlights "*competing systems of*

signification” which in turn creates a new kind of disruptive- dialogue. As such, environmental politics today is more inclusive of discursive practices and is not only thought of as authoritative or parliamentary.

Though less commonly known, these productions and exclusionary practices are also prominent in urban forestry. Municipal governments are responsible for the management planning and maintenance of greenspaces, yet interviews revealed that the community values, despite public focus groups and consultations, are often overlooked. Similarly, it is impossible to speak about nature without acknowledging that social and economic conflicts add to the milieu of political challenges surrounding nature. As Braun and Wainwright put it: “[E]nvironmental politics are always entangled with a cultural politics of knowing” (2001, p. 40). Thus, it is on the shoulders of ethics and anthropocentrism that environmental politics are founded.

Macnaughten & Urry (1996) discussed how the nature discourse evolved into the environmental movement employing the “culturally illuminating” mandate: *“Think globally, Act locally”* (p. 270). These politics often involve calls to action that depend on a sense of purpose and moral obligation instilled in local communities who are up against the international community as the playing field in which they are either opposing, defending, or proposing new environmental policies. The international community, in turn, is also constrained by its need to appease/maintain a good reputation. Macnaughten and Urry (1996) also argued that a sense of power or powerlessness defines the various methods and conceptions of governing nature. And therefore, Proctor (2001) urged us to *“care carefully”* and consider if ethics presume to be morally just for everyone (Proctor, 2001).

6.3.4.2. Work ethic

It's not just a thing you cut. There is a moral and ethical obligation when you are a truly passionate arborist (Interviews, 2012).

Whenever there is a level of control, there are immediate ethical considerations (e.g. man and nature, man and law, man and conduct). Social

(*Society's*) and nature's agency are inextricably linked, and for field arborists this is most apparent as the nature of their work is outdoors. The care with which arborists negotiate operational decisions is based on solid education and skill, but also layers of political, social and ecological consideration.

For example, consider the following case: A large healthy Sugar maple (*Acer saccharum*), a native tree, is growing near a swimming pool and overhanging a property line. The arborist is called to prune the tree "*off the neighbour's yard*" and to "*try and make sure the leaves don't fall into the pool anymore.*"

The arborist, with his/her portfolio of skills and education, knows the appropriate amount to prune from this particular tree's canopy (education); the client wants the branches pruned away from the swimming pool to avoid "messy" leaves (social); and the bylaw dictates that a neighbour can cut away all branches hanging over the property line (policy), without stipulating that the cuts must be properly done at the branch collar to avoid infection and future health impacts. In this scenario, the tree is in a predicament and the arborist has control over its fate.

What was also revealed through interviews was that participants, as front-line workers in urban forestry, are also the primary source of contact with the general public and can take advantage of teachable moments to communities and for public education of trees. Thus, arborist knowledge about trees and their ideas about right and wrong will influence the public (see Chapter 7).

Trying to focus on and include people, trying to inform their initial opinion of what they thought they need doing on their trees, to guide them to alter their decisions for what is better for the longevity of the tree. Educate the clients on the benefits of trees and the urban forest (Interviews, 2012).

Because trees have a very real and direct impact on arborist livelihood, health and safety, interviews revealed that arborists' sense of responsibility to the trees, their work and their colleagues was profound. In contrast, there are some individuals and companies that are neglectful and solely work in the industry to make "*fast cash*", but for those who do care, ethical considerations about trees come as a close second to personal safety.

To approach everything we do with an eye for respecting the environment. Rationalizing what we do based on science and knowledge as opposed to purely focusing on making a buck. For instance, applying fertilizer and pesticides whether they [the trees] need it or not (Interviews, 2012).

This also brings about the question of: despite arborists' good intentions, some also felt that at times they had to bend to their client's will. Stories about unnecessary removals, or over-thinning were common. Thus, arborists are constantly negotiating society's as well as nature's agency. They, in essence are put in the position of *conduit* between human and non-human. Non-human agency shapes and permeates every action field arborists do (unnoticed) - their behaviour, their feelings, their negotiations.

Lastly, there is a clear connection between professional ethics as linked to the International Society of Arboriculture certification process. Interviews revealed that the existence of ISA certification has helped to raise the bar and the reputation of the profession.

6.3.4.3. Nature's socialization and the controversy of convention

Humans' relationship with nature is contingent on there being environmental problems. Our struggle to "save the environment" from ourselves has shaped the Great Divide in environmental sociology discourse (Hannigan, 2006). For this reason, "*environmental problems must all be understood via social processes, despite any material basis they may have external to humans*" (Demeritt, 2002). These various social processes (e.g. consumerism, tourism and globalization) are the reason for *environmentalism* being founded on viewing the physical world as "environmentally damaged" (Macnaughten & Urry, 1998).

One conventional perspective is that solutions can be found if environmental problems are addressed at their source; this *essentialist tendency* assumes that there is one source for every problem. However, due to the complexity of environmental problems and the multitude of differences in the people concerning themselves with

these problems, the conventional “piece-meal” approach does not work because it can lead to very different and opposing political and social implications. Therefore, a movement towards synthesis through an “*integrated and coherent perspective*” is necessary (Ellis, 1996, p. 268). Proctor (1996) echoes this idea in the context of reevaluating our priorities when it comes to environmentalism. He suggests that we move away from the materiality of nature and consider “*a pluralism of natures.*” He argues that there can be more than one ethic, more than one sense of right and wrong and multiple environmentalisms due to varying perspectives and disparate interests (p. 273).

6.4. Implications

Whatever affects one directly, affects all indirectly. – Martin Luther King, Jr.

In this chapter I have explored how the material reality and variability of nature’s agency influences the practice of urban forestry and ultimately how field arborists feel about their work; and, shown that the negotiating power struggle between human and non-human agency, despite being challenging, is not always negative. Examining arborists’ unique physical and emotional relationships with trees offers an important insight into the urban forest itself that has implications on future practice and policy development at the applied level. Though nature’s agency, in its own right, has a profound resonance and active presence, particularly to/for/against field workers, arborist perspectives provide a lens into the urban forest for what it is (e.g. *non-human, living organisms*), and not solely what it provides to society (e.g. *ecological services*).

The place of field arborists as main stakeholders in the urban forest is unique given their proximity to, knowledge of, and activities with urban trees. Understanding this relationship is key to developing and delivering equitable policies and best management practices that are safe and equally beneficial to trees and their surrounding communities. Thus, non-human agency is something that

must be considered whenever any education, professional, economic, labour or other policy decision is being shaped and considered. The intimate relationship that arborists have with nature and trees is something that adds value to policy decisions given that it is such an important part of their livelihood. Without this consideration, decisions will not be able to take into account the full effect of a new regulation, a new educational program, a hiring process, or a technological tool, etc.; until decision makers understand how field arborists negotiate agency.

The purpose of this chapter was to explore some of the agency relationships that exist and inextricably link arborists and urban forests, which are also often hidden. These include an examination of interactions between arborists and urban forests on social, economic, political, and ecological levels. By revealing these interconnections issues of culture, power, spirituality and ethics came to light. Overall, these narratives contribute to solidifying this thesis' argument that field arborists' experiences and stories can inform and inspire new ways of theorizing.

7.0. Sharing knowledge: Towards transdisciplinary education

Education is not the learning of facts, but the training of the mind to think. – Albert Einstein



Figure 7.1. Arboriculture students from Humber College training at YMCA grounds, *photo. Source: Adrina Bardekjian, 2013.*

7.1. Introduction

The final narrative of my dissertation explores the consideration of practitioner experiences within arboricultural education, and how these narratives can better inform the future of urban forest education more broadly, as well as public education at the community level. Interviews revealed three separate issues: a) weaknesses in the practical arboricultural education of professionals themselves, including an under-representation of practitioner narratives and perspectives in present education; b) inconsistencies and a lack of public education about urban forestry and arboriculture as integrated fields and the awareness of arborists as educators in this endeavour; and, c) lack of transdisciplinarity in urban forestry

higher learning. Elicited from my research and empirical findings, this chapter provides insights into possible inclusions of social theory into urban forest education in Canada both within formal systems and through alternative models. I maintain that post-secondary institutions need to restructure their curriculum to reflect the transdisciplinary aspects of urban forestry by integrating social theory with applied expertise. I propose a complementary model of education for urban forestry practitioners that include multivariate content. I also insist that arborists have an integral role as community educators in this endeavour. As a practitioner in urban forestry, I want to reiterate that I am writing for other urban forest practitioners to shed light on a potentially more inclusive education model.

7.2. Background

In the 1970s there was a greater emphasis on the Forest Management Harvesting aspect in the educational institutions in my experience, which led to me graduating with a Forest Technician Diploma. The basics of Tree ID, and insects and diseases were easily transferable to the urban forestry side. There was little in the way of formal training as the ISA Certified Arborist and Arborist Apprenticeship programs under the Province came years later (Interviews, 2012).

Despite the rise in popularity of urban forestry issues, there are no urban forestry programs in Canada that define the canons for the profession at any level, from practical diplomas to postgraduate degrees. Instead, urban forester education is largely piecemeal through various course work, supplemented by piecemeal field experience. Existing urban forest and arboricultural education models, in Canada, tend to focus on technical, applied expertise and often do not provide critically inclusive perspectives to reflect the links between the social and ecological complexities found in urban settings. There are few articles and studies (Anderson et al, 2005) that focus on the need for urban forestry education specifically. It may, if at all, get absorbed into the learnings, teachings and practice of environmental education; however, interviews revealed that urban forestry deserves its own designation, given the broad *nature* of environmental education discourses and

praxis (Interviews, 2012). Anderson et al (2005) examined the state of urban forestry education in Europe and found that the need for multivariate inclusion is imperative. Similarly, results of an educators' summit, hosted by the International Society of Arboriculture, at the Morton Arboretum in 2002, found participants placed greater importance on educational topics of arboriculture (e.g. planting, pruning) and less so on broader educational topics of urban forestry (e.g. land use planning, volunteer management) (Elmendorf et al 2005). Furthermore, community awareness about urban forestry issues is largely dependent on environmental non-government organizations. Communities sometimes feel powerless in the face of development pressures – not knowing where to go or who to turn to for information.

Drawing on martial arts philosophies helps to emphasize how deep the ecology of learning is rooted in our primal instincts and culture. Lao Tzu wrote that there are three stages of education. First to *want (to learn)*, then to *acquire* or *compile* knowledge, and finally, to *forget* or *unlearn* - only when we discard some of our “compiled education” do we truly learn (Bolelli, 2008). Political ecology encourages an unlearning of sorts, and my hope is that we, as urban forest practitioners, are confident enough to reflect critically on our practice and admit where we need improvement and then focus on finding solutions.

In education studies, Social and Emotional Learning helps to identify areas where people can absorb information. It is my position that this type of environmental education should become a priority in urban forestry learning models, in addition to content-specific material. So, not only do we need more inclusive urban forestry programs in terms of content, moving towards a baseline of knowledge, but we also need to consider the benefits (and include) social and emotional learning into formal and informal avenues of education (see Figure 7.2).

Social & Emotional Learning Core Competencies



Figure 7.2 Social and emotional learning (URL: <http://ecologyofeducation.net/wsite/>?)

From a Lifelong learning perspective, for example, there is *formal* education (institutional); *non-formal*, such as apprenticeships, community education and training; and *informal*, such as through popular media, exhibits, etc. (Fischer, 2000; Aspin & Chapman, 2007). For the purposes of this chapter, I am concerned with the formal education routes for acquiring degrees or diplomas in urban forestry and arboriculture as well as public education by arborist experiences. As such, inspired

by a mosaic of urban forestry courses from various institutions and levels, interviewee testimonials and personal experiences, this chapter can serve as an applied recommendation for considering alternate models of urban forest education.

7.3. Results and analysis

7.3.1. Urban forest and arboricultural education: “For whom and by whom?”

It's a very knowledge intensive field: you need to know a lot: dendrology, pathology, entomology, soil sciences, the theory of arboriculture and a lot of mechanical stresses and equipment, and communications (Interviews, 2012).

Interviews with field arborists and urban foresters revealed that the absence of a standardized (and professional) comprehensive and inclusive (socially, politically, ecologically) urban forestry education creates knowledge gaps that can lead to ineffective decisions in the field. In my review of university and college course syllabi, and through interview data, I noticed a marked lack of attention to the social dimensions of arboriculture. In urban forestry, understanding people is as important as managing trees; workers often take on the roles of sociologists, counsellors, economists, statisticians and strategic thinkers; these dimensions are as important as an arborist understanding the physiology of the tree he/she is climbing. The majority of interviewees felt that there should be a standard curriculum for arborists, and within this model, the baseline for education should be much more comprehensive with an option to specialize or streamline later into the municipal sector or the commercial sector as a climber or consultant. Each participant provided recommended inclusions to formal curriculum.

A lot of lay people, passers-by watching you, don't really understand how much education gets you to actually do a good job (Interviews, 2012).

The current state of arboricultural and urban forestry education includes: apprenticeships, college and university level courses and programs. To acquire positions in arboriculture, qualifications are listed in Table 8.1. below. This Table was developed through a combination³³ of personal communications, municipal documents and job postings available online. It is intended to provide an overview to readers who are not so familiar with the range of titles, qualifications and tasks associated with urban forestry and arboricultural labour.

Table 7.1. Common employment positions and qualifications for arborists and urban foresters

Position	Average pay ³⁴	Qualifications ³⁵	Role and responsibilities
City Arborist/ Urban Forester ³⁶	\$14.43- \$28.52 per hour	<ul style="list-style-type: none"> • Post secondary school community college diploma in an Arboriculture program • Minimum 2 years of related work experience • Minimum of 1 year's previous experience in horticulture machinery and equipment; • Physical ability to safely climb and perform work in large trees using approved equipment and techniques; • Valid Ontario Class "G" Driver's Licence, with a clean driving record; • Valid Ontario Class "AZ" licence would be considered an asset; • Able to work outside in 	<p>Responsible for the implementation and oversight of citywide tree management plans and operations.</p> <p>Inspects, trims, prunes, removes and performs surgery on trees and shrubs both from the ground as well as aloft if required;</p> <ul style="list-style-type: none"> • Tree plantings • Ensures work is performed efficiently and safely in accordance with approved City maintenance standards/specifications, policies and procedures and other legislative

³³ Sources: City of Vancouver internal document; online job postings (City of Toronto, City of Brampton, City of Brantford); *Tree Doctors Inc.* and *Davey Tree* websites; and, personal communications with participants.

³⁴ Pay rates are averaged from online searches of Canadian cities (Toronto, Brampton, Windsor, Oakville, Brantford, Montreal, Vancouver) and participant responses.

³⁵ This column lists specific requirements from various job postings; however, additional "soft" qualifications included: efficient time management and computer skills, being a team player, willingness to work shifts and weekends, strong oral and written communications and customer service skills.

³⁶ These two titles are sometimes used interchangeably, although this can be problematic.

		<p>varying weather conditions (heat, cold, wet) and perform physical work;</p> <ul style="list-style-type: none"> • Valid Emergency First Aid Certification; • Able to wear and use required personal safety equipment and clothing and supply own CSA approved work boots. 	<p>requirements. (e.g.: OSHA Health and Safety Act, Traffic Control, etc.);</p> <ul style="list-style-type: none"> • Ensures all tools/equipment are operated competently, safely and maintained in a good operating condition; • Performs routine maintenance and service including: lubricates, cleans and washes trucks, trailers and minor repairs to hand tools; • Represents the Corporation in a professional, courteous and respectful manner in all dealings with the public.
Arborist I	\$14.43-\$31.21 per hour	<ul style="list-style-type: none"> • Minimum Grade 12 education or acceptable equivalent in education and experience; • Extensive experience in all types of arboricultural work including pruning, removal, bracing, stumping, planting and fertilizing. 	Performs all facets of hands on tree maintenance and installation, supervises a crew of subordinates on job site.
Arborist II or Forestry II (for a detailed example of an actual job posting, please see Appendix V)	\$26.06-\$42.65 per hour	<ul style="list-style-type: none"> • Post secondary school community college diploma in an Arboriculture program and over one (1) year tree maintenance work experience in an urban environment. • Hold and maintain a current valid Class "D" driver's license with "Z" endorsement in accordance with the 	Assists the City Forester/Arborist or Manager of Forestry in the inspection and oversight of maintenance, removal, trimming and brush removal of shade and ornamental trees. Oversees staff and inspects trees in parks and in response to citizen requests.

		<p>Highway Traffic Act.</p> <ul style="list-style-type: none"> • Required to lift, carry, push and pull tree limbs, materials and supplies of up to 100 pounds. • Must be thoroughly familiar with current arboricultural practices, including full tree trim, tree planting, whole tree removal and disease and insect control. • Must be thoroughly familiar with the care, maintenance and use of all hand tools and mechanical equipment used in Arboriculture. • Knowledge of all native and introduced tree species growing in the area, including identification, growth habits and pest problems. 	
Tree Pruner/Trimmer I/II	\$15.25-\$29.64 per hour	<ul style="list-style-type: none"> • Equivalent to graduation from high school and two years of related experience in professional tree care and one year of experience acting in a supervising capacity. Equivalent combination of education and experience will be considered. • Previous experience removing large and dangerous trees. • Minimum 2 years of tree climbing experience. Knowledge of proper tree care standards is a must. DZ licensed and ISA certification is an asset. 	Assists in the performance of tasks in the field, generally an apprentice arborist.
Groundmen	\$15.25-\$20.25	<ul style="list-style-type: none"> • Highschool. Arborist or Forestry experience is 	Provide expert tree surgery services and inspections to

		<p>valuable, but not required.</p> <ul style="list-style-type: none"> • ISA Certification, climbing without spurs, knowledge of knots, chainsaw operation. • Ability to work independently and within team/crew setup; • Able to work in all weather conditions, in good health and physically capable for all aspect of outdoor physically demanding work; • Valid drivers license. 	<p>customer properties. Responsible for pruning and removing trees on residential and commercial properties. No climbing necessary.</p>
Urban Forestry Technician / Arboriculture Technician ³⁷	\$22.97-\$28.71 per hour	<ul style="list-style-type: none"> • Post-secondary education in Urban Forestry, Arboriculture or a related field or the equivalent and have related work experience in the care and management of the urban forest. • An understanding of key related legislation and guidelines including the Occupational Health and Safety Act and the Pesticide Act. • ISA Certification is preferred. • A valid "G" Ontario driver's licence in good standing and a valid CPR and First Aid certificate. 	<p>Liaises with developers, engineering and planning staff to protect and develop the urban forest and administers the street tree planting program. Organizes and oversees customer service activities related to the municipal forestry operations including computerized customer service tracking system.</p>

It is important to keep in mind that some titles, depending on the private company or municipality are used interchangeably. There is no standard for titles, educational qualifications or licensing. Education and training included stories and

³⁷ These two titles are sometimes used interchangeably.

recommendations for institutional as well as public and community education. What was particularly interesting was that many participants felt that apprenticeships were the most beneficial. On more than one occasion, participants referred to “true apprenticeship” being a “lost art”.

There should be a better baseline of required knowledge in education practices before specialization (Interviews, 2012).

Arborists and urban foresters are educated through a combination of formal education (university and college), apprenticeships and professional development, and learning on the job. As mentioned above, participants saw value in having a more comprehensive standardized baseline of education, and felt that the ISA has an integral role in this endeavour, both for education and certification. Interviewees felt that the existing ISA arborist certification is a good baseline of education for a general arboricultural practitioner (Interviews, 2012). There are opportunities to take on more training (e.g. communications, sales), yet, like the iconic metaphor of *tree surgeon*, which connotes respect and a pillar of knowledge within a community, a more comprehensive and inclusive standard baseline of education would enable safer practices. Currently, the ISA has a multitude of resources and publications, an online learning centre, access to courses and Continuing Education Units (CEU). Like with each preceding chapter, counter-narratives resonated here as well. Where some participants discussed the lack of comprehensive education, others reflected on how the evolution of the social and political aspects of arboriculture has changed over time due to increased knowledge and acceptance:

I used to be a very moody, grumpy, anti-social person - I liked that I was going to be up a tree and not have to talk to anyone. It was masculating, and cool! Now, the majority of what I do is talking and communicating and educating people. It's opened up.

Despite participant consensus toward a more comprehensive education, it is important to keep in mind that leaning toward standardization also has its challenges. The main questions that political ecology raises in this discussion are: *For whom is the curriculum designed? By whom is the curriculum designed and developed? Who makes changes and how often? Do practitioners have a say in what*

changes are made? During the course of my research, interviews revealed that applied college programs for arboriculture are often designed and taught by practicing arborists (Interviews, 2012). However, research has shown that there are many alternative models of education both by formal and non-formal actors who have an impact on urban forest/ecology education (Smith, 2014).

The Society of Municipal Arborists (SMA) hosts a yearly workshop where they ask participants; *what type of training programs would you implement if given the opportunity?* In response to this question by the SMA, one participant shared their answer with me:

*I think the first step would be to create an environment that continually encourages personal development. A forestry department and its supervisors could insist that current arborists become ISA certified. The curriculum is already established and easily accessible. From there they could insist on the ISA Municipal certification. **Set a couple of hours a week to go through a chapter at a time. Ask the arborists to take turns reading out loud. Instead of reading to them as my municipality does when training or going over city protocols.** Maybe occasionally bring in professionals to hold workshops about personal improvement and time management. Insist on the use of daily agendas in the field where everyone can make notes about equipment and other observations. This might encourage them to write and over time improve their writing skills. Have a designated time each week where everyone can reflect and share their thoughts. **I would even consider a "book club" of sorts with literature about arboriculture. Have a guidance counselor come in and offer various services that could include testing for learning disabilities and assistance with substance abuse. Someone who comes in regularly enough to become a familiar face and in turn become less threatening.** Contract out for quality training instead of having mediocre in-house training that's mostly geared towards acquiring signatures to appease various insurance requirements. **The list of possibilities is endless and is only limited by the limitations of the team and department leader.** The common excuse of budgetary restraints is a poor excuse (Interviews, 2012).*

This response deals with a number of things; there is a clear need and desire for continuing education; structured time for professional development; support for

personal growth and coping mechanisms; and increased consideration for trust. In addition, constructed urban tree places can add value to public education as well as to arborists and urban foresters (Bühler & Kristoffersen, 2009). This is important as some formal programs are geographically situated next to arboreta, such as the Arboriculture Apprenticeship at Humber College in Toronto, which is located adjacent to Humber Arboretum and the Centre for Urban Ecology. These suggestions help to build internal infrastructure and are invaluable for education and training. There is a collection of these responses, which houses a wealth of information by field arborists. Interviews revealed the need for inclusions in their learning both for arboriculture and urban forestry.

In an attempt to bridge arboriculture and urban forest education, the most recent curriculum in Canada includes the partnership between Sir Sanford Fleming College and the University of New Brunswick, whereby after 4 years, students graduate with a Bachelor of Science degree in Forestry and Diploma in Urban Forestry. In reviewing this curriculum, it became apparent that the existing program outline and course descriptions now include some of the topics that my participants voiced as necessary for their education but were not available at the time they pursued their learning. These included critical thinking and communication skills, greenspace management and business administration³⁸. Each participant in my study provided recommended inclusions to formal curriculum that could be further considered to an existing program; the top examples included:

- Conflict management and learning to deal with people
- Increased importance of Business Management (entrepreneurial skills)
- Increased importance of English and writing skills: literacy
- Significant social impacts of Emerald Ash Borer (EAB) and other negative aspects of single tree maintenance (e.g. pests and diseases) on the communities and residents where they occur.
- Better understanding of how weather impacts different species and how species behave

³⁸ Source: <http://flemingcollege.ca/programs/urban-forestry-technician-co-op/courses>

- More climbing practice and instruction in inclement weather (e.g. snow and rain).
- Being better exposed to GIS or planning tools
- Being better exposed to urban forest policies and bylaws **across many municipalities**
- More basic risk assessment **without** the need for expensive machinery

Lastly, there were distinct variations in how value was placed on technology; both within urban forest management (e.g. planning tools, tree inventories, shade audits, spatial analysis), and in arboriculture operations (e.g. gear, machinery), due to the different perspectives from my interviewees based on their position, affiliation, age and level of education. As one interviewee indicates: *“Everything has changed so dramatically.”* For example consulting arborists and those that work in urban forest management positions spoke very highly of computerized planning tools because it makes their job more efficient and cost effective. Whereas younger field arborists had no intergenerational reference points for such advancements because they were considered a given. I found similar attitudes with respect to operations and tools (Dean, 2013).

One emerging and related narrative in this area was that some field workers are beginning to feel displaced by certain technologies – on the one hand they like the technology because it makes their work efficient and more cost effective; but some felt disconnected, and that it was removing them from their work – this connects directly to Braverman’s dehumanization theory (1974). There has also been a move towards technical and mechanical risk assessments (e.g. sonic tomography, electrical impedance tomography, thermal imaging, tree radar, tree pulling tests) – methods that are seeking to get information from the tree without causing harm to the tree (e.g. wood vs. decay; looking at the geometry of a cavity). Some participants were skeptical of the reliability of this type of technology because it is dependent on the expertise and credibility of the person operating the machinery. For example as one participant reveals:

I think it's ok to have tools like iTree and UFORE and other computer software, but it doesn't replace manual labour. It's like taking a shortcut in some cases. You need to still have knowledge of trees to perform or to operate these tools. They're not always reliable. We were working on a crew and one 'celebrity' [arborist] was doing a computerized risk test to see the decay in the tree. It [the program] showed that the tree was high-risk and full of decay. So we cut it down. And you know what we found?... Nothing! We killed a perfectly fine tree. This story was not reported and this kind of thing is happening more, we're not relying enough on our own knowledge (Interviews, 2012).

This example also speaks to the notion that the absence of *legitimacy* is bleeding the trade of its integrity (Interviews, 2012). It is important to note that the lack of integrity does not only come from the “weekend warriors.” Overall, there are weaknesses in the arboricultural education of professionals themselves, including an under-representation of practitioner narratives and perspectives in present education. A closer look at field experiences offers concrete examples of what arborists would like to see in their formal education.

7.3.2. The Field Arborist as Educator: Community Learning

My role is to educate people: students, employees, clients, everyone... on proper tree care. If you educate the clients, you educate the masses, and then they will make smarter decisions. If we can teach people about trees so that they understand the tree - then they don't have FEAR of a large tree - the last thing urban environments need is another excuse to cut down a tree (Interviews, 2012).

Interviews revealed that field arborists are educators. Although many participants did not self-identify in this way, as their stories unfolded it became apparent that each time workers were presented with a situation, they “naturally” took the time to explain to clients the process and necessity for various techniques that could be employed. These “teachable moments” were often appreciated by clients, but interviews also revealed the frustration among field arborists when clients used their knowledge to chase lower estimates, as one participant explains:

I'd like to think that prospective clients appreciate the time I spend explaining the job. But that's not always the case, they go to the next guy and tell them what I said, and ask for a cheaper price (Interviews, 2012).

Overall, interviewees felt that there are many opportunities to better engage the public and raise awareness about arborist roles in maintaining urban trees on technical, physiological and social aspects. As seen in Chapter 4, public perception is integral to building identity and understanding the concept of citizen-labourers towards more socially conscious decisions and respect for workers. Research has shown that the public values urban trees and want to support urban tree programs (Zhang, Hussain, Deng, & Letson, 2007). Interviews also revealed that public perception also intrigues communities to learn more about the field and the care of urban greenspaces.

ISA hosts an annual conference as well as chapter conferences throughout the year, but the challenge is getting “outsiders” or non-arborists or non-urban forestry people to attend and benefit from the diverse programs available. There is a need for better knowledge-sharing. More broadly, people who are dissociated with the natural world do not always place importance on it; field arborists are the first point of contact with the public when it comes to their trees; yet, they cannot take on this role if they are not trained or introduced to the idea that this may be their role, whether they like it or not. Arborists are perfectly positioned to foster public education.

Interviews revealed that all participants felt that the general public (i.e. non-environmentally inclined individuals) needed to be better educated. All participants had stories of teachable moments, where they attempted to educate homeowners or clients on plant health, and long-term tree preservation. A large criticism of private homeowner landscaping has been that many homeowners do not understand the relationship between species as well as proper growing conditions. Some homeowners will purchase what they think looks nice at a garden centre or nursery rather than considering the bigger picture, or have any long-term plan. Other homeowners may hire a landscape architect to design a dream garden - however,

often landscape architects are also criticized for not understanding the spatial and physiological considerations of vegetation once it is in the soil (Interviews, 2012). As such, if homeowners (i.e. the consumers who are driving the market) are more educated on the complexities of tree work, the need for compliance and insurance, some understanding of basic vegetation, physiology (which species grow with what), this overall education will help with the long term care of trees.

It's narrow minded to set tree climbing, chainsaw operations and chipper operations as the minimum standards for what is an Arborist. We need to move beyond that. And the ISA is taking us beyond that (Interviews, 2012).

The International Society of Arboriculture (ISA) is the largest and most influential organization in the world working to foster a better understanding of trees and tree care through research, education and certification for arborists. Since its foundation, the ISA's mandate is public education about urban forests, trees and tree care. Overall, respondents expressed the desire to never want to stop learning and that they wholeheartedly appreciate ISA's continuing education programs. Many also felt that ISA could take on a more prominent role in encouraging mandatory continued education.

The ISA Certification is a recognized [programme] all over the world. And it gives you a baseline of - if I go to Australia and they see that I'm an ISA certified arborist, they get that. You're upgrading your knowledge base by collecting CEUs, you're attending conferences and it's a community. Cause all those who are certified, you're at the same level of wanting to improve the industry with new innovations, new research and the ISA has done amazing outreach to communities, to clients, to schools - so people now, a client will ask: 'are there any ISA certified arborists' - which is excellent (Interviews, 2012).

7.3.2.1. Things clients should know about hiring an arborist

Participants felt that a key piece missing from public education is knowing what to expect and what to ask for when hiring a “real” arborist. Most important was a better understanding of the work being performed: The implications here are

that interviewees felt that this would lead to better respect for field workers and the job they (i.e. field workers) perform.

We are there in the best interest of the tree - sometimes I'm quite harsh with my clients. I'm first there to educate them that they're managing for something that can potentially grow to 100 years, or something that is a 100 years old, and to treat it with respect... and the last bit of it is that I'm there to give them a price for the service work, if needed (Interviews, 2012 – lead climber).

In addition, interviewees felt that it was important for potential clients to do their own homework when hiring an arborist. This list included:

- **Insurance:** If you are going to educate tree owners with respect to who they want working on their trees, the obvious most important thing is to protect your own safety and your own liability. Clients need to make sure that the company is adequately insured for the owners' protection.
- **Workers compensation:** Employees should be covered by workers compensation. It is very important for clients to realize that there is a big difference between the protection that an injured tree care worker would get through workers compensation than the mechanism of protection provided by an alternative private insurance program. The WSIB will ensure that the employee is looked after in the early stages and throughout their recovery. In the event of an accident, private insurance companies will conduct an investigation and the homeowner may become responsible for any workplace injuries.
- **Reputation:** Is the company respected and does it have a good track record of safe and considerate operations? This includes considerations of the length of employment and the level of experience of workers.
- **References:** Clients should ask for references of past customers.
- **Service track record:** Has the company performed mostly removals and/or is it up-to-date on professional, thoughtful, and knowledge-based practice?

Overall, participants who spoke to these issues were field arborists: climbers and groundspersons. I recognize that urban foresters or consulting arborists who do not necessarily perform fieldwork may have different perspectives.

7.3.2.2. Advice for arborists starting out

Each participant was asked what they were looking for in future employees, from recent graduates of these programs, and what skills are important to them. Most respondents replied that, in addition to the technical skills required to perform the job (that being the minimum expectation), they valued knowledge of the tree bylaws, urban forest policies and conservation, communications skills and consideration for others (this being more of a personality requirement), and ethics. It shows that soft skills are just as important as hard skills and knowledge. Depending on where you look, education can be considered as knowledge, skills and attitudes. In addition, advice included:

- To employees I would say remember you have the right to refuse work under the Occupational Health and Safety Act. If you feel that you're not properly trained, if you have questions, if something wasn't explained to you. You're put in a position to do work in a tree, or if you have to climb to heights you don't feel safe at. Nobody cares more about your safety than you, the person who is going to do the work – keep that in mind and communicate.
- Be very observant and inquisitive. Build a valuable database of experience for every year that you're working that will see you into the future as giving you opportunities to articulate through the different realms of arboriculture and urban forestry.
- Love the physical. Maintain the passion. It would be nice if you didn't have to give up the physical. The love of tree care becomes ingrained and it's a shame when you have to step aside and not do it anymore. You can be a role model for a long time.

7.3.2.3. Multi-cultural environments

Lastly, participants identified that understanding the multicultural needs in an urban environment is paramount. Interviews revealed a desire to help in the education of new residents on the importance and care of trees, as their background may be founded in a different level of priority towards trees. For example, the significant immigration occurring in urban areas and varied understanding, or lack of knowledge of the significance of the urban forest [in Canada], *“in some cases puts them [the people] at odds with the norms here [in Canada]”* (Interviews 2012). As another participant observed: *“Multiculturalism is a great thing - and diverse cultures offer different perspectives, but not all cultures see trees in a good light – we need to deal with this on many levels”* (Interviews, 2012). Research has shown that multi-cultural neighbourhoods have diverse perspectives about trees and may be averse to tree planting (Battaglia, Buckley, Galvin, & Grove, 2014). Some ethnic communities place value on other types of vegetation (e.g. vegetable gardens) (Tindall, 2003; Perkins, 2014). There are lessons that can be learned both ways in this regard. Arborists and urban foresters are learning to recognize that trees may not be the most appropriate type of vegetation for some neighbourhoods. This can be challenging for management when there is such a strong political push towards tree planting initiatives. Furthermore, this presents an opportunity to consider the dangers in adoring single trees as totems – like what happened with the Golden Spruce (Vaillant, 2006).

It is also interesting to note that many neighbourhoods are identified with arboreal names (e.g. Cedar Grove, Oakville). This does not, contrary to common assumption; reveal the values of that community. Instead, it often says more about who named the streets rather than the values (towards trees) of the current populations who live there? This narrative needs closer attention in urban forestry. There is a need for a better understanding and sensitivity to increased multiculturalism and how it is influencing the field in diverse neighbourhoods both from worker perspectives and communities. There is an opportunity for arborists and urban foresters to be the bridge between and among communities and

neighbours with divergent perspectives. This cross-cultural integration can help lead towards a more holistic urban environmental education for civic engagement (Tidball & Krasny, 2010).

7.3.3. Transdisciplinary education

There is a lack of attention paid to urban forestry in higher learning; there are few college and university programs that have dedicated 3- or 4-year urban forestry degrees, mainly in the US, though there are over 500 programs around the world that incorporate aspects of urban forestry and/or, specifically, arboriculture into their curricula (Baumeister, 2014). Courses in these current education models typically deal with tree care exclusively, covering topics such as forest management, forest pathology, dendrology, soils, entomology, hydrology, forest pests and diseases, silviculture, policy processes, management, climbing, hazard assessment as well as equipment operations and maintenance.

Urban forestry in higher education operates at different levels. Depending on the desired career trajectory, one can choose from an array of programs and courses, but there is no one-stop shop to become an *Urban Forester*. More and more job profiles are requesting that municipal urban foresters, for example, have Registered Professional Forester (RPF) status, or are able to obtain it. However, to have RPF status, a prospective practitioner must have completed a Bachelor degree in Forestry (not *urban forestry*). Those addressed by the education to which I am referring include practicing arborists and urban foresters on one level, but also urban forest researchers and planners. Overall, there are inconsistencies and a lack of education about urban forestry and arboriculture as integrated fields both externally, by the public, and internally, within the profession.

In my own experience with urban forestry more broadly, each time I attended an urban forestry workshop I could not help but wish that certain things were implemented or required of me through an education program. As I traversed the conference circuit over the years, I took notes and developed lectures and presentations that best reflected the kinds of lessons that I would have liked to have

been taught. These experiences also encouraged me to help find my own voice and hopefully (eventually) an academic home or a place I feel that I belong in urban forestry discourses; sometimes it helps and sometimes it reinforces the wedge I perceive. Being part of the Totten Fellows³⁹ of the USDA Forest Service has been a very helpful experience in this regard. As a result of my compilations, I have had positive feedback on my lessons at York University. The desire to effectively realize this transdisciplinarity culminated in the design of the UFPE conference (Bardekjian, 2013e) and, as a result, the book, *Urban Forests Trees and Greenspace: A political ecology perspective* (Sandberg, Bardekjian & Butt, 2014), the first volume on thinking critically about urban forests using political ecology, which can be used as a text for teaching urban forestry more critically at the university and graduate levels.

Drawing on suggestions from interviews, my own experiences and supplemental research on urban forestry programs and courses offered at various institutions, I have developed a course on urban forestry that can be transformed into its own program or augmented with existing curricula. Adapted from a course I developed and taught for 3rd-year planning students at York University (winter 2012), my proposed syllabus incorporates social and critical considerations beyond applied management and technical knowledge. I offer this syllabus as an example of how we can move towards critical thinking within an applied curriculum (see Appendix II). Given that education is such a ubiquitous issue, it is important to consider it as an application, not just as an implication, thus, I offer here additional recommendations for urban forestry education practices that were gleaned from interviews:

- **Adaptive learning:** Through a variety of activities and creative methods, adaptive learning (Krasny et al, 2006) can be used to engage students in

³⁹ The [Totten Fellows](http://www.nrs.fs.fed.us/nyc/slc/fellows/) of the New York City Urban Field Station are emerging scholars—PhD candidates, early-career academics, and educators—from a broad range of social science disciplines conducting research on urban social-ecological systems. An inaugural [Urban Natures Workshop](#) was held in June 2014 to launch this program, bringing together nine participants from the United States and Canada to share research-in-progress, seed a network of young scholars, and investigate the interface between research and practice across the New York City landscape – From our website: <http://www.nrs.fs.fed.us/nyc/slc/fellows/>

course content and foster foundational skills such as critical thinking and writing.

- **Mentorship and career planning:** Paralleling this, urban forestry and arboricultural educators can employ mentoring methods for professional development and strategic direction in teaching and training.
- **Significant learning:** Interviews revealed that shared experiences and discussions in class promote collaborative and significant learning (Fink, 2003), which can be a powerful tool to help with confidence and support systems well into careers.
- **Participatory learning:** From the position of “knowing”, understanding challenging concepts and theories at university are better understood once lessons are applied outside; learners are much more excited about the next class.
- **Education for educators:** One of the common critiques has been that often, those that are providing the education have not necessarily been trained to be educators (Interviews, 2012). Interviews revealed that it is very important that students have a full grasp of course material and concepts through real-world examples and current issues.

Moreover, interviews revealed that there is a need for internships and international cooperation to share knowledge in best practices, techniques and policy building, as well as pedagogical methods. Participants felt that other countries are ahead of Canada in this regard. This echoed results from a survey conducted in Europe that provided a foundation for developing recommendations for higher education in urban forestry (Anderson et al, 2005). These included: enhancing student and staff mobility; further development of inter- and transdisciplinary approaches; better integration of natural and social sciences; and, further emphasis of teaching methods that develop personal skills and adapt to the complex character of urban forestry (Anderson et al, 2005: 510). These findings

prove that it is important to build international and institutional bridges towards holistic urban forest education and civic engagement.

Identified at the 11th Canadian Urban Forest Conference in Victoria, BC (October 2014) was a creditable effort by the University of British Columbia (UBC) to develop an urban forestry program at the undergraduate level. There is the potential to incorporate an integrated course where students take their knowledge from other courses and experiences and share their knowledge amongst peers or apply it to specific assignments. The proposed program at UBC is looking to include a mix of students – science majors, as well as students interested in green sustainability. The intention is to have strong international ties dealing with topics such as planning, environmental design, forestry and resource management (Sheppard, 2014). I have since been in contact with Dr. Stephen Sheppard and my hope is that the inclusion of political ecology concepts and critical analyses as exemplified in our book (Sandberg, Bardekjian & Butt) are finally considered in urban forestry curriculum – something that I think that York University is actually pioneering through the Urban Ecologies Certificate program on a smaller scale, though with less direct mention of *urban forestry*.

7.3.3.2. Alternative modes of education: Creative representations and interpretations

As discussed in Chapter 4, stories are embedded in urban spaces (Heatherington, 2013) and there are perpetuating metaphors in environmental language and consciousness that influence our perceptions of and behaviour towards urban greenspaces (Hurley, 2012; Larson, 2006; 2011). As mentioned above, urban forestry hovers between the applied and theoretical sciences. There is a lack of consideration of social complexities such as affect and embodiment (Jones, 2014), minimal realization of the conceptual complexities of interactions between nature and the city (Gandy, 2006), and connections to the creative arts and how they can influence and contribute to research creation (Vaughan, 2009) in a healthy social ecology (Kuo, 2003); urban forest education at all levels should consider and reflect these issues in some regard.

Having been inspired by political ecology to build the UFPE Conference and integrate multi-disciplinary aspects such as the art exhibit, I wanted to show the practicing urban forest community (of which I consider myself a part) that such representations contribute greatly to ways of knowing. More specifically, it is my position that art and creative interpretation can help deconstruct these intricacies and offer a method of understanding questions about affect and thus our behaviour towards urban greenspaces; this has planning, policy and practical implications. Research has shown that community art education can foster better stewardship (Barndt, 2008) in urban forests, and can help inform more socially inclusive policies for better practice (Appelstrand, 2002).

Being an arborist is an unknown art (Interviews, 2012)

Interviews inspired me to come up with alternative ways of communicating their stories to wider audiences, like through the development of my film and connecting and sharing knowledge through social media platforms by connecting with international colleagues. Alternative modes of public education and raising awareness are becoming more widely accepted (and necessary) in urban forestry. One example is [The Truth about Trees](#) documentary film series that is capturing community stories about trees across the United States (I believe we need this in Canada). The main objective of this project is to raise awareness about the importance of trees and their role for sustaining life on Earth.

In addition to being a form of communication (i.e. the film itself), projects like this serve several functions and have many benefits: a) crowd-sourced storytelling represent testimonies of trees among and within neighbourhoods; b) oral history is a more personal way of knowing and understanding narrative; c) shared creative experiences lend themselves to breaking down personal boundaries and biases (Barndt, 2008). Digital storytelling through film is an excellent medium to share stories, and reach younger audiences, in particular in our ever-growing age of technology and social media; short films screened online are an effective way to spread awareness and solicit feedback from real people through online commentary thus fostering dialogue long after the stories are captured. Exploring the

connections between our physical and social urban forests through a creative learning commons, and expressing affect through art, empowers communities. Their voices, both independent and collective, matter in urban forest issues. This cultivates a culture of collective stewardship and accountability that can only happen if people feel that they can make a difference.

Capturing urban forest narratives through oral history is not readily practiced in urban forestry research. This framework places value on primary interview findings (e.g. audio recordings) so as not to lose interviewee voices during analysis and reporting stages of research (High, 2010). This is a novel way of telling, capturing and sharing stories – not wanting to lose nuance and intonation that often personalize the narrative being told. Moreover, considering oral history as it relates and contributes to identity is integral to understanding citizen psychologies (e.g. behind urban forest stewardship) and situates narratives in the broader cultural dialogue (Portelli, 1991).

Research on urban forest education shows that greater importance is being placed on interdisciplinarity and qualitative research (Konijnendijk, 2008). In the future I would like to contribute to this discourse through community art education and different ways of sharing stories. In particular, Barndt (2008) discusses the notion of relinquishing power and sharing control; I want to tie this concept to ideas about urban forest management and the role of citizen voices. There is a need for more qualitative research and diverse methods in urban forestry (McLean, Jensen, & Hurd, 2007). By integrating alternative methods, such as creative interventions, into urban forest education, we can help increase general knowledge and raise awareness for better practice and planning for urban greenspaces, as well as bring communities together to foster better understanding of multi-cultural differences and perspectives towards greenspaces.

7.4. Implications

The culture has changed for the better. More women are entering the field which is fantastic. And men and women are being educated, going to colleges, taking certificate courses, apprenticeship courses - they're educated when they come into the

field and that's raising the level of professionalism. There's certification through the ISA. There's provincial certification which is on a voluntary basis. So it's raising the level of knowledge so that when we're speaking to clients, we are explaining ourselves and we're not just there to sell them on cutting a branch off. There's intelligence structured in the communication involved (Interviews, 2012).

Overall, there is a need to inspire new ways of learning to disrupt common ways of knowing, towards better practice and research. Findings help to bridge the top/down, bottom/up philosophies in order to move towards a holistic and inclusive urban forestry education and practice for the future. Despite participant consensus toward a more comprehensive education, it is important to keep in mind that leaning toward standardization also has its challenges. The purpose of this chapter was to explore recommendations for inclusion in urban forest education at the practical level, to better understand the role of field arborists as educators within their communities, and to offer new ways of knowing urban forestry by considering alternative models of education in higher learning. Implications for broader urban forest development (e.g. planning, education, communication) include conceptualizing spaces differently and gaining a better understanding of natural and cultural history of greenspaces. Our text, *Urban Forests, Trees and Greenspace* (Sandberg, Bardekjian, & Butt, 2014) is hopefully just the beginning of getting people to think critically and creatively about urban forests. By exploring how arborists identify and situate themselves in the broader urban forestry discourses, I was able to identify gaps in the way urban forestry is taught and learned. Interviews revealed that there is a need to pioneer a national urban forestry education and implementation strategy and to export this learning and knowledge globally.

8.0. Discussion

In this dissertation, I argue that by communicating under-represented narratives, through lived experience and dialogue (human portraits), stories

become the catalyst for change; and then by examining those narratives, they offer comprehensive insights into better practice in urban forestry. Throughout my dissertation, using arboriculture as a case study, I have attempted to make theoretical connections to the four dominant narratives that emerged from my interviews: language, labour, agency and learning. By profiling the personal and professional lives of municipal and private sector field arborists in Southern Ontario, Canada, my work suggests ways to re-imagine urban forestry related to: how language and discourse shape identity and thus influence worker perceptions and practice; how considerations for field arborist labour with respect to inequalities and gender perspectives, is marginalized and absent in policy; how nature's agency or tree cultures influence and interact with human agency; and, how teaching and learning in siloes and maintaining a status quo stunts arboricultural thinking with respect to social factors. Each of these narratives in the context of urban forestry has layers of complexity with which a political ecological perspective has been helpful in examining

In **Chapter 4** we learned how language and metaphor influence and shape identity and self-awareness in urban forestry workers and how this, in turn can impact practice and the urban forest itself. Interviews showed that current language and use of particular metaphors surrounding field arborists and tree care workers in Southern Ontario perpetuate negative perceptions of arborists, by others and by themselves. Participants expressed that they are the brunt of many ungrounded assumptions about outdoor workers, and the need for their skill-set, while integral to urban forest practice, is undervalued in the public eye. By considering social constructionism and political ecology to explore these representations, I argue that the use of metaphors in urban forestry must be used with caution. Thus, the profile of urban tree workers needs to be raised from both inside and outside the trade by using accurate terminology and being selective about our choice of metaphors; and more effective marketing and communications through social networking and popular media. Raising the profile will: increase awareness towards accurate

knowledge and foster acknowledgement and recognition of the trade as well as foster respect and appreciation towards a return to celebrating physical labour.

In **Chapter 5** we saw how arborists negotiate the urban forest as a place of work, including the pressures of policies, the labour market itself, technologies, government regulations, and the non-human agencies with which they are confronted. Interviews showed that the existing political climate surrounding urban forestry operations in Southern Ontario can be biased and gendered. Participants expressed polarized perspectives, contentions and inequalities that affect their practice and personal lives and believe this is a result of being an unregulated trade. Interviews also showed that despite feeling unheard in their own work (e.g. by being brought into planning processes often too late), field arborists showed resistance to this power struggle. Building on identity constructions from Chapter 4, political ecology helped to highlight subjugated narratives that contribute to a better understanding of workplace conditions, behaviours and ethics; and helped to showcase how dichotomies in management influence operations. To this end, developing new policies on health and safety by considering field worker perspectives and listening to their experiences is critical.

Chapter 6 provides a closer look at arborists' interactions and feelings about non-human agency. Interviews revealed how arborists negotiate the urban forest physically and emotionally as a place of work, play and community. Participants expressed a constant power struggle with themselves in juggling human and non-human priorities and motivations and how these impact their personal lives and the urban forest in its own right. Building on the notion of governance from Chapter 5, Jones and Cloke's framework for dominant themes for culture, agency, place and ethics helped with this analysis to reveal the intricacies and challenges of these relationships. Thus, understanding arborist relationships with, and perspectives on, non-human agency is paramount in developing better urban forest decision-making systems and more mindful management practices.

Finally, **Chapter 7** discusses new ways of knowing and producing knowledge in urban forestry with respect to social dimensions and considerations. Interviews revealed that the lack of standardization of a comprehensive and inclusive urban

forestry education creates knowledge divisions both within the industry (formal education) and externally (public education). Participants expressed their desire for a more comprehensive urban forest education and provided recommended inclusions to formal curriculum at the college level. In addition, interviewees felt that there are many opportunities to better engage the public and raise awareness about arborist roles in maintaining urban trees. Lastly, urban forestry in higher education operates at different levels; as such, we need to provide a solid baseline of formal education and incorporate critical social theory to better reflect the transdisciplinary aspects of the field. Chapter 7 offers insight to this end.

What is our understanding of work in urban forestry? Urban forestry is, by name, an inter-discipline – but we still work and operate in silos – as evidenced by the stories my interviewees have shared. Previously, our conceptual understanding of work has been focused on technical expertise and making things work well in terms of planning and operations. Knowledge that currently exists focuses on practical applications; but we need to consider the social lives of workers themselves. Examining the current practices and narratives in urban forestry inspired by political ecology has revealed that we are missing the social aspects of practice and labour, and how these can influence broader critical thinking and strategic planning in Southern Ontario.

There have been arguments that the continuous cyclical and systemic parlay of endless questions posed by political ecologists are politically, analytically and theoretically weak in attempting to offer concrete definitions, explanations and analysis (Peet & Watts, 1996; Grove, 2009). For example, the dominant narrative of degradation and marginalization attempts to explain why environmental systems change; and environmental identity and social movement research attempts to explain why social systems change (Robbins, 2004: p. 15). But Vayda and Walters (1999) argue that the diversity of targets in explaining the causes of environmental and social changes in political ecology has led to evasiveness and ambiguity with no concrete examples or recommendations for moving forward. They also argue that

political ecologists' (such as Bryant & Bailey, 1997) insistence that political influences from outside are "always important" encourages "question-begging" research which miss opportunities in examining complex interactions where environmental changes are actually produced. My research seeks to overcome this issue with respect to urban forestry and show that political ecology is not only useful but integral for a paradigm shift to move beyond commonly consumed frameworks of understanding (Kuhn, 1962), and to make real changes in urban forest policy. Through my study, I have been able to empirically evidence that there is important information that goes amiss by only examining the technical and applied aspects of the industry. Interviewees revealed concrete tangible areas in need of critical attention, including better public education, increased health and safety considerations, more respect in the workplace, and a more comprehensive education system.

As I argue directly and indirectly through all chapters, identity constructions influence pride, and this impacts behaviour and job performance. More pointedly, a closer examination of field and climbing arborists' relationships with trees offers useful insights for planners and policy-makers when visioning for the future of urban forests, given that the change must happen systemically. The respect and care with which field arborists tend to trees presents novel and enticing insights into human-nature connections. Their collective narratives can be explored, communicated and propagated through urban forestry networks. For example, Rangan and Kull (2009) argue that scale in political ecology is taken for granted.

The problem of scale in political ecology arises from the persistent tendency to view it mainly in observational and operational terms, without recognizing that the interpretive moment is crucial in producing scale to represent spatiotemporal difference or change (p. 35).

This relationship is better understood when discussing trees; trees live through time and space in ways we cannot imagine. More pointedly, they live through temporal/generational changes as well as physical and geographical changes. For example, a tree living for 200 years will survive a forest, a farmland,

and perhaps a sub-division development. The continuous physical changes over time also have many social and cultural variances that impact and influence the tree. Rangan and Kull (2009) argue that scale has many variables dependent on space and time evolutions that lead to political change in socialized landscapes and these factors are taken for granted by traditional political ecologists. Interviews revealed that field workers' voices offer a bridge for effective and considerate communication in urban forest practice that can help narrow the human/nature divide. Thus, by acknowledging the various under-represented stories with respect to language, labour, agency and learning, and by using these narratives as a means to filling that social gap, my hope is that urban forestry can become more integrated. This is how narratives can become powerful sources for integrative processes.

By using story and dialogue to understand how urban forestry workers feel and perceive, this offers a richer contextual description and data to better form decisions. By speaking with field arborists, observing and being on site, we get new meaning and perspective on the implications for policies and procedures. It is a richer, more holistic way of informing the field. It is a way of eliminating or reducing bias (e.g. as opposed to conducting a survey on best management practices). This is particularly true because in my background research, I could not find studies in urban forestry research in Canada that interviewed and quoted field arborists on these socio-ecological issues. Outdoor workers who deal with trees (i.e. living organisms) have many differing layers of complexity with which they contend and consider, both consciously and sub-consciously. Arborists navigate the urban forest differently by working under a unique system. It is true that workers obtain ISA certification and specialized skills, they read field manuals and many embark on continuing education courses, which are all very important for professional development. However, to this end, arborists develop their own way of negotiating the forest that is not currently documented in texts; the lack of documentation must change as their experiences are invaluable to the future of urban forestry.

8.1. Fluid understandings: Emergent multi-modal process model

“The Only Thing That Is Constant Is Change”. – Heraclitus

Political Ecology is useful in analyzing, examining and highlighting; it fills a previous void in urban forestry thought. However, as we have seen in the previous sub-section, it still leaves much unanswered in light of its benefits and criticisms. Beyond identifying its usefulness and necessary perspective, and to better describe the paradigm shift that I am proposing, I offer here a multi-modal conceptual framework using the anatomy of a tree. Human connections and experiences with trees have inspired creative interpretations and visual representations of our cultures, flow, and processes for centuries using the tree (Lima, 2014). In urban forest research, the most commonly consumed/used/cited metaphor or visual depiction using a tree involves the values and benefits of trees or the depiction of photosynthesis.

Drawing on Eisenhardt’s model (1989) that theories can be built from case studies, I propose a new conceptual framework for exploring urban forestry, a tangible tool for future research considerations and practice analysis (see Figures 8.1.a and 8.1.b below), which can build upon the strengths that Political Ecology presents and help overcome its main challenges in studies of urban forestry. In homage to my participants, I chose a deciduous tree to depict my model since most participants identified a Red oak (*Quercus rubra*) as their favoured and respected tree for various reasons. In the following sub-sections, I will go through the various parts and functions of this model, so that it may be understood, built upon and used in future researches.

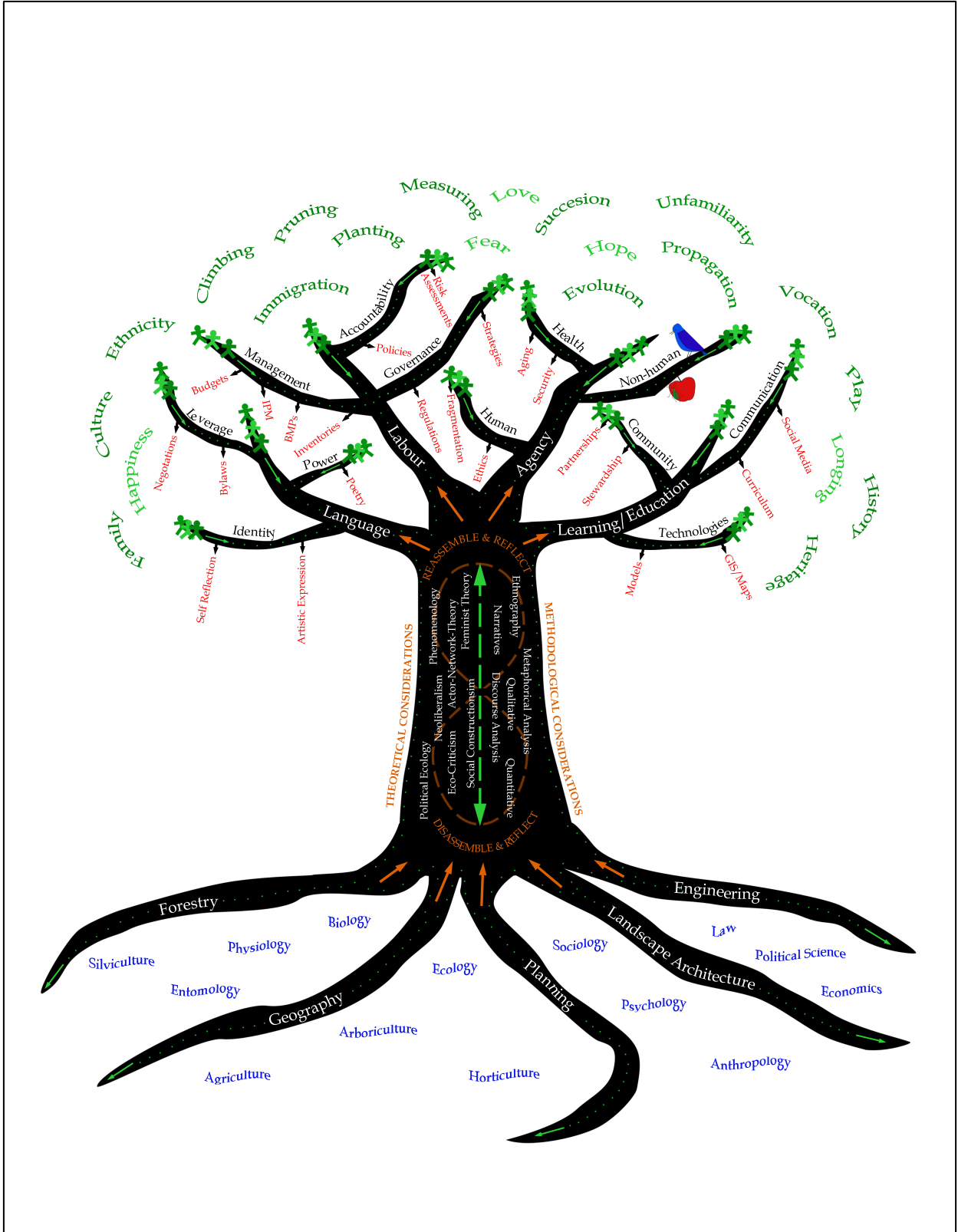


Figure 8.1.a. Conceptual framework for urban forestry. Source: Bardekjian, 2014. Artwork: Brauner, 2014.

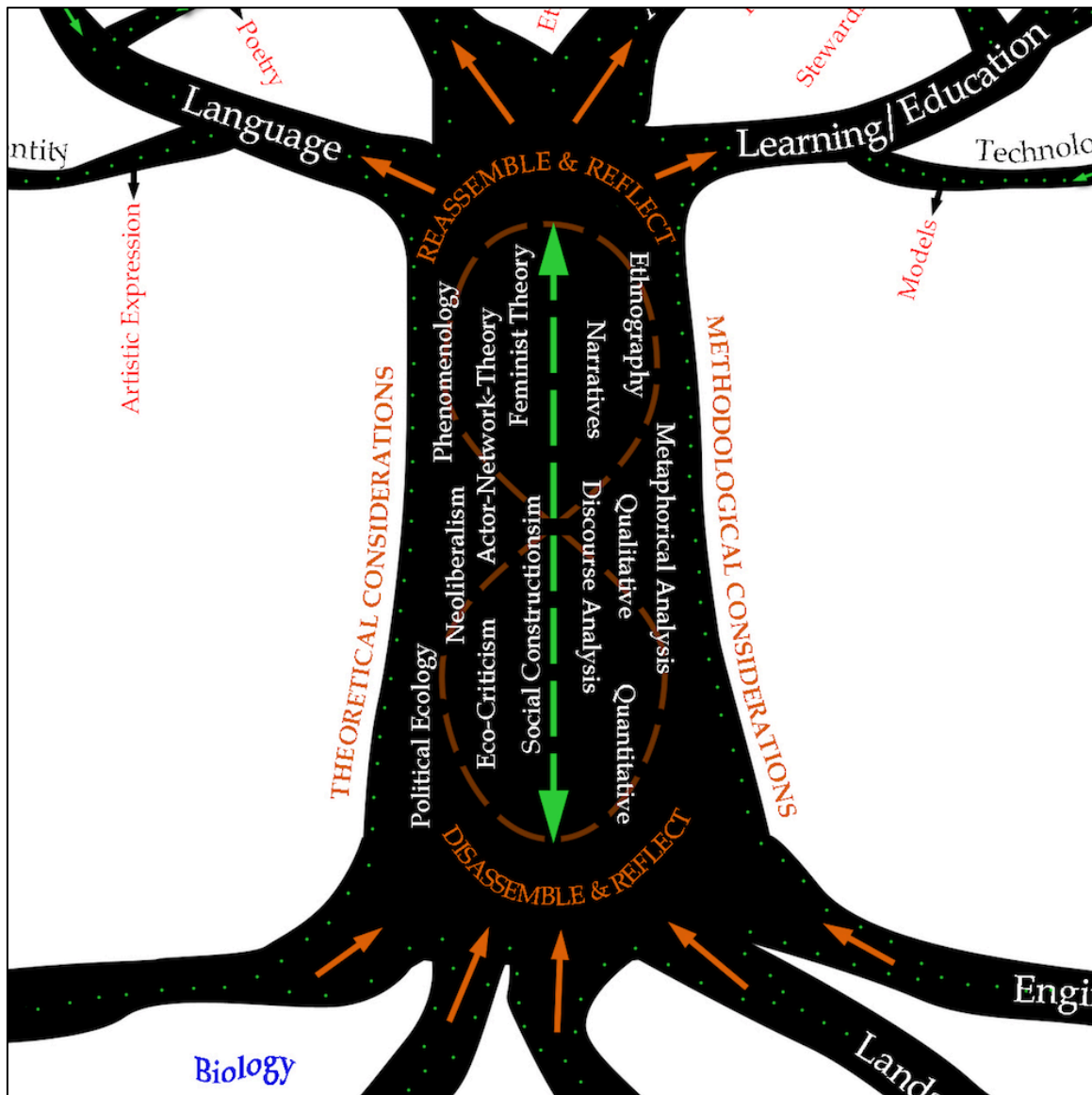


Figure 8.1.b. Conceptual framework for urban forestry - stem. Source: Bardekjian, 2014. Artwork: Brauner, 2014.

Based on my research and inspired by my interviewees' insights I offer this framework as a concept and visual map to consider when embarking on urban forest projects/research at the visioning stage. This structure serves a dual purpose: it acts as a conceptual framework for urban forestry as well as a process model for moving forward when considering research (e.g. stronger inclusion of lived experience) and practice (e.g. consideration for social theoretical frameworks). Each

component should be considered fluid and cyclical as represented by the dotted infinity symbol and branching systems. Moving upwards from the roots, taking into account the foundational disciplines of urban forestry with specific canons, then into the stem where critical theoretical insights and methodological considerations are fluid, then upwards into the canopy to consider dominant and alternate narratives, then finally into the more intimate stories and applied outputs; this model shows the multiple layers of social and ecological complexity and their ever-evolving flow within and around one another in urban forestry.

I recognize that some scholars may argue that this metaphor runs the risk of ‘trivialising’ my work. I present it this way to draw parallels between practitioner understandings of tree physiology – a *language* and metaphor that my participants’ and urban forest practitioner peers understand well. I recognize that my empirical findings and insights can also be communicated in a ‘non-tree’ form, but felt that the practical visual graphic of the tree was ‘user friendly’. The framework I offer is a ‘tool’ for providing an in-depth theoretical frame, and for me, the display of information in a visual graphic that people understand and find appealing is very important. For example, after ‘testing’ this visual on a research poster at the *Canadian Urban Forest Conference* (2014) in Victoria, BC, I had several conference attendees ask me if I could make this into a T-shirt.

8.1.1. Roots

Referring back to Figure 1.2 as the foundational **roots** on which urban forestry has grown (e.g. forestry, planning, architecture, engineering), these foundational and fundamental fields, with the inclusion of Geography, are depicted as the dominant **roots** of the tree in Figure 8.1. I have presented the dominant roots in this model using commonly considered foundational fields, but to be clear, there are other disciplines⁴⁰ that can be included. Other disciplines that are relevant to urban forestry, but commonly considered foundational, are represented in blue

⁴⁰ e.g. Law; Sociology; Psychology; Anthropology; Ecology; Biology; Physiology; Entomology; Horticulture; Arboriculture; Silviculture; Political Science.

(analogous to water) and feed the roots (dominant disciplines) in a conceptual ebb and flow. I did not represent these as fibrous roots since those would need to be clearly off-shoots of a dominant stem. Rather the portrayal of water flowing around the dominant roots depicts their universality. Current and past research has been informed and framed through the themes of these roots; yet, this model shows that the fields upon which urban forestry is built, or in which urban forestry is rooted, must be considered and disassembled in order to understand its current constraints, limitations and opportunities.

8.1.2. Limbs and branches

The dominant **limbs** are the overarching narratives and themes that embody urban forestry and that active participants in urban forestry contend with as revealed through my interviews (think *Limbwalkers* as a metaphor described in Chapter 4). There can be many more. The point is that these are *structural*. Where year after year the tree grows new limbs and narratives, the existing ones do not disappear, they become part of the larger process and growth structure. Branches are interconnected and woven. The connections are messy at first glance, but have a chaotic order that offers necessary structure and function for an ever-expanding canopy to provide new ways of seeing and knowing all broader narratives. I have presented the dominant limbs in this model using the narratives that emerged from my interviews (e.g. Language, Labour, Agency, Learning/Education), and I have presented the smaller branches as considerations within these larger narratives (e.g. Identity, Leverage, Power, Management, Accountability, Human, Non-human, Health, Communication, Technologies, Community), but to be clear, there are countless possibilities. In addition, the smaller branches that represent subjugated and/or alternative narratives that are shown as offshoots of larger limbs, are universal to all the dominant narratives. For example leverage and identity, though presented with Language, are also relevant to the broader Labour narrative/limb.

8.1.3. Leaves

The **leaves** are the individual, personal stories, experiences, actions and activities of people, workers, and residents that make up urban forest communities. The leaves represent a child's first exposure to trees that left an impression, a community's ties to a Heritage tree, a climber's love of the canopy, or a new immigrant's experience with unfamiliar species. The leaves here constitute the drivers of those intimate stories that change and grow in both numbers and density from year to year; these stories are countless and are driven by emotions, constructs, as illustrated by the person-shaped leaves. The title of my dissertation is *Learning from Limbwalkers*, and as described in Chapter 4, this metaphor embodies all urban forestry workers; as such, the metaphor of *Limbwalker* is not forgotten here, as the person-shaped leaves also represent climbers – the inspiration for my work. To further this metaphor: in autumn, leaves fall and are collected, and new leaves will emerge the following year. This collection process, can be applied to stories represented, nationally, regionally and locally, and comprise what we call natural heritage – it is my position that these narratives are the essence of *urban forest (social) memory* and thus should be told and re-told. These stories, or narratives, also offer counter-narratives (i.e. opposing perspectives of a similar issue), as interviews revealed. It is these counter-narratives of lived experience that offer windows into diverse perspectives, where opportunities for further research are possible (see Chapter 9). The green arrows and dotted lines (analogous to phloem that transports photosynthates to the rest of the tree) travel through the tree showing that the stories of lived experience inform the dominant narratives and affect the process and then, in turn, can effect the perceptions of foundational disciplines. Knowledge flows from the leaves down to the roots representing that all nourishment travels both upwards and downwards; this is represented by the green process flows. Given that the leaves are a dominant aspect in practicing urban forestry considerations (i.e. increasing canopy cover) – then arguably these social narratives are equally represented as such.

8.1.4. Fruits

The **fruits** are the yearly outputs, deliverables and/or results in and of urban forestry work. These include research endeavours, policies, operational plans, tree inventories, strategies, curriculum plans, artistic impressions - the possibilities are countless. The fruits of the tree change each year; some are built upon, some are not. The process is represented by the small arrows coming off the smaller branches. Under non-human, I have avoided any diction to better reflect that language is also a construction of the *human*, and that non-human agency deserves its own depiction as represented by the apple, insect and bird illustration. The fruits are produced and then reproduced. Much like the leaves, fruits are sometimes collected for community benefits (e.g. think of the company: *Not Far From the Tree*⁴¹). This collection process can be applied to the outputs represented, nationally, regionally and locally. As described in Section 9.1 below, the outputs of my own work include: this framework, the potential for articles based on my chapters, a film, a photography book, the UFPE conference, an edited volume published by Earthscan, and an upper-year urban ecology course; hopefully others can be inspired to collect their (individual and useful) fruits using a new process.

8.1.5. Stem

As a conceptual process model, the **stem** is fluid. It embodies the theoretical frameworks and methodologies that offer critical insights into analysis and should be considered as xylem and phloem continually moving through the tree to feed and nourish its roots and limbs (think nervous system or veins). The leaves (i.e. stories) provide nourishment (think photosynthesis) and feed the rest. The xylem and phloem receive nutrients from the roots (the foundational fields), and the leaves (stories and drivers of lived experiences) then move through the rest of the tree: this is represented by the orange words and orange arrows and the green dots and

⁴¹ *Not Far From the Tree* is a Toronto-based urban fruit collection company that mobilized volunteers to pick fruit from private property. The distribution of the fruit is split in thirds: 1/3 is offered to the tree owner, 1/3 is shared among the volunteers, and 1/3 is delivered by bicycle to be donated to food banks, shelters, and community kitchens in the neighbourhood (<http://www.notfarfromthetree.org>).

green arrows; this fluid process in urban forestry is (or should be) ubiquitous and constant. The word *Disassemble & Reflect* at the base of the stem, or top of the roots, is intended as part of the process to remind users that the normative frameworks of foundational disciplines can be broken down and examined to better understand how interdisciplinarity is woven or reeved through urban forestry. Similarly, the words *Reassemble & Reflect* at the top of the stem, where the limbs begin, is where the threads are braided back together and then flow into the dominant narratives. The dotted infinity symbol represents reflexivity when considering theoretical frameworks and methodologies for analysis. I have depicted the theoretical frameworks and methodology that were most relevant to my dissertation; however, the stem represents more, and broader, considerations that inspire self-reflexivity, and foster critical and creative thinking towards more effective, adaptive and sustainable strategies and outputs.

What social sciences and humanities offer the field of urban forestry is not only the awareness that there are a multitude of social and cultural perspectives involved in the applied field, but that the multiple differences are inclusive and more accurately reflective of urban forestry in and of itself as a field. In practice, one may ask the question, “where does *x* fit in this model?” My response is that this model offers different processes and avenues for outputs and inputs depending on various perspectives and entry points. Entry points into the model are inevitable - wanting to conduct more research and/or develop projects in urban forestry is constant. However, being aware of the multiple avenues of entry for a single question, may change the focus or priority towards a more inclusive approach - given that interviews revealed that the culture of urban forestry with respect to language (Chapter 4), labour (Chapter 5), agency (Chapter 6) and learning (Chapter 7), and thus management and practice, is insular - the tendency is to move from the roots, directly to the fruits. The idea that one cannot manage something unless it is measured excludes many necessary socio-natural considerations (Interviews, 2012). As decisions about entry points are made, and considerations based on these

various attributes towards an output are examined, conceptually this tree is fine-pruned.

The process model I present here is ultimately a fluid and draft concept that was first seeded when I read T. A. Barron's *The Great Tree of Avalon* trilogy (2006), then permeated through my readings of scientific literatures and social theories, solidified after being introduced to actor-network theory. In addition to reading broadly in the scientific and social science literature in urban forestry and urban nature, I draw my inspiration, to reflect on our ever-changing relationships with nature and one another, from writers such as Guy Gavriel Kay, Charles de Lint, T. A. Barron; but also from Will Self, Alain de Botton, and theorists such as Claude Levi-Strauss. The model is symbolic as a biological organic entity onto itself, or a process depending on the avenue of entry. The visual representation of inclusive concepts, theories, practices, methodologies and outputs is conceptually inspired by actor-network theory as a process for urban forestry, weaving threads of transdisciplinarity towards effective or transformative change (Ledwith & Springett, 2010) (i.e. changing the way we do change). Like with most conceptual frameworks, there are gaps that must be considered, and other representations than the tree could possibly be used. It is impossible to capture everything that urban forestry constitutes, because it is ever-evolving and a complex and interdisciplinary field with multiple layers: socially, ecologically, economically and politically. The division of space and distribution of resources are a constant contest. Thus, Figure 8.1 is helpful in thinking more holistically; but it is also a revolving door, whereby the only constant is change.

9.0. Research contributions

I began this dissertation stating that I wanted to speak to two audiences, academics as well as urban forest practitioners (Section 2.0). What I am proposing is not to neglect the work that has already been done in Political Ecology as a whole or urban forestry studies per se; rather, I am widening the ecosystem and ecology of both the practice and the theoretical parts for urban forestry. As described throughout this dissertation, the anatomy of the tree is dealt with in separate segments, using a tree metaphor, the generalization that can be taken from my research is that the method works; the research that goes out into the field leads towards more “action research” - I’m proposing that more of this is necessary. This is the way forward for urban forestry; it is also the way forward for research. Lessons learned through my research include a more integrated ecosystem, which will lead to better research and more meaningful results for practitioners. I also want to creatively convey, visually and practically, that we can use our knowledge about trees to think through how we experience and then produce research and planning outcomes. My hope is that this model serves as a platform to inspire, accessibly, critical and self-reflective thinking; throughout all processes. The more frequently a holistic method is practiced, the faster it will be to employ - right now it is an afterthought, or marginal, if even a thought at all.

Throughout my journey, participants continually referred to their climbing experiences as Tree Time (Chapter 6). Conceptually, urban forestry as a field is moving through Tree Time in Canada. It has been attested through interviews that we are moving, but the slow progress is like “walking through jello” described by one participant (Interview, 2012). Xylem and phloem have commonly been referred to as the plumbing of the tree, the stem and limbs have been constrained by the roots with respect to mobility, but they are also fed by them for nourishment (ideas). Canada is behind the US and Europe and we are falling further behind at the provincial and national levels (W.A. Kenney, personal communications, March 4, 2014).

My research contributes to the fields of community and urban forestry, political ecology, environmental education, applied human geography, sociology, and urban policy. My contributions take form in the examination of social perspectives and the political connections between cultural and ecological integrity in a broad national context and in a specific socio-political and geographic context. This is important on four counts: a) so that current practices in urban forest policy development and public recognition can be more inclusive; b) so that the social inequality and hidden narratives within urban forestry are revealed; c) so that education for urban forestry becomes truly critical and interdisciplinary, and; d) so that the urban forest does not lose its own voice.

I feel that my most significant contribution has been to the field of urban forestry by attempting to bring it into broader critical theoretical terrain and by proposing a multi-modal process model and a way of thinking about education and progress, inspired by the dominant narratives of political ecology. By re-thinking nature's agency and social inclusivity, and by adjusting the lens through which we see urban forestry, opportunities for environmental education and collaboration broaden. Examining human perceptions of *normalcy* and what constitutes *appropriate* behaviour through an exploration of various narratives help to alleviate stereotypes and lead to better, more sustainable long(er)-term strategies for urban planning and participant learning. My work specifically addresses the urban forestry groups and academic institutions with which I am affiliated. In addition, the specific focus on those who work 'in the field' in urban forestry, by giving them a voice and integrating their narratives in the wider urban forestry field, is another major research contribution towards what I think of as "social arboriculture".

My work is significant in order to better understand: the evolution and application of political ecology to the urban context in general and to urban forestry labour in specific; to better understand the challenges linked to politics and management of urban forestry; to better understand the challenges linked to communal and municipal management and production or creation of the urban natural environment; to better understand the social perspectives surrounding health-based environmental struggles of urban forest workers; to explore the

political, social and ecological dimensions of urban forest narratives and to show that these do not follow linear trends (Stott & Sullivan, 2000), but are in fact layered with social complexity; and finally, to better understand who does and who does not benefit from urban forestry and to assess the measures that can be taken to promote a healthier urban forest and surrounding community.

The power of my argument is that my themes are universal based on participant experiences. I have explored arborist opinions and narratives, because they can, in a meaningful and concrete way (as a primary qualitative source), help get to the root of marginal issues and elucidate these stories; so that we can decipher the issues from first-hand expertise and experiences from those who touch trees. I offer recommendations based on field arborist perspectives and insights on what can be done to foster better communication, collaboration and education in the field. In addition, the novelty that I bring to urban forest academia is my method. Theories are used as tools to examine and explain a phenomenon; theories themselves need to become more interdisciplinary and inclusive. The current theoretical lens to understanding urban forestry practice is incomplete. So far, we have been able to understand the practice of urban forestry by using the applied lens. Empirically, my study reveals that the risks associated with this are that we do not get an understanding of who the practitioners are, and what they are confronting on spiritual, social, psychological and professional levels. As such, taking decisions on workplace and urban forest planning policies makes no sense if only the technical side is considered; people can become alienated and policies written can be counter-productive. If urban forestry is to move forward and create healthy environments for workers and communities in Canada and elsewhere, practitioners and academics alike will need to look at things more holistically, critically (socially, politically, ecologically), and creatively - for any study and management on urban forestry.

Given that this is a case study, I cannot make sweeping generalizations, but my study has provided a window into qualitative experience. Ultimately, stories and narratives of tree people and treed places help us to remember and relate to the

wider (uncommon) urban forestry issues. The final section of my dissertation presents areas for future research directly resulting from my case study with respect to arboriculture as well as for broader urban forestry.

9.1. Outputs of my study

I was well-suited to embark on this research. I benefited greatly from the multi-disciplinarity of my educational history (i.e. Creative Writing, English Literature, Anthropology, Horticulture, Forest Conservation) and having experienced eight years as a participant urban forester in Toronto, working for various government and non-profit organizations (Tree Canada, Trees Ontario, Evergreen) as well as insights gained from my governing engagement with various Boards (Canadian Urban Forest Network National Steering Committee, Ontario Urban Forest Council, Faculty of Forestry Alumni Association, University of Toronto, Toronto Cancer Prevention, Shade Policy Committee). As part of a team, I have developed urban forest management plans for the Department of National Defence, the Town of Oakville and the City of Guelph; I have conducted tree inventories for school grounds (Toronto District School Board), shade audits for city parks (City of Toronto) and written policy guidelines for Toronto Public Health. Over the course of my doctorate degree, I had the opportunity to serve as a Teaching Assistant and Course Director for two undergraduate courses at the Faculty of Environmental Studies at York University, *ENVS 1200: Engaging People and the Environment* (2008-2013) as well as *ENVS 3740: Urban Ecology* (2012); as well as develop a Continuing Education course for Humber College (2013). I wanted to reflect critically on the practices I had come to know by questioning their purpose and viability as they were currently managed, practiced and taught. Having practical work experience was what motivated and influenced my vocation for urban forestry and the decision to pursue a doctorate in this field.

Direct outputs of my doctoral research include:

1. The potential for academic journal articles based on each major chapter and/or Discussion section.
2. A multi-modal process model for a new way to see, understand and consider urban forestry research and practice (see Figure 8.1).
3. A comprehensive upper year undergraduate course/program based on a third-year undergraduate course I developed for the Faculty of Environmental Studies, York University: *Urban Ecology* (ENVS 3740) for which I was the Course Director during Winter 2012.
4. A Continuing Education course for the Institute of Technology and Advanced Learning, School of Continuing Education, Humber College. *Urban Ecology: Applications and Perspectives* (2013).
5. *Limbwalkers*: A short documentary film on the social profiles of field arborists, where a 2.5-minute preview was initially screened at the 64th Annual International Society of Arboriculture Ontario Chapter Conference in February 2013 and at the *Urban Forests & Political Ecologies* Conference in April 2013.
6. *ArborEscapes*: A book of photo essays - a collaborative effort with three other photographers.
7. *Urban Forests & Political Ecologies: Celebrating Transdisciplinarity (UFPE)*: An international conference co-hosted by the Faculty of Environmental Studies at York University, the Faculty of Forestry at the University of Toronto, and the Humber Arboretum & Centre for Urban Ecology (see Appendices II and III for published reflection and final report). My research inspired this

initiative; the UFPE conference was a catalyst for specifically bringing a diverse network of people together who otherwise do not regularly have the forum to collectively reflect and communicate. Our main conference sponsor was TD Friends of the Environment Foundation. Website: www.ufpe.ca

8. *Urban Forests, Trees and Greenspace: A Political Ecology Perspective*. An edited volume including selected conference papers. As a result of the UFPE conference, Earthscan/Routledge Publishing approached me and we fostered a relationship with Tim Hardwick, and were awarded a book contract to publish this text, effectively creating the first introductory text for the study of urban forests and political ecology. The editors of the volume include my supervisor, Professor L. Anders Sandberg, myself, and my colleague, Sadia Butt, a PhD candidate at the Faculty of Forestry, University of Toronto, in that respective order.

Website: <http://www.routledge.com/books/details/9780415714105/>

9. *Urban Natures Workshop: Engaging Social Science Perspectives in Urban Natural Resource Management* (June 5-8, 2014, New York City). In partnership with the USDA Forest Service and Natural Areas Conservancy (NAC). This three day-workshop supports social science scholars working in interdisciplinary environmental efforts and urban natural resource management.

10.0. Future research directions

10.1. Future research considerations: Towards social arboriculture

It is not only important, but imperative not to lose sight that a green environment is also a human environment; it is not just about people enjoying urban trees for aesthetics or services, and it is not just about the trees themselves, it is about people working with and for the trees, and enjoying their work (or not), and the impact of that dynamic. My interviews suggest all kinds of different studies that can and should be done on urban forestry practice. My dissertation has expanded on and explored four dominant issues revealed through my interviews, and will hopefully stimulate further dialogue. Over time, more research can be done on the relationships between urban forest labour and the inclusion of field arborist voices in these processes, decision-making models and support systems. As the field moves toward mandatory licensing, my hope is that some of these stories will add value to that process. Even though I have provided a preliminary glance at what some of these studies could look like, future research directions resulting from my research, grouped by Chapter narrative, could focus on:

Shaping Identities:

- Examining, more closely, the direct and indirect effects of particular metaphors on worker self-esteem.
- Identifying subcultures and exploring how they shape arborist identity and public perceptions.
- Better understanding of public expectations about field workers' behaviour.
- Better understanding of how various representations in popular media influence public perceptions of urban forest workers (e.g. *Timber Kings*, *Men in Trees*, *Ax Men*, etc.).

Governing Labour:

- Conducting a comparative analysis between areas that have mandatory licensing (e.g. the Province of Manitoba, the state of Louisiana, Europe) to see whether the wishes or presumptions of field arborists in Southern Ontario,

who are not regulated, are in fact realized by mandatory licensing (e.g. that it reduces bad practices).

- A closer analysis of the lack of enforcement regarding private tree bylaws by interviewing decision makers and planners to gain a better understanding of their perspectives (e.g. interviews revealed that too many applications for tree removal are being approved).
- Gaining a better understanding of the health (mental and physical) of field workers and long-term impacts using the Canadian Index of Wellbeing in order to understand those who are entering and exiting the field. This is a very sensitive issue; I am not making the claim that people need to be profiled, but rather that understanding the social-psychology of workers can better influence policies for practice (e.g. health and safety requirements recalling the example of the bathroom issue from Chapter 5).
- Determining the reasons for high turnover in the industry, and identifying resolutions that would enable workers to stay or commit to longer stretches of time with one organization or company. This could include further interviews with workers as well as managers and what they are willing to give.
- A deeper understanding of women's motivations and contributions to the evolution of the industry and power dynamics with which they contend.
- A closer look at ISA's role and its social responsibility as the leader for education and certification. This would include interviews with ISA staff and supporting committee boards.

Negotiating Agency:

- Identifying and examining how specific common urban tree species impact forest workers' and how this influences agency (nature's and society's).
- Exploring how constructions and public perceptions of specific urban tree species impact urban forest planning and practice by conducting interviews with the general public.

- Gaining a better understanding on how we can go from an industry where people are finding excuses to remove trees, to one where importance is placed more on keeping them alive.
- Better integration of multi-modal considerations in analysis such as photographic representations to tell stories about trees.
- A closer examination of people's perceptions on the materiality and spirituality of forests (to consider how humans have thoughts about trees, how we have shaped those trees and how they, in turn, have shaped us) and whether/why those perceptions carry over to specific urban trees.

Education:

- A better analysis on the relationships between: a) what is being taught/learned; b) what is being used/performed on the job; and, c) what employers are looking for in the future. Even though I have provided a preliminary glance at what this could look like at the university level, additional research and collaboration is needed to develop a more comprehensive curriculum for both arborists and urban foresters. If the gaps were closed, it would directly help reduce negative perceptions of formal education for urban forestry (e.g. interviews revealed that field arborists value "*field experience*" over "*book smarts*").
- A better understanding and sensitivity to increased multiculturalism and how it is influencing the field in diverse neighbourhoods both from worker perspectives and communities. Understanding demographics and how diverse ethnicities can play a major role in urban forest care and maintenance (Chapters 1 and 2).
- A better understanding of how arborists contribute to public education in the communities they serve.
- A national secretariat or hub for urban forestry research and education.

Using a political ecology lens has been helpful in elucidating these often-marginal aspects of urban forestry. However, as stated above, political ecology is one of many

threads that can and should be woven into the fabric of urban forestry towards effective change. It is also important to note that class systems and economic structures are intertwined with these narratives. My current research does not address in detail the issues identified above, and as such, I invite others to consider my process model to help complement the current research and also build on the substantiated and legitimate research gaps.

10.2. Future research considerations: For inclusive urban forestry

I am particularly interested in the concept of scale. When presenting my preliminary research at the “New Transitions in Urban Forestry” conference in Tartu, Estonia (Bardekjian, October 2013), I was intrigued by the way in which participants situated their discussions around geography and location. Almost every participant with whom I spoke referenced his or her location on the country-scale. It is very difficult for us in Canada to make country-level claims due to the layers and scalar differences in geography, politics, and multi-cultural diversity. Spanning the research/practice divide and considering the social science applicability to urban forest research, using the conceptual framework illustrated above (Figure 8.1), with the entry point being a political ecology lens, many questions can be asked about the dominant and subjugated narratives in urban forestry more broadly at the national, provincial and local levels.

In this dissertation, the four narratives discussed included *language*, *labour*, *agency* and *learning*, couched in my overall narrative of *affect*, inspired by my creative components (film and photography). By sharing knowledge we can consider the additional and underlying narrative of *Leverage* on three counts: a) Policies at the national level; b) Organizational collaboration, or lack thereof; and, c) Personal connections and heritage. In the following sections, I offer but a few insights on how political ecology can inspire future research considerations in these areas.

10.2.1. Strategic steps or political pantomime? *The Canadian Urban Forest Strategy in Transition*

The Canadian Urban Forest Strategy was first developed in 2006 by a multidisciplinary committee of practitioners. The goal was to provide national-level direction for urban forestry in Canada and to realize its inclusion into Canada's National Forest Strategy (1988-2008) towards forest sustainability - an endeavour which was successful for a term (2003-2008). The strategy provides overall direction and vision for identified tasks using five working groups to facilitate their implementation: 1) National Urban Forestry Infrastructure; 2) Communications and Public Education; 3) Research; 4) Techniques and Technology for Urban Forest Planning and Management; and, 5) Professional Development. The Secretariat for this initiative is Tree Canada, the only urban forest organization (ENGO) that deals with urban forestry at the national level and provides programs such as TD Green Streets, a municipal forestry innovation program since 1994 that has greened approximately 500 municipalities across Canada. Tree Canada co-ordinates the Canadian Urban Forest Network, which is guided by a national steering committee with representatives from each province.

The Network seeks to build value by helping those who practice urban forestry; to build power and influence by helping those who are interested in urban forestry; to facilitate the exchange of information about urban forestry in Canada; and to increase awareness about the urgent issues facing Canada's urban forests (CUFS 2013-2018: 4).

In the Environmental Conflict narrative, political ecology deals with how social structure, class, gender and race factor, or do not factor, into decisions and determines what the unseen impacts of these exclusions may be. Examples in urban forestry include the abandonment and displacement of urban wildlife; the socio-economic polarizations of real estate and property values adjacent to urban greenspace; the use of pesticides and the use of non-native vegetation (Foster and Sandberg, 2004). Social constructs and perceptions of traditional foresters vs. urban foresters influence decisions and shape normative assumptions. Couched in the

broad dominant arguments of political ecology, these narratives can often overlap depending on the scope, scale and ecology of what one is studying. A political consideration within this dominant narrative for urban forestry is whether national recognition of the Canadian Urban Forest Strategy (2013-2018) is necessary to move urban forestry initiatives forward. Questions include: *Who benefits from the existing proposed recommendations? Are the identified working groups and tasks socially and ecologically inclusive? Are the current working partnerships in urban forestry successful? Who determines how success is measured?*

One of the suggested activities in the Canadian Urban Forest Strategy is to develop a professional school of Urban Forestry Research in Canada (CUFS 2012-2018). In July 2012, the Ontario Urban Forest Council in partnership with the Ontario Professional Foresters Association announced the formation of a joint professional committee to look at the Accreditation and Education within urban forestry towards a certification as a Registered Professional Forester (RPF) in Ontario. The Urban Forestry Committee of the Ontario Professional Forestry Association (OPFA) has since developed a draft discussion paper (2014), with a list of competencies for consideration by the OPFA Council. Yet, because the competencies have been developed within a traditional framework, the draft document (2014) still does not take into account the complex social dimensions suggested and inspired by political ecology (Sandberg, Bardekjian & Butt, 2014).

Hauer, Casey and Miller (2008) have shown that federal recognition coupled with state programming for Urban and Community Forestry in the US can be beneficial to expanding capacity. Urban & Community Forestry (U&CF) is a concept that is largely used in the US for government programming and organized stewardship policies; it is not universal, although its components are. It considers aspects of social and political inclusion and some have argued that it serves neoliberal interests (McCarthy, 2005). On the other hand, in the developing world the concept of Community Forestry (CF) deals with local livelihoods and subsistence (Brendler and Carey, 1998; Thompson, Elmendorf, McDonough and Burban, 2005). However, in Canada, we do not separate urban forestry this way: "urban forestry" in Canada assumes that community is involved and served, albeit voluntarily. This may be due

to the fact that urban forestry in Canada is driven from the ground-up (by local municipalities and ENGOs), and urban forestry in the US is more top-down with many state regulations. To be clear, there is much citizen participation and voluntary work in the US, but state involvement is much more prevalent than in Canada. Studies have also shown that the legal considerations and implications for urban forestry are divided and complex (see Hudson, 2014).

Thus, looking at the CUFS from a political ecology entry point is helpful in re-imagining its current framework and offering recommendations for inclusions. For example: *Are the current tasks which are outlined in the Working Groups still effective and necessary as when they were first identified? What tasks are excluded? For whom is the Strategy written?* The question that remains in the balance is: *Given that urban forestry initiatives in Canada are driven by ENGOs, local and volunteer groups, do we need a nationally/federally recognized policy (by government) to pursue and support urban forestry mandates and initiatives?* - in fact many movements have been in spite of their non-recognition. Studies have shown that some communities prefer that urban forestry efforts are initiated by volunteer groups (Perkins, 2011). To be clear, I am not advocating against national recognition for the Canadian Urban Forest Strategy, I am suggesting that we question the normative frameworks within which it was originally fashioned to make it more socially and ecologically inclusive and specific. We have an opportunity with the Canadian Urban Forest Network and Strategy to improve urban forest practice by thinking more critically and inclusively about other models. Thus, I propose a study of national political positions and motivations in urban forestry related to national recognition for urban forest policy that includes identifying the role of governance by ENGOs, municipalities, provincial, and federal levels of government across Canada. *What is their role? How are each accountable?* (Bardekjian, 2014b).

For example, Tree Canada, as the only national ENGO charity that focuses on urban forestry, has a leadership role in urban forest governance to create a center for excellence for open access information-sharing, at the very least, and the driver for understanding and defining both cultural diversity (in having a national

perspective) and considering the variable criteria for quality of greenspaces. In addition, part of the leadership role is to foster long-term relationships, build the existing national urban forest network (i.e. as a national green network) and create opportunities for new partnerships by setting a good example for interdisciplinarity and progressive thought.

10.2.2. Organizational cannibalism: From “preaching” to operationalizing the converted

One of the dominant narratives of Political ecology is Environmental Identities and Social Movements. In this narrative, political ecology interrogates how grassroots organizations and individuals situate themselves in the face of injustices within their communities (i.e. *How does it affect them? What are they doing about it?*). Interviews revealed that Southern Ontario is evolving into a “*gentrified community tree culture*” (Interviews, 2012), particularly in urban areas in Toronto, such as the Annex. Organizations like GreenHere and LEAF promote neighbourhood tree walks and inventories to raise awareness about the urban forest, which is necessary and important work; yet there is no strong thread that connects one volunteer activist initiative to another, not to mention the lack of differential culture considerations such as increased immigration. The collaborations between government, academia and community must be realized more prominently, not solely promoted for campaign-style advocacy (Interviews, 2012). The problem could be that too often community tree stewardship programs focus on self-promotion and marketing and do not contest their own processes. This has created a wave of self-proclaimed ‘tree experts’ working in and with various volunteer groups who have no actual training or credibility; this has many implications for urban forest education and underscores the need for a standardized baseline of education within the field (Interviews, 2012). The narratives we participate in are embedded in power. They serve particular interests and new organizations are predicated on different values. Here, the historical variations in dominant narratives that have surrounded urban forestry in Canada can be contested. *Where have we*

come from, where are we going? What are the underlying values of the civil society that we are trying to foster?

Thus, this leads me to an issue in urban forestry that I refer to as *Organizational Cannibalism*. Please read that term again. Each group wants to claim ownership over a particular facet of their work, rather than collaborating and embracing or simply contributing to similar organizations. Groups spend more time and resources celebrating (read ‘selling’) their work as though they are the only ones who can possibly deliver such achievements. In the private sector it is simpler, corporations are direct and unapologetic about wanting recognition, but in the environmental field, this type of coy passive-aggressiveness is much less transparent. Publicly, groups appear to be collaborating, but there is an underlying lack of respect for existing organizations (Interviews, 2012). It is possible that this type of behaviour stems from the need to compete for funding resources. Green groups compete with one another for the same pool of funding, year after year. As more local green groups are founded, the funding pool decreases with time. I maintain that urban forestry does not need *more* organizations; what we need is a re-evaluation of existing mandates of established groups, partners and stakeholders in urban forestry in order not to duplicate work. Although another question is left hanging in the balance: *How can we make room for new networks while still maintaining the integrity of existing entities?*

One example of duplication of efforts includes: The Urban Forest Stewardship Network (UFSN)(est. 2010), as compared with efforts of the Ontario Urban Forest Council (OUFC, est. 1964). The UFSN network and website (<http://ufsn.ca/>) is meant to connect community groups across Ontario that are working on urban forestry issues. However, the Ontario Urban Forest Council has been performing this role since 1964 (originally as the Ontario Shade Tree Council) at the provincial level, and the Canadian Urban Forest Network (CUFN) at the national level since 2006. And so this begs the questions: *Why was its creation necessary, with the exclusion of the OUFC and the CUFN as “founding members”* (see website)? This is but one example of efforts being duplicated across Canada. The

lack of a national coordination or leadership and communication of these efforts fosters ad-hoc urban forest practice.

Communities and municipalities working with urban greening groups need to reevaluate priorities, clearly define their roles and motivations, and find ways to work together and avoid repetition in work already being done, and communicate those efforts better. At the applied level, similar messages are persistent in current urban forest communications and rather than preaching to the converted, year after year, we need to operationalize the converted to move forward. This stems from the lack of communication among groups. Thus, another area for future research and opportunity to diversify urban forest awareness and education is Social Media Networking. There is currently no strategy or standard methodology in which people and professionals communicate and share information in urban forestry. Information is provided on various websites, through individual networks and over unorganized discussion forums. This became increasingly apparent to me while I was developing the Compendium of Best Management Practices for Canadian Urban Forests (www.cufn.ca), a web-based resource intended to be a one-stop shop for urban forest practitioners, and most recently in my role as the national Urban Forestry Program Manager for Tree Canada. Questions that arise here are: *How can we strategically network information and improve our linkages in order to collaborate better? How are the current networks in urban forestry, among community groups and private citizens engaged and monitored? To whom can NGOs go to for information? What information are they receiving, and from whom are they receiving it?*

10.2.3. Narratives of heritage (and) trees: Connections and familiarity

A dominant narrative in political ecology is Agency, as discussed in Chapter 6. In urban forest research, one discourse that is important to mention revolves around Heritage Trees. Heritage Trees are important specimens in the urban landscape because of their size, form, shape, age, rarity, and/or other distinctive features. They are living relics and community landmarks associated with a historic

person, place, event or period and they hold considerable significance and are recognized by their human community (definition by Dr. Paul Aird, Professor Emeritus, Faculty of Forestry, University of Toronto). The notion of Heritage Trees has been getting a lot of attention in Ontario, particularly since the official partnership and launch of the Ontario Heritage Tree Program, a joint initiative between Trees Ontario and the Ontario Urban Forest Council; a partnership that I was involved in instigating in 2006. The Ontario Urban Forest Council, along with other groups (e.g. Veteran Tree Initiative in Europe, est. 1996), have developed standards for identification, assessment, management and designation of heritage trees (see Ontario Heritage Tree Alliance Toolkit), in order to conserve old trees in cultural landscapes, and thus protect history and habitat. Heritage trees have a prevalent presence in urban forest culture and political ecology is an exciting framework through which this culture can be examined.

As mentioned in Chapter 6, it is important to consider the paradox between the veneration of large and old trees and the lack of equal care and concern for smaller trees, in comparison to how humans are viewed in Canadian society (i.e. care for small children vs. less regard for elderly). Much of urban forest advocacy revolves around young children planting seedlings (this makes a nice photo op), but less attention is paid to older citizens and their connections with, and stories about, older trees in their neighbourhoods. Heritage trees, like the elderly, are living links and living historical records. Political ecology is particularly relevant when discussing the loss of many Heritage Trees in urban areas because it may, for some, be analogous to cultural displacement. To local communities, these sentinel trees represent identity, history and historical significance; but that Heritage Trees need to be given Heritage status under provincial architectural legislation is problematic and undervalues their agency.

The concept of heritage and history related to trees is subjective, particularly if we're trying to build bridges in urban forest understanding and language across Canada, in neighbourhoods populated by immigrants from different places and diverse backgrounds. As a Canadian of Armenian descent, I have my own

familiarities with particular trees, and a different perspective considering the political, cultural and ecological contentions of Armenia's history (Adalian, 1991). In 2008, through Tree Canada, I embarked on a program called, *Building International Bridges for Forest Futures*, a collaborative education program between Canada and Armenia funded by the Canadian International Development Agency (CIDA). One of the sites we visited was a 13th century monastery called, Haghartsin, known as the "Queen of the Forest", located in a temperate rainforest in the Tavush region of Armenia. On this site, there was a walnut tree (*Juglans regia*) that was estimated to be about 800 years old (see Figure 10.1).



Figure 10.1. Walnut tree (*Juglans regia*): Haghartsin Monastery, Armenia, photo. Source: Adrina Bardekjian, 2007.

This tree held with it a legend that if you climb through it three times, any wish you make will come true. For centuries Armenians have made pilgrimage to Haghartsin Monastery to celebrate and worship this walnut tree. It is believed that

the tree represents fertility and is connected to many tree cult ceremonies in Armenia. Some observances involved tying handkerchiefs or pieces of cloth or clothing to the trees' branches (Asatryan, 2012). And so as I reflect on my own experience and connection with this particular tree, it has significant meaning for me, culturally and historically; and each time I see a walnut tree in the cities in which I live in Canada, it feels significant on many levels. And so it is difficult to communicate the profound loss I felt when I learned that the tree at Haghartsin, an icon for all Armenians, had been burned down in 2013 - it was a violation. Thus, the concept of Heritage and history is relative to different cultures and ethnicities, but it is also familiar for all immigrants, and this needs to be explored further in our diverse growing communities.

We can use political ecology to explore how ageing adds value to cultural and social recognition for Heritage Trees (chronological, ontogenetic, physiological). In addition, it would be helpful to undergo an exploratory study of the various stories about these trees and their communities, the policies that affect them, how citizens feel about these narratives, and how they are affected by their loss.

10.2.4. Creative and Artistic Interventions in the urban forest

Finally, political ecology can be used to examine creative inspirations and representations in urban forests and urban ecologies more broadly. Movements like guerrilla gardening is one example, but personal and collective expressions of creativity such as visual art and sculpture; photography; spoken word performances; art installations (altering streetscapes) are also gaining attention in the fabric of urban forestry awareness and discourse. Some examples include: Dr. Paula Meijerink's "The Urban Forest", an installation in downtown Montreal. A landscape architect from the Netherlands and visiting professor at the Université de Montréal (UdeM), Dr. Meijerink's work contests the confines of common urban spaces through design (Figure 10.2a); Sean Martindale's "Outside the Planter Boxes" (2010), a Toronto movement attempting to engage communities and highlight neglected city tree planter boxes using creative interventions (Figure 10.2b); and

Noel Harding's "Elevated Wetlands" (1997), located in Taylor Creek Park in Toronto (Figure 10.2c); his large-scale pieces of public art as infrastructure explore the complex relationships between social and environmental issues. These artistic interventions offer inspiration and showcase various aspects of the urban forest - they also raise awareness and draw attention to the political problems and social benefits with urban trees. Although, at a time when society is saturated with representation and abstractions (Turner, 1996), *where does nature's agency fit in? How do people appreciate nature in and for its own right? Do impressions and interventions help or hinder?* This is another area of study in urban social forestry where political ecology is useful.



Figure 10.2. Artistic installations in the urban forest by various artists, photos. Source: Dr. Paula Meijerink's "The Urban Forest" (Figures 10.2a1 and 10.2a2); Sean Martindale's "Outside the Planter Boxes" (Figure 10.2b); and Noel Harding's "Elevated Wetlands" (Figure 10.2c).

10.3. Future research considerations: Beyond my case study

I started this doctorate program wanting to tell true stories. What I realized throughout my process was that no narratives are true. There are threads of social, political and ecological complexity woven into the fabric of urban forestry. In the broader urban forestry spectrum, I would like to see more inclusivity with respect to this complexity. Like prominent scholars Konijnendijk (2000) and McLean and Jensen (2004), I maintain that the future of sustainable and equitable urban communities depends on comprehensive and critical urban forestry awareness and knowledge. My research findings led to an exploration of how re-imagining urban forestry practice and communication in Southern Ontario can influence its practice towards more sustainable and transdisciplinary directions. In addition, I was able to suggest a new process and framework for praxis in urban forestry.

Urban areas are diverse multicultural and ecological communities; the cultural implications of shared public space are not yet fully realized; however, greenspace can be a democratic space that can be used and experienced differently. Although trees are the most imposing feature of urban forests, urban greenspaces are ecosystems that depend on many biotic and abiotic actors. As such, bridging natural science and applied human science is not only favourable, but also necessary. *How do newcomers from highly dense global cities perceive greenspace on the scale in Canada? What are their concepts of shared spaces? What is the cultural relationship to trees in the land where these people in the surrounding community are from? Most importantly, how can we apply these findings to sustainable management and urban planning?* Communities are served by these greenspaces, and, in turn, those communities must support the existence of those spaces and the organizations whose mandates include their conservation. For example, the development of *standardized* criteria and indicators for urban forest management in Canada, while necessary, are often exclusive. The measure and value in such criteria is placed on engagement; less attention is paid to communities with diverse cultural and ethnic perspectives, which again raises the question: *by whom were these criteria developed? Who will they benefit? Whose voices will be excluded?* Ultimately

we cannot change or sustain the landscape unless we change perspectives and encourage communities to think critically about decisions being made; and most importantly reveal that they can have a voice in those decisions and directions.

My future research will further examine connections between sustainable greenspaces, the workers who care for them, and healthy public policies. I want to contribute to discourse in urban forestry around the need for social interdisciplinarity (Konijnendijk, 2000), more comprehensive education (Andresen, 1975), and the agency of trees (Jones & Cloke, 2002). In addition, I will further explore the integration of creative representations and artistic interventions to connect art, science and education to reach wider audiences to share urban forest knowledge.

Neighbourhoods greatly impact the greenspaces they inhabit and share. There are no islands in the urban forest; there are clusters of habitats connected by social, emotional, spiritual and physical infrastructure. The UFPE Conference in April 2013 marked the beginning of a need (for me) to not only celebrate but actively pursue transdisciplinarity in urban forestry. My goal is to one-day move towards an urban forestry school of continuing education. I see great potential to work with the CITY institute at York University and/or the Faculty of Forestry at the University of Toronto in close collaboration with an organization such as Tree Canada as a national leader, to realize this need and fill this gap. We also need to work on matching political agendas and start changing the metaphors of the common narratives in which we are all participating; developing an awareness of how this reproduces a way of life and is driving environmental thought. Thus, my future research at the academic level will further explore the connections between the physical and social urban forests towards fostering a culture of stewardship and effectively planning for sustainable living communities on all levels.



Figure 10.3. *Before the Fall*. Red Oak (*Quercus rubra*) sentient: Mount Pleasant Cemetery, Toronto, Ontario, photo. Source: Adrina Bardekjian, 2004.

References

- Adalian, R. P. (1991). The Armenian Genocide: Context and legacy. *Social education: The Official Journal of the National Council for the Social Studies*, February.
- Agyeman, J. (2005). *Sustainable communities and the challenge of environmental justice*. New York, NY: New York University Press.
- Andresen, J. W., & Williams, B. (1975). Urban forestry education in North America. *Journal of Forestry*, 73(12), 786-790.
- Andrews, M. (2002). Introduction to special research: Counter narratives and the power to oppose. *Narrative Inquiry*, 12(1), 1-6.
- Alfred, T. & Corntassel, J. (2005). Being indigenous: Resurgences against contemporary colonialism. *Government and Opposition*, 40(4), 597.
- Altman, N. (2000). *Sacred trees: Spirituality, wisdom & well-being*. New York, NY: Sterling Publishing Company Inc.
- Appelstrand, M. (2002). Participation and societal values: The challenge for lawmakers and policy practitioners. *Forest Policy and Economics*, 4(4), 281-290.
- Ardoin, N. (2006). Toward an interdisciplinary understanding of place: Lessons for environmental education. *Canadian Journal of Environmental Education*, 11, 112-126.
- Astryan, A. (2012). *Remarkable trees of Armenia*. Yerevan, Armenia: Scientific & Education Committee Grant, International Dendrology Society (IDS).

- Atkinson, P., & Hammersley, M. (1994). Ethnography and participant observation. *Handbook of qualitative research*, (1)23: 248-261.
- Ball, J. (1997). On the urban edge: a new and enhanced role for foresters. *Journal of Forestry*, 95(10), 6-10.
- Bardekjian, A. (Writer, Director). (2014a). *Partners in action: A shade policy for the City of Toronto* [Documentary]. Canada: City of Toronto, Healthy Public Policy Directorate, Toronto Public Health. Retrieved from: <https://www.youtube.com/watch?v=Jg1jD6E43Z4>
- Bardekjian, A. (2014b). Trees as infrastructure: Urban forest policy: How organizations and municipalities are influencing urban forestry development in Canada. *ReNew Canada: The Infrastructure Magazine*. September/October 2014. Available online: <http://renewcanada.net/2014/trees-as-infrastructure-urban-forest-policy/>
- Bardekjian, A. (2012, March). *Of arboreta and arborscapes: Questioning ecological and social identity within language and discourse*. Paper presented at the 11th Annual Art History Graduate Student Symposium, York University: New Growth: Dialogues on the Tree, Kleinburg, ON.
- Bardekjian, A., Classens, M., & Sandberg, L. A. (2012). Reading the urban landscape: The case of a campus tour at York University, Ontario, Canada. *Journal of Environmental Studies and Sciences*, 2(3), 249-256.
- Bardekjian, A. (Writer, Director, Producer). (2013a). *Limbwalkers* [Documentary preview]. Canada. Retrieved from: <http://vimeo.com/adrinabard/limbwalkers>

Bardekjian, A. (2013b, February). *Limbwalkers: Arborist voices in the urban forest*. Paper presented at the 64th Annual International Society of Arboriculture Ontario Chapter Conference, Niagara Falls, ON.

Bardekjian, A. (2013c, October). *Limbwalkers: Narratives of language, labour, agency and learning in urban forestry*. Paper presented at the CARE-FOR-US II CONFERENCE: Urban Forestry in Transition: Addressing the needs of changing societies, Tartu, Estonia.

Bardekjian, A. (2013d, April). *Uncommon clear cuts: Innovative approaches to teaching urban forestry*. Paper presented at the Urban Forests & Political Ecologies: Celebrating Transdisciplinarity Conference, Toronto, ON.

Bardekjian, A. (2013e). Reflections on organizing the urban forests & political ecologies conference 2013. *Commonwealth Forestry Association Newsletter*. No. 61: 9-11. Available online:
http://adrina.ca/Adrina_Bardekjian/Writing_files/CFA_newsletter_June2013.pdf

Barndt, D., (2008). Touching minds and hearts: Community arts as collaborative research. In G. Knowles & A. Cole (Eds.), *Handbook of the Arts in Qualitative Research*. Thousand Oaks, CA: Sage Publications.

Barron, T. (2004). *The great tree of Avalon trilogy*. (Vols 1-3). New York, NY: Philomel Books.

Baumeister, C. (2014). Higher education in urban forestry in North America and Europe: Profiling skills and competencies for the labor market of today and tomorrow (Unpublished Master of Forestry thesis). Faculty of Graduate and Postdoctoral Studies (Forestry), University of British Columbia, Vancouver, BC.

- Becker, H. S. (2008). *Tricks of the trade: How to think about your research while you're doing it*. Chicago, IL: University of Chicago Press.
- Bennett, M. (1999). Manufacturing the ghetto: Anti-urbanism and the spatialization of race. In M. Bennett & D. Teaque (Eds.), *The nature of cities: Ecocriticism and urban environments*. University of Arizona Press.
- Bentsen, P., Lindholst, A. C., & Konijnendijk, C. C. (2010). Reviewing eight years of urban forestry & urban greening: Taking stock, looking ahead. *Urban Forestry & Urban Greening*, 9(4), 273-280.
- Bickerstaff, K., Bulkeley, H., & Painter, J. (2009). Justice, nature and the city. *International Journal of Urban and Regional Research*, 33(3), 591-600.
- Biersack, A., & Greenberg, J. (Eds.). (2006). *Reimagining political ecology*. Durham: Duke University Press.
- Blaikie, P. (1985). *The political economy of soil erosion in developing countries*. New York, Longman Scientific and Technical.
- Blaikie, P. (1999). A review of political ecology: Issues, epistemology, and analytical narratives. *Zeitschrift für Wirtschaftsgeographie*, 43(3-4), 131-147.
- Blaikie, P., & Brookfield, H. (1987). *Land degradation and society*. London and New York, Methuen and Co. Ltd.
- Blair, D. F. (1993). *When the Oak man met the Euc men*. Clear Spring, Maryland: M. F. Blair Institute for Arboriculture.

- Blair, D. F. (1995). *Arborist equipment: A guide to the tools and equipment of tree maintenance and removal*. Champaign, IL: International Society of Arboriculture.
- Blaufuss, K. (2007). De-linking text from fieldwork: Exploring power imbalances in the narrative. *Narrative Inquiry*, 17(1), 13-26.
- Bolelli, D. (2008). *On the warrior's path: Fighting, philosophy and martial arts mythology*. Berkeley, CA: Blue Snake Books.
- Bradley, G. A. (1995). (Ed.). *Urban forest landscapes: Integrating multidisciplinary perspectives*. Seattle, WA: University of Washington Press.
- Braun, B., & Wainwright, J. (2001). Nature, poststructuralism, and politics. In N. Castree & B. Braun (Eds.), *Social nature: Theory, practice, and politics*, (pp. 41-63). Malden, MA: Blackwell Publishers.
- Braverman, H. (1974). *Labour and monopoly capital: The degradation of work in the twentieth century*. New York & London: Monthly Review Press.
- Braverman, I. (2008a). Everybody loves trees: Policing American cities through street trees. *Duke Environmental Law & Policy Forum*, 19(1), 81-118.
- Braverman, I. (2008b). Governing certain things: The regulation of street trees in four North American cities. *Tulane Environmental Law Journal*, 22, 35.
- Braverman, I. (2014). Urban trees and actor-network theory. In L. A. Sandberg, A. Bardekjian & S. Butt (Eds.), *Urban forests, trees and greenspace: A political ecology perspective*, (pp. 132-146). London, UK: Routledge.

- Bryant, R. (2001). Political ecology: A critical agenda for change?. In N. Castree & B. Braun (Eds.), *Social nature: Theory, practice, and politics*, (pp. 151-169). Malden, MA: Blackwell Publishers.
- Bryant, R. (1998). Power, knowledge and political ecology in the third world: A review. *Progress in Physical Geography*, 22(1), 79-94.
- Bühler, O., & Kristoffersen, P. (2009). The urban tree arboretum in hørsholm, denmark: A new tool towards an improved education of arborists and tree managers. *Urban Forestry & Urban Greening*, 8(1), 55-61.
- Byrne, J., Wolch, J., & Zhang, J. (2009). Planning for environmental justice in an urban national park. *Journal of Environmental Planning and Management*, 52(3), 365-92.
- Cadieux, K. V. (2008). Political ecology of exurban 'lifestyle' landscapes at Christchurch's contested urban fence. *Urban Forestry & Urban Greening*, 7(3), 183-194.
- Canadian urban forest strategy 2010-2015. (2010). *Canadian urban forest network, national steering committee*. Retrieved from: www.cufn.ca
- Coder, K. (1998). Pruning effects on tree growth: Growth regulation consequences. Athens, GA: University of Georgia.
- Coles, R.W., & Bussey, S.C. (2000). Urban forest landscapes in the UK - Progressing the social agenda. *Landscape and Urban Planning*, 52, 181-188.
- Callon M., & Law, J. (1995). Agency and the hybrid collectif. *South Atlantic Quarterly*, 94, 481-507.

- Campana, R. (1999). *Arboriculture: History and development in North America*. East Lansing, MI: Michigan State University Press.
- Carreiro, M., Song, Y., & Wu, J. (Eds.). (2008). *Ecology, planning, and management of urban forests: International perspectives*. New York, NY: Springer.
- Carreiro, M. and Zipperer, W. (2011). Co-adapting societal and ecological interactions following large disturbances in urban park woodlands. *Journal of Austral Ecology*, 36: 904-915.
- Castonguay, S. & Dagenais, M. (Eds.). (2011). *Metropolitan natures: Environmental histories of Montreal*. Pittsburgh, PA: University of Pittsburgh Press.
- Castree, N. (1995). The nature of produced nature: Materiality and knowledge construction in Marxism. *Antipode*, 27(1), 12-48.
- Castree, N. (2001). Socializing nature: Theory, practice, and politics. In N. Castree & B. Braun (Eds.), *Social nature: Theory, practice, and politics*, (pp. 189-207). Malden, MA: Blackwell Publishers.
- Castree, N. (2002). False Antithesis? Marxism, nature and actor-networks. *Antipode*, 34(1), 11-146.
- Castree, N., & Braun, B. (Eds.). (1998). *Remaking reality: Nature at the millennium*. London, UK: Routledge.
- Castree, N., & Braun, B. (Eds.). (2001). *Social nature: Theory, practice, and politics*. Malden, MA: Blackwell Publishers.

- Castree, N., & MacMillan, T. (2001). Dissolving dualisms: Actor-networks and the reimagination of nature. In N. Castree & B. Braun (Eds.), *Social nature: Theory, practice, and politics*, (pp. 208-224). Malden, MA: Blackwell Publishers.
- Chester, B. (2012). *Island of trees: 50 trees, 50 tales of Montreal*. Montreal, QC: Vehicule Press.
- Ching-Hua, H., Sasisharan, V., Elmendorf, W., Willits, F., Graefe, A., & Godbey, G. (2005). Gender and ethnic variation in urban park preferences, visitation, and perceived benefits. *Journal of Leisure Research*, 37(3), 124-135.
- Clair-Maczulajty, D., Le Disquet, I., Bory, G. (1999). *Pruning stress: Changes in the tree physiology and their effects on the tree health*. Laboratoire de Physiologie de l'Arbre, Universit Paris, France. Symposium on urban tree health, Acta Horticulturae 496. International Society of Horticultural Science.
- Clandinin, J., & Connelly, M. (2004). *Narrative inquiry: Experience and story in qualitative research*. San Francisco, CA: Jossey-Bass.
- Clandinin, J., Pushor, D., & Orr, A. (2007). Navigating sites for narrative inquiry. *Journal of Teacher Education*; 58; 21.
- Coffey, A.J., & Atkinson, P. (1996). *Making sense of qualitative data: Complementary research strategies*. Thousand Oaks, CA: Sage Publications.
- Colding, J., & Barthela, S. (2013). The potential of 'urban green commons' in the resilience building of cities. *Ecological Economics*, 86, 156-166.
- Coles, R.W., & Bussey, S.C. (2000). Urban forest landscapes in the UK - progressing the social agenda. *Landscape and Urban Planning*, 52, 181-188.

- Creswell, J. W. (1994). *Research design: Qualitative & quantitative approaches*. Thousand Oaks, CA: SAGE Publications.
- Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3. ed.). Los Angeles: SAGE Publications.
- Cronon, W. (1992). A place for stories: Nature, history and narrative. *The Journal of American History*, 78(4), 1347-1376.
- Cronon, W. (1996a). Introduction: In search of nature. In W. Cronon (Ed.), *Uncommon ground: Rethinking the human place in nature*, (pp. 23-68). New York, NY: W.W. Norton & Company.
- Cronon, W. (1996b). The trouble with wilderness; or, getting back to the wrong in nature. In W. Cronon (Ed.), *Uncommon ground: Rethinking the human place in nature*, (pp. 69-90). New York, NY: W.W. Norton & Company.
- Cronon, W. (1996c). *Uncommon ground: Rethinking the human place in nature*. New York, NY: W.W. Norton & Company.
- Dalley, S. (2013). *The mystery of the hanging garden of Babylon: An elusive world wonder traced*. New York, NY: Oxford University Press.
- Damania, R., & Hatch, J. (2005). Protected Eden: Markets or government? *Ecological Economics*, 53, 339-351.
- Darling, E. (2006). Nature's carnival: The ecology of pleasure at Coney Island. In N. Heynen, M. Kaika & E. Swyngedouw (Eds.), *Nature of cities: Urban political ecology and the politics of urban metabolism*, (pp. 75-92). London, UK: Routledge.

- Davey, J. (1901). *The tree doctor*. Self-published article.
- Davis, M. (1999). *Ecology of fear: Los Angeles and the imagination of disaster*. New York, NY: Knopf Doubleday Publishing Group.
- Dean, J. (2006, May). An oxymoron?: The Canadian origins of the term "urban forest". Paper presented at the 9th European forum on urban forestry. Urban forestry: Bridging cultures, disciplines, old attitudes, new demands, Florence, Italy.
- Dean, J. (2007, February). *Legislating for trees*. Paper presented at the International Society of Arboriculture, Ontario Chapter Annual conference, Ottawa, ON.
- Dean, J. (2009). Seeing trees, thinking forests: Urban forestry at the University of Toronto in the 1960s. In A. MacEachern & W. Turkel (Eds.), *Method and meaning in Canadian environmental history*. Scarborough, ON: Nelson College Indigenous.
- Dean, J. (2011). The social production of a Canadian urban forest. In G. Massard & R. Rodger (Eds.), *Environmental and social justice in the city: Historical perspectives*. Cambridge, UK: The White Horse Press.
- Dean, J. (2013, February). *Tools of the trade: The impact of post-war technology on arboriculture*. Conference presentation at the ISA Ontario Chapter Annual Conference.
- Dean, J. (2014). The unruly tree: Stories from the archives. In L. A. Sandberg, A. Bardekjian & S. Butt (Eds.), *Urban forests, trees and greenspace: A political ecology perspective*, (pp. 162-175). London, UK: Routledge.

- Delamont, S. (2004). Ethnography and participant observation. In C. Seale, G. Gobo, J. Gubrium & D. Silverman (Eds.), *Qualitative research practice*. London, UK: Sage Publications.
- Demeritt, D. (2001). Being constructive about nature. In N. Castree & B. Braun (Eds.), *Social nature: Theory, practice, and politics*. Malden, MA: Blackwell Publishers.
- Demeritt, D. (2002). What is the 'social construction of nature'? A typology and sympathetic critique. *Progress in Human Geography*, 26(6), 767-790.
- Deneke, F. (1993). Urban forestry in North America: Towards a global ecosystem perspective. In G. Blouin & R. Comeau (Eds.), *Proceedings of the first Canadian urban forests conference*, Winnipeg, MB.
- Deutscher, G. (2010). *Through the language glass: Why the world looks different in other languages*. New York, NY: Metropolitan Books, Henry Holt and Company.
- Di Chiro, G. (1996). Nature as community: The convergence of environment and social justice. In W. Cronor (Ed.), *Uncommon ground: Rethinking the human place in nature*, (pp. 298-320). New York, NY: W.W. Norton & Company.
- Donovan, G. H., & Butry, D. T. (2010). Trees in the city: Valuing street trees in Portland, Oregon. *Landscape and Urban Planning*, 94, 77-83.
- Donovan, G. H., Butry, D. T., Michael, Y. L., Prestemon, J.P., Liebhold, A. M, Gatzliolis, D., & Mao, M. Y. (2013). The relationship between trees and human health: Evidence from the spread of the emerald ash borer. *American Journal of Preventative Medicine*, 44(2), 139-45.

- Dove, M. (1994). The existential status of the Pakistani farmer: Studying official constructions of social reality. *Ethnology*, 33(4), 331-51.
- Dove, M. (1995). The theory of social forestry intervention: The state of the art in Asia. *Agroforestry Systems*, 30, 315-40.
- Drache, D. (1984). The formation and fragmentation of the Canadian working class: 1820-1920. *Studies in Political Economy*, 15.
- Driscoll, C. T., Lambert, K. F., Chapin III, F. S., Nowak, D. J., Spies, T. A., Swanson, F. J., Kittredge, D. B., & Hart, C.M. (2012). Science and society: The role of long-term studies in environmental stewardship. *BioScience*, 62(4), 354-366.
- Duinker, P., Steenberg, J., Ordóñez, C., Cushing, S., and Katelyn Rae Perfitt. (2014). *Governance and urban forests in Canada: Roles of non-government organisations*. Unpublished report. Dalhousie University.
- Duncan, J. S., & Duncan, N. G. (2001). The aestheticization of the politics of landscape preservation. *Annals of the Association of American Geographers*, 91(2), 387-409.
- Dunk, T. (1994a). Subjectivity and environment in forest workers' discourse. In Laasi Heineman. (Ed.). *The changing circumpolar north: Opportunities for academic development*. Arctic Centre Publications 6. Rovaniemi: University of Lapland. pp. 252-60.
- Dunk, T. (1994b). Talking about trees: Images of the environment and society in forest workers' discourse. *The Canadian Review of Sociology and Anthropology*, 31(1), 14-34.

Dunster, J. (2002, October). *Planning for a green infrastructure: Getting it right*. Paper presented at the 5th Canadian Urban Forest Conference, Region of York, Ontario.

Dunster, J., & Murray, S. (1995). *Arboriculture and the law in Canada*. Vancouver, BC: International Society of Arboriculture.

Dwyer, J., Schroeder, H., & Gobster, P. (1991). The significance of urban trees and forests: Toward a deeper understanding of values. *Journal of Arboriculture*, 17(10), 276-284.

Dwyer, J.F., H.W. Schroeder, and P.H. Gobster. (1994). The deep significance of urban trees and forests. In *The ecological city*. Rutherford, H.P., Rowntree, R.A., and Muick, P.C., Eds. Amherst, MA: University of Massachusetts Press.

Dwyer, J. F., McPherson, E. G., Schroeder, H.W., & Rowntree, R. A. (1992). Assessing the benefits and costs of the urban forest. *Journal of Arboriculture*, 18, 227-227.

Edwards, R. (1979). *Contested terrain: The transformation of the workplace in the twentieth century*. New York, NY: Basic Books.

Eisenhardt, K. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.

Ekers, M. (2009). The political ecology of hegemony in depression-era British Columbia, Canada: Masculinities, work and the production of the forestscape. *Geoforum*, 40, 303-315.

Ellis, J. (1996). On the search for a root cause: Essentialist tendencies in environmental discourse. In W. Cronon (Ed.), *Uncommon ground: Rethinking*

the human place in nature, (pp.256-268). New York, NY: W.W. Norton & Company.

Elmendorf, W. F., Cotrone, V. J., & Mullen, J. T. (2003). Urban forestry practices and sustainability: Contrasting a Pennsylvania study. *Journal of Arboriculture*, 29(4), 237-249.

Elmendorf, W.F., & Luloff, A. E. (2001). Using qualitative data collection methods when planning for community forests. *Journal of Arboriculture*, 27(3), 139-151.

Elmendorf, W.F., Watson, T., & Lilly, S. (2005). Arboriculture and urban forestry education in the United States: Results of an educators survey. *Journal of Arboriculture*, 31(3), 138-149.

Engel Di-Mauro, S. (2009). Seeing the local in the global: Political ecologies, world-systems, and the question of scale. *Geoforum*, 40, 116-125.

Esterberg, K. G. (2002). *Qualitative methods in social research*. Columbus, OH: McGraw-Hill Education, Inc. USA.

Finlay, L. (2012). Debating phenomenological methods. In N. Friesen, C. Henriksson, & T. Saevi (Eds.), *Hermeneutic phenomenology in education: method and practice* (pp. 17-37). Rotterdam, Boston: Sense Publishers.

Fink, L. D. (2003). *What is "significant learning"?* Retrieved from:
http://www.wcu.edu/WebFiles/PDFs/facultycenter_SignificantLearning.pdf

Fischer, G. (2000). Lifelong learning – more than training. *Journal of Interactive Learning Research*, 11(3/4), 265-294.

- FitzSimmons, M. (1989). The matter of nature. *Antipode* 21(2), 106-120.
- Flusty, S. (2006). Culturing the world city: An exhibition of the global present. In N. Brenner & R. Keil (Eds.), *The global cities reader*. London and New York: Routledge.
- Forrest, M., Konijnendijk, C.C., & Randrup, T.B. (Eds.). (1999). *Research and development in urban forestry in Europe*. Office for Official Publications of the European Communities, Luxembourg.
- Forsyth, T. (2003). *Critical political ecology: The politics of environmental science*. London, UK: Routledge.
- Foster, J. (2007). Toronto's Leslie street spit: Aesthetics and the ecology of marginal land. *Environmental Philosophy*, 4, 117-133.
- Foster, J., & Sandberg, A. (2004). Friends or foe? Invasive species and public green space in Toronto. *Geographical Review*, 94(2), 178-198.
- Foucault, M. (1970). *The order of things: An archeology of the human sciences*. New York, NY: Vintage.
- Foucault, M. (1991). Governmentality. In G. Burchell, C. Gordon & P. Miller (Eds.), *The Foucault effect: Studies in governmentality* (87-1004). Chicago, IL: The University of Chicago Press.
- Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative inquiry*, (12)2. 219-245. Retrieved from:
<http://flyvbjerg.plan.aau.dk/Publications2006/0604FIVEMISPUBL2006.pdf>

- Franklin, S. (1999). *In the time of trees*. Retrieved from:
<http://www.time.com/time/photogallery/0,29307,1731606,00.html>
- Fraser, E.D.G., & Kenney, W.A. (2000). Cultural background and landscape history as factors affecting perceptions of the urban forest. *Journal of Arboriculture*, 26, 106–113.
- Freidmann, J., & Wolff, G. (1982). World city formation: An agenda for research. *International Journal of Urban and Regional Research*, 6(3), 309-344.
- Gandy, M. (2005). Cyborg urbanization: Complexity and monstrosity in the contemporary city. *International Journal of Urban and Regional Research*, 29(1), 26-49.
- Gandy, M. (2006). Urban nature and ecological imaginary. In N. Heynen, M. Kaika & E. Swyngedouw (Eds.) *In the nature of cities: Urban political ecology and the politics of urban metabolism*. London, UK: Routledge.
- Gathright, J., Yamada, Y., & Morita, M. (2006). Comparison of the physiological and psychological benefits of tree and tower climbing. *Urban Forestry & Urban Greening*, 5(3), 141-149.
- Gathright, J., Yamada, Y., & Morita, M. (2008). Tree-assisted therapy: Therapeutic and societal benefits from purpose-specific technical recreational tree-climbing programs. *Arboriculture and Urban Forestry*, 34(4), 222.
- Gaard, G. (2011). Ecofeminism revisited: Rejecting essentialism and re-placing species in a material feminist environmentalism. *Feminist Formations*, 23(2): 26–53.

- Gerhold, H. D., Elmendorf, W. F., & Stahl, R. G. (1994). Urban foresters and roadside managers meet at the crossroads. *Journal of Forestry*, 92(10), 21.
- Gill, C. (2011). *Eating dirt: Deep forests, big timber, and life with the tree-planting tribe*. Vancouver, BC: Greystone Books & David Suzuki Foundation.
- Goldman, M., & Shurman, R. (2000). Closing the "great divide": New social theory on society and nature. *Annual Review of Sociology*, 26,563-584.
- Grahn, P., & Stigsdotter, U. (2003). Landscape planning and stress. *Urban Forestry & Urban Greening*, 2, 1-18.
- Greenberg, J. B., & Park, T. K. (1994). Political ecology. *Journal of Political Ecology*, 1, 1-12.
- Grove, K. (2009). Rethinking the nature of urban environmental politics: Security, subjectivity, and the non-human. *Geoforum*, 40, 207-216.
- Halpern, D. (1995). *Mental health and the built environment: More than bricks and mortar?* London, UK: Taylor & Francis Publishers.
- Hannerz, U. (2006). The cultural role of world cities. In N. Brenner & R. Keil (Eds.), *The global cities reader*. London and New York: Routledge.
- Hannigan, J. (2006). *Environmental sociology*. London, UK: Routledge.
- Harvey, D. (1996). *Justice, nature and the geography of difference*. Malden, MA: Blackwell Publishers.

- Hastings, A. (2009). Neighbourhood environmental services and neighbourhood effects: Exploring the role of urban services in intensifying neighbourhood problems. *Housing Studies*, 24(4), 503-524.
- Hauer, R. J., Casey, C. J., & Miller, R. W. (2008). Advancement in state government involvement in urban and community forestry in the 50 United States: Changes in program status from 1986 to 2002. *Arboriculture and Urban Forestry*, 34(1), 5.
- Heatherington, C. (2012). Buried narratives. In A. Jorgensen & R. Keenan (Eds.). *Urban wildscapes*. London and New York: Routledge.
- Hendry, J. (2008). An introduction to social anthropology: Sharing our worlds. Palgrave Macmillan.
- Heynen, N. (2003). The scalar production of injustice within the urban forest. *Antipode*, 35(5), 980-998.
- Heynen, N. (2006). Justice of eating in the city: The political ecology of urban hunger. In N. Heynen, M. Kaika & E. Swyngedouw (Eds.), *In the nature of cities: Urban political ecology and the politics of urban metabolism*. London, UK: Routledge.
- Heynen, N., Kaika, M., & Swyngedouw, E. (2006). (Eds.). *In the nature of cities: Urban political ecology and the politics of urban metabolism*. London, UK: Routledge.
- Heynen, N., & Perkins, H. (2005). Scalar dialectics in green: Urban private property and the contradictions of the neoliberalization of nature. *Capitalism Nature Socialism*, 16(1), 99-113.

- Heynen, N., Perkins, H., & Roy, P. (2006). The political ecology of uneven urban green space: The impact of political economy on race and ethnicity in producing environmental inequality in Milwaukee. *Urban Affairs Review*, 42, 3-25.
- Heynen, N., & Robbins, P. (2005). The neoliberalization of nature: Governance, privatization, enclosure and valuation. *Capitalism, Nature, Socialism*, 16(1), 5-8.
- High, S. (2010). Telling stories: A reflection on oral history and new media. *Oral History*. Spring 2010. (pp. 101-110). Retrieved from: http://spectrum.library.concordia.ca/976907/1/Telling_Stories_pdf.pdf
- Hildebrandt, R.E., Floyd, D.W., & Koslowsky, K.M. (1993). A review of urban forestry education in the 1990s. *Journal of Forestry*, 91(3), 40-42.
- Holling, C. S., & Meffe, G. K. (1996). Command and control and the pathology of natural resource management. *Conservation Biology* 10(2), 328-37.
- Hooks, B. (1994), *Teaching to transgress: Education as the practice of freedom*. New York and London: Routledge.
- Hopkins, K., & Glass, G. (1993). *Basic statistics for the behavioural sciences*. Englewood Cliffs, NJ: Prentice Hall.
- Hudson, B. (2014). Institutions, law, and the political ecology of urban forestry: A comparative approach. In L. A. Sandberg, A. Bardekjian & S. Butt (Eds.), *Urban forests, trees and greenspace: A political ecology perspective*, (pp. 61-76). London, UK: Routledge.
- Hull, R. B. IV. (1992). How the public values urban forests. *Journal of Arboriculture*, 18, 98-101.

Hunter, M. R. (2011). Impact of ecological disturbance on awareness of urban nature and sense of environmental stewardship in residential neighborhoods. *Landscape and Urban Planning, 101*,131-138.

Hurley, S. (2012, February 14). The metaphors we live (and die) by. [Teaching Out Loud: Education, Innovation and Exploration]. Retrieved from:
<http://teachingoutloud.org/2012/02/14/the-metaphors-we-live-and-die-by/>

International Society of Arboriculture (1999). The legends of arboriculture. Documentary film (57 min). Champaign, IL: International Society of Arboriculture.

Janzen, R. (2002). Reconsidering the politics of nature: Henri Lefebvre and the production of space. *Capitalism Nature Socialism, 13*(2), 96-116.

Jarosz, L. (2004). Political ecology as ethical practice. *Political Geography, 23*, 917-927.

Jensen, E. L., & Ouis, P. (2008). Contested construction of nature for city fringe outdoor recreation in southern Sweden: The Arrie case. *Urban Forestry & Urban Greening, 7*, 171-182.

Jim, C.Y. (2004). Green-space preservation and allocation for sustainable greening of compact cities. *Cities, 21*(4), 311-320.

Johnson, J. (1998). Mixing humans and nonhumans together: The sociology of a door-closer. *Social Problems, 35*(3), 298-310.

- Johnston, M., & Shimada, L. (2004). Urban forestry in a multicultural society. *Journal of Arboriculture*, 30(3), 185-192.
- Jones, O. (2014). Urban places of trees: Affective embodiment, politics, identity and materiality. In L. A. Sandberg, A. Bardekjian & S. Butt (Eds.), *Urban forests, trees and greenspace: A political ecology perspective*, (pp. 111-131). London, UK: Routledge.
- Jones, O. (2008). Of trees and trails: place in a globalised world. In N. Clark, D. Massey & P. Sarre (Eds.), *Material geographies: A world in the making*. London, UK: Sage in association with the Open University.
- Jones, O. (2011). Forest landscapes: Identity and materiality. In E. Ritta & D. Dauksta (Eds.), *Society, culture and forests: human-landscape relationships in a changing world*. Guilford: Springer.
- Jones, O., & Cloke, P. (2002). *Tree cultures: The place of trees and trees in their place*. New York, NY: Oxford.
- Jones, O., & Cloke, P. (2008). Non-human agencies: Trees, relationality, time and place. In C. Knappett & L. Malafouris (Eds.), *Material agency: towards a non-anthropocentric approach*. Guilford: Springer.
- Jones, P. & Evans, J. (2012). Rescue geography: Place making, affect and regeneration. *Urban Studies* 49(11), 2315–2330.
- Jorgensen, A., & Anthopoulou, A. (2007). Enjoyment and fear in urban woodlands – does age make a difference? *Urban Forestry & Urban Greening*, 6(4), 267-278.
- Jorgensen, E. (1974). *Towards an urban forestry concept*. Proceedings of the 10th Commonwealth Forestry Conference. Forestry Service. Ottawa, ON.

- Judd, C., Smith, Eliot, & Kidder, L. (1991). *Research methods in social relations*. Fort Worth, TX: Harcourt Brace College Publishers.
- Julius, A. (2013, January 25). Risking life and limb. *ArborViews Podcast*. Interview by Robert Polomski. Retrieved from: <http://www.isa-arbor.com/education/onlineLearning/podcastDetail.aspx?ID=8&EP=853>
- Kaika, M. (2004). *City of flows: Modernity, nature, and the city*. London, UK: Routledge.
- Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology, 15*, 169-182.
- Katz, C. (1998). Whose nature, whose culture?: Private productions of space and the "preservation" of nature. In N. Castree & B. Braun (Eds.) *Remaking reality: Nature at the millennium*. London, UK: Routledge.
- Kearney, R. (2003). *Strangers, gods and monsters*. London and New York: Routledge.
- Kearney, R. (2002). *On stories*. New York: Routledge.
- Keil, R. (2009). Urban political ecology. *Urban Geography, 24*(8), 723-738.
- Keil, R., & Boudreau, J. (2006). Metropolitics and metabolics: Rolling out environmentalism in Toronto. In N. Heynen, M. Kaika & E. Swyngedouw (Eds.), *In the nature of cities: Urban political ecology and the politics of urban metabolism*. London, UK: Routledge.

- Kennedy, J.J., & Thomas, J.W. (1995). Managing natural resources as social value. In R.L. Knight & S.F. Bates (Eds.), *A new century for natural resources management*. Washington DC and Covelo: Island Press.
- Kenney, W. A. (2013, April). *Neighbourwoods: Engaging communities in urban forest stewardship*. Paper presented at the Urban Forests & Political Ecologies: Celebrating Transdisciplinarity Conference, Toronto, ON.
- Kenney, W. A. (2003). A strategy for Canada's urban forests. *Forestry Chronicle*, 79(4): 785-789.
- Kenney, W. A., & Puric-Mladenovic, D. (2001). *Neighbourwoods© tree inventory manual*. Toronto, ON: Faculty of Forestry, University of Toronto.
- Kinney, J. (1972). *The development of forest law in America*. New York, NY: Arno Press. (Reprinted as Use and Abuse of America's Natural Resources).
- Kipfer, S., & Milgrom, R. (2002). Henri Lefebvre: Urbanization, space and nature: editors' preface. *Capitalism Nature Socialism*, 13(2), 37-41.
- Kirkpatrick, J. D., Davison A., and Daniels, G. D. (2012) Resident attitudes towards trees influence the planting and removal of different types of trees in eastern Australian cities. *Landscape and Urban Planning*, 107, 147-158.
- Kirkpatrick, J. D., Davison A., and Daniels, G. D. (2013). How tree professionals view trees and conflicts about trees in Australia's urban forest. *Landscape and Urban Planning*, 119, 124-130.
- Kitchen, L. (2013). *Are trees always 'good'?* Urban political ecology and environmental justice in the valleys of South Wales. *International Journal of Urban and Regional Research*, 37(6), 1968-1983.

- Klooster, D. (2005). Environmental certification of forests: The evolution of environmental governance in a commodity network. *Journal of Rural Studies*, 21, 403-417.
- Konijnendijk, C. (2000). Adapting forestry to urban demands – role of communication in urban forestry in Europe. *Landscape and Urban Planning*, 52(2), 89-100.
- Konijnendijk, C. (2008). *The forest and the city: The cultural landscape of urban woodland*. Denmark: Springer.
- Konijnendijk, C., Randrup, T. B., & Nilsson, K. (2000). Urban forestry research in Europe: An overview. *Journal of Arboriculture*, 26(3), 152-161.
- Konijnendijk, C., Ricard, R., Kenney, A., & Randrup, T. (2006). Defining urban forestry-a comparative perspective of North America and Europe. *Urban Forestry & Urban Greening*, 4(3-4), 93-103.
- Konijnendijk, C. (1995). Educating foresters of the 21st Century. *Unasylva*, 46(182), 76-80.
- Kozłowski, T., Kramer, P., & Pallardy, S. (1991). *The physiological ecology of woody plants*. San Diego, CA: Academic Press.
- Krakauer, J. (1997). *Into the wild*. Knopf Doubleday Publishing Group.
- Krasny, M., Keith, E., Tidball, G. & Sriskandarajah, N. (2009). Education and resilience: social and situated learning among university and secondary students. *Ecology and Society*, 14(2): 38.

- Kuhlberg, M. (2009). *One hundred rings and counting: Forestry education and forestry in Toronto and Canada, 1907-2007*. University of Toronto Press.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago, IL: University of Chicago Press.
- Kuhns, M.R., H.A. Bragg, and D.J. Blahna. (2002). Involvement of women and minorities in the urban forestry profession. *Journal of Arboriculture* 28:27-34.
- Kuo, F. E. (2003). The role of arboriculture in a healthy social ecology. *Journal of Arboriculture*, 29(3), 148-155.
- Kuo, F., Sullivan, W., Coley, R., & Brunson, L. (1998). Fertile ground for community: Inner-city neighborhood common spaces. *American Journal of Community Psychology*, 26(6), 823-851.
- Kuo, F. E., & Taylor, A. F. (2004). A potential natural treatment for attention-deficit/hyperactivity disorder: Evidence from a national study. *American Journal of Public Health*, 94(9), 1580-1586.
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago, IL: University of Chicago Press
- Larson, B. (2006). The social resonance of competitive and progressive evolutionary metaphors. *BioScience*, 56, 997-1004.
- Larson, B. (2011). *Metaphors for environmental sustainability: Redefining our relationship with nature*. New Haven, CT: Yale University Press.

- Latour, B. (2004). *Politics of nature: How to bring the sciences into democracy*. Cambridge, MA: Harvard University Press.
- Law, J. (2009). Actor network theory and material semiotics. In B.S. Turner (Ed.), *The New Blackwell Companion to Social Theory*. Malden, MA: Blackwell Publishers.
- Ledwith, M. & Springett, J. (2010). *Participatory practice: Community-based action for transformative change*. Policy Press.
- Lima, M. (2014). *The book of trees: Visualizing branches of knowledge*. New York, NY: Princeton Architectural Press.
- Lyytimäki, J., & Sipilä, M. (2009). Hopping on one leg – The challenge of ecosystem disservices for urban green management. *Urban Forestry & Urban Greening*, 8(4): 309-315.
- Livingston, J. (2007). *The John A. Livingston reader: The fallacy of wildlife conservation and one cosmic instant: A natural history of human arrogance*. Toronto, ON: McClelland and Stewart.
- Logan, M. (2012). In the field with Matt Logan: Education is the key for preventing & treating MSDs. *Arborist News, July/August*, 14-16.
- Macnaghten, P., & Urry, J. (1998). *Contested natures*. Thousand Oaks, CA: Sage Publications.
- Martinez-Alier, J. (2003). Scale, environmental justice, and unsustainable cities. *Capitalism Nature Socialism*, 14(4), 43-63.

- Matheny, N., & Clark, J. (1999). Trees and development: A technical guide to preservation of trees during land development. International Society of Arboriculture.
- McCarthy, J. (2002). First world political ecology: Lessons from the wise use movement. *Environment and Planning A*, 34(7), 1281-1302.
- McCarthy, J. (2005). Devolution in the woods: Community forestry as hybrid neoliberalism. *Environment and Planning A*, 37, 995-1014.
- McLain, R., Poe, M., Hurley, P., Lecompte-Mastenbrook, J., & Emery, M. (2012). Producing edible landscapes in Seattle's urban forest. *Urban Forestry & Urban Greening* 11, 187– 194.
- McLean, D., Jensen, R., & Hurd, A. (2007). Seeing the urban forest through the trees: Building depth through qualitative research. *Arboriculture & Urban Forestry*, 33(5):304–308.
- McLean, D. D., & Jensen, R. R. (2004). Community leaders and the urban forest: A model of knowledge and understanding. *Society & Natural Resources*, 17, 1–17.
- McPherson, G. (2000). *Urban forestry issues in North America and their global linkages*. Western Center for Urban Forest Research and Education. Davis, CA: Pacific Southwest Research Station.
- McPherson, E., Nowak, D., Heisler, G., Grimmond, S., Souch, C., Grant, R. & Rowntree, R. (1997). Quantifying urban forest structure, function, and value: The Chicago urban forest climate project. *Urban Ecosystems*, 1: 49-61.
- Miller, R.W. (1994). Urban forestry education – traditions and possibilities. *Journal of Forestry*, 92(10), 26–27.

- Miller, R.W. (1997). *Urban forestry: Planning and managing urban greenspaces*. Upper Saddle River, NJ: Prentice Hall.
- Miller, R.W. (2001). Urban forestry in third level education – the US experience. In K.D. Collins and C.C. Konijnendijk (Eds.), *Planting the Idea – The role of education in urban forestry*. Proceedings of the COST Action ‘Urban Forests and Trees’ seminar, Dublin, 23 March 2000. The Tree Council of Ireland, Dublin, pp. 49–57.
- Mills, S. E. (2012). Restructuring in the forest sector and the re-shaping of women's work identities. *Canadian Geographer/Le Géographe Canadien*, 56(1), 39-57.
- Millward, A. A., & Sabir, S. (2011). Benefits of a forested urban park: What is the value of Allan gardens to the city of Toronto, Canada?. *Landscape and urban planning*, 100(3), 177-188.
- Mitchell, T. (Ed.). (2002). *Landscape and power*. Chicago, IL: University of Chicago Press.
- Monahan, P. (2010). *Building a more engaged university: Strategic directions for York University 2010-2020*. White Paper Overview April 2010. Retrieved from: http://vpap.info.yorku.ca/files/2012/09/White_Paper_Overview_April_15.pdf
- Morsink, W. (2011). The history of urban forestry: The land, forests, people, individuals and organizations that shaped the Ontario urban forests. Toronto, ON.
- Mosley, S. (2006). Common ground: Integrating social and environmental history. *Journal of Social History*, 39(3), 915-933.

- Neumann, R. (2010). Political Ecology II: Theorizing Region. *Progress in Human Geography*, 34(3), 368-374.
- Nilsson, K., Konijnendijk, C. & Randrup, T.B. (2000). *State-of-the-art of research and knowledge on urban forests and trees in Europe*. Abstract. In: Forests and society: the role of research. Volume 2: abstracts of group discussions. Proceedings of the XXI IUFRO World Congress, Kuala Lumpur, 7-12 August 2000: Kuala Lumpur. pp. 270-271.
- Nilsson, K., Konijnendijk, C. & Randrup T.B. (2000). *Urban forestry: where people meet trees*. In: Community forestry – a change for the better. Conference Proceedings: 28-31. 7-8 December 1999, London. Forestry Commission & Countryside Agency. pp. 28-31
- Northall, G. F. (1894). *Folk phrases of four counties*. London, UK: English Dialect Society.
- Nowak, D. (2002). *The effects of urban trees on air quality*. Syracuse, NY: USDA Forest Service.
- Nowak, D.J. (2002, October). *Billions of trees: Trillions of dollars*. Presentation at the 5th Canadian Urban Forest Conference, Region of York, Ontario.
- Nowak, D., Crane, D., Walton, J., Twardus, D., Dwyer, J. (2002) 'Understanding and quantifying urban forest structure, functions, and value', in W. A. Kenney, J. McKay, J. and P. van Wassanaer (eds) Proceedings of the 5th Canadian Urban Forest Conference, Ontario Urban Forest Council, Markham, Ontario.
- Parrino, J. (2006). A still-small voice: Arborists in the aftermath. *Arborist News*, April.

- Patrick, D. (2014). Queering the urban forest: The ecological ethics and politics of arboreal entanglement. In L. A. Sandberg, A. Bardekjian & S. Butt (Eds.), *Urban forests, trees and greenspace: A political ecology perspective*, (pp. 191-206). London, UK: Routledge.
- Paulson, S., & Gezon, L. (2005). *Political ecology across spaces, scales, and social groups*. New Brunswick, NJ: Rutgers University Press.
- Peckham, S. C., Duinker, P. N., & Ordóñez, C. (2013). Urban forest values in Canada: Views of citizens in Calgary and Halifax. *Urban Forestry & Urban Greening*, 12(2), 154-162.
- Peet, R., & Watts, M. (1996). *Liberation ecologies: Environment, development, and social movements*. London and New York: Routledge.
- Perkins, H. (2007). Ecologies of actor-networks and (non)social labor within the urban political economies of nature. *Geoforum*, 38(6), 1152-1162.
- Perkins, H. (2011). Gramsci in green: Neoliberal hegemony through urban forestry and the potential for a political ecology of praxis. *Geoforum*, 42(5), 558-566.
- Philpot, J. H. (2004). *The sacred tree in religion and myth*. Mineola, NY: Dover Publications.
- Pincetl, S. (2010). Implementing municipal tree planting: Los Angeles million-tree initiative. *Environmental Management*, 45(2), 227-238.

- Podnieks, E, Pillemer, K., Nicholson, J. P., Shillington, T., Frizzel, A. (1990). National survey on abuse of the elderly in Canada: The Ryerson study. Ryerson Polytechnical Institute, Canada.
- Poe M., McLain, R., Emery, M., & Hurley, P. (2013). Urban forest justice and the rights to wild Foods, medicines, and materials in the city. *Human Ecology*, 41(3): 409-422.
- Pouyat, R., & Zipperer, W. (1992). The uses and management of urban woodlands. In P. Rodbell (Ed.), *Proceedings of the Fifth National Urban Forest Conference* (26-29). American Forestry Association.
- Preston, R. (2007). *The wild trees: A story of passion and daring*. New York, NY: Random House Publishing Group.
- Proctor, J. (1996). Whose nature? The contested moral terrain of ancient forests. In W. Cronon (Ed.), *Uncommon ground: Rethinking the human place in nature*, (pp. 269-297). New York, NY: W.W. Norton & Company.
- Proctor, J. (2001). Solid rock and shifting sands: The moral paradox of saving a socially constructed nature. In N. Castree & B. Braun (Eds.), *Social Nature: Theory, Practice, and Politics*. Malden, MA: Blackwell Publishers.
- Proctor, J., & Larson, B. (2005). Ecology, complexity and metaphor. *BioScience*, 55, 1065-1068.
- Randrup, T.B., Konijnendijk, C.C., & Andersen, F. (2001). *Review of higher education on urban forestry in Europe*. Report of COST Action E12 'Urban forests and trees'. Printing Office of the European Communities, Brussels.

- Rangan, H., & Kull, C. (2009). What makes ecology 'political'? Rethinking 'scale' in political ecology. *Progress in Physical Geography*, 33(1), 28-45.
- Reed, M. G. (2008). Reproducing the gender order in Canadian forestry: The role of statistical representation. *Scandinavian Journal of Forest Research*, 23(1), 78-91.
- Rioux, D. (2003). Dutch elm disease in Canada: Distribution, impact on urban areas and research. Natural Resources Canada, Canadian Forest Service.
- Roche, L., & Sadowsky, J. (2003). The power of stories (I): a discussion of why stories are powerful. *International Journal of Information Technology and Management*, 2(4): 377-388.
- Robbins, P. (2004). *Political ecology: A critical introduction*. Malden, MA: Blackwell Publishers.
- Robbins, P., & Sharp, J. (2003). Producing and consuming chemicals: The moral economy of the American lawn. *Economic Geography*, 79(4), 425-451.
- Roberts, B. (1977). The response of urban trees to abiotic stress. *Journal of Arboriculture*, April: 75-78.
- Rocheleau, D. (2008). Political ecology in the key of policy: From chains of explanation to webs of relation. *Geoforum*, 39, 716-727.
- Rocheleau, D., & Edmunds, D. (1997). Women, men and trees: Gender, power and property in forest and agrarian landscapes. *World Development*, 25(8), 1351-1371.

- Rocheleau, D., Thomas-Slayter, B., & Wangari, E. (1996). Gender and environment: A feminist political ecology perspective. In D. Rocheleau, B. Thomas-Slayter & E. Wangari (Eds.), *Feminist Political Ecology: Global Issues and Local Experiences* (3-23). New York, NY: Routledge.
- Routledge, P. (2008). Acting in the network: ANT and the politics of generating associations. *Environment and Planning D*, 26(2), 199-217.
- Rowntree, R., & Nowak, D. (1991). Quantifying the role of urban forests in removing atmospheric carbon dioxide. *Journal of Arboriculture*, 17(10), 269-275.
- Rowntree, R. (1998). Urban forest ecology: Conceptual points of departure, *Journal of Arboriculture*, 24(4), 62-71.
- Rudy, A., & Konefal, J. (2007). Nature, sociology, and social justice: Environmental sociology, pedagogy, and the curriculum. *American Behavioral Scientist*, 51(4), 494-515.
- Ryan, R., & Weinstein, N. (2010). Vitalizing effects of being outdoors and in nature. *Journal of Environmental Psychology*, 30, 159-168.
- Salzman, J. (2006). A field of green? The past and future of ecosystem services. *Journal of Land Use and Environmental Law*, 21, 133.
- Sandberg, L. A., Bardekjian, A., & Butt, S. (Eds.). (2014). *Urban forests, trees and greenspace: A political ecology perspective*. London, UK: Routledge.
- Sandberg, L. A., & Clancy, P. (2000). *Against the grain: Foresters and politics in Nova Scotia*. Vancouver, B.C.: UBC Press.
- Schama, S. (1996). *Landscape and memory*. New York, NY: Vintage Books.

- Schmidt, P., Huss, J., Lewark, S., Pettenella, D., & Saastamoinen, O. (Eds.). (1998). New requirements for university education in forestry. Demeter (SOCRATES Thematic Network for Agriculture and Related Sciences) series 1. Drukkerij De Weide, Belgium.
- Schmitt, R. (2005). Systematic metaphor analysis as a method of qualitative research. *The Qualitative Report*, 10(2): 358-394
- Schroeder, H., Flannigan, J., & Coles, R. (2006). Residents' attitudes toward street trees in the UK and U.S. communities. *Arboriculture and Urban Forestry*, 32, 236-246.
- Seale, C., Gobo, G., Gubrium, J., & Silverman, D. (Eds.). (2004). *Qualitative research practice*. London, UK: Sage Publications.
- Self, W. (1991). *The quantity theory of insanity*. New York, NY: Vintage International.
- Sennett, R. (1970). *The uses of disorder: Personal identity and city life*. New York, NY: W. W. Norton & Company.
- Sheppard, S. (2014). Urban forestry education at UBC: A holistic program for future greenspace practitioners and leaders. Paper presented at the 11th Canadian Urban Forest Conference, Victoria, BC.
- Shigo, A. L. (1991). *Modern arboriculture: A systems approach to the care of trees and their associates*. Shigo and Trees, Associates.
- Shigo, A. L. (1989). *A new tree biology: Facts, photos, and philosophies on trees and their problems and proper care*. Shigo & Trees Associates.

- Smith, N. (1998). Nature at the millennium: Production and re-enchantment. In N. Castree & B. Braun (Eds.), *Remaking Reality: Nature at the Millennium*. London, UK: Routledge.
- Soper, K. (1995). *What Is nature?: Culture, politics and the non-human*. Malden, MA: Blackwell Publishers.
- Soper, K. (2005). Thinking the unnatural. *Capitalism, Nature, Socialism*, 16(1), 129-134.
- Sorte, G. (1995). The value of nature and green spaces to the urban resident: Homo urbaniensis. In *Ecological aspects of green areas in urban environments*. IFPRA world congress 3-8 September 1995. Antwerp, pp. 543-546.
- Stake, R. E. (1995). *The art of case study research*. London, UK: Sage Publications.
- Stefanovic, I. & Scharper, S. (2012). *The natural city: Re-envisioning the built environment*. Toronto, ON: University of Toronto Press.
- Stott, P., & Sullivan, S. (2000). *Political ecology: Science, myth and power*. London, UK: Arnold.
- Swyngedouw, E. (2005). Dispossessing H₂O: The contested terrain of water privatization. *Capitalism Nature Socialism*, 16 (1), 81-98.
- Swyngedouw, E., & Heynen, N. (2003). Urban political ecology, justice and the politics of scale. *Antipode*, 35, 898-918.

- Thompson, J., Elmendorf, W., McDonough, M., & Burban, L. (2005). Participation and conflict: Lessons learned from community forestry. *Journal of Forestry*, 103(4), 174-178.
- Tidball, K. & Krasny, M. (2010). Urban environmental education from a social-ecological perspective: Conceptual framework for civic ecology education. *Cities and the Environment*, 3(1), 1-20.
- Tindall, D. (2003). Social values and the contingent nature of public opinion and attitudes about forests. *Forestry Chronicle*, 79(3), 692-704.
- Tree, J. (2006). The town of Aurora's takes on tree planting. *Ontario Arborist*.
Retrieved from:
http://www.isaontario.com/pages/Resources/urbanforestry/2006_11.php
- Tuan, Y. (2007). *Space and place: The perspective of experience*. Minneapolis & London, UK: University of Minnesota Press.
- Turner, J. (1996). *The abstract wild*. Tempe, AZ: University of Arizona Press.
- Ulrich, R.S. & Parsons, R. (1992). Influences of passive experiences with plants on individual well-being and health. In D. Relf (Ed.), *The role of horticulture in human well-being and social development* (pp.93-105). Portland, OR: Timber Press.
- Uusitalo, J, and Orland, B. (2001). Virtual forest journal of forest management: Possibilities and challenges. *Journal of Forest Engineering*, 12(2), 57-66.
- Vaillant, J. (2006). *The golden spruce: A true story of myth, madness and greed*. Toronto, ON: Vintage Canada.

- Van Den Berg, A., Hartig, T. & Staats, H. (2007). Preference for nature in urbanized societies: Stress, restoration, and the pursuit of sustainability. *Journal of Social Issues*, 63(1), 79–96.
- Van Herzele A. (2006). A forest for each city and town: Story lines in the policy debate for urban forests in Flanders. *Urban Studies*, 43(3), 673-696.
- Van Herzele A., & Aarts N. (2013). My forest, my kingdom – Self-referentiality as a strategy in the case of small forest owners coping with government regulations. *Policy Sciences*, 46, 63–81.
- Van Herzele A., & Van Woerkum C. (2011). On the argumentative work of map-based visualisation. *Landscape and Urban Planning*, 100, 396-399.
- Van Wassenaer, P., & Kenney, A. (2002). *Strategic Urban Forest Management Planning* (Unpublished report), Faculty of Forestry, University of Toronto, Toronto, ON.
- Vaughan, K. (2009). Mariposa: The story of New Work of research/creation, taking shape, taking flight. In *Research Methods for the Arts and Humanities*. Edinburgh University Press.
- Vayda, A., & Walters, B. (1999). Against political ecology. *Human Ecology*, 27(1), 167.
- Viger, S. G., Wolfe, E. W., Dozier, H., & Machtmes, K. (2006). Validation of a questionnaire used to assess safety and professionalism among arborists. *Journal of Applied Measurement*, 7(3), 292-306.

- Vosberg, S. J. (2005). *An analysis of safety training and training needs in the tree care industry* (Unpublished Master of Science thesis). South Dakota State University, Brookings, SD.
- Wainwright, J. (2005). The geographies of political ecology: After Edward Said. *Environment and Planning A*, 37(6), 1033-1043.
- Wainwright, J. (2005). Politics of nature: A review of three recent works by Bruno Latour. *Capitalism, Nature, Socialism*, 16(1), 115-122.
- Walker, P. (2003). Reconsidering 'regional' political ecologies: Toward a political ecology of the rural American west. *Progress in Human Geography*, 27, 7-24.
- Walker, P. (2005). Political ecology: Where is the ecology?. *Progress in Human Geography*, 29(1), 73-83.
- Walker, P. (2006). Political ecology: Where is the policy?. *Progress in Human Geography*, 30(3), 382-395.
- Watson, E., Simmons, I., Fernandez-Armesto, F., & Sluyter, A. (2010). Environmentalist thinking and/in geography. *Progress in Human Geography*, 34(1), 98-116.
- Watts, M. (1998). Nature as artifice and artifact. In N. Castree & B. Braun (Eds.), *Remaking reality: Nature at the millennium*. London, UK: Routledge.
- Watts, M. (2000). Political ecology. In T. Barnes and E. Sheppard (Eds.), *A companion to economic geography*. Malden, MA: Blackwell Publishers.

- Weinstein, N., Przybylski, A., & Ryan, R. (2009). Can nature make us more caring? Effects of immersion in nature on intrinsic aspirations and generosity. *Personality and Social Psychology Bulletin*, 35, 1315-1329.
- Westphal, L.M. (2003). Social aspects of urban forestry: Urban greening and social benefits: A study of empowerment outcomes. *Journal of Arboriculture*, 29(3), 137-147.
- Wilson, A. (1991). The culture of nature: North American landscape from Disney to the Exxon Valdez. Toronto, ON: Between the Lines.
- Wilson, O., & Hughes, O. (2011). Urban green space policy and discourse in England under new labour from 1997 to 2010. *Planning, Practice & Research*, 26(2), 207-228.
- White, A., Burggraaf, L., & Krauss, M. (2012, May). *The arbornauts: Current and recent missions*. Paper presented at the 11th Annual Art History Graduate Student Symposium, York University: New Growth: Dialogues on the Tree, Kleinburg, ON.
- Whitehead, M. (2009). The wood for the trees: Ordinary environmental injustice and the everyday right to urban nature. *International Journal of Urban and Regional Research*, 33(3), 662-681.
- Wolf, E. (1972). Ownership and political ecology. *Anthropological Quarterly*, 45(3), 201-205.
- Yang, J., Zhao, L., McBride, J. & Gong, P. (2009). Can you see green? Assessing the visibility of urban forests in cities. *Landscape and Urban Planning*, 91(2), 97-104.

- Yard, J. (2009). Softwood lumber and the golden spruce: Two perspectives on the material and discursive construction of British Columbian forests. *TOPIA: Canadian Journal of Cultural Studies*, 21, 85-103.
- Yokohari, M., & Bolthouse, J. (2011). Planning for the slow lane: The need to restore working greenspaces in maturing contexts. *Landscape and Urban Planning*, 100, 421-424.
- Zhang, Y., Hussain, A., Deng, J., & Letson, N. (2007). Public attitudes toward urban trees and supporting urban tree programs. *Environment and Behaviour*, 39(6), 797-814.
- Zimmerer, K., & Bassett, T. (2003). Future directions in political ecology: Nature-society fusions and scale of interactions. In K. Zimmerer & T. Bassett (Eds.), *Political ecology: An integrative approach to geography and environment-development studies*. New York, NY: Guilford Press.
- Zipperer, W. C., Sisinni, S. M., Pouyat, R. V., & Foresman, T. W. (1997). Urban tree cover: An ecological perspective. *Urban Ecosystems*, 1(4), 229-246.

Appendices

Appendix I: Interview Guide⁴² for Arborists

Goals of the Interview: To understand what it means to work as an arborist in Southern Ontario; To understand arborist motivations, inspirations and perspectives of the urban forest.

1) Rapport:

- How do you feel about being interviewed about being an arborist?

2) Introduction:

- Tell me about your journey to becoming an arborist.

Probes:

- How did you make the decision to become an arborist?
- What attracted you to urban forestry?
- What did you do before becoming an arborist?
- If someone asks you about your job, what do you say you do/call yourself?

3) Professional Training and Education:

- What education/training is required for this job?

Probes:

- Where did you go to school?
- Is there anything that would you have liked to have seen incorporated into your education?

4) Work Content:

- Tell me about a typical day on the job.
- Imagine yourself climbing a tree - the weather, the noises and the smells around you
- Describe for me what it's like to be in the tree tops.

Probes:

- How do you get to work?
- What usually happens when you arrive at the yard?
 - What are first three things you think about when you arrive at work? (important issues)
- How much information do you have before a job?
- How much time do you spend at each site?
- What makes a work setting easy/difficult?

⁴² Abbreviated interview guide used for the production of my documentary film, *Limbwalkers*.

- What happens if a homeowner asks you to do something not in your job description?
- What do you enjoy about being an arborist? What do you dislike?

5) Work Conditions:

- Tell me about your working conditions.

Probes:

- How many hours do you work per week?
 - Are they regular 7-3 hours?
- How much of your day do you spend outside?
- Do you get training from your employer?
 - If not, do you pay for training yourself?
- What happens if you're late to work?
- Do you belong to a union - how does this effect your work/life?
- What would you say is the main problem with the working situation?
- Do you use technological/electronic tools to conduct your work?
 - Do you feel that the use of technological tools devalues human labour?
- How do the changing season affect your work conditions and your experience at work?
 - How do your working conditions change in the winter (ie. lay offs)?
 - Disability prospects generally within the profession

6) Perceptions and Perspectives:

- How do you see your role within the urban forest?
 - How do you define municipal or private sector arborist?
 - What are you key job responsibilities?
- In your experience, how important is the concept of team (vs. individual) work?
 - How do you look at the division between this?
- How do you think others describe/view your position as an arborist?

Probes:

- Do you feel your skill-set is appreciated?
- Have you ever been asked to participate in stakeholder meetings or surveys being done by your Parks and Forestry Departments?
 - Have you offered to participate and been rejected?
- How do you deal with negative stereotypes?

7) Workplace safety:

- Describe a time when you felt unsafe in your job.

Probes:

- What kinds of situations are most likely to make you feel unsafe?

- The decisions you make vary based on the variability of nature (physiology of trees, weather conditions, etc.) - Does this lack of control enhance/hinder your work experiences?
- Have you ever been made to feel uncomfortable or exposed to physical violence in any way?
 - If so, how did you deal with it?
- Have you had training in dealing with these types of issues?
- The Forestry Section in Saskatoon⁴³ is working on documenting Job Safety Analysis (JSA's) and Safe Operating Procedures (SOP's) for the work you undertake in Forestry. This includes all work on maintenance from pruning, stumping and assessing trees, as well as all tasks in planting and nursery operations. What do you think about this undertaking?
- Last July in Windsor, while working, an arborist was run over by a neighbour to protect a tree from being cut down. How does that make you feel?

8) Policies and Politics:

- Do you agree with the policies and politics of urban forest decision-making that you often implement?

Probes:

- What do you think about the private tree bylaw?
- Can you describe for me the difference between a climbing and a consulting arborist?
 - Is there a difference in how they understand trees and their perspective toward policies.
- What is your opinion on the general state of urban forestry

9) Health:

- How do arborists, from your experience generally cope with stress? (substance abuse?)
- This past summer (2012) a climber fell and died - did you hear about it? How did that make you feel?
 - Is danger and risk a personal issue for you? Do you feel scared?
- What is your biggest source of discontent?

Probes:

- How does your work affect your sleep, stress levels, physical health?

10) Home Life and Personal Costs:

- How does your work impact your relationship with your children, partner and other family members?
- Are most of your friends co-workers?
- What do you do in your spare time?

⁴³ Announced on CANUFNET on December 1st, 2011. Contact: Michelle Chartier, Urban Forestry Supervisor, Infrastructure Services, Parks Branch, City of Saskatoon. mchartier@saskatoon.ca

- What are the ways that you ensure you have a enough money to pay your bills?

11) Self-reflection:

- If you think back to when you first considered becoming an arborist, how is the actual work different from what you thought it would be?
 - Did you have a role model / examples that stimulated you to choose this career?
- If you could change something about your profession - what would you change?
- What advice would you give new arborists in the field?

12) Closing:

- How did the conversation go?
 - Was it what you expected?
- Is there anything else you'd like to share with me?
- Is there anything you would like to ask me?
- Would it be ok if I contacted you in the future for any clarification about information in this interview if needed?
- Can you please give me the names of 2 other arborists who might be interested in speaking with me?

General Prompts:

- How does that relate to what you mentioned...
- How was your life changed by it?
- If asked for a few descriptive words...
- You were saying interesting things about... Want to go back to that...

Appendix II: Informed Consent Form for Interviewees

Of Trees and Tribulations: Narratives of Socio-Natural Ecologies in Urban Forestry⁴⁴

Researcher: Adrina Bardekjian, PhD Candidate

Faculty of Environmental Studies, York University, HNES 109, 4700 Keele Street,
Toronto ON M3J 1P3

Sponsors: York University, Toronto, Ontario, Canada

The Purpose of the Research: is to explore and communicate different stories, views and perceptions (or narratives) of the urban forest in Toronto with respect to policies, practices and representations. This research will be applied to understand how these stories impact society and nature in Toronto's urban forest. The findings from the research will be reported in my doctoral dissertation, in academic articles, and at conferences.

You Will Be Asked: To answer a set of interview questions and engage in a free ranging discussion. This will take no more than one hour of your time.

Risks and Discomforts: I do not foresee any risks or discomforts from your participation in this research.

Benefits of the Research and Benefits to You: The project will provide valuable insight into how people perceive, influence and engage with the urban forest. Through speaking with me, you will be confronted with varied perspectives on the urban forest and you will have the opportunity to comment, agree and take issue with them. Hopefully, you will be able to position yourself among a variety of urban forest stories and perhaps think differently about your personal beliefs regarding urban forest culture.

Voluntary Participation: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer will not influence the nature of your relationship with York University either now, or in the future.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you so decide. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researcher, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed.

⁴⁴ Original working title for dissertation program.

Confidentiality: All information you supply during the research will be held in confidence and the names of all participants, will remain strictly confidential. Pseudonyms will be used in all reports and publications associated with this research, unless the participant requests otherwise. The data will be collected through handwritten notes and/or, in some cases, a digital audio recording device. Your data will be safely stored in a locked facility and only I will have access to this information. The data will be kept archived in this location for up to five years. Confidentiality will be provided to the fullest extent possible by law.

Questions about this Research? If you have questions about this research in general, or about your role in the study, please feel free to contact Adrina Bardekjian by e-mail. You may also contact her dissertation supervisor, Dr. Anders Sandberg or the Graduate Program Director. This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact Ms. Alison Collins-Mrakas, Manager, Office of Research Ethics, room 309 York Lanes, York University.

Legal Rights and Signatures:

I, _____, consent to participate in the *Trees and Tribulations* research project being conducted by Adrina Bardekjian. I have understood the nature of this study and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Signature
Participant

Date

Signature
Principal Investigator

Date

Appendix III: Demographic Profile Survey

1) Gender: Male Female

2) What is your race and ethnicity? _____

3) What is your age?

18-21 22-25 26-30 31-40 41-50 51-60
 61+

4) What is the highest level of education you have completed? (Check all that apply)

High School/GED

Completed Community College (Diploma, Associate): Degree: _____

Completed University Degree (BA, BS): Major: _____

Arboriculture Certificate/Diploma

Master's Degree

Doctorate Degree

Professional Degree (MD,JD)

5) What is your income and your total household income?

Your income:

Less than \$10,000 \$10,000-\$19,999
 \$20,000-\$29,999 \$30,000-\$39,999
 \$40,000-\$49,999 \$50,000-\$59,999
 \$60,000-\$69,999 More than \$70,000

Total household:

Less than \$10,000 \$10,000-\$19,999
 \$20,000-\$29,999 \$30,000-\$39,999
 \$40,000-\$49,999 \$50,000-\$59,999
 \$60,000-\$69,999 More than \$70,000

6) Time of year you most like to work/be outside and Why?: (continue on back)

Spring Summer Autumn Winter

7) Did you grow up in an urban or rural area? Urban Rural

8) What are the first three words that come to mind when someone says "urban forest"?

9) How long have you been working in this profession? Indicate years: _____

10) What is your current marital status?

Single, Never Married Married or Partnered Separated Divorced
 Widowed

11) Are you ISA certified? Yes No

12) What is your most important piece of equipment? Why?

Appendix IV: Personal Release Form for Film Participants

Working Title: *Limbwalkers*

Purpose of the Project: is to explore and communicate different stories, views and perceptions (or narratives) of arborists working in urban forestry.

Legal Rights and Signatures:

I, _____, understand that there is digital footage being taken of me on this date _____.

I hereby assign and authorize the producer, Adrina Bardekjian the right (All Rights) in and to such digital footage. I hereby grant to you, the producer(s), the universal and perpetual right to use my actual or simulated likeness, photograph, voice, personal characteristics and other personal identification in all manner and media whatsoever in, and in connection with, the digital footage being taken on this day. I also authorize said producer(s), without limitation, the right to reproduce, copy, exhibit-publish or distribute any such digital footage, and waive all rights or claims I may have against your organization and/or any of its Affiliates, Subsidiaries, or Assignees other than as stated in this agreement.

I hereby release you from all liability and obligation to me of any and all nature whatsoever arising out of or in connection with the exercise of the rights granted above, including, without limitation, from any liability for violation of rights of privacy, publicity, defamation or any similar right. I hereby indemnify you against all claims, liability and expense respecting this Release. I agree that I shall be entitled to no additional consideration as a result of the exercise of the rights granted herein, and that you may rely upon this letter in preparing and promoting any production from the digital footage taken.

Signature
Participant

Date

Signature
Producer(s)

Date

Questions about this Project? If you have questions about this project in general, or about your role in the project, please feel free to contact Adrina Bardekjian by e-mail.

Appendix V: Example of City of Toronto job posting for Arborist II position

Arborst 2

File Reference #: ARBOR2

Source:<http://wx.toronto.ca/inter/hr/jobs.nsf/0/adeecf816e409872852574f3005073fe?OpenDocument>

Major Responsibilities:

- Performs work involved in the care and culture of trees
- Plants/transplants trees by both mechanical and hand methods
- Works at various heights, including work in proximity to energized conductors, performing tree maintenance and tree removal, using aerial device and manual climbing using approved climbing and safety equipment and techniques
- Assists those working at heights in the handling of ropes or acting as a spotter
- Drives/operates/inspects and ensures proper maintenance of various equipment, including but not limited to: dump truck, aerial tower, crane truck (under 7200 kg), chipper, sprayer, stump cutter, tractor/loader, backhoe, chain saw, motorized pole saw and other associated equipment and hand tools
- Handles/loads/chips brush and wood
- Performs tree pit/container maintenance
- Liaises with the public to address work site issues
- May be required to complete general tree maintenance inspections
- May be required to provide work direction and training to other staff and carries out duties that meet Health & Safety standards in a safe and responsible manner
- Directs traffic in association with a worksite
- Performs other related work as assigned

Key Qualifications:

- Extensive experience in all types of arboricultural work including pruning, removal, bracing, stumping, planting and fertilizing.
- Experience in the care and safe operation of chain saws, motorized pole saws, brush chippers, crane truck (under 7200 kg), stump cutters, aerial towers and associated equipment and hand tools.
- Experience climbing trees and operating aerial towers, using approved equipment and safety procedures when working at various heights, including work in the vicinity of energized conductors.

- Must possess and be able to maintain a valid Province of Ontario Class "D" Driver's License with "Z" endorsement, and qualify for the City's equipment operating permit requirements.
- Must be familiar with all applicable legislation and industry standards, including but not limited to the Occupational Health and Safety Act (and associated regulations), the Highway Traffic Act, and Arborist Safe Work Practices Guide as they apply to this work.
- Must possess an Electrical Utilities Safety Association (E.U.S.A.) certificate for Safety in Line Clearing operations or equivalent.
- Ability to communicate effectively in English, both verbally and in writing.
- Ability to perform aerial rescue.
- Must have a good working understanding of tree morphology, physiology and dendrology of those tree species common to the Toronto area.
- May be required to work shifts and weekends.
- Must update skills as required from time to time to meet trade standards and operational requirements.
- Ability to maintain simple records of work.
- Must be able to work in all weather conditions.
- Must be physically capable of performing required duties.

Notes:

- Current shift information: Monday - Friday 7am - 3pm

Salary: \$26.06 per hour

Job status: Temporary

Job Type: Union

Appendix VI: Example of Urban Forestry Course Outline with Social Inclusion

Course

“Foraging the Urban Forest: Beyond Common Consumptions and Practices”

Calendar Description

This course interrogates the challenges and opportunities of incorporating theoretical factors in urban forest systems and practices. Lectures, field trips, readings and discussion provide the framework for understanding ecological processes, social patterns and political practices in urban forest landscapes. Different urban environments and strategic planning projects provide a framework of systemic inquiry, criticism and interpretation. Emphasis is placed on bridging applied management with social theory through examining urban forestry/greening organizations and affiliations with a political ecology lens.

Prerequisite

Upper year standing and completion of 6 credits in Forestry, Environmental Studies or by permission of Course Director.

Purpose and Objectives of the Course

The purpose of this course is to critically examine the theories, practices, politics and representations around ways of knowing urban forests. Urban forestry will be studied as the interface between the cultural and the natural (these categories being neither exclusive nor truly distinct). Urban greenspaces, from woodlands and parks to street trees and private lands, need to meet a diversity of changing demands, while they are also under pressure in times of further urbanization, compaction, and decreasing public funding. This course focuses on forestry and ecological considerations (e.g. nature’s agency) in urban settings. It considers both biophysical and cultural dynamics shaping and affecting urban forestry, and combines theoretical and applied approaches to urban forest knowledge. Emphasis will be placed on frameworks for strategic planning and innovative direction.

Learning Outcomes - during this course, students will:

- Develop an understanding of the environmental, and socio-economic roles of urban forests;
- Critically engage with urban forestry contexts and narratives
- Develop and discuss an understanding of issues surrounding urban wildlife

- Understand and critically analyze human/nature interface
- Discuss urban forest case studies
- Critically engage with issues surrounding planning, maintenance and arboriculture
- Critically engage in protection, conservation and restoration of urban greenspaces
- Establish the ability to develop practical action and advocacy skills
- Explore the biophysical and cultural dimensions of urban forestry;
- Develop an understanding of planning and policy approaches to the conservation of urban forests while bridging theoretical considerations for just practices;
- Develop critical analytical skills relating to urban forests and greenspaces;
- Become familiar with urban forestry issues, programs and projects both locally and globally; and
- Integrate material from other courses into the context of urban forest conservation.

Course Management: Teaching and Learning Philosophy

“Education is not the learning of facts, but the training of the mind to think.” - Albert Einstein

In this course, all of us (instructor and students) are teachers and learners. To be involved in class discussions requires an active engagement with course readings, lectures, discussions, and assignments. These activities act as a way for students to teach the instructor and each other about their understanding of the material and their questions. The instructor is responsible for preparing lectures and posing questions that are meant to facilitate points of entry into these issues within a safe and challenging learning environment. Students are expected to do all readings, attend lectures/tutorials, engage appropriate practices/methods for assignments, think critically, and allow inspiration and imagination to infuse individual research and collective discussion.

Organization of the Course

The weekly sessions are intended to be guided primarily by discussion between you, the students. The Course Director and invited guests will give formal lectures most classes, but in general, your active participation is essential to this course. Active participation includes preparation before and engagement during the weekly discussions. The required readings are central to the course. The lectures and discussion time will serve to enrich, clarify, and illustrate crucial issues from the assigned readings. Readings are assigned for discussion for the date under which they appear below.

Evaluation

The grade for the course will be based on the following items weighted as indicated:

Assignment	Value
Participation	20%
Reflection Essay on Field Trip: This is a personal reflection on field trip observations where students are encouraged to develop their own ideas and make a clear (and supported) argument around urban nature consumption. Topics will be provided.	10%
Mid-term Oral Exam: Students must demonstrate that they have read, understood, and critically contemplated the course readings (to date). Questions will also include lessons learned during the Field Trip to the Arboretum.	10%
Individual Project (case-based): Pick a challenge that effects urban forestry, and develop/provide recommendations and solutions. - Abstract of proposed Project topic (5%) - Presentation (15%) - Final Paper (20%)	40%
Final Exam	20%
Total	100%

Participation (20%):

Students are expected to keep abreast of readings, come to class prepared, and actively contribute to discussions and debates. Part of this grade will be determined by students' ability to participate meaningfully in seminar discussions by demonstrating an understanding of the reading and lecture material, and by being able to relate these insights to broader concerns of the course and individual life experiences. The other portion of this grade is based on students' ability to discuss and give feedback on colleagues' presentations in the latter half of the semester. Participation grades will be assigned by the Course Director based on a subjective assessment of these factors. The best way to maximize this portion of the course grade is to maintain active engagement with the material and dialogue. *Overall, your Participation grade will be based on your contributions to tutorial discussions, awareness of issues in required readings, and ability to relate tutorial issues to broader concerns of the course.*

Reflection Paper on Humber Arboretum field trip (10%):

This is a personal reflection on field trip observations where students are encouraged to develop their own ideas and make a clear (and supported) argument around urban forestry and urban nature consumption. This paper is a personal response to one of three possible questions, where students are encouraged to reflect on the place of forestry in urban systems and cities. The paper should be 1000-words in length, must list all references cited in an appropriate scholarly format, and be typed or word-processed, double-spaced. The paper is due during the class following the field trip.

Mid-term Oral Exam (10%):

This is an oral exam that will be scheduled in a 15-minute individual appointment with the Course Director. In order to do well in this exam, students must demonstrate through a conversation with the Course Director that they have read, understood, and critically contemplated all of the readings (to date) for this class. This is a closed-book exam, but students will receive the questions that will be asked one week in advance in order to prepare.

Individual Student Project (40%):

Objective: To examine the diverse aspects of urban forest conservation through the development of a strategic urban forest plan for a community.

This project should be on a topic or problem that is inspired by the course readings, overall course content and/or an aspect of urban forestry. It must be case-study based. This is a three-part assignment.

- 1) Abstract (5%): Because your options for a topic are relatively broad, part of your grade for this project is to submit on **[insert month] x**, a 250-word abstract of your proposed topic, with a minimum of 3 academic references (apart from course material). You will receive this back with comments, and are encouraged to discuss your ideas with the Course Director in advance of this date during office hours.
- 2) Presentation (15%): The second part of the project is an individual presentation. Each presentation should profile a specific space or place (as it relates to a topic in urban forestry) in terms of its ecological attributes, including biophysical and socio-cultural characteristics. Cumulatively, these presentations should offer an evocative introduction to urban forestry, and should focus on spaces and places that are not necessarily celebrated popularly. All presentations will be a maximum of 10 minutes, and will be followed by class discussion. Presentation dates are **[insert month] x, x and**

x; students will have the opportunity to sign up for dates on **[insert month]** x.

- 3) Paper (20%): Students have an opportunity to write a strategic urban forest management plan. The paper should both critically consider the challenges and propose responses and/or recommendations to these problems. The protection and enhancement of urban forests can only be accomplished effectively through the implementation of a comprehensive urban forestry/greening plan. The development of such a plan is also an excellent way to integrate many of the aspects of urban forest management and social cohesion that have been discussed in the course. Each student will prepare (as part of a group) a strategic urban forestry plan for a "community" of their choice. The paper should be 1500-words in length, must list all references cited in an appropriate scholarly format, and be typed or word-processed, double-space. The paper is due on the final day of the winter term x, or you may submit it the same class as your presentation. [For assignments submitted on the last day of class, please refer to "Instructions for Submission and Return of Final Assignments" section below]

Final Examination (20%):

The final examination will take place **during the last session of the course**. This will be administered in class, worth 20% of the final grade. It will consist of three essay questions which you will select from a list of six. The examination will last two hours.

Required Reading

Most of the materials for this course are available through online services of the York University Library system. Additional materials will be available at the reserves desk at the Scott Library.

Supplementary Reading

In addition to the Required Readings as indicated in the Reading Schedule below, there are many excellent sources that deal with the general issues covered in this course, as well as particular topics. Therefore, a list of additional readings has been prepared to supplement the required reading. This material has been selected to enrich your understanding of the required material but is not required unless indicated in the schedule below under specific dates. Among these are:

- Sandberg, L. A., Bardekjian, A, & Butt, S. (Eds.). 2014. *Urban Forests, Trees and Greenspace: A Political Ecology Perspective*. Routledge: London. URL: <http://www.routledge.com/books/details/9780415714105/>

- Konijnendijk, Cecil. 2008. *The Forest and the City: The Cultural Landscape of Urban Woodland*. Denmark: Springer.
- *In the Nature of Cities: Urban political ecology and the politics of urban metabolism*. 2006. Ed. Nik Heynen, Maria Kaika, and Eric Swyngedouw. Routledge.
- Jones, Owain and Paul Cloke. 2002. *Tree Cultures: The Place of Trees and Trees in Their Place*. New York, NY: Oxford.
- Maser, Chris. 2010. *Social Environmental Planning: The Design Interface Between Everyforest and Everycity*. CRC Press, Boca Raton, FL, 321.
- *The Natural City: Re-envisioning the Built Environment*. 2011. Ed. Ingrid Leman Stefanovic and Stephan Bede Scharper. University of Toronto Press, Scholarly Publishing Division.
- *Urban Wildscapes*. 2012. Ed. Anna Jorgensen and Richard Keenan. London: Routledge.

The following academic journals contain many articles that are directly related to this course:

- Urban forestry and Urban Greening
- Urban Ecosystems
- Arboriculture and Urban Forestry
- The Forestry Chronicle (Journal of the Canadian Institute of Forestry)
- Journal of Environmental Studies and Sciences (JESS)
- Canadian Geographer
- Progress in Human Geography
- Urban Geography Journal
- Antipode
- International Journal of Urban and Regional Research (IJURR)
- Urban Studies
- Journal of Environmental Management
- Journal of Political Ecology
- Journal of Social Issues
- Advances in Research: Environment and Society

Schedule of Topics and Readings by week

The following list of lecture topics and readings is subject to change. Remember that readings are assigned for discussion for the date under which they appear below.

Week 1: — Introduction and Course Overview

Lecture: Metabolizing Greenspaces: Social Constructions and Common Consumptions of Urban Forests

Screening: *The Invisible Forest* (10-minute documentary); produced by Lorien Nesbitt, PhD candidate, University of British Columbia, Faculty of Forestry, Department of Forest Resources Management. URL: <http://vimeo.com/loriennesbitt/theinvisibleforest>. Password: treebeard

Readings (2):

- Dean, Joanna. 2011. The social production of a Canadian urban forest. In *Environmental and Social Justice in the City: Historical Perspectives*. Chapter 6. Ed. Genevieve Massard-Guilbard and Richard Rodger. White Horse.
- Heynen, Nik, Maria Kaika, and Erik Swyngedouw. 2006. Urban political ecology: Politicizing the production of urban natures. In *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. Routledge.

Week 2: — Urban Greenspaces

Lecture: Of Arboreta and Arborscapes: Politics, Places and Spaces of Trees

Field Trip (*on campus, weather permitting*): Woodlots on York's Campus (Boyer)

Guest: Dana Craig, Environmental Studies Librarian Scott Library (4:30-5:30pm)

Readings (5):

- Bardekjian, Adrina, Michael Classens, and L. Anders Sandberg. 2012. Reading the urban landscape: The case of a campus tour at York University, Toronto, Ontario, Canada. *Journal of Environmental Studies and Sciences* 2: 249-256
- Haq, Shah Md. Atiqul. 2011. Urban greenspaces and an integrative approach to sustainable environment. *Journal of Environmental Protection* 2:601-608.
- Magolda, Peter. 2000. The campus tour: Ritual and community in higher education. *Anthropology and Education Quarterly* 31 (1): 24-46.
- Mitchell, Don. 2003. Cultural landscapes: Just landscapes or landscapes of justice? *Progress in Human Geography* 27 (6): 787-796.
- Elliott, Brent. 2007. From the arboretum to the woodland garden. *Garden History* 35 (Supplement: Cultural and Historical Geographies of the Arboretum): 71-83.

Week 3: — Field Trip: Humber Arboretum & the Centre for Urban Ecology

Field Trip (*off-campus*): Humber Arboretum & Centre for Urban Ecology

Readings (2):

- Elliott, Paul, Charles Watkins, and Stephen Daniels. 2007. Combining science with recreation and pleasure: Cultural geographies of nineteenth century

arboretums. *Garden History* 35 (Supplement: Cultural and Historical Geographies of the Arboretum): 6-27.

- Jones, Owain. 2011. Forest landscapes: Identity and Materiality, in E. Ritta and D. Dauksta (eds) *Society, culture and forests: human-landscape relationships in a changing world*, Guilford: Springer, pp 159 – 178.

Week 4: — Representations and Perspectives

Lecture: Cultural Fragmentations and Spiritual Contestations: Monocultures, Subcultures and Creative Inspirations in the Urban Forest

Due: Reflection Paper and Field notes from Humber Arboretum trip (1000-words, 15%)

Film (57 min): *Lawn and Order*, NFB

Readings (5):

- Cloke, Paul and Eric Pawson. 2008. Memorial trees and treescape memories. *Environment and Planning D: Society and Space* 107-122.
- “Sustaining the ‘Urban Forest’: Artmaking, Greening, and Landscapes of Hope: An Interview with Cinder Hypki and Bryant ‘Spoon’ Smith.” In Joni Adamson, Rachel Stein, and Mei Mei Evans (eds), *The Environmental Justice Reader: Politics, Poetics, and Pedagogy*. Tucson: University of Arizona Press. pp. 284-307
- Dwyer, John, Herbert Schroeder, and Paul Gobster. 1991. The significance of urban trees and forests: Toward a deeper understanding of values. *Journal of Arboriculture* 17 (10): 276-284.
- Sandberg, Anders and Jennifer Foster. 2005. Challenging Lawn and Order: Environmental Politics of Lawn Care Reform in Canada. *Environmental Politics*. 14(4): 478-494.
- Johnston, Mark and Lia Shimada. 2004. Urban forestry in a multicultural society. *Journal of Arboriculture* 30 (3): 185-192.

Week 5: — Ecological Services, Value and Heritage Trees

Lecture: Urban Ecological Services, Connections and Corridors: Politicizing Profit, Heritage, Health and Value

Guest Lecturer: Barbara Heidenreich, Natural Heritage Coordinator, Ontario Heritage Trust — Barbara Heidenreich has held Associate Professor positions at both Trent University and Boston University (through its School for Field Studies, British Columbia) where she developed and taught courses in environment and economy linkages. Specializing in land use planning, her academic qualifications include degrees in economic geography: B.A. (York), M.A. (McMaster); and international business and public policy: M.I.A. (Columbia). She is the Ontario Heritage Trust’s Natural Heritage Coordinator. As a member of the Ontario Heritage Tree Alliance, she helped write *Securing the Future for Heritage Trees: A Protection Toolkit for Communities* (2006, 2011).

Readings (5):

- Millward, Andrew and Senna Sabir. 2011. Benefits of a forested urban park: What is the value of Allan Gardens to the City of Toronto, Canada? *Landscape and Urban Planning* 100:177-188.
- Escobedo, Francisco, Timm Kroeger, and John Wagner. 2011. Urban forests and pollution mitigation: Analyzing ecosystem services and disservices. *Environmental Pollution* 159:2078-2087.
- Donovan, Geoffrey H. and David T. Butry. 2010. Trees in the city: Valuing street trees in portland, oregon. *Landscape and Urban Planning* 94:77-83.
- B.G. Bierwagen. 2007. Connectivity in urbanizing landscapes: The importance of habitat configuration, urban area size, and dispersal. *Urban Ecosystems* 10: 29-42.
- Heidenreich, Barbara. 2011. *The Value of Trees: Making the Case for Tree Protection* Prepared for the Ontario Urban Forest Council. Unpublished Report. [In Moodle]

Week 6: Lecture 5 — Environmental and Social (In)Justice in the Urban Forest: Activism and Advocacy Angst

Lecture: Political Paradigms: Complicating Strategic Planning, Practices, Policies and Processes

Due: Abstract for your proposed presentation and final paper (250-words, 10%)

Sign up for Oral Exam dates. Receive Exam Questions

Readings (4):

- Heynen, Nik. 2003. The scalar production of injustice within the urban forest. *Antipode* 35 (5): 980-998.
- Whitehead, Mark. 2009. The wood for the trees: Ordinary environmental injustice and the everyday right to urban nature. *International Journal of Urban and Regional Research* 33 (3): 662-681.
- Canadian Urban Forest Strategy 2010-2015. 2010. Canadian Urban Forest Network National Steering Committee: [Online: www.cufn.ca]

Week 7: NO SEMINAR — MID-TERM ORAL EXAMS

This is an oral exam that will be scheduled in individual (15-minute) time slots over three days. You will sign up for this in advance during a previous seminar.

Week 8: — Education and Learning

Lecture: Re-imagining Environmental Education and Urban Learning Grounds

Sign up for Individual Student Presentations

Readings (5):

- Sandberg, Anders. 2009. Promoting environmental education at the university: The campus as a sticky wicket. *Our Schools, Our Selves* Fall:113-120.
- Fawcett, Leesa. 2009. Environmental education in Ontario: To be or not to be. *Our Schools, Our Selves* Fall:103-107.
- Konijnendijk, Cecil. 2008. The forest of learning. In *The Forest and the City: The Cultural Landscape of Urban Woodland*. Denmark: Springer. [On Reserve]
- Miller, R.W. (2001). Urban forestry in third level education – the US experience. In K.D. Collins and C.C. Konijnendijk (Eds.), *Planting the Idea – The Role of Education in Urban Forestry*. Proceedings of the COST Action 'Urban Forests and Trees' seminar, Dublin, 23 March 2000. The Tree Council of Ireland, Dublin, pp. 49–57.
- Elmendorf, W.F., Watson, T., & Lilly, S. (2005). Arboriculture and urban forestry education in the United States: Results of an educators survey. *Journal of Arboriculture*, 31(3), 138-149.
- Andresen, J. W., & Williams, B. (1975). Urban forestry education in North America. *Journal of Forestry* 73(12), 786-790.
- Andersen, F., Konijnendijk, C., & Randrup, T. 2005. Higher education on urban forestry in Europe: an overview. *Journal of Forestry*. 501-511.
- Leduc, Timothy. 2009. The fallacy of environmental studies? Critiques of Canadian interdisciplinary programs. *Environments Journal* 37 (2): 1-28.
- Rudy, Alan and Jason Konefal. 2007. Nature, sociology, and social justice: Environmental sociology, pedagogy, and the curriculum. *American Behavioral Scientist* 51 (4): 494-515.

Week 9: — Conflict Management

Guest Lecturer: Charlotte Young, PhD (Environmental Psychology), Natural Resource and Environmental Facilitator — Charlotte Young is the Director of Practice at ENVision... synergy. For over 25 years she has worked to promote durable, broadly supported organizational and public policy environmental solutions by involving the public and stakeholders in decisions, and by improving how organizations operate. In her work both as a facilitator and evaluator she has been involved in diverse projects and initiatives across North America. Dr. Young is an expert in facilitating organizational change, building teams and organizations, evaluating programs, researching and assessing issues, and carrying out multi-party/multi-stakeholder processes. Readings: TBD

Supplemental topics throughout the course can include: problematizing management of wildlife and urban ecological technologies and design (e.g. tree inventories, shade audits, green roofs, living walls).

Week 10: Student Presentations, Part 1

Week 11: Student Presentations, Part 2

Week 12: Final Exam

Due: Final Papers

Closing discussion