MULTIPLE ACTS OF BIRDING:

THE EDUCATION, ETHICS AND ONTOLOGY OF BIRD WATCHING IN ONTARIO

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by **Gavan P. L. Watson**

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Abstract

While bird watching has captured the attention of those interested in fostering an experiential connection to the more-than-human, research conducted to date often assumes birding to be a heterogeneous act. As an example of free-choice learning, this work positions birding as a kind of environmental education, thus opening this popular activity to analysis missing from the literature thus far. Rather than a singular act, this investigation sees birding as a multiple, ontological object. As a result, the practices of field birding, backyard birding and bird rescue were studied with the goal of describing the relationship between practices and birders' perspectives of and relationships with wild birds. Influenced by actor-network theory, a method assemblage was developed using multiple sources of data, including: semi-structured interviews analysed using a modified grounded theory approach; field journals analysed with a naturalist autoethnography lens; and photographs analysed using a spatially and personally contextualized approach.

This research shows that birding often starts with a curious person observing a bird's presence and then trying to identify the species. While awareness and knowledge of natural phenomena can assist in the identification of a bird, when the observation of an individual becomes a record of a species the act of identification marks a reductive moment between birders and birds. Ornithology, technology and birding are deeply intertwined. Yet, their influence on practice often goes unrecognized. In the emergent move to digital objects in

birding, images, rather than birds, risk becoming the epistemological object. The influence of place on the construction of birds' visibility and value is investigated. As a result of the lens of home place, birds in the backyard are rendered differently than in the field, with some included in backyard birder's social sphere. Bird rescuers enact yet another relationship with birds, one where care is the primary concern and a focus on identification to species falls to the periphery. Ultimately, as a counter to instrumental and anthropocentric constructions of nature fostered by certain enactments of birding, reflexive birding is offered as an example of practice, which promises to foster awareness of birders' connections to the deeply material lives of birds.

Dedication

This work is dedicated to the memory of my Nana, Frances K. Girling, who passed on during the completion of this dissertation. She lived a life that acts as a model in our hyper-consumptive, disconnected world.

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Chapter 1: Introduction

In late 2009, the British paper *The Observer* published an article describing a revolution in birdwatching that had taken place in Britain over the span of recent years. Disappearing, according to the article, were the stodgy stereotypes of birders and in their place more people than before, including women and younger adults, were participating in the activity. Now, the article proclaimed, more than 6,000,000 Britons "enjoy birdwatching every couple of weeks" (Kellaway, 2009, ¶ 2). Likewise, in the United States (there are no comparable studies describing the number or demographics of Canadian birders), a report from the U.S. Fish and Wildlife Service suggests that in 2006 there were 48,000,000 birders in the US contributing a total of $82 billion dollars to the American economy (Carver, 2009). These numbers suggest clearly that the act of birding in these two countries is significant for its economic impact and participation alone.

Introducing birding: situating the work

Just what is meant by birding? The Fish and Wildlife Service report defined a birder as an individual who has "either taken a trip one mile or more from home for the primary purpose of observing birds and/or closely observed or tried to identify birds around the home" (Carver, 2009, p. 4). To agree with this definition, then birding is the act of observing and (attempting to) identify birds. My experience as a birder suggests that this definition, however, needs to be

broader. Birders are specifically searching for wild—meaning non-domesticated—birds. This becomes clear when birders work to determine if an unexpected species observation is legitimately a bird from a wild population or an escapee from a collection. When a Black-bellied Whistling Duck (*Dendrocygna autumnalis*) unexpectedly appeared in Jamaica Bay, New York, in July 2010, one of the tasks birders undertook was to see if the bird's hind toe had been clipped (Baksh, 2010). The presence of an intact toe would mean that the bird likely was not an escapee and, consequently, this sighting was more likely to be accepted as a rare bird observation. While this notion of wild birds is perhaps obvious for most birders, it does shape where birding can take place. Birds in captivity—pets at home, birds in aviaries—are not typically included in a rough understanding of what is allowed to be observed and identified.

A revolution in birding?

Back, however, to the notion of a "revolution." In the United Kingdom, *The Observer* reports that birding has inspired a slew of recent books, television shows and movies about the act. The author's hypothesis, supported by quotes from birding magazine editors, poets and recent authors, is that the act of birding is a return to something more authentic, more real; an attempt at a (re)connection with the natural world and a reaction against a Western consumptive culture. In short, a connection to birds grounds us in ways consumer cultures cannot. It is clear from this article that the author believes that birders are doing more than *just* watching and identifying birds. Intriguingly, this

narrative of birding being "something more" is repeated elsewhere. For example, Kate White's (*Cosmopolitan* magazine's editor-in-chief) love for birding was profiled in the May 2009 issue of *Country Living* magazine. In concluding, White writes:

> Birding, I discovered, isn't just about the birds. It's about the watching and the waiting. I love the spaces between birds—the quite time with my son or husband on a blanket, waiting, Zen-like, for the sudden rustle of leaves or flash of color. Nothing could be more blissful. ("The Joy of Bird-watching," 2009, p. 104)

So, while on one hand birding *is* about watching and identifying birds, it appears as though there is more to the story than just that. Be it the spaces that emerge between birds or the notion that birding serves to rekindle experience with the natural world, birding has emerged as an activity that appears to offer more to humans that participate in the activity than strictly identifying birds. And that is the part of the story that I am most interested in. Why? Because I am interested in actions and activities that appear to counter a larger trend suggesting that an experiential retreat from the natural world is underway. Identified by environmental education researchers and writers, the trend is exemplified in Pyle's (1993) extinction of experience concept, which speaks to personal alienation from nature, or Fawcett's (2002) idea that meaningful first-hand experiences with undomesticated animals are becoming more and more rare, or Louv's (2008) nature-deficit disorder, a belief that the loss of first-hand experience in nature has lead to crisis in childhood, all suggest that the

generalized tendency is less time in, relationship with, and knowledge of the natural world. Birding, it would appear, offers something in opposition to that trend: it is an activity that requires time in and knowledge of the natural world. Does birding, however, build a relationship between humans and the natural world? And what is the quality of that time or knowledge?

Beyond economics…

While birding's impact grows economically with the ever-increasing number of participants, I am more interested in what, if any, influence the act of watching birds has on people that undertake the activity. Does birding offer insight into how those who take a relationship with the natural world seriously might work to counter an experiential deficit? Beyond strict human ends, however, I am interested in investigating two specific aspects of the activity: the places birding occurs and the birds observed. The contemporary relationship between birds and humans is significant: globally, bird populations are in decline and the causes for this trend are most often anthropogenic in nature (Youth, 2006). It does seem troubling that the object heralded as having the power offer Western society an authentic connection to the greater natural world is actually disappearing. Birding might be nothing more than the ecological equivalent of a passersby rubber-necking at the scene of a car accident, dressed up in the guise of some new-found ecological consciousness.

The aspect of place is also important as birds do not live lives detached from their surroundings (nor do humans). For conservation, habitat loss is cited

as one of the significant factors in the larger disappearance of populations (Youth, 2006). My concept of place, however, is more than just the ecological functions of habitat. Rather, I echo Gruenewald (2003) and use place to describe specific connections to particular places while also being aware of, and connected to, global developments that impact the local. Birds, especially migratory birds, offer a lived connection to this global scale. What, if anything, does place do to birding? Thus, looking at birding raises an intriguing question: is this "revolution" in birding a sign of one of our culture's significant inter-species connections, or is it an activity that marks the loss of birds while remaining largely oblivious to it? In short, what is the nature of birders' connections with wild birds?

What follows in these pages is the description and analysis of a study of different types of birders and their relationship with and connection to the birds they watch. Conducted in Southern Ontario during 2008, I approached this work from three general directions: 1) human superiority is not a taken-for-granted fact, 2) birding is environmental learning in practice, and 3) birding is a political and ethical act. This first direction and set of assumptions that I address that human superiority is not an *a priori* assumption. Coming from a perspective informed by Cheney and Weston's (1999) ethics-based epistemology and Weston's (2004) multicentrism, a fundamental belief that I hold is that nature, which I prefer to call the "more-than-human" after Abram (1996), has value and worth beyond knowable anthropocentric frames. This principle, when augmented

with an actor-network theory approach, does not presuppose that agency is a strictly human characteristic. As such, I openly question the conventionally-understood boundaries between human and living and non-living components of the environment. This basic approach permeates all my work and is subsumed within the following two directions.

...to enactments

The second general direction that informs this research is the belief that birding is a kind of environmental learning in practice. What birders do, where they go and how they act are all indicators of what birders have learned about birds, how to find them in various places and how the activity of birding is "done." I call this "doing of birding" its "*enactment*." Following the work of Annemarie Mol (2002), suggesting the activity is enacted, is significant in a couple of ways. First, it is an acknowledgement that birding is not a homogeneous pursuit. Enactment means paying attention to what particular objects are being brought together and how each of these changes the tangibility of the act. When what a set of birders do as birding looks alike, then there is enough coherence between the objects to render it stable. But that coherence is never taken for granted because that particular enactment of birding is constituted by the objects themselves. Remove one, and you have something (perhaps slightly) different.

What are these objects in birding? They include objects as conventionally understood: technologies like binoculars and bird books. They also include

landscapes, bird bodies, leaves and caterpillars. The list could go on—it is certainly ecological in nature, meaning that it acknowledges the many interdependent linkages in any particular enactment.

"Wait a second," I hear you saying. "You are treating birds (or caterpillars, or *X*) as objects rather than subjects? Isn't that particularly *reductive* of you?" In a certain ontological worldview, yes. If I was attempting, such as in a hierarchical Cartesian worldview, to describe value based on an understanding of subjectivity, then to suggest something is an object completely lacking in subjectivity is to cast it aside. This establishes a dualism between subject and object: it becomes an either / or proposition. Rather than engaging in dualisms, ontology—the study of the nature of being or existence—and ontological thinking offers different ways of making up the world. Simply, in removing the subject, the dichotomy is removed: be they living or non-living, objects come together in certain configurations. Rather than evaluating their subjectivity, which is open to misinterpretation, it is their configurations that are of significance to study. The relational space between lived beings and environmental technologies is what matters.

Returning to the earlier discussion of the implications of thinking of birding as an enactment, if bird watching is enacted, then it is always in a state of being put together, where different objects can take different roles. While there can be fixity, there can also be difference. This perspective has less relevance as I go on to describe the particular networks of relations I found, but it does have significance when thinking about these networks. Again, they are enacted. They

are not fixed. Any practice, any set of relations, could be enacted differently. This aspect of enactments is most relevant in my concluding chapter when I consider what it might be like to bird differently and suggest the enactment of reflexive birding offers promise as another way to bird.

So, with enactments in mind, I formed the central question of my research: "How do the enactments of birding—understood as the varied assemblages of practice that include humans, birds, landscapes and other objects—shape our perspectives of, and relationships to the more-than-human?" In this question, you can see how this project is more than an act of description or an investigation of economic value. I wanted to look beyond the strict economic benefits of birding because, as an environmental education researcher, I am interested in investigating contemporary relationships that people (typically) have with the more-than-human. I am particularly interested in how these relationships are conceptualized—by this I mean to look at and think about what factors have come together to create a particular perspective or way of doing things.

Nevertheless, birder's actions towards wild birds can tell us about something more than *just* birds and the activity of birding: I propose they can describe perspectives and assumptions about relationships with wildlife. That would have significance beyond birding. The impacts of developing a more sophisticated understanding how of wildlife is known and valued could influence, for example, how conservation efforts are conceptualized and what education

efforts need to be undertaken concerning wild animals. Research suggests, for example, positive attitudes towards wildlife are built through first-hand experiences (Dettmann-Easler & Pease, 1999) but that these encounters most-often lead to action when coupled with an explicitly "structured educational programme" (Orams, 1997, p. 304). Birding, as an act of informal, free-choice learning is an example of "the type of learning that occurs when individuals exercise significant choice and control over their learning" (Falk, 2005, p. 270). This relationship between informal and environmental education has received attention due to the reported positive effects that these experiences had on participants' attitudes and behaviours towards the more-than-human-world (Ballantyne & Packer, 2005). Birding, however, lacks the explicit curriculum that can be found in other informal educational settings, such as zoos and aquaria. Developing a more sophisticated understanding of birding as an educational act would work to compliment our understanding of informal learning and the environment. The significance of my work is underlined by the fact that there is no published research on enactments of birding and their subsequent implications. I discuss the research conducted to-date on birding in more detail later in this chapter.

A political and ethical act

The third general direction that I take is that birding is a political and ethical act. I entered this work asking the question, "How is birding an exercise in environmental ethics?" As an ethical act, I believe it is easy to see how attitudes

towards the more-than-human world are laid bare through the decisions birders make in their practice: the decision, for example, that a birder's need to get a good look at a bird trumps a bird's own self-interest in *not* being seen. As an ethical tension in birding, this is not an academic argument. As illustrated by a research participant's experience looking for bird nests, decisions about how to enact birding have direct impact on the lives of birds:

> I was really into it for years back in the seventies. Really heavily into it and of course the [unintelligible] has an Ontario nest record scheme where you fill the card for each nest and so on. And I was into multiple visits and trying to score as many as I could – there's the collector's complete set thing coming into it. I thought a disproportionate number of the nests that I was monitoring were predated. Now maybe it's entirely possible that simply I was paying attention to them and therefore I noticed something that was happening already. But it doesn't feel that way.

In this case, the need to score as many nest records as possible overshadowed the possibility that, as a result of finding the nests, they could be more easily predated. To describe birding as a political act, I ought to say that this is not a strictly human politics, but rather a cosmopolitics in the model of Latour (2004) and Stengers (who is acknowledged in Latour's work), where participation is open for negotiation to those beyond the human boundary. As Hinchliffe, Kearnes, Degen, and Whatmore write, cosmopolitics is an injunction to "to take risks (in other words, to engage in ontological politics rather than in perfect epistemological eyepieces) and to allow others, of all shapes, sizes, and trajectories, to object to the stories we tell about them, to intervene in our

processes as much as we intervene in theirs" (2005, p. 655). Making politics and allied practices meaningful across ontological boundaries is key to this practice. While all acts of birding are political, they are so to different, often unexamined, ends. If we are going to engage with birds in a meaningful way—such as taking seriously the threat of populations declines and working towards righting the anthropogenic causes of the declines—we, as a Western culture need to re-examine our taken-for-granted ethical alignment to the more-than-human, birds included. We can only learn about what matters across boundaries with a cosmopolitics in mind.

My analysis often turns to focus on the individual bird. Why? Because, as I began to look at my results, I saw that the individual—the constituents of species and populations—are often left in the background. In ascribing moral status, the species appears to outweigh the individual (Davis, 1995). In outlining deep ecology's appeal to engage with the world in an ecoholistic manner, Davis describes how individuals' existences have been excluded from ethical consideration—the "ontological result is a holism devoid of contents, resembling an empty shell" (Davis, 1995, p. 199). For me, and others like Davis, there is significance in the individual. It is an individual Wood Thrush (*Hylocichla mustelina*), not a population, that has been described navigating a particular route from an overwintering territory in Honduras, over the Gulf of Mexico, to a nesting territory in Pennsylvania (Stutchbury, et al., 2009). That juvenile Song Sparrows (*Melospiza melodia*) prefer to learn songs by eavesdropping on other

sparrows' interactions, suggests a kind of tutoring that occurs between individuals (Templeton, Akçay, Campbell, & Beecher, 2010). I agree with environmental philosopher John Livingston when he writes that "reality is an aggregate of individuals"(1981, p. 100). In their lived lives, individual birds have value and significance. While it can be said that a population suffers from the loss of individuals, it is the individual that suffers from the physical effects of this loss. This is imperative enough to consider the individual. Species and populations step away from the specificity of the individual and each lived experience. This is an explicit move on my part: individuals matter, no matter what scale is used. It is in reaction to the dualism that environmental philosopher Val Plumwood outlines in her critique of rationalism (2002), where bodies and nature are effectively erased, that the materiality of bird lives is central to this work.

I would also like to take a moment to make explicit the link between ethics and the act of knowledge-making. Though I have presented them as separate assumptions (birding is an example of environmental learning and birding is an ethical and political act) just now, in my mind they are not. Asking ethical questions, as Bob Jickling writes, act as "prompts for exploring controversy, dissonance and unconventional ideas, and imagining new possibilities" (2009, p. 215) in environmental education and is an important area of inquiry. Birding, as an area of inquiry, provides fertile ground for the juncture of ethics and education as birding enactments are these intersections made visible.

The research project

Beginning with spring migration in 2008, I visited Rondeau Provincial Park, then returned to Toronto, Ontario and continued my work into the fall and winter. Rondeau attracts birders, in part, because it is a peninsula of sand shaped by lake currents, extending into Lake Erie. Three and a half hours by car from Toronto and one and a half hours by car from Windsor, most birders travel to Rondeau in the spring to find and see neotropical migrants on their way to breeding grounds after a winter spent in Central or South America. Many species of these migratory birds can be found in the park's woodlands during a short window in spring from late April to late May. I was at Rondeau to find, watch and speak with birders as they birded. The birding at Rondeau was what I initially understood as birding "done" conventionally: leave the house, travel to a location and find as many species of birds as possible in the time you have. This particular enactment has been called field birding by those who practice it (Bergin, 2008), and for the sake of clarity I will call it that too.

After visiting Rondeau, I returned to my home in Toronto to carry on my research. Here, I continued to look for birders to interview. I found similar birders—field birders—to those I found at Rondeau. Yet these are not the only kind of birders out there. The same study, for example, that suggests that approximately six percent of the population of the United States consider themselves birders also outlines that 88% of that population are backyard birders (Carver, 2009)—simply meaning that they did not travel from their home to

watch birds. Knowing that birding happened in different ways in different places, I sought out and interviewed those who considered themselves backyard birders first.

In Toronto, I also interviewed a group of people who had first-hand experience with wild birds, including observation and identification. By the earlier definition, they are birders. Yet, paradoxically, they do not consider themselves such. These are bird rescuers who collect stunned, distressed and dead birds that have collided with buildings in and around Toronto's downtown core. I was interested in this particular breadth of participants and enactments of birding to be able to compare and contrast different ways of doing birding. I acknowledge, however, that there are even more enactments out there than what I chose to investigate. Southern Ontario and these three "populations"—field birders, backyard birders and bird rescuers—are the delimitations of my project: I did not, for example, speak with those who capture and band birds.

My relationship with watching birds

I grew up in a family of naturalists. Not only did I explore the more-than-human world with the help of my parents, but also with the help of my maternal grandparents as well. For me, it appeared that birds were always part of their lives. Memories of my grandparents often involve the act of birding. In the fall we would visit Hawk Cliff, just outside of Port Stanley, Ontario to see migrating raptors. My grandfather, as we saw birds or travelled places, would relate memories about the first Cardinal he saw or what the Rondeau peninsula was like

in the 1930s. While visiting them, years-old bird checklists would appear in the most unexpected places, like the back pocket of a car seat or a drawer in the guest bedroom. Other annual trips occurred too, like the spring visits Aylmer, Ontario to see hundreds of tundra swans congregated on their way north to nesting grounds. Today a small, old black and white photograph of their younger selves, standing in some forest smiling for the camera, with binoculars around their neck now sits in a frame in my Mother's house. They often carried carefully crafted home-sewn carrying cases for bird books that would sit at the ready as we ate a packed lunch while sitting in the car. I learned from my grandfather that Tree Sparrows (though they can be identified as *Spizella arborea*[1], I knew them as the ones with the black spot in the middle of their chest) only visited the feeders in the winter and moved elsewhere in the spring. At the time, if I was a bird watcher, it was not because I called myself one. True, I would get binoculars handed to me, or lifted up to peer into a scope. So I watched.

I observed not just the birds, but my grandparents, my parents and the people they went birding with. Over my childhood, a rhythm of practice emerged: visits to Point Pelee, Rondeau, Long Point and the Niagara Gorge; participating in Christmas Bird Counts; birding with grandparents; feeding birds in the backyard. Until I was a teenager, my father was the interpretive naturalist at a small nature centre. I got the opportunity to interact with the resident garter

[1] Throughout the dissertation, when I first mention a species of bird, I will make note of its Latin name. This is not because I privilege this kind of knowledge as superior over other ways of knowing. Rather, because of the power of Latin names to offer a lingua franca for biological species, it offers specificity when there can be more than one common name for a bird.

snakes, rats and rabbit. When I was young, there was a female Great Horned Owl (*Bubo virginianus*) named Hoot, in an enclosure outside the nature centre. There because she could no longer fly after being struck by a car, I remember walking around the enclosure and having Hoot follow my movement, those large, yellow eyes fixed in place, swivelling her head as I approached her perch. There were other rehabilitated birds that I met at the Nature Centre. I particularly remember Ranunculus, the American Crow (*Corvus brachyrhynchos*). The crow (its sex never known) appeared to bond with Dad—and particularly appreciated the base of its bill being stroked. Dad tells of particular days where Ranunculus, free within the Nature Centre, would sneak up behind Lagomorph, the rabbit, and peck a small amount of fur out of the rabbit's tail. The rabbit would go skittering off and Ranunculus would stand there, standing its ground, and caw loudly. There is little question that my experiences with these birds, in addition to the stories shared by my father about their particular behaviours, shaped burgeoning life-long relationship towards other wild birds.

As an adolescent, my Mum fed birds in the backyard and I would continue to go with my father birding. The birding frequency was less often than in my childhood, but I still would travel with him to watch birds. Often, we would go out in the spring to migration hotspots. At this age, I really started to notice birders' and their behaviour: how excited some people got when they saw a particular bird; how many birders descended in the spring upon birding hotspots

like Point Pelee; the sense of competition between some birders; and the Tilley Hats.

During my undergraduate degree, I started to work as an interpretive naturalist and received as a gift my first set of binoculars. While visiting Point Pelee National Park in the spring of 1997, I purchased my first bird book. I had never called myself a birder. In my adolescence, I had not become obsessed with birds and had not learned each species that appeared in the bird book. The birds that I *could* recognize were memorized from sheer repetition rather than any kind of explicit memorization. But I enjoyed being out with the more-than-human and birding, as a practice, offered an excuse to be outside.

Through my experiences watching birds and a constellation of other experiences and practices, I continued to work as an environmental educator. I returned to graduate school, where I studied children's conceptions of nature. Moving on to a PhD, I needed to select a topic that could sustain me, intellectually and personally, for the five plus years of study I was committing to. And so I returned to that practice of coming to know one part of the more-than-human world that I was introduced to as a child by my family and has seemed to continually exist in the periphery of my life: birding.

Birding research to-date

Much has been written about birding in the popular media. Articles on birder demographics (Dickinson & Edmondson, 1996); birding and technology (Eubanks, 2007; Irwin, 2007; LaVallee, 2007); amateur birders impact on

ornithology (O'Connor, 2005) and relationship to citizen science (Anonymous, 2008); the similarity in recognizing patterns in birding and in business (Coutu, 2002); the relationship between birding and Christianity (Webber, 2009); and general interest pieces ("The Joy of Bird-watching," 2009; Mackay, 2002; Poole, 2004; A. Scott, 2004; Toner, 2005) have appeared in newspapers and magazines. These publications demonstrate a sustained interest in birds and watching birds in Western society.

Previous research conducted about birding and bird-watching has been undertaken in a diverse set of academic categories of exploration: scientific work, often describing the impact of birders on reporting populations of birds (Boxall & McFarlane, 1993; E. H. Dunn, Larive, & Cyr, 2001; Lepczyk, 2005; Mason, 1990) or the impact of bird-watching activities on bird populations (Sekercioglu, 2002); leisure or recreation studies, describing the motivation and interest in birding as leisure pursuit (J. H. Lee, 2002; D. Scott, Baker, & Kim, 1999; D. Scott, Ditton, Stoll, & Eubanks, 2005; T.L. Eubanks Jr., Stoll, & Ditton, 2004) or the role that trust plays in the pursuit of birding (Donnelly, 1994); economics, describing the economic impact of birding (Butler, Hvenegaard, & Krystofiak, 1994; Stoll, Ditton, & Eubanks, 2006) or the economic impact of interpretive services at a birdwatching festival (C. Lee, Lee, Mjelde, Scott, & Kim, 2009); the demographics of North American birdwatchers (Cordell & Herbert, 2002; Holt, 1997); historical accounts of ornithology (Barrow, 1998; Quinn, 1995); political science, describing the biopower of the National Audubon Society (Luk, 2000); science and

technological studies, describing the role of the field guide (Law & Lynch, 1988) or how, historically, amateur ornithology reflected societal values of the times (MacDonald, 2002); a geographic analysis of a personal practice of birding (Bonta, 2010); and cultural studies, questioning birder's values (Karnicky, 2004) within capitalist culture, the fetishization of birds (Sandilands, 2000) or birder's complicity in the creation of toxic spaces (Schaffner, 2009).

In short, I can find no evidence of qualitative research conducted that looked to answer similar research questions. While all of these articles focus on some combination of birding, birders and birds, I have common concerns with the kind of research that been conducted. In outlining the differences between the work undertaken to-date and my own project, I want to acknowledge that my criticisms of what is missing are not the same as criticising the research itself: the work conducted under the assembled matrix of birding research has added to the body of knowledge. Generally, and most problematically in my mind, the works above have focused exclusively on the human aspects of the relationship essentializing plural *birds* into singular *bird*. In so doing, they often ignore the active role birds play in the act of birding and their own representations.

Scientific research (Boxall & McFarlane, 1993; E. H. Dunn, et al., 2001; Lepczyk, 2005; Mason, 1990) focuses on the impacts of amateur ornithologists in improving the kind and quality of research data used in reporting bird populations. Missing in this work is a critical examination of just what *kind* of information is being collected and how the framing of these inquiries shape what

we know about the more-than-human. Science and technology studies (STS) has shown that scientific activity is not about nature, *per se*, but about constructing different natures (Latour & Woolgar, 1986). While not falling within the field of STS, I will address enactments of birding and birds with an explicit interest in describing how these enactments act to reinforce or disrupt typical understandings of both birds and the environments they inhabit.

Much of the leisure studies research measures the breadth of interest in the activity of birding and the economic impacts of the people involved. Data consists of disembodied statistical analyses of self-reported activity (J. H. Lee, 2002; D. Scott, et al., 1999; T.L. Eubanks Jr., et al., 2004) and much of the interest (even joy) of the birders is stripped-out. In economic analyses of birding (Butler, et al., 1994), location/place is only consequential to the amount of money that is added to a local economy. Birds and the local environment seem inconsequential in the sense that these papers could replace birding with stamp collecting as the activity under examination and other than the numbers, little would change. My research project differs as I strived to include the local and situated knowledge that make each enactment different. Historical accounts offer an intriguing window into the practices, people and perspectives (Barrow, 1998; Girling, 2008; MacDonald, 2002; Quinn, 1995; Weidensaul, 2007) that have helped shaped how birding is currently understood and practiced. With the exception of Quinn (1995) and Girling (2008), these accounts are centred on an American practice of birding. I do, however, understand that contemporary

practices are influenced by prior practices and so I turn to these historical accounts of in Chapter 4 to help situate parts of my analysis.

Examinations of birding as a cultural practice are especially interesting. I will comment on three specific articles. The first, *A flâneur in the forest?* (Sandilands, 2000) is relevant due to the fact that the research was conducted at Point Pelee National Park, located in Southern Ontario. The article is critical of the apparent fetishization of the birds on the part of the birders. The notion of fetishization echoes Marx's theory of commodity fetishization—and thus portrays the birds as commodities to be consumed. While an interesting conclusion to draw at Point Pelee (the subject of the earlier 1994 economic analysis of birding by Butler, et al., 1994), it appears to render away the possibility of engaging with these organisms in any other way. One concern with Sandilands' conclusion, while it can prove to be more-or-less true for a certain enactment of birding, is that it homogenizes the birder (as not all birders consume in the same way) and seemingly ignores any agency the birds may have (are the birds passive in their consumption?). I address the agency that birds may have in birding and how some technologies work to render that agency away in Chapter 4. This project is designed to embrace the notion that birding at places like Point Pelee, while for some may be about consuming birds, may be a more subtle relationship with the more-than-human. Another concern I have with the work is that the aforementioned flânerie took place over a weekend. Not enough time, in my opinion, to describe a breadth of practices that occur in such a place. My own

study took place over a longer period of time, including the period in 2008 I spent collecting data, in addition to my background being brought up in a family of birders. As such, my observations and data are collected in the context of a wide breadth of previous experience.

The second article, *Take my word for it* (Donnelly, 1994), describes the role that trust plays in mountaineering and bird watching. Birders, due to the transient nature of bird sighting, have to trust the veracity of the birder making the sightings. In this regard, bird sightings are treated as epistemic objects (Rheinberger, 1997) rather that a living being. Birding, in this work, is described as a sport, with competition occurring through the comparison of lists. This perspective of seeing birding as a sport is echoed by Schnaffner (2009). Donnelly concludes that in the overwhelmingly majority of cases "trust is not an issue" (1994, p. 225) in bird sightings due to the social nature of the sport—rare sightings are reported and are usually corroborated by other birders. As I mentioned earlier in this chapter, rather than a sport, I am guided by seeing birding as a form of environmental learning.

In the final article, *Lists, field guides, and the descriptive organization of seeing: Birdwatching as an exemplary observational activity* (Law & Lynch, 1988), the authors provide a model of what occurs within the watching process:

> We are suggesting that birdwatchers do not simply see birds. Rather: they (1) engage in a reflexive elaboration in which a text provides an iterable organization, a bulky object and a moment in a hermeneutic reading of the world; and (2) organize their

> gaze sequentially, in terms of the canonical order of a list. (Law & Lynch, 1988, p. 273)

This publication is now twenty years old. My work differs in that my analysis did not only come from a critical reading and analysis of birding books but from observing practice in the field and through reflection on interview data. In this regard, while birding was named as the object under investigation, we investigated two different objects. Finally, while bird representations are present in the paper, the birds themselves are missing—the paper is about the "organization of textual materials" (Law & Lynch, 1988, p. 297) and in a sense, the birds as the subject of the textual materials appear largely inconsequential.

Thus, my project attempts to address the following concerns that I see as missing in current research about birding:

- *Birds and the local environment seem inconsequential*. For some of this research, the act of humans interacting with the more-than-human world is irrelevant to the story being told. The fact that birding is an opportunity for birds, humans and the more-than-human world to come in contact with each other is key to have in further discussions about what these relationships mean for how birds are conceived and how humans come to know the more-than-human.
- *Bird watching is conceived with certain monolithic assumptions: it is the same activity regardless of its location*. My basic assumption,

informed in part by my understanding of enactments, is this: birding is *not* the same activity everywhere it is practiced. I addressed this concern by visiting more than one birding site, looking to investigate the different assemblages enacted.

- *Birds are essentialized into bird*. I will address this concern first from a philosophical perspective that holds that birds have agency. If a bird is an agent, then they hold the ability to intervene in the networks of which they are a part. While I am interested in human's perspectives on the act of watching birds, I will strive to include the watched birds in the research.

An understanding of nature: the project's theoretical framework

In dominant Western culture, human beings' understanding of nature is one that is seen as separate and distinct from that of our everyday life and experience. Plumwood recognizes this when she observes that the typical view of nature is "hyper-separate" and "lacking continuity with the human" (2002, p. 107). Typical experiences of observing wild animals highlight this duality. Encounters involve travelling away from home, to places often conceptualized as a kind of wilderness devoid of humans (Cronon, 1995), where the experience is centred around seeking and seeing the animal in its own habitat under authentic conditions. The historical creation of a natural world, as described by environmental philosopher Neil Evernden (1992), generated a dualism between

nature and culture, one which continues to cause an ambivalent relationship to the more-than-human. Evernden argues against this dualism, writing:

> Once we accept, through the study of Nature, that all life is organically related, organically the same through the linkage of evolution, then humanity is literally a part of Nature. Not figuratively, not poetically, but literally an object like other natural objects…We cannot reject it without exposing the fiction at the core of dualism. (1992, p. 93)

Echoing Evernden's dissolution, I subscribe to an understanding of a continuum, where life is intrinsically related and in turn connects to the abiotic environment. Where there was a dualism there can now be difference: "no longer a matter of different perspectives on a single object but the enactment of different objects in the different sets of relations and contexts of practice" (Law & Singleton, 2005, p. 342). Local knowledge is then produced within a mediating web of relations and is, at best, a partial perspective (Haraway, 1991). No longer is there a singular, monolithic nature; the concept of difference suggests that each of us creates, or enacts, a set of relations unique to our own socio-cultural experiences and context. Enactments then, create multiple assemblages of nature, where humans can no longer be hyper-separate from the world they inhabit (Latour, 1993). I take the meaning of assemblage from deleuzoguattarian philosophy, to illustrate the distinct interrelatedness of the objects under study:

> An assemblage, in its multiplicity, necessarily acts on semiotic flows, material flows, and social flows simultaneously (independently of any recapitulation that may be made of it in a scientific or theoretical corpus). There is no longer a tripartite division between a field of reality (the world) and a field of

> representation (the book) and a field of subjectivity (the author). (Deleuze & Guattari, 1987, pp. 22-23)

Just as deleuzoguattarian assemblages describe "the ability of the self-ordering forces of heterogeneous material to mesh together" (Bonta & Protevi, 2004, p. 54), thinking about separation—be it between humans and nature or reality, representation and subjectivity—is of less relevance. Now, what once appeared as *ipso facto* realities are, in fact crafted (Law, 2004a) assemblages that can be called "naturecultures" (Haraway, 1991; Law, 2004b).

Mol (2002) proposes that the word enact suggests that "activities take place—but leaves the actors vague" (p. 33) which is an important difference from performing a reality. A performance metaphor, for example, can mean that there is a backstage—a place where "real reality is hiding" (Mol, 2002, p.33), suggesting an underlying epistemological perspective. Rather, it is best to focus on the uncertain *practices* of daily life that are made of bodies and objects in specific relation and context. As such, there is no real singular, independent, objective reality, rather, there are:

> Different and valid knowledges that can be neither entirely reconciled nor dismissed, and suggests that knowing is or might properly be, a process that is also decentered, distributed, but also partially connected. The logic of juxtaposition renders it inappropriate, even impossible, to draw things together into singularity. (Law, 2002, p. 197)

Objects have gained prominence and importance in my own work in response to research (Bennett, 2010; Law, 2002, 2004a; Law & Singleton, 2005; Urry, 2000) that attempts to look at the ability of social science methods to engage with what

are described as complex and messy objects. As suggested by Law and Singleton (2005), objects are now used to describe the messy, multifaceted and multiple realities that are performed and experienced. Thus, Law and Singleton evoke the metaphor of the iceberg to describe objects: the visible tip represents the immutable attributes of an object, while much more goes on, invisibly, below the waterline. In the ontological turn, the investigation of how objects are enacted into being (or how the tip becomes visible) and the implications of that enactment gain central importance. Erica Fudge, writing in the field of animal studies, makes a strikingly similar argument when she writes:

> By simultaneously using and laying bare the concept of 'animal' as a cover-all for a disconcertingly wide range of relations, I hope to have underlined the discomfort, the variety and the limitations of those relations. And from this, perhaps, it is not only the concept, but the lived relations that might come under scrutiny. (2002, p. 165)

To contemplate the bird as more than the simple focus of an activity requires an interrogation of the conventional understanding of just what a bird *is*. This query, applied more generally to those organisms conventionally understood as animals, has also been taken up by scholars in the field of animal studies. Answering this "question of the animal" or as Wolfe puts it: "the relationship between…the discourse of animality—the use of that constellation of signifiers to structure how we address others of whatever sort (not just non-human animals)—and the living and breathing creatures who fall outside the taxonomy of *Homo sapiens*." (2003, p. XX) has become a key question with

implications for my own work. Attempting to answer this question requires a method of inquiry that sufficiently addresses the agency of animals (and the rest of the more-than-human world) and the permeability of the borders most typically rendered as impervious.

Livingston wrote that "individual self, group self, and community self in wild (whole) beings should not be constructed as mutually exclusive" (1994, p. 114). Livingston goes on to suggest that we have the power to possess "simultaneous access, if we will it, to all four states of self-conscious: individual, group, community and planetary" (1994, p. 118). I see the notion of a "biospheric self" (Livingston, 1994, p. 116) and reciprocity towards nature to be inclusive: everything has the power to become an agent.

Animal studies, in engaging with the question of the animal needs to ground answers to such questions in situated knowledge (Haraway, 1991). This perspective critiques the notion of objectivity and suggests that truth claims about the world are always made in a particular context, or situation. I would suggest that the practice of a contemporary natural history, contextualized as "a set of socio-spatial practices through which relationships between nature and society are defined" (Davies, 2000, p. 244) is one way of situating oneself. Wolch makes the argument that urban ecological work needs to be augmented by a tool kit rich in "ethnographic accounts of animals, personal narratives of nonscientific observers , and folklore" (1998, p. 131); this can be seen as a part of contemporary

natural history practice and a good starting place to breech the human/animal divide.

Natural history as a culturally and historically diverse practice is not unproblematic. For example, cast historically and symbolized by the acts of 19th century men such as Darwin, the act of a Western natural history can be called colonial and a projection of a certain kind of power (Jardine, Secord, & Spary, 1996). I would like to suggest, however, that the practice of natural history, "as a complex, contested and changing network of practices, associated with defining and structuring the borders between the human and non-human worlds" (Davies, 2000, p. 244), is significantly different that the 19th century practice and continues to be relevant to those attempting to broach the divide between human and non-human.

Naturalists from every era, whether stated explicitly or not, have always acted politically in this world. In the case of 19th century white men describing new worlds, it was a particular kind of politics that they were rendering—it did not deviate much from the larger cultural script of ordering and expansion. Today, however, naturalists have the opportunity to enact a kind of politics that *does* deviate from the larger cultural script as a new kind of political actor (Lopez, 2004). As witnesses with understandings fostered by skills of observation and reflection, they can say meaningful things about our cultural relationship to the more-than-human world; words and actions that rough up the flat perspectives

and shallow moral obligations that currently are the *status quo*. This is the naturalist re-cast.

Natural history is relevant, in part, because how we answer the question of the animal shapes our moral obligations towards them. Writing in *Zoontologies*, it seems as though Wolfe is suggesting that we need to develop an ethics where duty is not based in "a shared form of life" (2003, p. 8). Rather, duty should be developed in a setting where awareness of the other is in recognition of the "dangers of ethnocentric self-privileging" (2003, p. 8), where a sphere of consideration is not limited by "its *own* concepts, its *own* forms of life" (2003, p. 9, author's emphasis). Rod Preece (2005) writes that, problematically, ethical consideration of the animal appears to always be relation to the human. Preece goes on to argue that in deciding the moral status of animals, life should be used as the "sole relevant criteria" (2005, p. 370).

While perhaps valuable in drawing attention to the problems of ascription to an (arguably arbitrary and human-centered) notion of speciation, the "life-only" perspective does have limitations: first of all, a wild living being is always in relation to its niche and habitat so, for example, how do we enter into ethical relationships that take into account the environment of a living being? How do you consider the American Kestrels (*Falco sparverius*) nesting on the York campus without considering that these birds nest on the side of Scott building? The abiotic, problematically, appears to be cast aside, or assumed within *animal* in this viewpoint. This is where a larger focus on the hybridity of nature and

society and the ambiguity of an actor's location along the human more-than-human continuum should offer a framework to engage with the questions I have raised here. Actor-network theory offers a perspective on these larger issues.

Actor-network theory

Actor-network theory (ANT), used as a critical tool against notions "as diverse as institution, society, nation-state and, more generally any flat surface" (Latour, 1999, p. 15), attempts to investigate the role that objects play in the creation of networks of relations. With headwaters in sociology, science and technology studies, post-modernism and philosophy, early works in the field of ANT began to emerge in the late 1980s and early 1990s. Early ANT thinking was directly impacted by work done in the science and technology related field of the sociology of science. Academics, such as Latour and Woolgar (1986), questioned the taken-for-granted understanding of the way in which scientific knowledge was created. Important for early ANT thinking was Latour and Woolgar's (1986) supposition that scientific knowledge is made real through inscription devices (usually technologies) and practices. Science and technology should not be read as static culprits in the act of legitimizing knowledge. Who and what gets to reify and classify what *counts* as real or right transform over time: this becomes evident (within the context of the emergence of ANT) in Law's (1986) work on Portuguese navigation in the 15th and 16th century.

Law's work was concerned with how the Portuguese were able to manage control over long distances during the expansion of their colonial empire. A ship's

coherence as a ship is maintained under a range of circumstances; ships were ships during the medieval system as long as they stayed within established routes: features, such as water visibility, *marteloio* tables and the magnetic compass, all which defined the ship's envelope of coming and going also limited these ships' ability to go outside the established navigation lanes. The astrolabe had not yet been invented, so it was impossible for these ships to navigate in the open ocean. Thus if a ship left these navigation networks it was at risk of no longer being a ship: in a physical sense, it would lose its integrity as an object if it was destroyed. In a theoretical sense, however, when a ship leaves the known navigation network, it is also in danger of being lost: while physically still a ship, the heterogeneous network that previously supported its identity changes. With the emergence of the astrolabe to assist navigation, mariners no longer required the intricate, pre-calculated *marteloio* tables. As a consequence, what object counted as accessing the reality of the world changed.

Another common theme throughout ANT writing is the (often hidden) role that science and technology have had in structuring and legitimizing knowledge (see Latour, 1988; Latour, 1991; Woolgar, 1991) such that the categories that appear to be real and stable are, in fact, a creation. The work conducted by sociologists of science was significant to the development of ANT because the acts of inscription and practices suggest that there is a difference between the world as it exists and the world as it is known. Also impacted by post-modern thought, first-wave ANT was concerned about the construction of knowledge, the nature of

reality (Law, 2004b) and more specifically, how taken-for-granted realities are built (and in turn, not so taken-for-granted, like in the movement from *marteloio* tables to the astrolabe).

Works by Bruno Latour (1993), Michel Callon (1986) and John Law (1986) have been described as the nucleic beginnings of ANT (Castree, 2002). While at the time these authors would not have described their work as falling within a labelled field of inquiry, what defines these papers is their shared ontological perspective on the nature of reality and, in turn, their shared questioning of the location and creation of categories and ways of thinking. ANT was offered as an ontology to transcend binarist thinking, by recognizing *hybrids* or *quasiobjects* (neither entirely natural or social) (Castree, 2002).

In actuality, ANT is not without its flaws. It would seem that ANT's approach offers *the* enticing and engaging method of investigating the more-than-human world. In reading primary works (of both a theoretical and practical nature), everything that is not seen as human is (quite often) uncritically seen as non-human. This perspective has the potential to act as a tool to dissolve nature/culture divides and initially may not be seen as problematic. When investigating hybrid spaces, however, non-human actors are often room keys (Latour, 1991), sailing ships (Law, 1986), laboratories (Latour, 1988) and firearms (Latour, 1993). Even in works (Callon, 1986) that have been cited as focusing on the more-than-human world, that world seemingly does not exist

outside the human. In my opinion, the problem is this: actors appear to be valued the same, regardless of whether they are living or non-living.

Callon & Law suggest that ANT may hold too-strict a definition of what gets to count as action and in turn, what gets to count as actant. They suggest that the "agents we tend to recognize are those which perform *intentions*...those which use a *language*" (1995, p. 503, authors' emphasis). Their critique is of the logo-centric bias that exists when it comes to recognizing action. Given that at best partial perspectives (Haraway, 1991) are what we know, the suggestion that language is the measurement by which all others are to be judged (and, seemingly, humans pre-judged and exempted from future evaluations) is too much of a solipsist's approach to agency for me. It seems as though that we, as humans, have a hard time appreciating *difference* and in turn, allowing for distinctive characteristics *other* than language to factor into our decisions about agency.

Importantly, Callon and Law (1995) suggest that in the ability to recognize our own language skills as unique, we may ignore or simply not be able to see other kinds of action: this is our partial perspective. Rather than creating a homogeneous field of actants, ANT does not (problematically) recognize its own partial perspective. This means that there lies a (potentially vast) field of actions and, in turn actants that are not so much ignored but simply not seen. It is this seeming inability to see beyond that can be described as ANT's colonization of other. Authors critical of ANT have offered the suggestion that in the movement

to enfranchise others and in its bid to be seen as the only proper representative of this process, a kind of colonization takes place (N. Lee & Brown, 1994). Law and Singleton (2005) suggest that through this colonization, ANT as a method effectively has blind spots. The metaphysics of presence suggests that not everything can be brought to presence; thus, to bring something forward also means making something absent (Law & Singleton, 2005). They suggest that ANT only offers a partial view and yet, problematically, demands to be acknowledged as offering a panorama.

Haraway echoes these concerns when she critiques the science studies of Latour and others with their "too narrow a concept of the 'collective,' one built up out of only machines and scientists, who are considered in a very narrow time and space frame" (2004b, p. 115). There is homogenization of what it is to be an actor. In the focus on the collective and hybrids, it is difficult to assign value and worth to difference. While ANT makes certain strides towards including the living non-human in networks, I find that these networks of relations are problematically human-centric.

Beyond ANT to the ontological

Law and Singleton (2005) suggest that objects in ANT were thought of being too rigid and immobile. Envisioning multiple objects or fractal realities (Law, 2004a) opens the possibility for a new way to think about actors and objects. In its use here, an object is not conceived as the binary opposite to a subject; to write of objects does not remove the potential for subjectivity and

agency. I believe that switching from an epistemological to ontological perspective allows the multiple objects that exist to emerge. Rather than investigating homogeneity, to focus on the heterogeneity of perspectives allows for the discovery and description of that mutable and mobile object that Law and Singleton (2005) discuss. Awareness of context, local knowledge and personal experience become increasingly important in this process. I think that investigating objects is not necessarily in opposition to my earlier concerns about ANT. In fact, I believe that thinking about objects is more sophisticated as it requires an investigator to focus on the fractal nature of "reality" and attend to difference, bringing these multiple realities forward rather than collapsing them. Researchers also have an important hand in creating realities. At this time, I believe that it is fair to say that a focus on objects is not a regressive one: it is filled with attention to the many ways that actors, human and otherwise, engage to enact a reality: a reality that is described through investigation; a reality that is not the only one "out there;" a reality that focuses on heterogeneity and difference.

What lies ahead

With the background, assumptions, prior research and theoretical framework for this study laid out, I now turn to the balance of the dissertation. Chapter Two describes in detail the method assemblage, meaning the specific design and method, for the study. I outline the specific research questions for the work, the kinds of data collected and provide background for the analysis of these

data. Chapter Three is descriptive in nature, sharing in detail the dominant enactment of birding that emerged in this work. I outline how, through typically practiced acts of field birding it is the observation of birds, rather than the birds themselves, are of importance to birders. In Chapter Four, I investigate the use of technology and the role of ornithology in (amateur) bird watching. By describing the purpose of technologies deployed in field birding, I show how they are often intimately linked to the practice of Ornithology and work to render one "right" way to see birds. I conclude this chapter by outlining the move to digital objects in birding and how this shift marks part of the on-going negotiation between technology and knowledge-making. Chapter Five illustrates how place and birds come together, rendering some birds visible and others invisible. With a notion of social worlds that includes the more-than-human, I outline how some enactments of birding, in specific places, expand the typically understood limits of what it is to be human to include birds. Finally, in Chapter Six, I discuss the conclusions and implications of the entire project, suggest directions for further research and pay special attention to an enactment of watching the more-than-human that I call *reflexive birding*.

Chapter 2: Method and Design

Method assemblage: background

Since methods participate in the assemblage and enactment of reality, selecting a method is not a question of choosing the right tool to best depict "reality." Now, the questions perhaps should be: What kind of reality ought I be storying or co-creating? What collection of methods allows for the creation or maintenance of the best, or most responsible, or *x* (insert your own adjective here) social reality? The implication of the enactment of reality is that methods simply do not "uncover." Rather, in their relations of investigation, objects are made by methods and if that is the case, research becomes a question of what might be brought into being. Methods, be they qualitative, quantitative or otherwise, make multiple worlds and "...such worlds might be equally valid, equally true, but simply unlike one another." (Law & Urry, 2004, p. 397) In basic terms, there is no single "world" to uncover.

Law (2004a) writes that we, as researchers, have to teach ourselves new ways of thinking, practicing, relating and knowing the social. This then calls for, first, a discussion of methods and their (often invisible) ability to enact realities and second, a need to acknowledge the act of othering that takes place within research. Associated with notions of the enactment of realities, multiple objects and the turn from epistemology to ontology, Law writes that method is better thought of as method assemblages:

> If new realities "out-there" and new knowledge of those realities "in-here" are to be created, then practices that can cope with a hinterland of pre-existing social and material realities also have to be built up and sustained. I call the enactment of this hinterland and its bundle of ramifying relations a "method assemblage". (Law, 2004a, p. 13)

Law (2004b) argues that method does not simply act as a tool to innocently discover and show reality, rather methods participate in realities' enactments (Law, 2004a). This can be seen in the work completed by Mol (2002), where different medical departments had their own unique methods, skill levels and practices. Law suggests that in Mol's research, the hinterland is "…the X-ray machine; the dyes; the catheters; the lead screens; the surgical incision; the antisepsis; the sedated patient; the table on which he lies; and a whole lot more." (Law, 2004a, p. 48) In this research project, I engaged with the notion that research methods are intimately linked to the kind of reality I am able to describe. As such, I attempted to use a variety of methods to not only help elucidate the goals of my research, but to help identify parts of the hinterland in my own work. Present are birders, birds, binoculars, spotting scopes, bird books, email LISTSERVS, websites, boardwalks, trees and, as Law writes, a whole lot more. It is significant to describe what I know is absent, too.

For this I turn to the visualization of geographical data (see Figure 1, below) collected at Rondeau Provincial Park. On this particular map, the brighter the white line, the more often I visited a particular location: this is ten days of

Figure 1: Map of my track while at Rondeau. Brighter white indicates a higher frequency of visits. Significantly, it also shows all the parts of the park that I *did not* visit.

tracks made transparent and then superimposed over each other. A brighter white is not a measure of duration (or time) but rather measure of frequency. For example, I drove into and out of the park along Rondeau Road (the straight-ish north-south bright white line running down the centre of the top half of the peninsula) each day, so while I did not spend much time doing this, it is represented as a bright white line due to the frequency over ten days that I travelled that portion of the park.

As the hinterland is a metaphor for presences and absences and the majority of my data was collected at Rondeau Provincial Park, it is of value to just see how much of the landscape remained unvisited and, subsequently, unknown to me. I travelled down established roads and along park trails. This map shows how, literally and metaphorically, I did not venture off the beaten path. The significance of this observation lies in the acknowledgement of what lies beyond the horizon of my awareness, both as a researcher and a birder, likely outweighs what I can make claims to. This, of course, does not diminish the findings of the research. Rather, it places that knowledge in its larger spatial and intellectual context.

Research objective and questions

My primary objective was to develop a method assemblage informed by Law's call for method, and using that assemblage, thoroughly describe the enactments of birding—understood as the varied assemblages of practice that include humans, birds, landscape and objects—by actors in chosen research sites

in order to contribute to broader understandings of how perspectives of the more-than-human world are formed, organized, maintained and dissolved. As such, the central question that I sought to explore in my dissertation was:

- How do the enactments of birding—understood as the varied assemblages of practice that include humans, birds, landscapes and other objects—shape our perspectives of and relationships to the more-than-human?

As a consequence of investigating this question, the following inquires acted as corollaries:

- How is birding an exercise in environmental ethics?
- How is birding an exercise in environmental learning?
- How do the technologies and inscription devices used while birding shape (or how have they shaped) the way we see these organisms and the landscapes they occupy?
- Is birding an activity of hope, marking one of our culture's significant inter-species connections, or one of irony, marking the loss of bird numbers and species diversity?

Qualitative research is emergent and if there is an impression of fixed research questions, this often occurs in retrospect rather than in process (Clark, Brody, Dillon, Hart, & Heimlich, 2007). The research questions listed here represented the initial direction of my research, crafted for the dissertation proposal. I did not know what I was going to encounter in my attempts to answer them. In the process of conducting the research, I reached and recognized limits of the initial questions. The primary research question, for example, appears to suggest a rendering of landscape, humans, birds and ecological context as separate. This division did not appear in the data. Rather, with assemblages in mind, place, birds, humans and the larger context appeared to be enacted in relation to each

other. With these initial questions in mind, the objects under study may appear to be separate when, in fact, they are much more interdependent than I originally described.

Study's method assemblage

I used a mixed-methods approach, integrating 1) autoethnography, 2) participant observation, 3) semi-structured interviews, 4) photographs and 5) spatial data using global positioning system (GPS) technology, over a number of research sites to meet my research objectives and answer my research questions. Consequently my corpus of data includes: 1) 10 daily autoethnographic field journals, 2) 37 coded interviews with 50 participants, 3) 102 photographs taken at Rondeau and in backyard birder's yards and 4) 10 days of spatial data. See Appendix A: Summary of research locations and data collected, for a digest of the research locations and data collected.

Data collected

I collected data over nine months beginning in April, 2008 and ending in January, 2009. Data collection was split into two phases. In the first phase, I visited five specific locations, centered on Rondeau Provincial Park in south-western Ontario, over a continuous ten day period during spring migration. Here, I conducted semi-structured interviews (n=16, see Appendix B: Interview participants data, for more detail) with field birders, completed daily

autoethnographic journal entries (n=10), took photographs of birds encountered and recorded spatial data of my daily (n=10) movement throughout the park.

The second phase of data collection involved performing semi-structured interviews with participants (n=21, see Appendix B: Interview participants data, for more detail) whose practice fell into one of the three proposed enactments of birding between September 2008 and January 2009. While interviewing those individuals that fed birds in their backyard, I also photographed their birding stations.

In total for this research, 37 semi-structured interviews (field birders, n=27; backyard birders, n=5; bird rescuers, n=5) were conducted with 50 individuals; ten daily field journals were completed; photographs (n=102) were taken of birds at Rondeau and of backyard feeding stations; and spatial data from ten days of birding was collected. During the transcription process, two interviews had to be thrown out due to poor audio quality. This left a net of 35 semi-structured interviews (field birders, n=25; backyard birders, n=5; bird rescuers, n=5) with 48 participants for a total length of 31 hours, 51 minutes and 26 seconds.

Research sites

The majority of data collected during the first phase centered at Rondeau Provincial Park (including visits to find birds at Erieau, Ontario and the Blenheim Sewage Lagoons, located outside Blenheim, Ontario). I also spent a day visiting Point Pelee National Park and Hillman Marsh Conservation Area, which was

included in the autoethnographic journal. Rondeau was selected as it is known within the Ontario birding community as a destination for spring migrants. While not as "famous" a birding destination as Point Pelee National Park, another peninsula jutting from the northern shore of Lake Erie to the west of Rondeau, it offers more accessible and diverse habitats for birds than Point Pelee. I also had contact within the Ministry of Natural Resources, making the process of seeking permission to conduct research a simpler task when compared to Point Pelee.

Data collected during the second phase was concentrated in the Greater Toronto Area (GTA), with six of the 21 interviews occurring outside the GTA: five in Algonquin Park, Ontario during a gathering of naturalists and one in Guelph, Ontario. Conducting interviews in Toronto and its surrounding municipalities made the most sense as I was interested in speaking with birders who engage birds in urban areas. Because I was living in Toronto at the time, it made logistical and financial sense to concentrate on my local urban environment. Algonquin Park and Guelph were selected as locations where birders were found. I interviewed birders at a weekend of organized natural history activities at an outdoor centre located within the provincial park. I travelled to Guelph to speak with a birder with extensive experience birding. See Figure 10 on page 197 for a map locating the primary research locations.

Ethics

In this project, informed consent was sought from all human interview participants. Interview participants were provided with two copies of the study's

informed consent document (see Appendix C: Informed Consent Document), one to keep and one to sign. The informed consent document conformed to the standards of the Canadian Tri-Council Research Ethics guidelines and, in addition to the entire research project, was approved by both York University's Human Participants Review Sub-Committee and York University's Ethics Review Board. After going over the document with participants and answering any subsequent questions, I had participants sign one copy and return it to me. I have these signed forms on file. When directly quoting participants in the subsequent text, their names have been changed to protect the privacy of participants.

Semi-structured interviews

Questions

I conducted semi-structured interviews with birders, roughly following a list of previously established interview questions (see Appendix D: Field Birder Interview Questions; Appendix E: Backyard Birder Interview Questions; and Appendix F: Bird Rescue Interview Questions) developed for the study. I use the term roughly as the questions posed in the interviews were open to change. For example, as a relevant topic emerged in an interview, I would often follow that theme with a particular line of questions. After each interview, I would make note of any emerging themes in the research to add as a question or current questions that were not working as I anticipated. As new themes emerged from the interviews conducted to-date, I would append the list of questions to include a question relevant to the theme. Question 13 in Appendix D: Field Birder

Interview Questions is an example of a question that was added as the research project continued.

Recording

All interviews were recorded using a digital recording device. Interview audio files were transferred from the digital recording device to my computer and then deleted from the digital recording device. Files on the computer were stored securely to ensure the privacy of participants.

Conducting research at Rondeau Provincial Park

At Rondeau Provincial Park, I sought and received permission from the Ministry of Natural Resources to conduct research within the park. Part of the conditions of conducting research included not leaving park trails, not interviewing participants while on a trail and always having some way to identify myself as a researcher. As such, I created a nametag that I could wear so that I was properly identified as a researcher. I also used the nametag holder to store business cards identifying myself as a PhD student at York University. These cards were important to legitimize myself as a researcher. A majority of interviews were conducted in the field, away from trails. Other interviews were conducted in tent trailers or at the visitor's centre.

I worked with the assumption that, given the time constraints and challenge of finding participants willing to take time from the activity of birding to speak with me, I could achieve at least one interview a day. As a result, I set a goal of fourteen interviews for the ten days I was at Rondeau. I sought

participants in two general ways. Before I left to Rondeau, I received permission to post an announcement on the OntBirds LISTSERV, an electronic mailing list to which many Ontario birders subscribe in order to receive information on bird sightings, outlining that I was seeking birders to interview at Rondeau. I managed to secure a few interviews from this posting. More importantly, many birders that I spoke with at a later date had read the posting and knew that someone was conducting research at Rondeau. While they had not responded, I perceived it as being easier to secure interviews from these birders: I had raised their awareness of my presence and my project was legitimized by being allowed to post on the birding LISTSERV. I also created a poster (see Appendix G: Rondeau Poster) that I placed around the visitor's centre while at Rondeau. I would return at noon each day to see if anyone had appeared to be interviewed. I did not secure any interviews through this method, though it did raise awareness of my presence in the park. A majority of interviews at Rondeau were secured by asking birders on the spot. The following entry in my field journal from April 30, 2008, illustrates my experience of looking for participants:

> Jeff, as we're turning a corner, explains to me this was the place where he first had his real introduction to warblers. He remembers, perhaps last year or the year before, being in this spot and having two kinds of warbler on either side of him. He's obviously enthusiastic about sharing this experience with me.
>
> As we finish our walk, I ask Lauren and Jeff if they would like to participate in an interview. Jeff seems interested but Lauren is not, "I don't even answer those telephone interviews at home" she says. "Well, this is different" Jeff replies. I say that it's quite alright if they choose not to participate. They seem okay with

> this. As we return to the car, I say that I'm going to walk down Bennett and that I would see them later. They say goodbye and head off to lunch.
>
> I walk down Bennett, sit down on the first bench and write down some thoughts. I then return to the car that is parked in the Spicebush trail parking lot. As I'm getting into the car, a fellow walks out of the trail with a camera and long lens in hand. I see him coming before he sees me, quickly ditch the binoculars and grab my camera in an attempt to match the interest.

Not everyone agreed to participate and it was an interesting position to be in to work to find participants. As I wrote above, I found I was making quick, calculated judgements of people as I came across them: "Are these people birders?" "What do I need to do to get them to agree to an interview?" Building rapport was key. I would walk and talk with birders I came across on trails, such as the case above with Jeff and Lauren. After we had spent some time together, I would introduce my project and ask if they would be interested in participating. More often than not, they would agree to be interviewed. We would frequently meet later in the day, when the birds were less active, so that they could continue their birding. I would also look for birders "at rest"—sitting in the visitor's centre at lunch-time, for example—and ask if they would be interested in participating. Though the process of finding participants made me feel more like a salesman and less like a researcher, I managed to find a way to give people the ability to say no and still be a successful interviewer. As a result, I conducted sixteen interviews over the ten days I was at Rondeau.

Conducting research with field birders from the Greater Toronto Area (GTA)

In the fall of 2008, I continued to look for birders to interview. Because I was not located at one place for a period of time, like I was in the spring at Rondeau, I had to develop another way to find participants. I found field birders through an opportunity to speak about my project at a monthly meeting of the Toronto Ornithological Club. I outlined my research. I went in hand with a flyer (see Appendix H: Fall 2008 Research Flyer) and had a sign-up sheet for those that were interested. After speaking that night at the meeting, I followed-up with potential participants and made arrangements for interviews with those that were still interested. These interviews (n=5) took place in people's homes throughout the GTA.

Conducting research with field birders from Ontario

I have had the opportunity to work one weekend in the fall in Algonquin Park as a naturalist for a program called "Nature Weekend." In the fall of 2008, I attended the nature weekend as a naturalist. During the weekend, I made an announcement about my research and asked for participants. From this call, I conducted interviews (n=4) that weekend with birders from around the province. At the conclusion of the majority of interviews, I got in touch with and interviewed (n=1) a field birder and personal contact who has published bird identification books, instructs bird identification workshops and leads birding tours throughout the world.

Conducting research with backyard birders

The son of Roger Tory Peterson visited Toronto in the fall of 2008 on a speaking engagement that coincided with the publication of a new edition of Petersons' Guide to the Birds of North America. Organized by Ontario Nature, I got in touch with the organization and asked permission to attend and share information about my research, hand out flyers (see Appendix H: Fall 2008 Research Flyer) and sign-up interested birders for interviews. I received permission and attended the event. No birders signed up that evening.

Also present at the event was the owner of a Toronto bird store, Birdwatch. I introduced myself, explained that I was interested in interviewing people that fed birds in their backyard and asked if there was some way he could help me find participants. We spoke for a while and he agreed to have some flyers in the store that he would hand out to customers who might be interested. I printed and mailed a collection of flyers for the store. I had also been in touch with the owners of a local Wild Birds Unlimited, a store that specializes in bird feeders, seed and other bird-related products. I arranged in the fall of 2008 to meet the owners and explain my project. When I visited, I brought along flyers and the owners agreed to distribute them to interested customers. From these two bird store contacts I secured (n=5) interviews with seven backyard birders.

Conducting research with bird rescuers

The Fatal Light Awareness Program (known as FLAP) is a Toronto-based conservation organization with a focus on migratory songbirds. One aspect of

their work involves organizing volunteers to rescue birds that are downed or collect birds that are killed as a result of striking commercial buildings throughout the GTA. FLAP also works to take political action on behalf of migratory birds. Representatives of FLAP were invited to speak at the Peterson field guide book launch, where they shared the next-door table to me. I had been trying to get in touch with representatives of the organization since early 2008 with no luck in having my emails and phone calls returned. I took the opportunity to speak with the FLAP representatives and explained my research project. They agreed to help and I shared contact information. Over the course of the fall, the FLAP representatives contacted volunteers that they thought would be interested. If they were, I was given the contact information of FLAP volunteers that would be willing to be interviewed. I contacted them and made arrangements for an interview. All of these interviews (n=5) occurred within the GTA.

Transcription

In the fall of 2008, with the majority interviews completed, I paid for the transcription of all interviews. I was limited by a budget of $1200 to spend on transcription services. I advertised for transcription services on a local sub domain of an on-line classified website. Through these posted advertisements, I found a local transcription business able to complete the transcriptions for the money I had budgeted. I piloted this business' services with one transcription. They provided verbatim transcription that would make note, with a time code, of crosstalk and unintelligible words. This allowed me to go back over the

transcriptions while listening to the interviews during analysis and attempt to decipher the unintelligible words. If a word or words were unintelligible after I listened to the interview, [ui] was noted in the transcription with the time code. Satisfied with the transcription quality, I electronically delivered small batches to be transcribed.

There were (n=4) interviews where the audio quality was too poor for the transcription business to transcribe the interview. This poor quality was caused by ambient noise at the time of the interview; this noise made it difficult, at times, to distinguish the conversation from the background white noise (which based on the location varied from wind, running water, ambient noise in a coffee shop and the rumble of a subway passing underneath our feet). In these cases, I attempted the transcription myself. I was able to successfully transcribe two of the four interviews with poor audio quality. In the remaining interviews (n=2), the background noise made it too difficult to distinguish the conversation and, as such, were not included for analysis.

Analysis

With the interviews transcribed, I moved on to analysis. I used the qualitative research software, Nvivo 8, to assist me with the organization and management of the coding. To ensure the quality of the transcriptions, I listened to each interview (n=37) as I conducted the analysis of the interviews. This turned out to be a significant step as the overall quality of the transcriptions was uneven. Some errors were understandable (e.g. misspelling place or bird names)

but some transcriptions were particularly poor, missing words from sentences or incorrectly transcribing the audio, significantly changing the meaning of what was said. A slower process than just reading the transcribed interviews and adding codes, listening to the interviews to ensure the accuracy of the transcription offered two related benefits: first, it was an opportunity to re-engage with the work. By the time that I began this analysis, some interviews were seven months "old". To hear the interview as I was coding it brought me back to the time and place of the interview and refreshed the themes in my mind again. Second, I was able to tweak the transcriptions to match my interpretation of *how* things were being said. I was not changing content based on a whim, rather, I was able to add a participant's emphasis to transcriptions where appropriate. I also was able to add where a participant laughed or cried during an interview. In short, I was able to add some of the richness of a conversation to a textual document.

Analytical lens: modified grounded theory

With transcriptions complete and using Nvivo 8, the semi-structured interviews were analysed using a modified approach to grounded theory. Grounded theory refers to "a set of flexible analytical guidelines that enable researchers to focus their data collection and build inductive middle-range theories through successive levels of data analysis and conceptual development" (Charmaz, 2005, p. 507), providing researchers with a well-worn path for moving from observed data to theory generation. In turn, it promises "something more

secure epistemologically than everyday noticing" where "the inferences provided by the theory are better than other inferences." (Thomas & James, 2006, p. 777) The crux, however, of subscribing to the tenants of a grounded theory approach is that "the starting points of qualitative inquiry are contradicted—and even undermined—by the aims, claims and methods of grounded theorists" (Thomas & James, 2006, p. 790) and that any interpretations made, in fact, "enable no prediction or explanation, or at least no better prediction or explanation than any of us would make on the basis of our many years of experience of being human." (Thomas & James, 2006, p. 778) In other words, it fails to deliver on its promise of discovery and, perhaps more problematically, because it is deployed in a framework of structured inquiry, it makes the claim that the "theory" discovered is more real, more right than what would have been generated otherwise.

Given methodological criticisms, I modified grounded theory's typical deployment in two ways: 1) Interviews were not my sole source of material for this project. I brought together a method assemblage that attempted to handle the subject's complexities in a less reductive way by including different kinds of knowledge, including participant observation, photography, personal narrative and spatial data; and 2) I modified the way that the source material was analysed.

Coding

Using Nvivo 8, and listening to interviews while coding, I conducted a first-pass analysis at the same time as the second stage of the analysis. This is atypical for the majority of grounded theory analytical frameworks. For my

purposes, first-pass analysis was based on Nvivo' annotation function: as I read and listened to source material, I noted irruptions, confirmations and reflections on my understanding of the particular enactment of birding. At the same time as I noting the expected, unusual and ideas based on the content, I was conducting the second-stage analysis, where I examined source material to find and code themes. Codes were not pre-determined—rather they emerged in combination from the source material, my observation in the field and personal experience. Codes with common elements were merged into hierarchal categories. As I worked to code the data, categories and codes were compared between documents to "ensure consistency of application, as well as adherence to the definition of the code." (Hewitt-Taylor, 2001, p. 40) This method of constant comparison is a sub-method of Glaserian grounded theory (Dye, Schatz, Rosenberg, & Coleman, 2000).

Situational maps

Adel Clarke (2003) attempts to update grounded theory with the heterogeneous and intricate nature of social relationships in mind. Intriguingly, especially given my interest in generating both a description of birding assemblages and a topology of ethical relations between birders and birds, Clarke calls for the use of three situational "cartographic approaches" (2003, p. 554) to investigate and negotiate social worlds that include: situational maps; social worlds/arena maps; and positional maps.

With Clarke's cartographic approaches in mind and Law and Mol's caution about the complexity of boundaries defying "the cartographic imagination" (2005, p. 637), I used my coded interview data to create what Clarke calls a situational map and what I describe as a visual representation of the enactments of birding. Clarke (2003) outlines (pp. 569-570) a method of analysing situational maps using photocopies and drawing that, in addition to the observable actors and objects, can help to elicit silences (or hinterlands) of the work. I used a piece of mind mapping software called FreeMind to illustrate these topologies of relations. One such map of relations was completed for each enactment of birding (see Appendix I: Topology of Relations, First Order Categories; Appendix J: Topology of Relations, Field Birding: Technology; Appendix K: Topology of Relations, Field Birding: Places, Birds and the More-than-human; Appendix L: Topology of Relations, Field Birding: Citizen Science, Organizations and Sources of Information; Appendix M: Topology of Relations, Bird Rescue; and Appendix N: Topology of Relations, Backyard Birding). This appears to render each enactment as separate; a limitation of the software as I acknowledge that there are ways that relations between enactments connect with each other.

Through the illustration of the topologies of relations, I spent time thinking about and attending to what was present across all three enactments and might be absent in each of these practices; I consequently used this information to illustrate examples in the discussion of the dissertation results. I

also want to make explicit that these maps do not only contain data collected through interviews. Rather, in addition, I included data that I had collected in field journals and through participant observation.

Observation, autoethnography and journaling

Method

At Rondeau, I kept a field journal as a way of collecting data throughout the first phase of the research project. While in the field, birding, I kept a small notepad with me. I documented observations of the more-than-human world, my own reflections and noted relevant participant observation. Implicit in my understanding of participant is the notion of including the more-than-human. As such, my observations recorded relevant human and more-than-human moments, events and reflections. I would often begin each entry attending to what I could see and hear around me, as well as describing the shifting weather conditions as a day progressed. At the end of a day at Rondeau, I returned to my accommodations and typed a narrative of the day based on my experience and my field notes. I ended with ten journal entries with 23,000 words.

Keeping and writing the field journals took considerably more effort than I had originally anticipated. Transferring my notes into a narrative took three hours in the evening. I established a pace to writing these notes that I could maintain while at Rondeau. In the fall, as I moved into the second phase of the research, I had made tentative plans to continue to write field journals based on the birding that I conducted. For example, in the Fall of 2008, I spent a number

of days visiting Hawk Hill in High Park, Toronto during raptor migration. I began keeping field notes and writing up the notes into a narrative. Those intentions ended as I ran out of time. I found that I could not create the block of time required to write up the field notes at the end of a day as I had other responsibilities to attend to at the same time.

Analytical lens: naturalist autoethnography

Participant observation and interviews have been the primary research methods of ethnography (Byrne, 2001, p. 82). To simply interview participants is not seen as being an immersive enough method to be ethnographic; if the researcher locates themselves physically within the phenomena and context to be investigated, a richer more contextual meaning emerges (Byrne, 2001, p.82). Postmodern critiques of ethnography are concerned with the construction of "one form of ethnographic 'truth'" (Manias & Street, 2001, p. 235) in typical ethnographic texts. To argue that there is one truth speaks to an underlying positivist perspective on knowledge that can lead to the belief that one truth applies at all times and universally for that particular group. It is important to challenge and "explore the complex, multiple truths inherent" in ethnographic study (Manias & Street, 2001, p. 240), and in the turn towards crystallized, fractal realities, the ethnographic genre "has been blurred, enlarged and altered with researchers writing in different formats for a variety of audiences" (Richardson & Pierre, 2005, p. 962). I aimed to include myself and the more-

than-human in my ethnographic observations for the precise reason of expanding the notion of who and what counts in observation.

These ethnographies—creative analytical process ethnographies as described by Richardson and Pierre (2005)—open spaces to think about the social in ways that currently elude us and are thought to be as valid as any other social scientific methodological convention (Richardson & Pierre, 2005). Richardson and Pierre (2005), in describing the high standards to which autoethnographies should be held, say pieces should offer: impact; aesthetic merit; evidence of reflexivity of the author's place in creating the text and; a substantive contribution to the understanding of social life (p. 964).

Poet, educator and academic Rishma Dunlop writes that beneath the carefully planned efforts to shape learning, there lies a need to acknowledge the ways of knowing that "honour those deeply felt parts of our selves" (2002, p. 26). These journals are my attempt to make explicit that, which is embodied; more so than any other method, it honours who I am as person: curious, aware and thoughtful of the social world that surrounds me. Extending beyond human boundaries, this sociality includes the more-than-human. Beyond other possibilities—birder, researcher—I self-identify as a naturalist. For me, it goes without saying but, for the sake of clarity, let me make it explicit: birds matter to me. The more-than-human matters. If I am to make a substantive contribution to the understanding of social life, it will be a social life that is diverse, rich and biospheric in nature. I am writing through my and others' experiences.

While visiting Rondeau, the field journal served as the primary way that I engaged with and reflected on the agency of the birds and the more-than-human world in this research. To engage with the agency of the more-than-human required grappling with the question of how to properly recognize acts of agency when they occurred. I obviously did not have direct access to the mental states of my study's participants. Required, then, and a part of my journaling was the imagination of other—what Philo and Wilbert (2000) describe as "morphisms" an effect where people "give form to non-humans, but are themselves acted upon and given form by non-humans" (p. 18). Abram (1996) writes that "becoming susceptible to the sophistication of non-human things" (p. 20) allowed him to "*see* and *hear* in a manner [he] never had before" (p. 20, author's emphasis). Let me suggest, then, that these imaginations or creative addresses are less leap-of-faiths across some unknown chasm and more an extension of being—for while I may not know what the Yellow-rumped Warbler (*Dendroica coronata)* is feeling while feeding, I do know what it is like to be hungry and to be satiated. The danger, then, was not in inscribing too much to the more-than-human, rather the danger was denying that I do not have any ability to know such organisms. There are dangers here, including my not-noticings of abilities or agency, either invisible to my mammalian senses or part of my inattentiveness. My journal, which broadly follows a tradition of natural history journaling (Leslie & Roth, 2003), attempted to pay close multi-sensory attention to place and the organisms

found thereabouts in order to have the opportunity to recognize organisms' multiple forms of aliveness.

In practice, this meant noticing and taking note of the more-than-human world that surrounded me while at Rondeau. More than the simple collection of information, I worked to contextualize these observations in light of personal knowledge and previous first-hand experience in order to recognize the meanings and relationships between myself and the more-than-human. Let me illustrate how I worked to recognize the liveliness of Rondeau. During the first days of my visit in 2008, I believe that I had the opportunity to observe the same male Prothonotary Warbler (*Protonotaria citrea*) in a location called the log pond. While at Rondeau, and generally while birding in the field, it is often difficult to distinguish one individual bird from another. First observed on April 28th, I returned to the log pond on a daily basis to find and watch (what I assumed was) the (same) bird. The following is an entry from May 1st:

> There aren't too many birders in the park, and so I figure I might find someone trying to find the prothonotary. And I'm curious to see if it's still at the log pond. I arrive and park and get out of the car. No one is around, so I walk to the log pond. There are at least four yellow warblers here now. Yesterday, there was one, perhaps two. I watch them feed and chase each other; they'll nest in the park, so they're territorial where other warblers are moving through and could care less about chasing another member of its species. As I walk around the pond once, I notice the blanding's turtle in the same spot sunning itself. Today, it is fully emerged. There is a dragonfly flying over the surface of the water. That's a first for the trip, too. I eventually find the prothonotary and watch for a while. In the distance I see the northern waterthrush and it even begins to sing (quietly for a waterthrush). As the prothonotary moves out of sight, in flies a

> yellow-rumped warbler. A new species for me this year and on this trip. It looks like it's looking for food here too.
>
> The log pond is, in comparison to the rest of the park, a hot bed of activity. What is it about this place that makes it so popular? In past years, I have seen warblers here, but this place, right now, is the only reliable place to see them. It will be interesting to see if the places I've seen warblers in other years get busier if we get an influx of migrants.

Though I was at the log pond to ostensibly observe the warbler, my noting of the relative activity at the log pond—of birds, reptiles and insects—helps illustrate the vitality and sociality of the more-than-human. This attention was often focused on the birds I observed, but was not exclusive to these organisms. I made, for example, an effort to return to the same places on a daily basis to make comparisons and note differences over the course of hours and days. An entry from the field journal on April 29th, illustrates the attention I was paying to these kinds of changes:

> Driving past the main gate, I turned right and drove up to the edge of Rondeau bay. The surface of the water is much choppier this morning then it was yesterday. There is a stiff north-west wind reaching across the bay and helps explain the chop. It's very cold in the wind and I begin wondering about whether I should have packed a toque and gloves.

While the observation of a north-west wind could be considered as inconsequential, when placed within the context of migration it takes on a new meaning: my experience birding suggested that birds are less likely to be on the move when they are faced with a stiff headwind. Noting the crispness of the temperature also has implications for the birds found within the park—as most migratory songbirds would be seeking insects to feed on, and their prey's

metabolism matches the ambient temperature, a cold day means that flying insects are often less active. As a consequence, this could mean that there could be less activity on the part of the birds feeding on insects or that their observable behaviour would change in reaction to the location of their prey. In this way, I recognize the agency of insects in changing the behaviour of birds. While I acknowledge that these notes and narrative are textual in nature, I contend that I am following the spirit of Dunlop's proposition to "write through the veins of their hearts, as if rivers ran through them. Write with the impulse of synaesthesia, every sense colliding..." (2002, p. 33). Thus, these journals reflect my multi-sensory connection with the more-than-human while also illustrating an on-going desire to deepen these meanings and relationships. Later that day, I made the following observation about the changing quality of insect activity, marking a daily process that I was a part of:

> I walk past a spider's web and notice no maker but a midge caught, still struggling, in the web. So, even though it is cool this morning, it seems like things are warming up sufficiently for flying insects to make their re-appearance. Further along the path, I notice many different flies of different families sunning themselves on the leaf litter.

Now, after linking bird activity to that of insects, I am able to further illustrate and contextualize the activity of the insects to the warming temperatures. The act of keeping a field journal made explicit my awareness of these processes, and their understood relationships to birds and our place within a larger more-than-human context: I am self-conscious of the assemblages that surround me.

Photography

Method

Inspired, in part, by Law and Urry's (2004) call and the method used by Hartel (2006) in her paper on gourmet cooking, I took and subsequently used photographs to support and supplement my largely textual methods. What I chose to photograph and how I included these photographs in the analysis changed depending on the location of the research. Generally speaking, the photographs provide another mode of framing the research locations. While visiting Rondeau, I brought along my photographic equipment and took images of organisms throughout and outside the park. When I returned home, I curated a set of photographs that I found to be "good"—examples of interesting bird behaviour or an aesthetically pleasing subject—and uploaded them to Flickr, a web-based photo-sharing website. After uploading the photographs, I added spatial data, an act called geo-tagging, to all photographs. This created a photograph that was visibly linked to the place it was taken.

While conducting research in people's backyards, I modified Hartel's (2006) photographic tour. In addition to the semi-structured interviews that occurred, I asked participants to show me their bird-feeding station(s). While they we were touring me they were explaining the form and function of the feeding station(s), I photographed the objects. Hartel's method directed my photographic attention as well as allowing for the comparison of photos taken across the visited backyards.

Analytical lens: photographs in spatial and personal context

Geo-tagged photographs were then later combined with the spatial data that I collected via GPS to create a hybrid object that included geographic information complimented, in a sense, by the non-textual, aesthetic nature of the geo-tagged photographs. These hybrid objects act as another entry into the experience I had while collecting data during the spring of 2008 and de-centers the primacy of the textual (i.e. interviews, journals) research data collected at the same time. The products of the photo tour serve as a visual reference of the similarities and differences in the objects used to attract birds.

Spatial data

Method

While birding at Rondeau Provincial Park, I wore a Garmin GPS device which collected geospatial information about my location at least every thirty seconds while I was in the park. At the end of the day (n=10), I returned and uploaded and saved this data to my computer using Garmin MapSource software, proprietary software used to download data off Garmin devices. Each day contained two kinds of data: a track and points. The track represents a record of where I had been, but does not represent time spent in a place (see Figure 1, above). Points represent an exact location and can show time spent in a place, but do not show a path followed. As such, the two kinds of data collected can be used to complement each other. At the end of the first phase of the data collection, I imported the geospatial data into Google Earth, a virtual map and geographical

information program. In Google Earth, I created a Rondeau Research file which included daily tracks, points and imported geo-tagged photographs from Flickr.

Analytical lens: the (literal) mapping of relational spaces

This data acts as a visual representation of my daily movement over the Rondeau landscape. Tracks' transparency were increased so that as daily tracks overlapped on themselves, an opaque white line was created by the layering. A faint, transparent line appearing on a satellite image of the Rondeau peninsula indicates a location visited infrequently over the ten days. A distinct, opaque line appearing on the Rondeau peninsula indicates a frequently-visited location. Points' transparency was also increased so that as points clustered, they became more opaque and thus, visible. This visibility then indicates more time spent in a place. As such, the opacity of the geospatial data shows more than just movement though space, it shows detail about tempo and attention; the configuration of lines and dots also shows where I did not visit and provides one literal entry into investigating the hinterlands of the research project. This is, in one sense, the literal mapping of the relational spaces of birding at Rondeau.

There below the surface: reflections on data

Can you have too much of a good thing? As I turn to reflect on my attempts of crafting a method assemblage that takes into account the multiple ways of coming to know the more-than-human, the answer is a (measured) yes.

While I do believe that this assemblage, including non-textual data, opened space for different ways of knowing, finding ways to explicitly integrate all kinds of data proved to be more challenging than I expected. As I turned to crafting my narrative of research and committing my ideas to text, some of my research objects—such as transcribed quotes from interviews—were better suited than others to, quite literally, speak to findings. It may appear, therefore, as though some of the objects have disappeared from view. This speaks to an epistemological assumption; that research products only exist when they are laid out as illustrations and proof: the direct quote; the referral to a figure; the table provided in the appendix. Abram and Jardine (2000) suggest that all knowledge is carnal; meaning that even the most abstract of pursuits never are truly distant from their original embodiment. I would make the same argument for the research conducted, data collected and findings analysed: while they may not appear in recognizable form (i.e. as photograph or as topological map), the research project's findings were contextualized within the crafting of the objects.

Rocks on a streambed go unseen under the surface of the water. But their presence is still detected by the patterns moving water takes when travelling over them: the large boulder is marked by a smooth "dome" of water popping up from the surface of the river. Like rocks on a streambed influencing the shape a river's surface takes, the corpus of research data collected works to change the flow of thought. In short, these objects, seen or unseen, are never far from the surface of the dissertation.

I had the most difficulty integrating the dynamic components—the topology of relations with its opening and closing parts and hypertext links; the geospatial data coupled with geo-tagged photographs—into the somewhat static form that this dissertation takes. I have included these static versions of these objects in the work, but in so doing, I removed any opportunity for others to discover and explore them on their own. As a result, I have uploaded the digital versions of these static renderings to my website[2] so that they can be downloaded and dynamically explored.

[2] The website address is: http://www.gavan.ca/academic-information/dissertation-research/research-objects/

Chapter 3. Becoming a birder: characteristics of coming to know the more-than-human

I begin this chapter by describing how participants in this research are drawn to the act of birding. A practice that involves sensory awareness and a sense of excitement, the initial act of sensory irruption often become an act of watching, then identification. I go on to describe how that identification is multi-sensory in nature, enriched by the synthesis of previous experience, an understanding of bird behaviour and a recognition of the larger ecological context that a birder and bird find themselves in. It is feelings, coupled with the sense of achievement in identifying a bird, that help shape an intrinsic motivation to continue searching for birds.

The balance of the chapter describes typical behaviours of field birders that I observed while birdwatching. In these cases, as the initial observations of birds turn to bird watching, field birders began to enact practices that work to measure and judge each other's achievements. I suggest that lists, a durable record of bird bodies, which log the number of species seen over a given time and place also act as evidence of a birder's ability to find birds. In this regard, lists become an extrinsic motivator to bird and for some, field birding becomes an act of competition. Birders who list are criticised for being no more than animated stamp collectors. While the act of collection is a part of certain enactments of birding, I suggest that it is not universal and is, in fact, practiced in different ways to different ends.

I found that an interest in seeing bird species, however, is uneven. There are more powerful kinds of birds—birds which attracted the attention of birders. I outline how these rare and beautiful birds draw birders in and change their behaviour. These powerful bird species are so engaging that birders work hard to predict their (often unpredictable) location. The act of prediction spreads beyond field birding to bird rescue, and all kinds of birders develop working theories, often in concert with ecological context, to explain birds' presence or absence.

Because of this unpredictability, birders have created systems to quickly share information about sightings. Sightings, like the list, appear to act as a proxy of a birder's ability and help build a reputation. Sightings also work to turn individual birds from living organisms to fixed records, where seeing species becomes a guiding principal for the enactment of field birding. These kinds of acts, of course, have implications for the shape and quality of a birder's relationship with birds.

On the appeal of watching birds

When I asked birders what first drew their interest to bird watching, many described simply noticing or becoming aware of birds for the first time. Barbara, who I interviewed at Rondeau, when reflecting on one of her first birding outings simply said, "I can't believe I spent my whole life not noticing." Newfound visual awareness of birds includes bird rescuers, as well. Luke, a downtown Toronto resident, described how he became involved with the bird rescue organization FLAP:

> I've been at it since 1997, I moved back downtown in '94 and sorta fell into it: every spring, every fall started noticing distressed birds here and there; sometimes alive, sometimes not. And at that point we already had the Internet, so, I had heard of FLAP so it was easy enough to connect with them and I just crashed one of their meetings.

Clearly there are differences between looking for birds at Rondeau and rescuing distressed birds from the base of buildings, but the nucleus of noticing birds and their liveliness is shared.

While it might be suggested that the appeal of birding begins and ends with an interest in seeing birds, birders I spoke with engaged in practices that were more complicated. Backyard birders, for example, seemed particularly interested in arranging their feeders so as to acquaint themselves with the visible bird life in their yards. As I visited homes over the course of the research, I saw how time and time again, feeding stations were placed in locations that were highly visible from the home. In the cases of all backyard birders, feeders were not just visible from a small window in a guest bedroom or back hall, but from a large window in rooms at the centre of daily living. Partners and backyard birders Alice and Ryan describe this nature of their practice:

> R: Besides, like, life to the yard, you know, [its] just [a] visual thing. We don't need TV. We'll sit out here for hours and just watch.
>
> A: No, we don't have cable. The table's where it is for a reason, in the kitchen. That's our TV.

Other backyard birders spoke about arranging feeders so that they could watch birds out windows as they were cooking, doing dishes or as they sat eating at a

dining room table. These feeder vistas, if you will, are all constructed scenes: the feeders are configured by the owners in such a way that allow for the best sightlines between a centre of (human) daily living and the collection of feeding stations (see an example in Figure 2, below). While these arrangements suggest a focus on seeing birds, I believe that it is also an act, as Anne Bell describes, that allows these backyard birders to "attend to the immediate and the particular so that [they] can (re)acquaint [themselves] with [their] nonhuman neighbours and live out an embodied sense of interdependence with them" (1997, p. 140). In this way, these stations are an act of natural history practice.

These preceding examples illustrate how beginning to know the more-than-human can find its initiation in the act of seeing. The perceived liveliness of birds is key in turning the attention towards the act of watching birds. This notion of watching is significant—more than just seeing there is something in watching that differentiates it from the act of simple perception.

On seeing, watching and the loving eye

I am pausing to tease out further the ideas of seeing and watching. Intriguingly, authors interested in the practice of a sensual relationship with the more-than-human, as is the case in the practice of natural history, do not appear to differentiate between the two. Paul Rezendez, author of *Tracking and the Art of Seeing* (1999), describes seeing as "the quality of attention in our lives" (p. 20) but does not go on to describe the qualities of watching. Annie Dillard in *Pilgrim*

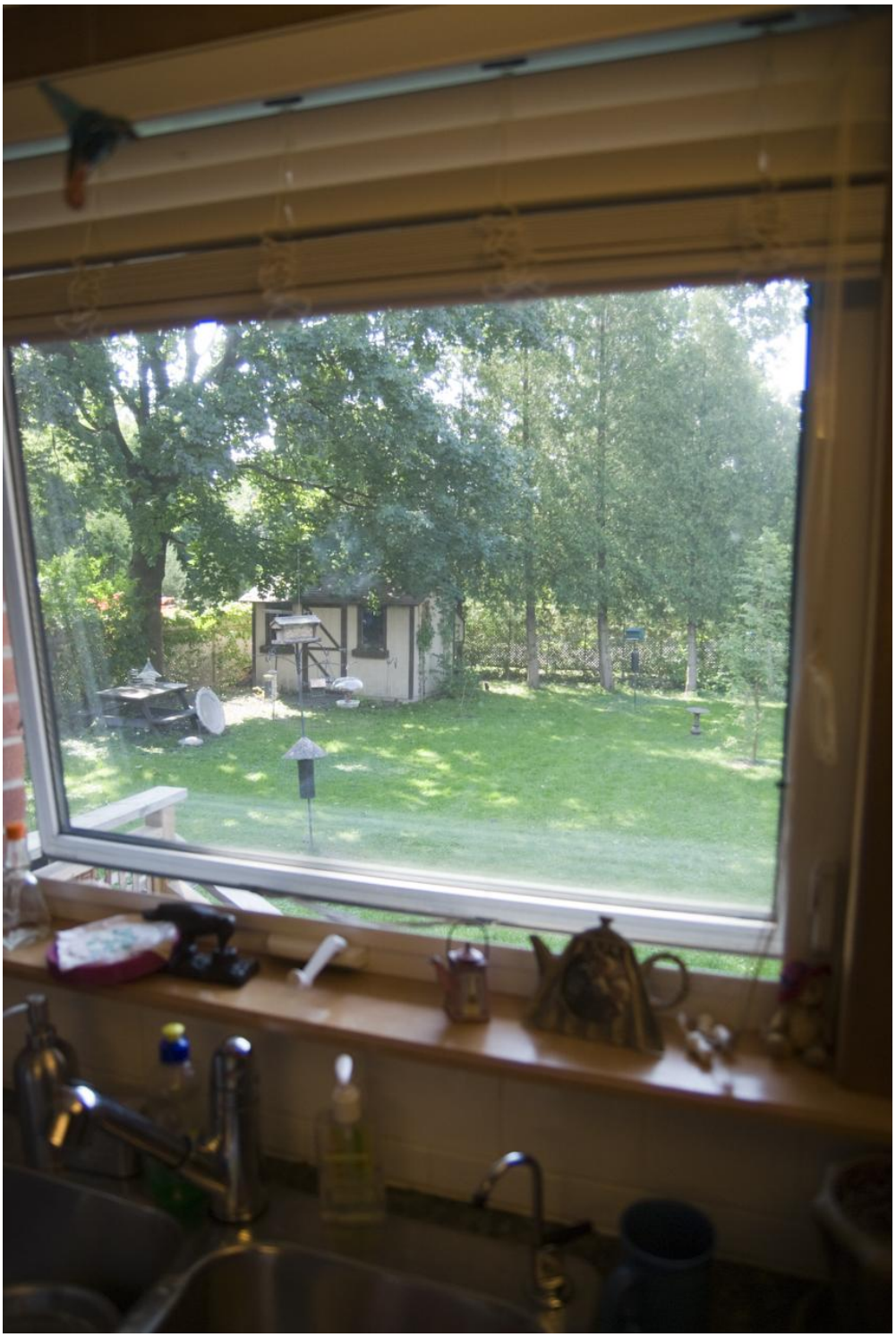

Figure 2: Backyard feeders visible out a kitchen window, a human center of daily living. Framed by the window, these are constructed “feeder vistas”.

at Tinker Creek (1974) centres a chapter on seeing, while never mentioning what it might mean to watch.

While neither seeing nor watching are neutral, for my purposes I believe that there is a qualitative difference between the two. Our biology is such that as human beings, we perceive a small portion of the electromagnetic spectrum—visible radiation—as light. In order to see, however, it takes more than those photons to hit our retina. Recent psychological research in inattentional blindness suggests that we, as humans, "rarely see what we are looking at unless our attention is directed to it." (Mack, 2003, p. 180) Watching, while implicated in seeing, already assumes attentiveness. Put another way, you cannot watch a bird without first seeing it. You can also not see a bird even though it is physically present nearby. But you can see a bird and choose to never watch it. Watching, then, is an explicit decision to attend to that, which you have first seen.

This notion of a difference between seeing and watching is echoed by Bell when she writes "it is possible to spend time outdoors with students, and to see, smell and touch all sorts of things without necessarily engaging [with them]" (1997, p. 133). For Bell, to engage means more than the simple act of noticing or a superficial examination. Significantly, both Dillard and Rezendez argue in a similar way by making allusions to the quality of engagement in their descriptions of seeing. A more perceptual vision of seeing is outlined by Dillard:

> For a week last September, migrating red-winged blackbirds were feeding heavily down by the creek at the back of the house. One day I went to investigate the racket; I walked up to a tree, an

> Osage orange, and a hundred birds flew away. They simply materialized out of the tree. I saw a tree, then a whisk of color, and then a tree again. I walked closer, and another hundred blackbirds took flight. Not a branch, not a twig budged: the birds were apparently weightless as well as invisible. Or it was as if the leaves of the Osage orange had been freed from a spell in the form of red-winged blackbirds; they flew from the tree, caught my eye in the sky, and vanished. When I looked again at the tree, the leaves had reassembled as if nothing had happened. Finally, I walked directly to the trunk of the tree, and a final hundred, the real diehards, appeared, spread and vanished. How could so many hide in the tree without my seeing them? (1994, pp. 293-294)

In this case, rather than ascribing it to psychological origins, Dillard attributes this shifting vision to nature's ability to reveal and conceal: "nature is a very now-you-see-it, now-you-don't affair. A fish flashes, then dissolves in the water before my eyes like salt." (1994, p. 293) Perhaps to help answer this notion of the seen and the unseen, Dillard shares the story of visiting her aunt and uncle on a quarter-horse ranch. There, Dillard drew a horse for her family. They laughed and joked at the quality of the drawing.

> Everyone in that family, including my three young cousins, could draw a horse. When the paper came back, it looked as though five, shining, real quarter horses had been corralled by mistake with a papier-mâché moose. (1994, p. 295)

It is the lover (in this case, of quarter horses), Dillard suggests, who sees more. For seeing, the notion of lover is an interesting one, because it suggests a number of additional qualities to sight beyond physiology and attention. Let me propose then, in addition to the sustained attention suggested by Dillard, that it is through experience that a lover can know to attend to that, which otherwise goes unseen by others. It was Dillard's relative inexperience with quarter horses when

compared to her extended family that marks her awkward moose compared to their sleek equines.

While seeing is the initial act of noticing in birding, it is in the sustained attention that comes with watching where birders can, as Dillard described, fall in love. Dillard's notion of watching as love is significant because it is the lover, she believes, who can begin to see and know more. Evernden (1985) critiques the act of looking as a kind of objectification. As he outlines, a different relationship to the more-than-human world is established if an object is treated like a thing versus as part of a reciprocal relationship. Evernden is cautioning that in the act of looking with an arrogant eye (Frye, 1983), birders would treat birds as a thing. Marilyn Frye, however, suggests a difference in gaze between the arrogant eye and the loving eye, writing that "the loving eye does not make the object of perception into something edible, does not try to assimilate it, does not reduce it to the size of the seer's desire, fear and imagination, and hence does not have to simplify" (1983, p. 76).

Just what kind of eye do birders turn toward birds? Intriguingly, and speaking to Dillard, Evernden and Frye, the strong positive emotions associated with love are also associated with birding. Jordan, a birder in his 30's, explains how he considers the birds he watches: "I mean, yeah, the love of the birds is why we do it so we're obviously conscious about not disturbing them." I asked Helena, a birder I interviewed at Rondeau, what bird she would be most excited to see while visiting the park:

> My favourite is I think the Red-headed Woodpecker. The bird you just love. I look out my window at home…and I go, "I love you." And then think, oh God. Did people think I was crazy? But there is that physical feeling for the birds. There really is. There is a physical attraction, and affection. You almost do look out saying, "I love you, dear."
>
> Or and now the other day I had a White-throat that hit the window. And I took him, and I put him under a sieve. And then when I took him out off he went. But I gave him hell. I said, "You just be careful. Oh my God. You be careful."
>
> It's almost as if it's a kid that you send on its way. Or you are saying, "Why don't you be careful?" We had a Red-headed Woodpecker on the shoulder driving through Wasaga Beach. And he wanted to get out of the car, and say, "You mustn't do that." So you do get an affection for these.

These cases, when birders express a kind of love for the birds they watch, they have engaged in a practice that is more than an act of noticing or seeing these birds. In arriving to a perspective where they can speak of loving birds (though that adjective can describe qualitatively different kinds of affection and interest) there is a measure of engagement or quality of attention to a birder's practice.

As such, I am complicating Dillard's definition of seeing into a differentiation between seeing and watching, where watching is a choice beyond a sighting to pay *sustained* attention to the perceived entity. Thus, when I write about seeing in this study, I am writing about the notice and turn of one's visual attention to what was previously unperceived. It is when the birder chooses the quality of their gaze—from arrogance to loving—that a birder begins to watch.

This, I believe, is significant because it also implies that watching, like seeing, is not neutral: in the quality of this gaze, they enact a particular kind

relationship with the birds they watch. I have described how the opportunity to see and watch birds works to draw participants into the act of birding. I have also suggested how some sustained acts of watching, such as those in the backyard, can enact a natural history practice. Bird watching, however, is more than watching birds. For many, it is the affect of seeing birds that engages them in an act of watching them.

The excitement of the more-than-human

Given the central nature of sight in human beings' suite of senses, birders often describe birding primarily as a visual activity. Barbara described how she was introduced to field birding by her current partner:

> And of course he gave me the binoculars and I looked up. My first bird was the Cedar Waxwing and I was hooked. I couldn't breathe. I was like, "My gosh look at that thing. Look at that thing."
>
> So that was it. I had to know all of them from then on. I had to start my journey of getting to know. Not realizing the opportunity. What a variety. In fact the first time I saw a bird book almost fell over. I thought, "Is there that many birds? Oh my God." I had no idea.

Peering through binoculars at a Cedar Waxwing (*Bombycilla cedrorum*), as Barbara describes, encapsulates the apparent central activities of field birding: first noticing, then watching and finally, identifying birds. Yet, there is something about Barbara's first time birding that suggests there is more to the activity than just the trio. There is an enthusiasm and excitement in Barbara's story that speaks to the quality of her first encounter with the Waxwings. The moment

when she first looked at the bird was literally breathtaking and Barbara's act of watching was as much emotional as it was sensory. These sensations of excitement appear to be a significant appeal to bird watching and Barbara is not alone in her reactions. Roland, who began field birding within the last five years, described to me how he started visiting Point Pelee National Park in the spring for another purpose: to bike. As he was in the park he "...started seeing birds I never knew existed and then I am thinking, 'Man, this is exciting.'" Cameron, who I interviewed at Rondeau, also suggests that there something arousing in bird watching:

> G: Yeah, why do you enjoy it?
>
> C: That's a hard thing to explain, but when I see bird that I haven't seen or even any bird that I've seen, I get a rush, I guess. Like it's just something that I enjoy. It's a hard thing to explain.

Danny, who I interviewed in the fall of 2008, reflected on his feelings of excitement while watching birds:

> G: Right, right. So do you find that you do get excited when you see [birds]?
>
> D: Oh, yeah.
>
> G: Can you describe that feeling?
>
> D: I end up; Most of the time focusing all my energy on trying to make the most of the sighting and I'm sort of holding back on the excitement. And it's sort of after the sighting is over and I'm sort of on the trail walking away from the experience. That's when I'm excited. And I'm with someone, I can be talking to them. I don't know, it makes me conversational.

Livingston suggests that naturalists are privy to a different quality of encounter with the more-than-human, one where excitement and a sense-of-wonder define the engagement:

> The joy is too great, too overwhelming, to contain, so it bubbles up. If you have not experienced it, you will have to take my word for it. If the naturalist does not know something you don't, he most certainly *experiences* something you don't. He is not serene. He is excited. (1981, p. 59, author's emphasis)

While being a birder and being a naturalist are not necessarily synonymous acts, neither are they explicitly at odds. I would suggest that in these moments of excitement, birders are describing an alignment with the more-than-human that is more associated with a practice of natural history, where the experience and excitement of birds helps situate birders as participants in the more-than-human world.

Initially engaged by birds' presence, birding quickly moves beyond seeing and watching birds. Most, if not all, birders want to know what it is that they are seeing and this curiosity leads them to the act of identification. Often, it is the act of identification that turns birding into an activity of simply noticing the more-than-human. Knowing names of birds, as Bell writes, "while not indispensible to meaningful encounter...help us cultivate attentiveness and so move towards acquaintance" (1997, p. 134) with them. Chad, who I interviewed in the fall of 2008, described a moment in his personal transition to bird watcher where he needed to know the name of an unknown bird:

> I can distinctly remember seeing the Black-throated Blue Warbler and I was 14 or 15 and thinking, "Okay, why…" And it's so distinctive right? It's such a distinctive looking bird. And I remember completely thinking, "…why the heck have I never seen that before?" And looking it up in a bird book and talking to my parents about it. My parents didn't really know anything but they were really encouraging about all this stuff.

This act of naming works to fix a common identity, such as Black-throated Blue Warbler, to the observed bird. But, as in this case, fixing an identity creates the opportunity to ask and answer other questions about the bird—questions like why Chad had never seen one before. This creates the act of identification as an entry to knowing more about the more-than-human. Key here is curiosity because, as Bell writes, "when naming becomes the focus of natural history, that, which can be most inspiring and delightful…is easily ignored" (1997, p. 134).

Beyond watching: identification by ear, through touch and in ecological context

Curiosity about unknown birds spreads beyond the birds easily seen by birders. Bird actions and movements are (most often) beyond the control of a birder. As such, birds' material presence is often obfuscated from view by any variety of things: leaves, tree branches or other birders, for example. Bird voices act to alert birders to their presence, allowing birders to manoeuvre into a position to get a better view and, in some cases, to make an identification of a bird without even catching sight of it. Being able to hear a bird without seeing it, in some regard simplifies the act of detection but increases the difficulty of identification. As a result, the practice of identifying birds to species through the

sounds they make, known as *birding by ear*, is a skill that many birders hope to develop and improve.

Of the birders I spoke with, better birders were often identified as those people who can bird by ear. Shannon, a self-described beginning birder, echoed this when she said to me that "I have a lousy memory for songs so every year I have to relearn the songs which is why I'll never be a great birder." But, given that many birds are detected through hearing, learning to identify them by song alone increases the birder's success. This is motivation enough for many birders to begin to match the songs they hear to bird species.

One notable exception of the primacy of the sense of sight and hearing can be found with those who are involved with the practice of bird rescue: while identification of the birds being collected is often being made by sight or sound, rescuers *have to hold birds* in order to both collect birds and make an identification. Leesa describes the process with a bird in hand:

> But yeah, you pick up the bird, with most of the species, the identification is obviously clear to me. There are only a few where I would have to look at the wings or do something different. So, the identification is part of it and as I am picking up the bird, I am doing the assessment and looking at its eyes and if the legs work and how the wings work and then just put it right in the bag.

The identification of a bird in the hand can be made easier by physically manipulating the bird: opening a wing would allow the rescuer to note the

presence or absence of a diagnostic characteristic such as wing bars[3]. Intriguingly, the act of identifying a bird through binoculars and the act of identifying a bird in the hand are not the same thing. Maria, now involved with bird rescue was first drawn to field birding and describes her changing ability to make identifications:

> I could identify maybe, I don't know, 50, 60, 70 birds, if I worked hard at it. And now, over the last few years I've forgotten most of it. In fact, I have forgotten a lot of it. When I look at the birds and they look different when they're dead. I don't see the same marking that I would see if it was way up in a tree somewhere. And I found it difficult to learn the identification using a bird in the hand.

The larger context within which the identification is being made plays a role in the act. Out of their (typical) environmental niche and looking different, dead birds are not the same as live ones. Recognizing a species of bird in the wild does not mean that you will be able to recognize a member of the same species as it lies at the base of a building: the variable context of watching live birds through binoculars to handling dead or distressed ones changes how they are seen, identified and experienced. This difference points to the tightly configured contextual relationship between birds and place, where rather than existing as separate objects, place shapes how birds are approached and known[4].

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[3] Wing bars are a continuous "bar" or line of feathers, usually in contrast to the rest of the wing colour. Their presence or absence can help identification.

[4] This is related to findings reported from my earlier research conducted on children's *becomings* (Watson, 2006). Influenced by deleuzoguattarian thought, I described how engaging with the more-than-human affects how we understand what it is to be human ourselves. Bird rescuers' experience of a different kind of bird is a kind of de- and re-territorialisation, shaped by place.

Beyond the sensory balance of seeing, hearing or touching birds, it is clear that the larger context that a bird is found in can play a role in identification. After spending an evening with local birds watching shorebirds at the Blenheim sewage lagoons, my field notes reflect on the act of identification:

> Shorebirds are a confusing bunch for me. We could have spent more time identifying the different shorebirds, but Iris had left her scope in her car and David didn't have his with him. So, we had to be content with our binocular (8-10x) assisted-vision. Iris, as we got into the car, commented that she had managed to see three new species for the year today; I asked if that made the day a success, she said that it actually made the day not a failure. Success looked different.
>
> As we drove back to Rondeau, we talked a little bit about identifying shorebirds. What struck me was that the identification was a combination of visual cues (e.g.: Iris said that a Pectoral Sandpiper has a streaky breast that looks like they "took a ruler and decided the streaks should end just there") and observed behaviour (e.g.: David suggested that Baird Sandpipers prefer to be further back from the water's edge rather than right in it); that identification was often the synergy between the two rather than just one or the other.

Identification, rather than simply an attempt to match an impression of a bird to an image in a book, appears to become a more complex act with experience. In birding, this larger context is a combination of many things: habitat, previous experiences, bird behaviour and even time of year. Awareness of these factors is awareness of an ecological context. Importantly, by ecology I mean "the relations of organisms to each other and their surroundings" (Ricklefs, 1997, p. 649) which does not exclude human and built environments and rather focuses on the relationships between the various components.

It is significant to notice that there is something about Baird Sandpipers' (*Calidris bairdii*) behaviour, shaped and supported by their environment, which causes the species to forage in drier places. It speaks to a kind of knowledge about birds that is integrated within the larger world and counters, in some regards, assumptions about birding as a narrowing of perspective and identification as a simple act of matching real life to a painting. While a bird cannot be identified to species by understanding this larger ecological context alone, it can firmly guide the act of visual, auditory or physical identification.

Birding can be a multi-sensory activity that attracts participants through its visual nature. More complicated than strictly being an activity of seeing birds, as attention turns toward the presence of birds, birders begin to watch. Watching is the active choice on the part of birders to select the quality of engagement with birds seen. This quality has implications for the practice of birding. Bird observations turn to identification and as a result, noticings proliferate beyond the sense of sight. The act of identification becomes one of triangulation, taking sight, sound, touch and ecological context into consideration while attempting to fix an identity. Sonya, who has been watching birds for more than 10 years, describes the act of identification as "a sense of accomplishment" and a "small sense of achievement," feelings that, in part, encourage her to continue. And she is not alone: a personal sense of accomplishment and achievement, it would seem, are important components to the appeal of birding.

Measuring success

Birds, it appears, elicit emotional responses in birders, with sightings and the subsequent feelings—from a sense of excitement in the case of birder to a sense of loss in the case of the rescuer—propelling the birder forward. While these emotional states may be intrinsic motivation to bird, extrinsic motivation can come from a sense of (often implicit) competition that many field birders feel. As Raymond, a beginner I interviewed at Rondeau, suggests:

> It's just there are so many people and so many people trying to outdo other people. One thing I would never get into is the competitive aspect of birding. I'm not, like I wouldn't go out on a birdathon[5] or anything like that. Because I'm not really a competitive type person.

For many, success in field birding can be summarized like this: identifying seen birds to species, where the most number of species seen is an easy benchmark to compare your success to others.

Birders' perceptual abilities change as they become more experienced, allowing them to have greater success to not only detecting the birds but also to paying attention to sensory details that other less experienced birders would not. Fred and Janette describe the difference between their practice and that of a better birder's:

> F: No, that's right. We're not aggressive at it and I don't seem to be able to pick out the markings like some of the experts. They are able to see the little circle around the eye or—

[5] A birdathon is a fund-raising event where birders collect pledges for the number of bird species they can see. Proceeds are often donated to a bird conservation organization, like Bird Studies Canada.

> J: And they also know as soon as they hear the sound they've got it.

This ability to notice a bird's eye ring or distinguish the call note of a specific species increases the success of a birder. Becoming aware of and distinguishing just what that bird is, using field markings, call notes and the habitat of the bird is a key to success in the practice of birding.

Often, field birding is an activity that focuses on seeing the most number of bird species over a given unit of time. A "big year" in birding is the act of collecting the most number of species over 365 days, while a "big day" is the same concept spread over 24 hours. While field birders are birding, they are travelling through specific environments which they have determined, through previous experience or other sources of information, to be likely places to find appropriate birds in appropriate concentrations. These observations of species get marked on a kind of list and often become records. Records, in this sense, are first-hand observations made durable.

The act of listing

The unit of time can operate simultaneously at a number of scales: birders can be, all at once, collecting records for a lifetime, a season, and a day. Raymond and Elizabeth, both beginning field birders interviewed at Rondeau, describe what their listing looks like:

> E: We have a couple of different lists. We have a life list and we have a little notebook that we keep as a daily thing if we're out somewhere.

> R: Our life list is really not – well, we have it in multiple forms. I kind of tick them off in our guide, but I also keep a photo list. Not necessarily all my own photos, in fact, very few of them are my own photos.

But numbers of identified birds do count—on a birding trip, for example, where field birders spend many days looking for birds, the best day is often the one where the highest number of species was seen. This focus on numbers, however, is not everyone's practice. For Cameron, it is not the quantity of bird species seen, but rather the quality:

> G: Now, you said that you just started keeping a list of birds over the last couple of years?
>
> C: Yeah, and it's something that we just happened [ui] but I don't keep a life list. I don't care about the numbers. Like, I don't push myself that I have to have this. And I'm not going to not look at a bird that looks nice [and say] "Oh, I've seen that already." I'm not doing that. If it's a pretty bird, I will—like I'm not into where I have to have the numbers. And I'm rushing around, and not getting a good look at one bird just to see something else. Maybe at some point I will, I don't know. I'd rather not. I'd rather just enjoy it as I go.
>
> G: Do you think that in that movement of collecting bird observations, you kind of lose some of the original [interest]?
>
> C: That's what I think. If the bird looks pretty and looks nice, I will sit there and look at it. I would just as soon be like that. Then if I miss a couple of birds, so be it. I'm not going to rush around to get a huge list. Like we keep it for our own but it doesn't matter. I am not keeping a life list or none of that stuff.

Significantly while he does not keep a life list, Cameron still lists. His particular enactment of birding is directed more towards watching birds than collecting observations and, as a consequence, systematically keeping a list of all species seen does not match his beliefs about what birding is. It does, however, reinforce

the underlying visual appeal to birding: Cameron is interested in getting good looks at pretty birds. Amber, a Toronto field birder for less than ten years, "only casually" lists the birds she sees:

> I like to look at, like at the end of the year, maybe. Go through the list. But like I am not a bird chaser. I'm not going to watch OntBirds and see that something somewhere that's a four hour drive and hop in my car and go. So I am not that kind of a list keeper. But I am a list keeper in that I think it's helpful in terms of making things stay in my memory. And to have an idea of what I've seen and try and remind myself of the features and that.

Roland understands how the act of listing becomes a competition: "I come across people like that. They act like it is a competition and see how many birds they can get." Chasing after a sighting, a particular enactment of field birding, becomes synonymous with keeping a particular kind of list. Birder's use of lists, be they an authentic record of all birds seen or a casual tool to augment memory, appear in the data as a proxy for each particular enactment of birding. But enacting birding as a competition to "get" the most number of species is a particular political and ethical alignment with the more-than-human.

Collecting observations

At its worst, birding becomes a simple act of collecting bird observations where the individual bird becomes inconsequential. Birders' relationship with listing and collecting falls somewhere along a continuum between the act's complete embrace or its total disavowal; rarely at either end. Shari, a self-

described collector, shared her personal relationship to the act of collecting with me:

> S: Oh, I am a collector. And I like to see new things. It's a bit of a game. But I do enjoy it. I just enjoy it, that's all. I like to learn.
>
> G: Now you say that you're a collector. Does that mean…what else do you collect?
>
> S: I actually don't collect anything else right now. I used to collect pens. But my father is a philatelist and my partner is a book collector. Everyone around me collects and I collect for them. I like the act of collecting. I've always enjoyed the act of collecting. You know I collect a certain kind of stamp for my father.
>
> G: Books for your partner…
>
> S: Yeah. I like the hunt.
>
> G: So that in a sense translates over to watching birds, there is something in the act of finding things. And that's part of the appeal of rare birds then? That it's the rare stamp, it's the…
>
> S: Yeah, well it's sort of like, yeah, I guess so. I long ago decided that if you like something you just accept that you like something rather than trying to analyse it too much.
>
> So anyway, I just happen to enjoy [looking for rare birds]; it's a challenge you know, it exercises my ability. It's all about…some kind of bragging rights, something to talk about.

Not unique, an ethic of collection is part of Shari's life outside birding. Perhaps exemplary of the other end of the continuum, I asked Daniel, a field birder located in Toronto if, while birding, he kept a list of birds he saw. He replied that he did not care for the act.

> G: So why don't you care about that kind of stuff?

> D: Because it's like stamp collecting. I thought that if you're collecting stamps it's the everyday stamps are the interesting ones.
>
> I am much more interested in—I actually have quite a lot of fun watching House Sparrows (even though they are not a Sparrow). Just because there are so many of them and they're highly successful which is really interesting. Why is that bird so successful? Why does it like human beings? And so on.

In Daniel's case, I interviewed him under the shade of a tree in High Park, Toronto. We met at Hawk Hill, where we were both spending a sunny and warm September afternoon watching for migrating raptors. Earlier in the day, we had sat in chairs watching the sky overhead, scanning above the tree tops surrounding us with binoculars for a speck that would slowly grow and "become" some species of hawk, vulture, eagle or falcon (or, more often a Ring-billed Gull). Each raptor sighting would be identified to the best of our collective abilities and marked down. On the hour, we would collate our species sightings for submission to the HMANA, the Hawk Migration Association of North America, a citizen science organization which monitors raptor populations across North America.

I point this out to show the tension that exists within each birder's enactment of birding. While he does not keep a list of birds in his personal practice, Daniel is involved with the monitoring of raptor migration, which as part of its practice involves list-keeping. Importantly, Daniel shows what birding can become beyond the collection of disembodied observations. This watching is for a purpose beyond identification. He is curious about behaviour, asks questions about the lives the birds live and is still interested when the species of

bird, in this case the House Sparrow (*Passer domesticus*), is ubiquitous. This is particularly significant as birders often find themselves focused on rare bird species that are the antithesis of those seen every day.

The power of the rare and the beautiful

If birding is, at some level, about the act of collecting personal observations of bird species, then there are some kinds of birds that hold more power over birders than others. When the presence of such a bird is reported, an interested field birder will spend considerable effort to see the bird, for example, travelling hours to get to the bird's observed location. When observed by birders, these birds can elicit an emotional reaction, stoke a sense of accomplishment and be the source of emotional catharsis after days, weeks, months or even years of searching. These birds are often members of species whose presence in a particular place could be considered unusual—in part, perhaps, because the number of individuals in a population is so low that having an opportunity to observe a member of the species is perceived as a special opportunity.

The rare

As you arrive at Rondeau Provincial Park and pay your entrance fees, you are handed a tabloid-sized newspaper about the park. In it, you can find campground maps, schedules of events and trail descriptions. Inside the cover of this publication is a full-spread colour photograph of a bird taken *in situ*: looking at the photograph of the bird clinging to the trunk of a tree, the bright orange-

yellow of the breast and head contrasts to the slate-grey of its wings. Peering out, is a jet-black eye that pops against the yellow of the head. This is a male Prothonotary Warbler. Around 13cm long, these birds are found with regularity at Rondeau and have become, as evidenced by the larger-than-life spread, the unofficial mascot of the park.

They are found at Rondeau because this peninsula jutting into Lake Erie is full of the kind of habitat that these birds prefer for nesting. Created by the deposition of sand and sediment along the eastern side of the isthmus, Rondeau's forested landscape rolls with the evidence of its lake-born origins. Old sand dunes, now covered with forest to obscure their origins, run the length of the peninsula from north to south. In between the peaks of the old dunes, thanks to Lake Erie's proximity, are wet areas known as swales. It is these hardwood swamps that Prothonotary Warblers like for the tree cavities they find within and use as places to nest. Because the birds are nesting in the park, birders travel to get the opportunity to see a Prothonotary. This warbler is, in fact, at the zenith of birds "to see" while at Rondeau. Darren, a birder who visits the park on a regular basis from a city an hour and a half away, describes why this species is the high point for a day birding at Rondeau:

> Yeah, it's because, your chances of seeing a Prothonotary are so restricted. If you don't see it here, you ain't going to see it anywhere. That's not literally true, but that type of thing. Whereas, um, we saw the Red-headed Woodpecker [today], for instance, and we usually see it here, we know we can see it other places, so it's slightly down below that. And then Red-winged Blackbirds, god, we've got them all over the place. Then you get

> down to the House Sparrow, we see them everyday. So, it's the level of expectancy or the probability, so it's a bit more interesting to see something where the odds are against you.

In short, the Prothonotary is a sought-after bird because it is so difficult to find elsewhere. David, a local birder, confirms this:

> But if you wanted an individual, I would have to say that there is nothing that excites people, myself included, like the Prothonotary Warbler. Because you know how rare it is and you know how endangered it is. And you know how hard it's trying to survive. And you know how hard they're working here to help it survive.

This species of bird is considered to be *rare*: their material presence scarce and difficult to find.

The beautiful

It is not only the rare birds that have power. Those birds deemed to be particularly aesthetically pleasing attract backyard birders' and birders' attention alike. In the case of backyard birders, they speak with a particular fondness for so-called beautiful birds. Jennifer, a backyard birder, tells me about the most interesting birds she has seen:

> J: Well, I like the hawks for sure. The yellow finches.
>
> G: Oh, yeah. Goldfinches?
>
> J: Yeah. They're beautiful, yeah. And I don't get a lot of them. But every now and then I'll see one. I haven't seen one now for a while. And I've always liked the robins.

The concept of interesting is, in this case, a combination of the (perceived) rare and the beautiful. Backyard birders show significant interest in attracting them to their yards and take actions to attract more of these kinds of birds. American

Goldfinches (*Spinus tristis*), for example, seem to show a preference for feeding on nyjer seed. This small black thistle seed requires a special feeder with small openings (larger openings would allow the seed to pour out). This opening, in addition to holding seed in, also acts to keep other birds out. The Goldfinch is a small perching bird, so the larger birds attracted to a nyjer feeder are unable to fit their bill into the openings to extract the seed. These feeders and seeds are marketed as Goldfinch feeders and backyard birders learn that to attract this species of bird, they need to deploy this particular combination of nyjer seed and feeder.

The aesthetically pleasing bird attracts birders' attention too. Speaking with David, an advanced birder with many years of birding experience at Rondeau, I asked him if there was one bird that still excites him when he sees it.

> Well, we're getting into the category where you say, "Have you seen any good birds today?" And then the die-hards will say they're all good birds. But of course at Rondeau, I think, it has to be the Prothonotary Warbler. People come from all over the world to stand on that boardwalk to look at the bird. And, um, they see it.
>
> But, uh, my wife and I have always kinda had a passion for the Blackburnian warbler because we have a photograph of one of the old employees at Pelee made one time. And we had it blown up in very large and it's a gorgeous picture. And we've always been colour conscious anyway.

Thus, we see that desirable birds are not exclusively rare or just beautiful; often they are some combination of both characteristics. For birders, these characteristics combine to create the most desirable bird species to see; species with power to attract, such as in the case of the "rare" and "beautiful"

Prothonotary Warbler at Rondeau, birders from all over the world. But it is not enough, for a birder looking to see a particular species, to simply show up at any time or at any place. Often, in order to see a species of bird like the Prothonotary Warbler, birders attempt to predict the unpredictable nature of the birds they hope to see.

Predicting the "whizzer day"

Field birders work to be in the same place as birds. But birds, especially the migrants that become the focus of most birders during the spring and fall (to a lesser extent) months, are not static. On the move from their over-wintering grounds ranging from the United States to South America, these migrants, in Southern Ontario, are most often on the move through the region to nesting territory. Birding for migrant birds, then, is an act of attempting to predict the (perceived) unpredictable nature of these birds and their movements from south to north and south again. Norman describes how he has yet to reliably forecast what days will be best—i.e. the highest diversity of bird species or a high concentration of birds—for migrating warblers:

> Yeah, but then, we haven't really found a sure-fire—in all this time—we haven't found a sure-fire way of telling whether it's going to be a booming day for warblers. And we've talked to all kinds of people at Pelee, and the rangers. And people who've been doing this for even longer than we have, and they don't have a way of saying "Well, tomorrow's going to be a whizzer day".

Bird rescuers are interested in the migratory songbirds that attract the attention of birders and also have an equally difficult time predicting their movements

through the city. Maria, a bird rescuer who saves downed birds at a group of buildings called Consilium Place in Scarborough, discusses with me the unpredictability of "bad" days and lack of intra-day consistency in bird strikes between sites in the city.

> G: From the literature and just from discussions it has a reputation as being the worst or a very bad place in the city for bird deaths.
>
> M: Yes, yes. It is very bad. I have, I don't have my book at hand and a count yet. I think the most I picked up this season, this fall, is eight in one day. Which is a very, very small [number]. Other [mornings] it has been two, three. Because I only go on Sunday mornings. Last fall, I think one day I had 30.
>
> So, some people see it really bad if they just happened to be out there on that day. You never know where the birds are coming through. Sometimes you have an idea. But you don't know where they're gonna stop. We'll have heard that there are lots of birds coming in and they're at the York Center. What's it called?
>
> G: York. Yeah, York Mills?
>
> M: York Corporate Center. Yes, that's at Don Mills. And they'll be up there and they're not at Consilium. So I go up to Consilium expecting a really bad day and I see nothing.
>
> G: Yeah. What are some of the factors that would predict whether it's going to be a good day or a bad day; that you've recognized?
>
> M: It's just, um, I don't know, for me as a guess. But other people know. They know that the birds are moving. So you know, there is um...by the patterns. You can't go by dates. Some people say, well you know October or whatever of last year. Well, it can be a rough guide.
>
> G: Yeah.
>
> M: But the weather pattern, of course, they can see OK if it rains. Yesterday, and it's clear today, you expect [the birds] to have

> hunkered down somewhere during the rain. And once it clears up, if the winds are in the right direction, they're coming through.

The consequence of this unpredictable reality is that for most bird rescuers, they simply cannot select a date and time that will be "best"—the practice, when it comes to the act of finding birds, is full of ambiguity.

Birders appear to work to reduce the ambiguity, through reflecting on past practice and becoming aware, either through first-hand experience or from others, of characteristics that lead to a particularly good day. As such, rescuers and field birders share similar theories, used to predict when birds will (likely) be moving through. Nathan, who has birded in Rondeau for more than a decade in the spring spent part of our interview discussing how a recent birdathon was disappointing because of the low number of Warblers seen by his birding group. He offered a suggestion, similar to Maria's, that the weather is one characteristic that plays a role in the presence or absence of birds.

> G: So did the three of you talk about that? The fact that it wasn't as busy as other years?
>
> N: Oh yeah, we figured that. We've seen a hundred different birds. Which is not bad. But not near as many Warblers that we normally see. I have not seen as many this year that I normally get.
>
> G: And again, some of that is serendipity. Just being at the right place at the right time or the wrong place at the wrong time.
>
> N: Weather fronts and all of that sort of thing. There are so many variables.

Warm winds from the south or cold fronts from the north suddenly take on new importance in acting as perceivable stand-ins for the appearance, disappearance and unpredictability of migrating birds. At Rondeau, I noticed how the topic of fallouts[6] emerged repeatedly in conversations between me and other birders. Here is an excerpt from my field journal from April 30th, 2008:

> I decide to go back into the Spicebush trail to take some photographs of the spring [wildflowers]. Around 4:30 pm, as I am walking back out of the trail, a couple is walking in. They're both carrying cameras.
>
> I walk up and we exchange hellos. I ask how the day was going and "not good" was the gentleman's reply. He goes on, "Give it a week or two. Especially if we have a fallout. Then there'll be all the warblers you could want."
>
> This isn't the first time that I've heard a visitor to the park talk about the fallout effect.

In this sense, birding becomes an act that can draw attention to the supporting world beyond birds. This awareness of weather patterns acts as another part of the larger ecological context that birders become aware of as they work to predict birds' presence. Significantly, the promise of seeing birds is motivation to notice some of the characteristics—seasonal change and weather in this example—of the more-than-human world and draw connections between observed patterns.

Birders, rather than keeping these theories to themselves, often share them with others they meet to help provide some kind of context for the kind of

[6] A fallout is the phenomena of northern-migrating birds "hitting" a cold front, over Lake Erie in this case, and seeking shelter on the nearest available land. Because places like Point Pelee and Rondeau stick out into the lake, they are understood to attract more migrants when a fallout occurs.

conditions—living and non-living—that they're experiencing. This sharing does not end with educated guesses about the next "whizzer day"—in the practice of field birding, bird locations act as a kind of currency that is actively traded.

Sharing information

Because the material presence of birds appears to be unpredictable, birders participate in systems to share information, as quickly as possible, often to as many as possible, about the presence of birds. These observations are important enough that a form of attribution exists when reporting and information about the identity of the birder who first saw a particular bird is often included in sightings. Attribution serves an explicit purpose: to quickly assess the validity of the observation. As an anecdote, I know of a birder who evaluates the authenticity of a reported sighting by their knowledge of the reporting birder's skill. In this case and others, if you trust the ability of the birder who is sharing the observation, then you trust that the observation is legitimate. The implicit purpose of this attribution is to use the reporting as a proxy for proficiency as a birder. Thus, reported bird observations are the currency of the reputation economy at the heart of the field birding community. Some birders are interested in gaining reputation as a good birder—good, in this case, is being known as someone who is first to find and identify (often the perceived valuable) bird species. I experienced the connection between observations and reputation first-hand while at Rondeau:

> Arriving in the pony barn at 9:20, I was greeted by a full parking lot. Getting out, I see a local birder who I know from his posting photos to Flickr. We see each other and said hello and chat for a while. [My birding companion] comes over and introduces himself, as he posts to Flickr as well. As we are chatting, the topic of my research comes up and [the local birder] points up the road.
>
> Walking towards us were three men who we had passed parking their cars on the way in. He says to me "These three are some of the best birders in the region" as he points in their direction. We watch them approach, exchange some informal greetings and [the local birder] asks them, "What have you seen?" One member of the group replies, as if he is hiding some important information, "Do you want to know?"
>
> Regardless, the question appears to be rhetorical and the man goes on to say, "Western Tanager." There are a few wows from the assembled group.

A Western Tanager at Rondeau is seen as out of place in the east, and part of the reason why the "Wows" wafted up from the assembled group. Because, in part, these three birders were announced as some of the best birders in the region, their observation had immediate weight: their reputations preceded them. Donnelly (1994) suggests that it is not only the length of a list but the quality of the birds found thereon—specifically the number of rarities—that speaks to the quality of a birder. Not only did their reputation precede them, they also worked to reinforce that reputation by announcing their high-quality observation.

This particular interaction not only worked to accrue and reinforce reputations, but also illustrates a typical meeting of birders in the field: when you meet, the conversation often moves to details about what birds you have seen. While at Rondeau birding with my father, for example, we came across a birding

tour from the Leamington area. The tour leader spoke to Dad (as the two knew each other from leading birding tours) about sightings. Significantly, as they ended speaking, the leader said to us, "Thanks for all the info."

Multiple systems of practice have emerged to share bird observations. One system in use at birding hotspots, including Rondeau, is a sightings board. Often placed so that birders arriving to the birding location can find out what and where species have been seen in the past days, the sightings board at Rondeau is located in the visitor's centre. These systems exist as a formalized extension of meeting another birder in the field. Because of this information, checking this board often frames the day of birding, such as in the case of Janette:

> G: How do you decide where you're gonna go on any given day?
>
> J: If we go [to Rondeau], we go right to the [visitors] centre first. And then usually hit Tulip trail and then South Point. And then go from there.
>
> G: Right. How did you figure that out?
>
> J: Had to go to the [sightings] board to see what we're actually going to see.
>
> G: Yeah, yeah. So you start at the visitor centre because of the—
>
> J: Information.
>
> G: Information there?
>
> J: Yeah.

Checking the board before birding becomes inculcated into practice as it is a relatively reliable way, in a local and short-term sense, to see a reported bird. While spring migration is defined by birds moving, reported birds will often

enough remain in a reported location long enough for other birders to read a report, travel to the area and see the bird for themselves. The sightings board can, as in the case of Janette, tell a birder what to expect to see. This is significant as it can raise the awareness of the presence of a specific species seen in a particular place. But this kind of information can be a double-edged sword: as easily as the sightings board tells a birder what they are going to see, it cannot capture all possibilities of what else might be seen.

After meeting the tour leader who spoke with my father, I wrote that I found it "interesting that when you're talking to others about birds you've seen, the time of day is important; you can make decisions about the 'freshness' of a sighting based on how long ago it was seen." As though it was a fresh-caught piece of fish, a bird sighting, with few exceptions, is a perishable object. And, because sightings are perishable with value, they are shipped—reported—as quickly as possible. The speed that observations travel is limited to the technology used to report them. The sightings board, in Rondeau's case, requires that a bird be seen and that birder to return to the visitor's centre to mark the species and location on the board. As such, "new" observations can be as old as a few hours—birders at Rondeau often return to the visitor's centre at lunchtime to share what they have seen and check-in for notable observations. Because this information can tell a birder what has been seen and acts as a promise of what might be seen, it remains valued in the short-term. At Rondeau, during spring migration, it is accepted that a reported bird sighting older than 24 hours has

little value in being able to predict a sighting of that particular species. This is the point at which the reported observation has "gone off"—no longer valuable for seeing that bird, it changes into a record of its (former) material presence in place.

Species and individuals

In this transition from perishable object to record, something happens to the organism that birders are speaking about. While birders are in the field on the search for individual bird bodies, once identified, individuals get rendered as a species: those birders on that May morning just did not see a bird in the canopy. They saw a bird which, through a process of identification, became a Western Tanager; a liminal object that is part biological and part inscription. As other birders heard about the material presence of the Western Tanager, a migration of sorts, was made through the park to try and find the bird. As the day went on, I returned to the visitor's centre:

> As I walk in, I am asked by one of the park naturalists if I have seen the Western Tanager. Word has gotten out quickly about this bird. People were asking about and reporting the Western Tanager in their greetings with each other. The sighting was posted on the visitor's centre sightings board and because of this, many birders had made their way down to the south point to try and find it.
>
> It, however, remained unobserved. The naturalist shared with me that it has been a stream of people entering and asking him "Has anybody seen the Western Tanager?" or if they're coming back from the south point, they are visibly dejected. The naturalist wonders out loud if it might have been made up. I said that the people that saw it are supposed to be good birders, but one never knows.

In this effort, given the fact that the Western Tanager is a bird out of place and there were unlikely to be other Western Tanagers in the same place, birders were implicitly on the search specifically for that individual. As the day progressed and the bird was not seen again, the reported sighting began to spoil. Slowly, implicitly, the material presence was being rendered away, wrung from the observation. In time, the living organism turns into a record. And as a record, the individual disappears. That organism, seen flitting in the canopy, simply becomes known as a Western Tanager. *Piranga ludoviciana*.

As a record, which I describe as an observation made durable, the individual disappears into a category: species. For most birders keeping lists, multiple individual observations are collapsed into one overall species observation. Paul, interviewed at Rondeau, describes his system for recording bird observations:

> P: I have a life list. And then for each year I'll have a yearly list for wherever we go, I don't differentiate.
>
> G: So if you were going to go away to Florida that would just be on your yearly list. Because I know some people actually do like a trip list.
>
> P: Mind you, I do might make a different colour for each yearly list so that I know.
>
> G: And some people have a computerized list. Do you do that as well? Do you computerize it, like in a database?
>
> P: Not really. It's just a spreadsheet. Not like a database of where you saw it or of what you remember and all the details. It's just, "Yes I saw those birds."

The concept of seeing species, rather than individuals, becomes a guiding principle for the practice of field birding: this is, largely, an act of observing individuals, indentifying them to species, and taking record of their presence. When I asked David if knowing species, over individuals, was more important for birding, he replied, "Yes, as far as individuals are concerned there's not much to be gained there." As a consequence, the fifty-three Yellow Warblers (*Dendrioca petchia*) seen at Rondeau over three days can easily become recorded as one checkmark on a checklist.

Finding, seeing, identifying, recording, sharing

If watching birds can transition into the act of birding, then it is steeped in first-hand experience. With a birder and a bird together, a sighting is made and the process of identification can take place. These acts of identification rely on a birder's sensory abilities to pick out important aspects of a bird's identity, but also take into account the larger ecological context—the relationship between the components of the bird and birder's surroundings—of the bird sighting. Identification becomes a hybrid act that combines previous experience, sensory information and ecological context in an attempt to fix an identity.

If a species of birds hold a characteristic such as perceived scarcity or aesthetic beauty, then they are ascribed more power by birders. Birders also work to predict when and where these kinds of birds can be seen. This act of prediction expands beyond sought-after species into the whole practice: birders work to improve their ability to predict the highest concentration of birds and species. In

order to increase their birding success, and in reaction of the unpredictable nature of birds, birders share their sightings with others. Bird sightings are perishable objects and birders work to share the information before the sightings start to decay. Detecting birds' material presence also works to accrue or reinforce the reputation of a birder—being the first to see a rare or beautiful bird is something valued in the birding world.

This chapter focused on describing the dominant enactment of birding, most often practiced by field birders, found during my research. If we return, however, to examine this dominant enactment, we see sightings being turned into records and individual birds turning into species. This is an act of reduction, dematerializing birds so that their physical nature disappears. This is where the balance of the dissertation turns its focus. By placing the act of birding within a historical and scientific context, I plan to show how technologies used by birders shape the act and in turn change the perspective that birders have towards the birds they watch.

Chapter 4: Knowing birds: technology, Ornithology and digital objects

The historical relationship between the emergence of birding practice and the availability of technologies that augment the activity has been explored in detail by Barrow (1998). While explicitly exploring the emergence of birding from the late 19th century in the American context, the same proliferation of bird guides, field glasses, photographic equipment and automobiles arguably occurred north of the border (Quinn, 1995). My grandfather, birding in Ontario the 1920s, told a story of visiting Rondeau in the company of other birders. A young man at the time, he was tasked with listening for birds, while sitting on the hood of the automobile as it drove down the peninsula's road. Now, in the early 21st century, the standard equipment of birding has not appeared to change dramatically: binoculars, field guides, cameras and cars are still deployed by birders in their effort to see birds.

In this chapter, I focus strictly on the dominant enactment of field birding and examine the birding technologies—equipment in the words of Barrow—used by the birders I interviewed. While it may seem that the technologies have not changed since their adoption in the late 19th century and early 20th century, their uses have, in fact, evolved. Thus, while these technologies have appeared to evolve more than radically change, the emergence of digital objects in a hyper-connected world are acting to significantly influence the way that birding is practiced. Suggesting that all these technologies act to reinforce a

conceptualization of birds influenced by notions of capturing truth I will also explore the relationship between the technologies of bird-watching and how birds are known.

Barrow, in addition to describing the adoption of these technologies, outlines the hopes of 19th century ornithologists that birders "might also prove effective (though subordinate) allies in the production of scientific knowledge" (1998, p. 165). This relationship between the community of amateur birders and the professional ornithologist continues to this day, through citizen science programs such as Project Feederwatch and the Christmas Bird Count. As a consequence of these ever-evolving technologies, I will also make the argument that the praxis of birder as citizen scientist is threatened. Or, more specifically, it is the ability of birders to make knowledge claims about birds that is under threat. Using the case of the "re-discovery" of the Ivory-Billed Woodpecker and the subsequent efforts to confirm this species' existence, I hope to show how, in ornithologists' expanding efforts to detect birds, the birder is at threat of being removed from this practice.

Thinking about objects

Though often hidden or unnoticed, birdwatching is full of hybrids. Binoculars, spotting scopes, bird books, and Internet LISTSERVS hybridize with humans and birds to become actors in the creation of the privileged places and spaces in which birdwatching occurs. Rather than examining binoculars, for example, as an object existing independently from the birder, the bird and other

technologies, I am invested in the relationship between the technology, the knower and the known. In this way, this inspection is not strictly of a pair of binoculars' internal essential characteristics, limited by its physical boundaries. It is, rather, an investigation of that physical object and the network of actors mediated in relation with each other.

This relational perspective was first influenced by scholarly work in actor-network theory. Objects, as theorized by ANT scholars, have double immutability: they appear to have a stable shape in physical space defined by a dependence on relational and interactive work and are conceptually constituted by a stable structure in a network of relations (Law & Singleton, 2005). In this sense an object is "made up of" physical and conceptual objects that are made congruent. No object, however, is ever fixed within ANT and as such, both human and non-human actors need to constantly work to maintain the network of relations. If objects lose this particular network of relationships, they lose their "shape" and they "stop being the objects that they were—only some things are fixed, and [only] for a time" (Law & Singleton, 2005, p. 337).

Authors critical of ANT have offered the suggestion that in the movement to enfranchise others and in its bid to be seen as the only proper representative of this process, a kind of colonization takes place (N. Lee & Brown, 1994). Additionally, the definition of what is an object has been considered to be too rigid and, in fact, relations that define objects are more unpredictable than originally suggested (Law & Singleton, 2005). To illustrate this point, John Law

and Vicky Singleton point to research on a Zimbabwe Bush Pump (de laet & Mol, 2000) where, rather than an immutable mobile, the bush pump came to be a *mutable* mobile: "An object or a class of objects [that] may be understood as a set of relations that gradually shifts and adapts itself rather than one that holds itself rigid" (Law & Singleton, 2005, p. 339). The bush pump, over time and geographic space, changed physical shape due to local need and repairs. These repairs were often completed with what was at hand and based on need, rather than through prescriptive methods. It became a *fluid object*. While, on one hand it is still a bush pump through providing a mechanical means to pump water from the ground, each pump differs, perhaps slightly, from others. Law & Singleton suggest that whether the pump has a stable set of relations is, in fact, a "moot point" (Law & Singleton, 2005, p. 338). They suggest that there may be a core of stability (the ability to produce water, perhaps). There may also be no core of stability. Overall, Law & Singleton argue that rather than a core of stability, more important is the "general fluidity of relations that make up the pump" (2005, p. 338).

Similar to the work of Law and Singleton (2005), Mol writes that because "maintaining the identity of objects requires a continuing effort [and] over time [those identities] may change" (2002, p. 43), attending to how plural enactments of objects are coordinated has importance. In this turn, social science comes to investigate the physical nature of objects, traditionally the purview of the natural sciences. Importantly, Mol suggests that through this work the dichotomy

between (human) subjectivity and (natural) objects has been ruptured, such that nature cannot only be explained by science. Rather, "like (human) subjects, (natural) objects are framed as parts of events that occur and plays that are staged. If an object is real this is because it is part of a practice. It is a reality enacted." (Mol, 2002, p. 44) Investigating, in this new light, what are conventionally-understood as technological objects created and used exclusively within the human domain, allows for the recognition of the agency across the ruptured domains of humans and nature. With this in mind, I show how birds have shaped the design and use of bird-watching objects, further influencing the practice of watching birds. In describing the enacted fluidity of these relationships between the objects in my research—between birders, binoculars, birds and beyond—I begin to, in the example of Hovorka's transpecies urban theory (2008), describe a theoretical model to investigate and illustrate the influential agency and hybridity of these objects. In this regard, the hybridity that I describe echoes Haraway's cyborgian worldview where "we are all chimeras, theorized and fabricated hybrids of machine and organism" (2004a, p. 8). Significant for this work, Haraway's essay described the leaky boundary between humans, animals, technology and the physical coupled with the shaky "ontological grounding of 'Western' epistemology." (2004a, p. 11) Objects are not epistemologically inert.

Technologies' purposes

Concepts of space and time, as Evernden (1985) suggests, are organism dependent. Work on time has outlined its construction on a cultural—notions of circular versus linear time—and even personal—the friend who is consistently late—level (Abram, 1996; Griffiths, 1999), with each understanding practiced differently. With these caveats in mind, there is a particular temporality, which is enacted by birding. Best described as an Euclidian concept of time and space, this particular worldview sees time operating in one dimension and space in three dimensions. Cultural meta-narratives of the linear progress of time (Bowers, 2001) make this perspective on the operation of time explicit. Concepts of latitude, longitude and altitude make cultural assumptions about space explicit: a place is a point in time and space defined by Cartesian coordinates. These concepts, as Tuan suggests, have bounded concepts of space in "a frame or matrix for objects. Without objects and boundaries, space is empty" (1990, p. 11). As a result, observations while birding occur when bird and birder are in the *same place* at the *same time*.

Birding technologies can be described as accomplishing at least one of three broad purposes: changing the nature of space, changing the nature of time and reducing our species' own biological limitations. They are used, with a nod to Haraway, to cyborg ends: all of these three categories work to enhance in some dimension a human's ability to participate in the birding activities. A list of all technologies mentioned or used by birders is provided in Appendix O: Complete

list of technologies deployed by field birders; Appendix P: Complete list of technologies deployed by backyard birders; and Appendix Q: Complete list of technologies deployed by bird rescuers. I have taken the technologies listed by field birders Appendix O: and categorized the appropriate technologies into the three purposes described above. The results of this categorization are visible in the three tables, below. It should be noted that a particular technology may appear in more than one table. This is because these technologies can be used for more than one purpose.

Freeze time
• Camera / Digiscope
Slow time
• Bird identification books
Speed up time
• OntBirds LISTSERV • Two-way radios • Transportation

Table 1: Technologies that change the nature of time

Collapses space
• Binoculars • Spotting scope • Teleconverter • Telephoto lens • Two-way radios • Transportation

Table 2: Technologies that change the nature of space

Augment sight
• Binoculars • Spotting scope • Teleconverter • Telephoto lens • Camera / Digiscope
Renders birds visible
• Weather radar • Birding location books • Audubon bird call • Pishing • Camouflage clothing • Ontbirds LISTSERV
Augment memory
• Bird identification books • Sightings database • Checklist / Notebook • Bird call recordings • Bird websites
Reduce other human biological limitations
• Hat • Sunblock • Rain gear • Bag / Knapsack • Tripod • Monopod • Two-way radios • Transportation

Table 3: How birding technologies act to reduce birders' biological limitations

In addition to the obvious notion that birding technologies reduce our own biological limitations, two of the most important characteristics that these birding technologies poses is their ability to change the nature of time—either slowing it down, speeding it up or freezing it outright—and to collapse space—bringing two objects, often bird and birder, closer together.

Changing the nature of time and space

Arguably, part of the challenge of birding is finding oneself in a moment in time with a well-seen, unidentified bird. Most often for field birders, the end-goal here is to turn this opportunity into a known species. In the limited moments that they have together, a birder has to engage in a cognitive process to arrive at an educated best guess by eliminating the possible choices of just what that bird is in front of them. Birders are limited in their ability to know every species. Experience helps with this, certainly, but my research shows that even the best birders have a large stack of reference bird books at home and bring bird identification books while birding. For example, when I asked experienced field birder Norman what he brought birding, he responded: "Well, obviously binoculars, and a field guide, and that's really all we'll bring." Even though with experience comes the ability to identify most common birds with ease, experienced birders still use guides to assist with the process of (difficult) identifications. These books augment and extend one of our biological limitations: memory.

Having a bird book on hand does not guarantee an identification and the physical nature of paper books is often a limitation. As you use a bird book, you often find yourself flipping through the pages looking for a particular family of birds. Time is spent flipping back and forth. Because time is often of the essence, publishers have introduced advances to book design to change the nature of identification time. For example, the most recent edition of the *National*

Geographic Field Guide to the Birds of North America (J. L. Dunn & Alderfer, 2006), book cover flaps have been added with bird types (e.g. ducks, hawks, warblers) listed alphabetically with page references. Additionally, the most "popular" bird types have encyclopedia-like "letter tabs" built into the edge of the guide, so you can flip to the warblers immediately.

So, bird identification books are an example of a technology that changes the nature of time: by having a durable, physical object that has organized representations of expected bird species, a birder is able to speed-up their process of identification while in the field. Without the use of a bird book, longer, more sustained looks would be required to connect the observation to a known species. In effect, the use of bird books, by *speeding up* the process of identification, act to *slow down* time, giving a birder a greater chance to make an identification.

Two-way radios are used by some birders to share bird sightings across a limited geographic space. If we compare the use of two-way radios to share bird sightings to the process already used at Rondeau—the bird sightings board—we can see how their use speeds up the pace by which sightings are shared. An observation can be shared quickly with others and does not necessitate the observer taking time to return to a central location to report a sighting. Two-way radios also act to collapse space, acting to remove the distance between two objects—in the case of the radios, birders. Mara often birds with a group of friends spread across a number of vehicles. She describes their use: "But after the

scope we still got walkie talkies, we might be five or six cars, so have walkie talkies between the cars that way if somebody sees something we all hear it." The two-way radios allow for observations to be shared across the line of cars as though all birders are physically together.

Rather than changing the nature of time, binoculars and spotting scopes are examples of two technologies that fall into the category of collapsing space. These technologies exist because most birds do not allow birders to approach close enough to see the detail required to make an identification or are found in locations too difficult for humans to go to (e.g. the forest canopy or the surface of a lake). Binoculars and spotting scopes act to bring distant birds close enough so that birders can make an identification, as though the bird was being seen with the naked eye nearby.

The use of these technologies to collapse space speaks to the implicit agency that individual birds have within these particular networks. Agency here, is thought of as an effect "generated by…interacting components whose activity is constituted in the networks of which they are a part" (Whatmore, 1999, p. 28). Birds' independent actions, while under the gaze of the birder, have power in these configurations and influence technologies deployed. Intriguingly, objects like binoculars and cameras, while collapsing space, also work to overcome some of the bird's agency in being seen. A hallmark, perhaps, of most technologies used for birding are that they are used in ways that change the potency of a bird's agency.

A camera is a particularly interesting piece of technology for the reason that is serves to collapse space in addition to doing something that no other birding technologies do: freeze time. In securing an image of a bird, a birder no longer is under the influence of the agency of the bird. If the bird flies out of sight and away from sound after a photograph is taken but before an identification can be made, the birder has a durable record of the encounter. This record can be examined at the birder's leisure to attempt to make the identification. In this way, the time necessary to make an identification is infinite, as long as the image remains.

On April 24th, 2004, in the state of Arkansas, it was a video camera that captured the flight of a fleeting bird. Identity unknown at the time, the images were later offered as proof of the rediscovery of an extinct North American bird species. This re-discovery and subsequent debate about a correct identification of this photographed bird, helps, in part, to describe the nature of the contemporary relationship between amateur birders and the scientific practice of Ornithology.

The contemporary relationship between field birding and Ornithology

The Ivory-billed Woodpecker (IBW) (*Campephilus principalis*) was, or is (depending on your belief in their recent re-discovery) a large, omnivorous (but mostly insectivorous) and striking woodpecker whose pre-European contact range would have included most old growth bottomland forest found in the south-eastern United States. Their original range could be broadly described as

being from the Carolinas in the North to the Mississippi River in the west to the coasts of the Gulf of Mexico and Atlantic Ocean in the east and south (Jackson, 2006). These birds, their feathers, skins and bills found at First Nations' sites well outside their range (Jackson, 2006), have had significance for humans long before they were discovered by Europeans (and consequently, Western science). Due to habitat loss and collection, the IBW disappeared from south-eastern US old growth bottomland forest in the early 20th century, with the last confirmed record occurring in 1944 (Fitzpatrick, et al., 2005). Based on a video recording taken in late April, 2004 by M. David Luneau, Jr., members of the Cornell Laboratory of Ornithology and the amateur birders that located the IBW in 2004, published an article in *Science* reporting the re-discovery of the IBW (Fitzpatrick, et al., 2005). Since the publication of the 2005 Fitzpatrick article, researchers have been searching in earnest for further evidence of the existence of the IBW in the Big Woods region of Arkansas with little reported luck.

Since the last recorded official IBW observation in 1944 there have been hundreds of unconfirmed sightings of these birds (Jackson, 2006). Often these have been disregarded as unreliable because of *who* reported seeing the bird: at best, amateur birders who are aware of IBWs and who believe the bird they saw matched the IBW's field markings; at worst a truck driver that gets a fleeting glance of some big woodpecker that flies across an interstate. Prior to the professionalization of the search for the IBW in 2005, amateurs made important contributions in keeping an interest in the bird alive. Naturalists and amateur

birders are cited in literature about the re-discovery as key in monitoring and reporting observations prior to the 2005 announcement (Dalton, 2005). Since the reported re-discovery, narratives along the lines of "we've known this bird has been here all along" have emerged from people that have intimate local knowledge of the IBW habitat. Duck hunters, in Alabama and in Florida, report having heard IBWs for the past sixty years (Mennill, 2006). They suggest that they have kept the information to themselves because they feared that the re-discovery of the bird would lead to some kind of control or restriction on their ability to hunt. Now the question arises if the knowledge the hunters had was always legitimate.

Amateurs can be wrong in their wildlife observations and the story of the IBW is filled with miscues and misidentifications by those not considered professionals. Confusing this search is the presence of the Pileated Woodpecker (*Dryocopus pileatus*), another large woodpecker with an overlapping range that superficially resembles the IBW. The question that gets asked of these observations is: "Did they see a Pileated or an Ivory-billed Woodpecker?" And likely, because the IBW is supposed to be extinct, any observation of an IBW by an amateur is disregarded and the identity of the organism is transformed into a Pileated Woodpecker, regardless. This occurred with the Luneau video with the suggestion that the bird videographed that day in April was, in fact, a Pileated Woodpecker (Sibley, Bevier, Patten, & Elphick, 2006).

Birders, operating with the accepted practice of reporting rare birds, produce a sight record and submit it to a committee of para-ornithologists, or expert amateurs. Based on the quality of the submission, the committee decides to accept or deny the record. A sight record, which has no official format, tends to include the kind of information required to convince others that the bird existed and was observed. Typical sight records include: field marks; a comparison of size and shape to other "known" birds; how well the bird was seen; and how consistent observed characteristics "map" to the species in question (Grzybowski, 2007). Sight records are submitted to the appropriate rare bird committees for scrutinization, committees established for the purpose of creating long-term credibility of accepted reported observations.

The concern of ornithologists on the quality of information that amateurs collect is not a new one. This is why the IBW can be seen by some and yet not exist: a body has yet to be produced and the reported observations lack the rigour and purity inherent in accepted observations to be considered real. These evaluations of quality speak to how birds are and have been conceptualized as an object for scientific discovery. In addition to explaining why IBW reports such as Fitzpatrick et. al (2005) have been set aside, the history of the bird as scientific object impacts how field birding is practiced today.

Bird as scientific object: a short history

In the move to disciplinarity during the professionalization of the sciences, the world was seemingly split into more and more discrete chunks of knowledge

(Daniels, 1967). With this splitting of the world, the knowledge and techniques behind truth-making enterprises became more and more esoteric. As a consequence, the amateur had less to say (officially) about the world. In this sense, the power to make truth claims was reified in the hands of those with the expertise to use the techniques and access the knowledge.

Before the related core of practices and knowledge crystallized to become known as Ornithology, there was no distinction between professional and amateur when it came to the pursuit of learning about birds (Weidensaul, 2007). While the emergence of this official study of birds was gradual, ornithological societies began to appear in the 1870s and 1880s across North America (Quinn, 1995; Weidensaul, 2007) and signalled a change in practice. To date, knowledge about birds had been centered on the act of collection, distinctly enacted: knowledge was the compilation of the material bird and these birds subsequent classification. This act of collection, however, was not with mist nets. It was with an object at the time best suited for the task: the shotgun.

Shotgun Ornithology

In one sense, the early 19th century in North America was an age of discovery. As Europeans spread across the continent, species new to Western science were being found and described. Collectors were often deployed in vast, geographically distant networks, with natural history collections at the centre (Weidensaul, 2007). If a collector wanted to share the observation of a specimen collected from the western United States with a museum of natural history in the

east, it had to be somehow captured. At the time, there was no other quick or easy way to "capture" birds beyond a slug of bird shot travelling at 500 m/s. Firearms were a ubiquitous technology at the time, well suited for the purposes of collection and as a consequence, Weidensaul calls this the era of "shotgun ornithology" (2007, p. 107). Thus, in order to collect this knowledge about the more-than-human, birds were killed and eggs were collected all in the name of documenting these forms of life.

The gold standard, the ultimate representation of truth, in these acts was the physical body of the bird itself. Once collected, these specimens allowed the classification and ordering of the grand group of organisms we think of as birds. Slowly these specimens in the order Aves were mapped out to family, genus and species and an underlying understanding of birds' relation to each other began to emerge. The notion of species, as a tool for classification, marks an order in abstraction of birds away from the individual.

Biological classification

This focus on biological classification is so steeped in the practice of birding that it operates invisibly to shape the way that birders now approach the organism under observation: the act of observation is not an end in and of itself; rather it is a means to the end of identification. This means that every individual, while understood to be agents in their own right, is *better* understood as part of a species. Species are understood to be a collection of individuals, all sharing one true scientific name that then makes visible a concealed order of life. But the

grouping of biologically-like individuals into species is *the* organizing principal behind birding. When birders discuss birds, they use the species' names. And, phenomenologically, it makes sense as it is much easier to spot differences between individuals across species than within species. Birders, I found, lack the ability to see difference between individuals of a species. While some backyard birders can tell individual birds apart, it is through the presence of unique distinguishing features—a bald Blue Jay, for example—that intra-species identification occurs.

Shorebirds, such as those illustrated in Figure 3, below, are a challenge just to identify to species. Going beyond to distinguish between individuals is a challenge above birders. Amber shares her own thoughts on shorebirds' individuality:

> I am just amazed at; it's amazing to think about things like, "This bird knows that it's the same as that bird and knows that it's different than that bird." And yet to my eye, the difference is a single half line around the eye. And you look at that and you think, "Isn't it magnificent that there is that ability for those birds to self-identify."
>
> There's got to be more than that, but from my point of view, there it is. There's the half eye ring that it makes that bird that bird.

Birders clearly understand that birds are able to tell each other apart, but rarely, if ever, do it themselves. So, it is the ease with which birds visually self-organize into like groups that birders are recognizing; the gestalt of similar bodies. Implicit in this is the understanding that any individual bird seen has a fixed identity, there to be uncovered by the competent birder. As biological steps are

Figure 3: Shorebirds feeding and at rest along the Acadian Peninsula, New Brunswick. August 2007.

taken away from the species, biological classification begins to lose coherence. Yet, it holds sway over how birds are organized.

While common names are provided, contemporary bird identification books are organized taxonomically by family, with the Anatidae in the front and the Fringillidae in the back. This organization is meant to echo the evolutionary nature of birds—the "primitive" families are found in the front, moving through to the most "modern" family in the back. While it is fixed in a printed book (you cannot easily re-arrange bound pages), this classification is subject to change. *The Sibley Guide to Birds* (Sibley, 2000), for example, published six years prior to the 6th edition of *The National Geographic Field Guide to Birds* (J. L. Dunn & Alderfer, 2006) finds the Gaviidae kicking off the parade of families. Even the notion of what amalgam of bird species make up a family is open to re-interpretation by taxonomists. For example, it is the presence of nine—not ten—primary feathers that holds wood warblers "together" as a family (Sibley, Dunning, & Elphick, 2001). Apparent is the somewhat arbitrary nature of this distinction as "taxonomists have long found it hard to draw firm lines between the various nine-primaried songbirds and so at times have merged such groups…into one large family, the Emberizidae. However, the [American Ornithological Union] now recognizes separate families within the group" (Sibley, et al., 2001, p. 492).

In short, bird books are organized to echo the current accepted state of taxonomic knowledge—a field of study steeped in the granular detail of feather

counts and genetic analysis—and consequently, not open to birders to make their own meaning. Bird books, then, work to regulate just what kind of seeing occurs, their organization telling birders that: individuals seen have a fixed identity; that this fixed identity always organizes visually like-individuals into an organizational category called species; each species is understood to be distinct from each other yet, still related in a systematic way; and, most significantly, other ways of thinking about how bird species might relate to each other—by similar colour, for example—are not the accepted way to categorize what they are seeing.

A "new" Ornithology

For the physical sciences, the movement of research from outside to inside institutional structures created a distinct barrier between the professional and the non-professional. For others, including Ornithology, the practice of knowledge making in the discipline has been more diffuse with amateurs continuing to supplement the work of professionals (Lankford, 1981). Barrow reports that in the early 20th century, it was recognized by some ornithologists that "networks of birdwatchers might provide the raw data on distribution, migration and life-history to help forge a 'new ornithology'" (1998, p. 154). The activity of bird watching was proliferating in the United States: beginning during the last two decades of the 19th century, "thousands of middle- and upper- class birding enthusiasts were rushing to purchase field guides, erect bird feeders, and join Audubon societies" (Barrow, 1998, p. 154).

Feeding this movement was the recognition that bird populations were declining. Clearly, birds shot and killed to advance Western human knowledge had some impact, but a larger problem was the loss of bird life due to the societal fashion of collecting bird bodies for display in the home or affixing bird bits and pieces to hats. And there was a large market: it has been estimated, for example, that over 20 million kilograms of ornamental plumage destined for hats was imported into the United Kingdom between 1870-1920 (Doughty, 1975). Organizations promoting bird conservation, such as the Audubon society in the United States, emerged in reaction to this loss. With a membership growing to 48,000 in 1889, the Audubon society published a magazine with prescriptive articles designed to "make readers think carefully about the consequences of using and abusing birdlife" (Doughty, 1975, p. 101). Therefore, in the recognition of the bird loss, the emergence of the activity of bird-watching (Barrow, 1998) and the appearance of bird conservation organizations, a ground-swell of support materialized in the conservation of these species. Luk (2000) suggests this need to conserve bird species is the "Audubonizing" of birds and part of a trend of surveillance and control operating at a population level. An expansion of (human) population-level surveillance that emerged in the 18th century, this re-casting of birds as objects to monitor acted to "concentrate the biopower of birds in various ecologies, food chains, and countries to benefit humanity" (Luk, 2000, p. 19). Laws protecting non-game birds were passed in North America from 1900

onwards, culminating with the Migratory Bird Treaty Act of 1918 and an "ethic of surveillance" (Luk, 2000, p. 21) replaced an ethic of killing.

What appears to separate the amateur from the professional is the location of the subject or phenomena under study: the amateur can be excluded when data collection takes place in a laboratory; when discoveries are made in the field, the amateur has had and continues to play an important role. While the dichotomy seems to be created and maintained by the physical barrier of a laboratory, they key here is the visibility of what is accepted as empirical evidence: if the amateur can find and observe the object or objects with the assistance of readily-available technology, then there is a place, though regulated, for amateurs in the process of knowledge making.

Speaking about the hope for a "new ornithology" signalled a change in the object under study by those who were now called bird-watchers. With the deployment and adoption of field glasses, birds could now be observed at 3x to 10x magnification with the optical devices. This, twinned with the new message of conservation, allowed for the shotgun to fall out of favour as the collection device. The object collected was no longer the body, but the sighting. Questions about birds changed, too. No longer simply an act of cataloguing species by collecting individuals, Ornithology marked a shift of focus by asking questions associated with bird populations. To answer these kinds of questions, the object under study became the entire collection of individuals; the population. While seeing a single bird matters, it only matters if that individual is thought of as a member of a

species in relationship with the rest of a population. In this sense, individual birds are part of a larger, unseen, picture. It was only in their collective avian biopower, it was understood, that birds are allowed to perform their "vital ecological purposes in the human world's food chains" (Luk, 2000, p. 9). Whereas during the era of shotgun Ornithology, it was the specimen (a bird's material body) that came to represent a species, in the emerging era of a scientific practice concerned with migration, populations and distribution, sightings are key. As a consequence, the materiality of individual birds loses some relevance, marking a further abstraction.

Intriguingly, while questions of classification for birders moved to the periphery in the early 1900s, the gold standard still remained the bird body. Toronto ornithologist J.H. Fleming, for example, would only accept a species record—which is, as it sounds, a record of an observed individual, identified to species—in the form of a prepared and identified study skin, especially if it was in any way unusual (Quinn, 1995). Study skins are the same objects as those collected in the early 19th century: dead birds, their skin (and subsequently feathers) removed from their skeletomuscular system and stuffed. While a new Ornithology might have been underway, it did not mean that a form of shotgun Ornithology had entirely disappeared, or will ever disappeared—birds are still collected in the name of Ornithology and conservation (Remsen Jr, 1995).

A fragmented practice

In reaction to this notion of a new Ornithology, Barrow reports, "scientific ornithologists were far from uniformly enthusiastic about the growth in popular interest in birdwatching" (1998, p. 154). Their concern, echoed in the actions of Fleming's need for study skins was with the potential for factual error in the proliferation of sight records (Barrow, 1998). The concerns raised by ornithologists at the time are, then, not solely questions of accuracy. They are questions of expertise, trust and truth as the production of these sight records "represented a threat to the authority of the scientific discipline they had struggled long and hard to construct" (Barrow, 1998, p. 155). The distributed nature of amateurs, and the inability of experts to vet the factuality of each of these observations threatened the network of ornithological knowledge-making. Ornithologists were working hard to entrench their set of practices in the creation of bird knowledge as an obligatory passage-point, a term used by Callon (1986) to describe how some actors in a network can act (or, at least attempt to) to focus or direct other actors, with power in this arrangement lies in the ability to require other actors to pass through a particular point. "This," they were saying, "is the right way to describe the world of birds." And birders listened.

As a result, a fragmentation of practice took place across eras. Amateurs were welcomed to contribute to the official knowledge about bird populations through regulated means: reporting bird sightings to a committee of experts in identification. It was understood, however, that when it came to prove

uncorroborated sightings, it was only the physical body of the bird that could make the observation count. This was a subtle power play where the science of Ornithology positions its followers at the gateway of legitimate knowledge. "Sure," they seemed to say, "you can contribute on our terms, but the moment we question your expertise, we require an object you cannot (easily) produce to prove your claim."

So, killing birds fell further and further away as a legitimate practice for amateurs. Dr. W.E. Saunders was my grandfather's birding mentor and described as London, Ontario's "eminent naturalist" (Judd, 1964, p. 402) of the early 20th century. My grandmother, writing in her memoir, shares a birding story that took place circa 1945 illustrating the historical schism between these two practices:

> During the war it was hard to get speakers for the [McIlwraith Naturalist Club] meetings. You could always have Dr. Saunders come in and bring some of his specimens and give a talk on them.
>
> Later on, I can remember when it was reported that the Golden and Black-bellied plovers were seen on the sod farms north of Melbourne. [A young man] at that time was a teenager, I suppose—he was still wearing pants that came to the knees and then wore high socks so he was not full-grown by any means. Knowing that Dr. Saunders always had specimens—proof—and that people were questioning whether these birds were actually there, [the young man] arranged to go out and shot two. Then he announced it at the club. And such a furor arose. The McKones were all for never shooting anything. (Girling, 2008, pp. 119-120)

It is clear what happened here. The traces of a past set of practices still lingered in Dr. W.R. Saunders: "W.E. was half indulgent, having done it himself over the years and knowing the time had come when [shooting birds] shouldn't really be

necessary but thinking that maybe this was a time [to stop]" (Girling, 2008, p. 120). The young man, wanting to prove the existence of the plovers north of London simply enacted a passing set of relations, with serious social consequences among the community of naturalists.

Regulation

If the bird specimen was not available to amateurs to support claims of existence, then sight records would have to do. Specimens act as the gold standard because they offer an immutable opportunity for third party scrutiny. Rigour comes from the close inspection of the body and the comparison to other bodies. Bodies are material. With value now coming from the act of recording and reporting bird sightings, rigour would need to emerge elsewhere. Thus began the regulation of bird sightings. Experience being somewhat immaterial in nature, open to reinterpretation, misinterpretation and even falsification, it would only count when controlled. As a reaction to this perceived need for rigour, amateurs policed their own ranks to ensure the "quality" of bird observations. My grandmother, again, writes in her memoir:

> So I sat in the back seat of the car with Mr. Dale, and I was just thrilled to think that these people could identify birds just by looking out the window and seeing their wings. It was something I hoped that I would one day accomplish.
>
> They were very, very cautious about accuracy and I was warned never to say, "I saw such and such", but to say, "I think I saw such and such." Because, until you were an expert, you didn't put anything down as a record. There had to be somebody who had authority to okay it first. (Girling, 2008, p. 122)

While an experience that took place in the first half of the 20th century, her story of expertise and authority holds true today. As Mara, an intermediate birder, stated simply: "There is a pecking order for birding." Daniel, who I interviewed in Toronto, explained the phenomena:

> There's certainly a hierarchy among birders. There are the top birders everybody looks up to and there's a lot of vying to be the best person that is identifying this group of birds, or that group of birds, or birds in general. I'm very competitive but that kind of competition doesn't really turn me on a whole lot.

In the movement to collect rigorous sightings records, different layers of birders emerge, stratified by perceived ability. At the zenith is a corps of para-ornithologists steeped in the intricacies of identification who use their experience in identification to officially and unofficially regulate the acceptance of bird sightings. These para-ornithologists act to police the boundary between amateur observations and professional inscription: once a sight record is accepted, it can enter the established networks of official knowledge of birds. Much like my grandmother waiting for the authority of someone more experienced than her to say, "Yes, that was an *X* you saw," expertise is a characteristic of practice that birders are trained to respect.

The sighting as object

Traces of this trajectory continue to be seen in the field birding community to this day. Writing about the importance of birders submitting sightings, the Ontario Field Ornithologists suggest that "in most cases a Rare Bird Report cannot replace the value of a collected and preserved specimen, but certainly a

fully documented sighting via a Rare Bird Report has much greater value than an undocumented sight report" (Ontario Field Ornithologists, 2010, ¶ 5). Because bird reports, when compared to undocumented sightings, promise to retain their significance over time, value comes from the act of turning an observation into a durable record. Implicit in all of this is the understanding that these rare bird reports are being collected to further our scientific understanding of birds. And this is not an insignificant or unworthy practice. Rather, what it tends to do is steer all acts of field birding into acts of documentation. Value emerges when birds are identified, recorded and, as inscribed objects, submitted for analysis and scrutiny. It de-values the experience of emotions, the presence of the unidentified bird and the larger ecological context of a day spent birding.

Bird sightings, as the current object of study, act as a proxy for specimens which are, in turn, a proxy for the living organism. The act of field birding, as having emerged from and in collaboration with the science of Ornithology, frames the bird as seen in particular ways: it could be said that individuals lack individuality. Rather, they are parts of some larger object: a member of a species and a part of a population. Because of these perspectives, birding operates at the level of the species, where first-hand encounters are abstracted away from the individual bird. This has had consequences for the official practice of birding. In emphasizing the meta-individual and in conceptualizing the sighting as the object under study, these acts dematerialize birding and subsequently hide the larger context of practice.

Citizen science and para-ornithologists

It is safe to say that birders and ornithologists are still operating within the tenants of a "new Ornithology" that emerged in the early 20th century. Birders have been recognized as having had a significant impact on the kind and quality of data that ornithologists have been able to collect in the past 100 years. Contemporary projects are visible all over the place: most, such as state or provincial breeding bird atlases (Petersen & Meservey, 2003), the Christmas Bird Count ("History & Objectives," 2007) and Project Feederwatch ("What is Project FeederWatch?," 2002) are examples of citizen science at work. Citizen science is defined as "volunteers who participate as field assistants in field studies...they are not paid for their assistance nor are they necessarily scientists" (Cohn, 2008, p. 193). With an interest in birds and the right kind of observation technology, a motivated person has the opportunity to participate in these knowledge making enterprises and these citizen-science projects have been recognized in the ornithological literature as the source of "good" scientific information (Lepage & Francis, 2002; Lepczyk, 2005) about birds and bird populations.

Within Ornithology, this is especially true for one distinct area: the tracking, over time and space of populations of birds. Studying living organisms provides a challenge for those doing scientific research on bird populations and conservation: birds do not begin by existing within the walls of a laboratory. They need to be observed, recorded, collected—their bodily presence becoming an inscription—to end up in the hands of ornithologists. Thus, these citizen-science

projects act to order, integrate and legitimize this knowledge into the dominant ornithological field.

In describing how different kinds of knowledge enter into official accounts, recognition by the dominant ornithological worldview may not be the right word. Perhaps acceptance is better. Better, in part, because a single observation of a yellow warbler (*Dendroica petechia*) in a cattail marsh on the shores of Lake Erie during the month of June offers little to the science of Ornithology in and of itself. Rather, it is the aggregation of all reported observations anchored in their specific places and at different times that gives this information its power. For conclusions to be made on a continental scale about the migratory and breeding trends of bird populations, this requires the collection of thousands of inscriptions.

In practice this is the limiting factor of ornithological field work: Ornithologists are corporeal beings that can only be in one place at one time. As such, there is a need for more data than they can generate on their own. They need a distributed and diffuse network of inscription devices to collect bird inscriptions. That distributed and diffuse network? Birders. Recruited by citizen science projects, they often work reproducing the hegemony of science by enlisting citizens to do its work in the "right" way. Through this distributed and diffused network of actors, Ornithology has access to data that would, without birders, be otherwise unavailable.

Amateur birders, however, are not just inscription devices. Rather, this is one enacted network out of many possible; a particular assemblage of birds, technology and people. It would seem, then, that birders have been interessed (Callon, 1986), by ornithologists into a network of relations with the birds they observe, the landscapes they observe them in, the citizen science projects they report their observations to and the ornithologists that use this data to uncover the seeming realities of bird populations.

Callon (1986) suggests that the concept of interessment is the ability of one actor to lock other actors into place within a particular network of relations. The actors in any particular network only becomes static as they become enrolled, where "a set of interrelated roles [are] defined and attributed to actors who accept them" (Callon, 1986, p. 211). These networks of knowledge, then, are a distinct power-play, where an actor or actors jostle for a distinct position of power over other actors in the network. Existing as heterogeneous mixture of relations and exchanges between the actors, power is enacted in these networks as one actor is allowed to speak for the rest of the actors in the network. Ornithologists, through their participation in this network gain access to a better "truth" about bird populations, and in turn, get to speak for birds in the language of changing population dynamics. In reducing birders' engagement with the more-than-human world to that of simple note-taker, Ornithology gets to speak on behalf of birders too.

It is difficult to know if amateurs participate in these projects to achieve the same ends as professionals: to improve the quality of scientific data about birds. Amateurs have been participating in citizen science projects like the Christmas Bird Count for over 100 years ("History & Objectives," 2007). Provocatively, let me suggest that in some instances birding is a reaction against the professionalization of the study of birds; that birders are getting something more out of the relationship than being a scribe. What then, are birders getting out of the act? The opportunity, perhaps, to engage meaningfully with the more-than-human.

Beyond inscription devices

Birders collect more than just inscriptions, in part, because they move through habitats and make observations, over days and years on an ecosystem level between the connections that matter significantly to the lives of birds. Birders engage with birds' immediate environment, and a bird's presence appears to be a catalyst for making the rest of the outdoors, as Sheri says, "much more meaningful." Knowledge about birds is always generated in-place, in relationship to the other living and non-living parts of the environment. Sonya told me that as she began to bird, she would look for:

> ...photographs because I thought that I would go into the woods and see, um, a picture of a bird. But then, your first stage, moving from abject beginner you realize that there is a strata in the forest. You've got to look where to look for which bird. So you look for a Louisiana Waterthrush at the edge of the water or wherever and you look for a woodpecker on the side of a tree.

Birding also changes personal perspectives. Jordan, a birder in his early thirties, describes how the act of birding changed what he valued:

> Because I took geology option in school and I was working exploration with a mining company for few years and I think if I hadn't...not sure how I stepped back from it, if I would have been obsessed with the marriage, the kids, the house, the things like that. I would have been working for one of these giants instead of...
>
> I could never work for [companies like] that any more, like we talked about the tar sands and talked about employment with that and now seeing that, I could have been involved with that as opposed to someone who is disgusted by it.
>
> In a way birding sort of saves you. Just having something to be attached to. That shows your appreciation or shows how precious the outdoor life is.

As a consequence, it can be said that birding is a practice that is deeply embedded in the living world around it. The kind of knowledge that comes through these kinds of sustained observations is often called natural history. I am offering the term to describe contemporary practices that create different networks of relationships between the human and the more-than-human world; practices that do more to trouble the boundary between the two then reify it, often a criticism of a strict scientific worldview. The larger ecological context is deeply implicated in the practice, but often gets stripped away as birder's observations are turned into records. Attentiveness to the agency and subjectivity of the world beyond ourselves is an exceedingly important skill to cultivate. Acts of watching birds can allow for experiences that open birders to the agency and subjectivity of

the world: going out with the intention of going bird watching is quite different than actually seeing birds.

To be successful in this practice, it requires an understanding of the lives of the bird species that a particular birder is interested in. Ecological context is key: simply put, a birder does not go to the woods when they want to see waterfowl; a Trumpeter Swans' (*Cygnus buccinator*) preferred habitat is not land-locked. Bird watching, then, is a form of natural history knowledge where knowledge is created in specific context of time and place creating a personal space of engagement between the human and the-more-than-human. A birder's experience with birds, and the birds' larger ecological context, offers the possibility to see beyond strict anthropocentric frames of reference.

Technological advances have occurred that may mark the end of the era of "new ornithology" and the beginning of another in birding. These advances are part of a larger societal movement towards the prominence of digital objects. Durable and ephemeral at the same time, digital objects have already begun to change how birding is practiced. Adopted by the science of Ornithology, they threaten to replace the amateur and in so doing, are changing the way that birds are inscribed. While a simple statement, the implication of this fact is that as a consequence, the way that birds are known is changing.

Digital objects: birding with 1s and 0s

According to technologists and computer scientists, we are entering the age of ubiquitous computing which promises that "all the information we look to

our phones or Web browsers to provide becomes accessible from just about anywhere, at any time, and is delivered in a manner appropriate to our location and context" (Greenfield, 2006, p. 1). While this all-anywhere-anytime paradigm remains a promise, the recent proliferation of smart phones connected wirelessly to the Internet means that, for example, information that was once inaccessible or fixed in place now mingles with us in more and more places. The products of these technologies, digital objects, while they serve a similar function to their analog counter-parts, are immaterial. Or, I should say, have the appearance of being immaterial. No paper object precedes the digital, for example, in digital photography. Rather, light travels through the camera's objective lens, hits an electronic sensor and is translated into 1s and 0s, stored as bits of data on chips. Those bits can be moved with ease across vast distances at the speed of light. These characteristics of virtual form, speed and accessibility have all combined to impact how, in comparison to their physical analogs, these objects are used.

Sharing sighting: the Impact of OntBirds

Birders, according to my research, have embraced the Internet for information about birds. Norman, a birder for over fifty years, describes how he now uses the Internet as a source of information:

> N: But you asked about what sources I use. Another source is the data on the Cornell Ornithological Labs web site. It's got a lot of good stuff there.
>
> G: That's life history data, that kind of stuff, or are there other things there?

> N: Well, they have recordings of songs, and there's a book on how to identify Canadian birds or North American birds by song.

These websites add to a suite of resources birders have for general information about birds. While these websites allow straightforward access to this kind of information, it would seem that the Internet is seen most importantly as a conduit of bird sightings. When I asked how interviewees decided where to go on a particular day, birders would often cite the Ontario Field Ornithologist's (or OFO, for short) OntBirds LISTSERV as a source of information (often the primary source) for sightings. Take Barbara, for example: "And back to your question though, what makes us decide where we're going to go and why. Well we read the [OntBirds messages] everyday. Well we get it twice a day. And if he, we both work so we can't just sort of drop everything and take off unfortunately. So we make our plan for the weekend based on what's been reported in and around."

Sharing bird sightings is not a new practice in birding. When I was a child visiting my grandparents, I remember the phone ringing, my grandparents answering and getting the latest news that species *X* had been seen at location *Y*. As members of the local field naturalist club, they were part of a telephone tree that spread news about rare bird sightings. After they collected the information, they would then call the two people "below" them in the tree. I imagine that in short order, the information about the birds was disseminated. So the practice has not changed. But the technology has.

The combined effects of a low barrier to entry and amplification

I believe that LISTSERVS, in comparison to the previous technology of the telephone tree offer such a low barrier to entry (getting the information) that the social cues and rules that controlled behaviour when watching birds have been greatly reduced. I also believe that the sightings are so easily shared, that they can get amplified (shared) beyond the original (and perhaps intended) audience. Let me explain in more detail.

The telephone tree network

In order to get access to the network of bird sighting information prior to the Internet, my grandparents had to *at least* join their local field naturalist club. More likely (and I know this is the case in their case) they became involved with the organization and the people who were also club members. They knew the person who called them and then they knew the people they called. They became a community of practice, where social knowledge of individuals was a part of the practice. Yes, it was a smaller network and required more effort to get the word out (what happened, in days prior to answering machines, when you were not home?), but I think this worked to the network's advantage. This does not mean that there were not examples of birders harassing birds, but I suspect that given the fact that birders provided with rare bird sightings knew that they were operating within a distinctly social sphere—their actions were being watched and they were known to other birders. Their poor behaviour, if observed, would impact their future ability to get reported sightings.

Norman, the long-time Toronto birder, was a part of a birding telephone tree, or hotline. He shared with me how friends would make decisions about sharing bird sightings based on the status of the bird and the quality of person that they would be sharing the information with:

> N: [ui] about its security. They [wouldn't] tell people.
>
> G: So people are using their—using the telephone system, in a sense, their hotlines –
>
> N: To limit the extent of the knowledge.
>
> G: The exposure. Because they're concerned that the—it's typically with birds that either will be disturbed by other people, or –
>
> N: Right. Or was ones that are likely to be disturbed.

Simply, if the bird was too rare, he said, the decision would be made *not* to pass on the information.

The LISTSERV network

Today, to get bird sightings from Ontbirds, you simply need to supply an email address. Sightings are broadcast to all subscribers. Non-subscribers can visit any number of websites that take the reported sightings and collate them into webpages. No pre-existing social relationships necessary, no missed phone calls, no (rightly or wrongly) judgements of character—the information flows easily and freely. This proves to be great for getting the word out and sharing sightings. But what about for the lives of the birds reported? It is a rhetorical

question in my mind because I am going to suggest that it is *too easy* to get the information out.

This leads precisely to the situation where the Ottawa Field Naturalist Club has had to stop reporting owl sightings on-line due to perceived harassment by those looking for the birds (Ottawa Field Naturalists Club, 2010). These incidents of harassment could be exacerbated by an increasing population of birders—the percentage of "birders behaving badly" remains the same, but there are more incidents as a consequence of a higher absolute population. Thankfully, most birders continue to act in a responsible manner. Enough birders show poor judgement, though, that owls are stressed by the behaviours of some birders who turn up to see them.

In the proliferation of reports, as a digital format broadcast on-line, significantly more birders are finding out about bird observations from around the province. As a consequence, birders' geographic location and social relationship to the reporter have less, if any, relevance. In turn, desirable birds' locations are known to more and more people. Thus, digital bird sightings, while working to add shelf life to the perishable nature of bird sightings, offer a new set of challenges, namely concerning the relationship between birders and birds.

A new kind of vision: Doppler weather radar and migration

Being able to predicting the "whizzer day" or, in general, where to find the best concentration of birds has always been a challenge for a birder. This challenge is perhaps at its greatest in Ontario during spring migration as birds

are transient beings and where they were reported yesterday is no guarantee that they will be found today. Over the past century of bird watching, no reliable method or technique has been developed to know or predict when birds will appear in a particular place. As a consequence, a day birding is full of unknowns. While a birder can use previous experience, and often looks to the weather conditions to make a prediction of a "good day," it is only through the first-hand experience of looking for birds that a birder knows if bird species are present in any numbers.

The unpredictable nature of bird movement means that field birding constantly reinforces a sense of discovery. Bill, who has been birding for less than five years, described what now draws interest to birding: "I think discovery. As perhaps we're moving beyond a beginner level, and get drawn into it more, and more. There's always more to see. There's more breeds. There's more species. Yeah, it's curiosity." Rachel Carson wrote of cultivating a "sense of wonder" (1956) with the more-than-human world. While explicitly focused on this sense in children, I do not believe that a potential for wonder disappears as one crosses an imaginary threshold into adulthood. In describing the mixture of a sense of discovery and a curiosity about the birds he has yet to see, I believe that Bill is also describing what Carson would call wonder. Wonder that is created, in part, by the unpredictable nature of birding.

Doppler radar

Spread across the United States and Canada lies a network of 190 high-resolution Doppler weather radars (31 stations in Canada and 159 in the United States). Given the technical name WSR-88D, each station consists of a 6.1 meter radar dish sitting atop a platform elevated above its immediate surroundings. These stations use what is pulse-Doppler technology, part of the on-going evolutionary advancement of radar technology, to paint their weather picture. Covered with a spherical protective bubble of radar-transparent material, the antenna slowly rotates, emitting a tight beam of microwave energy in 10cm wavelengths. As the beam of energy travels out in a straight line from the antenna, if it "hits" something, some of that energy is bounced back to the station. So, emitting microwaves and detecting their return is how a radar station creates a digital image its surrounding world. WSR-88, in particular, were deployed to "provide meteorologists with a powerful tool which helps in determining motion and structure within weather systems" (Meterological Service of Canada, 2005, ¶ 2). Yet other, unanticipated uses have been identified beyond strict meteorological ends. The narrow beams of energy do not discriminate: they will bounce off anything in their path. And during spring and fall evenings, they bounce off flying birds (Diehl, Larkin, & Black, 2003), creating distinctive doughnut-shaped returns. See Figure 4, below, for an image of migrating birds moving north on the night of May 1st, 2008.

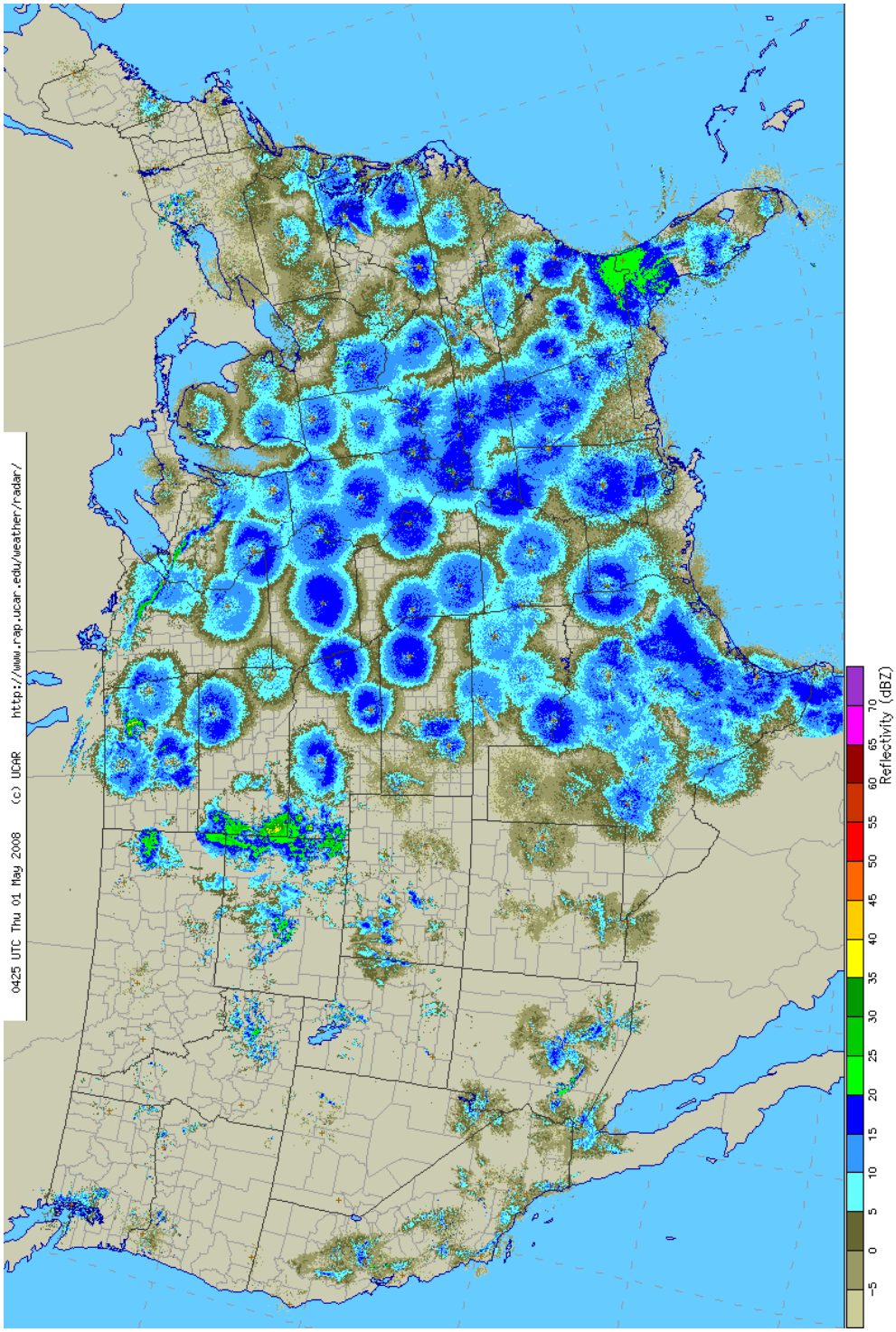


Figure 4: Concentric circles indicate radar returns from the bodies of migrating birds on the night of May 1st, 2008. Radar returns of rain, for comparison, are visible over the western United States.

Birders work hard to see birds. As I outlined earlier in the chapter, many objects have been used to help render birds visible—from books that outline where birds should be found to the physical act of pursing lips and pishing. "Pishing", for example, is an act of mimicking the noise a bird makes when it is under threat, usually by a predator. Small perching birds react to this sound and often come in to get a closer look. By pishing, a birder is often able to draw bird out of hiding, changing the nature of its visibility. Camouflage clothing changes how a bird sees a birder, making it easier, birders such as Roland believe, for a birder to remain undetected:

> The thing I like too...the camouflage, the first two years, just wore basic clothes and then the just came across camouflage clothing. I came to find, you are on a trail somewhere and you come up on a nice pocket of birds and you can just sit there, whether you have binoculars or, say use for example, binoculars, you can just sit there and admire them and the birds, you are not spooking them off. You are just going around their business. I just like it because you can blend into the surroundings.

With the exception of books that outline where birds can be found, these technologies require a situatedness in their use; they are not deployed in isolation of other birding acts or out of context.

None of these technologies, however, provide a way to easily see a real-time image of where birds are and where they moving to. This is the new visibility that radar images provide. Websites, such as woodcreeper.com which focuses on bird migration in the state of New Jersey, interpret these radar images and provide a forecast of the quality of the next day's birding. Birding hotspots, such

as Point Pelee National Park, post (see Figure 5, below) the previous night's radar image. Birders are now able to monitor migration from their desktops and make a decision about the anticipated quality of birding based on interpreting these radar images.

As another tool available to birders, it works to increase the predictability of seeing birds. Monitoring these flights can make the relationship between weather and migration visible and further contextualizes the act of migration. They reinforce or "prove" understandings of migration that birders developed prior to the deployment of radar. In the spring, for example, southern winds often coincide with a large flight of birds. Coupling weather forecasts and radar images now shows evidence this phenomenon and what was largely invisible become visible to us.

Access to these radar images subtly re-frames the field birding experience. Now that birds' presence can be predicted, there can be less motivation to go out birding on a morning that the radar shows has had little migration activity. While radar is not a discrete enough tool to identify the species of birds that are migrating, it is one step towards removing the unexpected. Radar's use as a prediction tool is an attempt to domesticate—bring further under human control—part of the act of watching birds. Figure 5, the radar image posted at Point Pelee, is titled "Image of the BIRDS". That emphasis on birds (underlined and in caps) gives the impression that somehow these images are offering an objective truth about migrating birds.

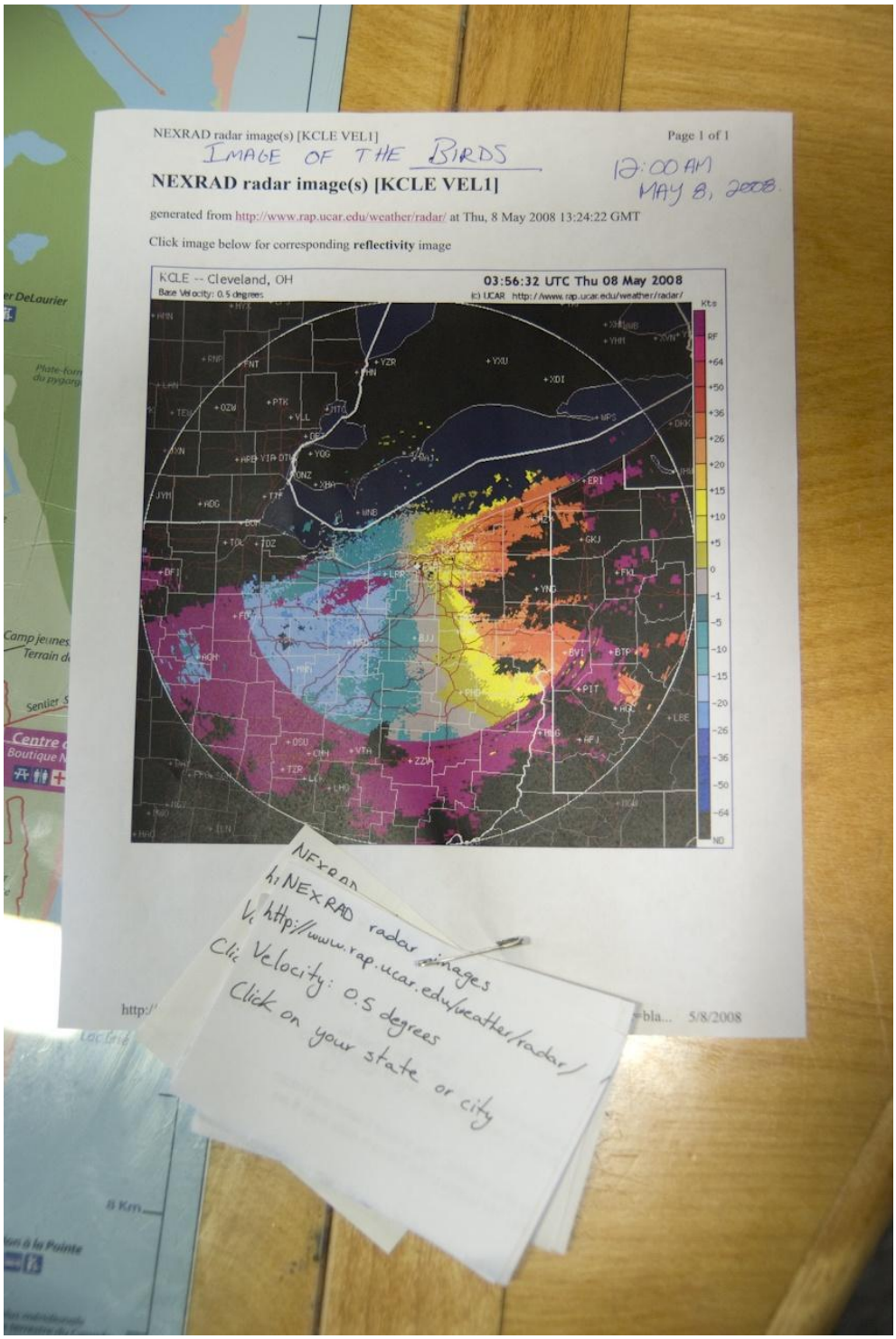


Figure 5: NEXRAD radar image posted May 8th, 2008 at Point Pelee National Park, titled "Image of the BIRDS"

It is, however, important to remember that these are images that are interpreted and, thus, open to misinterpretation. Pollen, insects and bats, for example, can all be detected by these radar arrays. Radars can malfunction, or lack complete vision—missing parts of the sky due to fixed objects, like mountains, blocking radar beams. While interpreting radar images is not beyond the ability of any birder with an interest, it requires cultivating something of an expertise in reading these radar images to discern just what is being seen. Thus, birders unfamiliar with these details can turn to websites, like woodcreeper, to get that forecast. This moves the responsibility of interpretation elsewhere, erasing what is involved—cognitively, technically—with making the forecast. This recognition of interpretation and technological limitations can foreground that these images are not a new vision of BIRDS but a mediated version of the more-than-human, filtered through microwaves, antennae, websites and our own judgement about what is out there. While rendering something that previously was mostly invisible to us, it cannot provide, as promised, a whole version, or perfect vision, of the phenomena.

Optics, images and the digital image

As I have written, birding is an activity of watching. When out birding, birders are actively looking for birds, see something that might be a bird, raise binoculars, watch the bird and begin the process of identification. But what if we return to that moment of seeing? As John Berger wrote, seeing "establishes our place in the surrounding world; we explain that world with words, but words can

never undo the fact that we are surrounded by it" (1972, p. 7). I have echoed this sentiment by describing multi-sensory orientation to the world that seem to underlie all acts of watching birds. Yet, most acts of watching I have experienced are never unmediated—because birders are interested in a better look, escaping the boundary of their own biological limitations, objects are deployed in order to get that better look.

Binoculars

Being able to see a bird in such way to be able to identify it is so important to birding that in my own research, birders have marked their beginning moment as birders with the purchase of binoculars. David, a birder I interviewed at Rondeau, describes that moment:

> In 1981, I came home from a trip with my family. There were three birds in our yard that were about the same colour as that oriole feeder. And they turned out to be early season scarlet tanagers. And at that point, everybody went to the store for binoculars and it's been that way ever since.

It could be argued that without the proliferation of field glasses, then binoculars, that the current practice that we now know as birding would not exist. Yet, historically, they became easily available and the particular configuration of objects and practice we now know as birding exists. There have been voices within the field birding community (Eubanks, 2007) calling upon birders to put down their binoculars and use other observable signs—namely behaviour—to identify birds. These calls, more than anything, act to reaffirm the central location of optics within the practice of birding.

While the act of birding *can* occur without binoculars, it most often does not. Binoculars are viewing instruments where objective lenses, prisms and ocular lenses are neatly wrapped in twin plastic and metal containers light enough to hang comfortably around the neck by a strap. In this particular configuration, these twin optics act to collect the visible part of the larger electromagnetic spectrum via the objective lens. Through the tricks of lens shape and light bending, they focus the beam of photons into an image visible though the eyepieces. While the physics describing this process are straightforward, users of binoculars do not need to have any explicit knowledge of the process occurring between their hands for their successful use. In this sense, they are, as Latour (1987) described, a black box: they hide away the many objects that come together to become binoculars. Using binoculars becomes second-nature: see bird shape, lift binoculars to eyes, find bird. Arguably, they become a cyborgian extension of a birder's sense of sight and own body, as Haraway (1991) might suggest there is no separation between bodies and objects. So normal is the use of binoculars that any thought to just what birders are seeing through the eyepieces of binoculars is left unexamined.

A Blue Grosbeak (*Passerina caerulea*) was seen regularly at a Rondeau Provincial Park campsite during the spring of 2010. A species that nests in the southern United States, its presence was noticed, reported and birders came to try and see it. One of those birders was my father and a group of companions. Arriving at the campsite where it had been regularly seen, the group was greeted

by some birders who had been there for a while. “Oh,” they said, “you just missed it by five minutes.” My father expressed regret. A birder, who had been present earlier, walked up to my father and asked if he wanted to see a photograph that he had taken of the bird. My father said yes, and he was shown the ten-minute old photograph: visible on the back of the camera was an image of the blue grosbeak at the campsite. It started to rain. The grosbeak did not return. His companions, who had all previously seen a blue grosbeak, wanted to get going. So they left. As they returned to the car, my father said, “So, I guess I can say I saw a blue grosbeak.” His companions stopped, turned and replied, “No you can’t. You just saw a photograph.”

The word binocular is a conglomerate of two Latin words: the prefix *bi-*, meaning two and *oculus*. *Oculus*, translated into English, means eye. We use the term binocular to describe more than just optical technology—it also describes how we see. To have binocular vision means that we are organisms with eyes configured such a way on the front of our head that each eye’s field of view overlaps. Where they overlap, we sense depth. As a result of our evolutionary history as primates and omnivores, we do not have eyes located on the side of our head and, as a consequence, while we have depth perception, we cannot see behind us without turning around.

Birders, with binoculars pressed to eyes, do not think of the focused photons streaming out the eyepieces as being anything other than the bird, just closer. Yet, they are not seeing an unmediated sighting of the bird. They are, in

fact, seeing an image of the bird. Binoculars work to do one thing: magnify an image. We turn again to John Berger, who suggests that an image is "a sight which has been recreated or reproduced...detached from the place and time in which it first made its appearance" (1972, pp. 9-10). With Berger describing human-made images—photographs, works of art—it is easier to understand what he means when implies reproduction and detachment. These images are durable objects that can be touched, transported and have the potential to have an existence beyond the creator.

The term *Oculus* is used in another context significant to understanding our relationship with these images. At the apex of the Roman Pantheon's masonry dome is a large, round opening known as the *oculus*. Within architecture, the use of the term *oculus* to describe round openings at the top of domes continues. With a rudimentary understanding of eye anatomy, the *oculus* becomes the Pantheon's pupil with the surrounding dome resembling an iris. Light streams in through the opening, hitting the interior walls like they are the building's retina. As the only source of light, the metaphor is apt. The Pantheon's *oculus* is open: not only does it allow light, but it also allows rain. It is more, then, than just an eye. It is an opening through which the outside literally enters the inside; the metaphorical more-than-human (in the form of rain, light and, perhaps, pigeons) entering the human (the Pantheon as a product of human culture) domain. Let me suggest that a notion of the eye as a permeable barrier between our self and the rest of the world is hinted in the opening's name. This

then means that other *oculi* can also be thought of as offering entrance and opening to the more-than-human.

In reproducing a sense of depth, in transmitting the visible portion of the electromagnetic spectrum with fidelity, in bringing into being a product that cannot be held, binoculars' images are thought of as an extension of our sense of sight rather than a reproduction. Binoculars become—literally—*bi-oculus*: two eyes, a human creation that extends our own biological being, so well suited to allowing the more-than-human world to enter that we have little idea that what we are seeing is, in fact, an image. And that, if there is a danger here, is the risk of binoculars. The image birders see in their binoculars is understood as an extension of reality rather than a product of it. In not being aware that it is an image that they are looking at, birders are less aware of the context within which the image is made. The image that binoculars create may go unnoticed because of their ephemeral nature. They are not physical objects, like a canvas. They do not move, as Berger suggests, across time and place. Yet they *are* a detachment, an abstraction, from an unmediated encounter, a cyborg extension.

That they are so prevalent in the practice of birding that one is not a birder or that one is not birding without them, then they are, in two senses of the word, a prop. In one sense, their presence signals to others that you are a birder. Binoculars make a claim visible to the rest of the community: they maintain a boundary between the dichotomy of birder / non-birder. As such, they enact bird watching. In the other sense, they support, or prop up, a particular relationship

with the more-than-human. By facilitating the magnification of birds they hasten the imperative to identify. They also force a physical distance between subjects—binoculars are employed because birders often lack the patience or will to take the time to approach birds. Without access to this optic, birding would have to take a different form. Perhaps birds' would not allow themselves to be approached closely. Or more birding would be done by ear. Certainly, more birds' identities would go unfixed.

Binoculars are, however, part of a larger continuum of technologies that augment birder's sense of sight. And binoculars' image, while perhaps governed by the same physics, are not qualitatively the same as those other technologies. Yet, when you look at the objects—binoculars and cameras with telephoto lenses—they are largely the same: they gather light, bend it with lenses and project the resulting image on a plane. The qualitative difference is visible in my father's birding companions: a photograph of a bird is *not* the same as seeing a bird through binoculars.

Digital cameras

Wildlife has long been the subject of photography. So compelling the is animal subject that, when film required exposures much longer than any animal could be expected to stay still, photographers would compose shots by placing taxidermied subjects *in situ* and exposing the film (Brower, 2005b). These images of dead animals were the first versions of wildlife photographs. Subsequent versions have come and gone with the deployment of new photographic

technologies: faster film, brighter lenses and lighter cameras all changed what wildlife photography looked like (Brower, 2005a). The most recent technological iteration has seen the roll of film replaced by a sensor. In turn, images are captured digitally and the photographs move and proliferate in ways likely unimagined by those exposing emulsion plates to stuffed animals 150 years ago.

Birders, while they may not have considered themselves wildlife photographers, included cameras as a supplement to the activity. Since the move to digital photography, birders have been adopting the camera as a larger and larger part of their practice. Cameras have become so widely adopted, in fact, that their use may mark a generational change between birders: others have noted that beginners are now starting, rather than with binoculars, with a camera (Engblom, 2010). Danny echoes this movement away from binoculars:

> G: Interesting. What do you bring with you when you go birding?
>
> D: I don't bother with binoculars usually. I bring both of my cameras and I like to have my field guide and of course I have to have a pen or a pencil. That's pretty much it.

Something about the movement of technology, I propose, has allowed this change to take place. Joshua, a birder for over fifty years, describes what has changed for him since he switched to a digital camera:

> J: Oh, I guess first serious camera use was about 1968 or something like that, and gradually upgraded. I went to digital I guess 7 or 8 years ago.
>
> G: And have you noticed a difference with how you use your camera since you've gone digital?
>
> J: Well you're not worried about how much you shoot.

This is the liberation that the transition to digital photography allows: photographers are not limited, to the same extent, in the photographs taken. While a roll of film would have allowed at most 36 images before needing replacement, and that roll would have required development before being able to see the images, now the product is visible immediately, never has to be printed and hundreds, if not thousands, of photographs can be taken before needing to change the physical media.

The ability of a camera coupled with a telephoto lens to collapse space and freeze time is the primary appeal of cameras in birding. The nature of these affects coupled with the digital product, is changing how cameras are used in the act of field birding. One visible modification is the changing nature of identification. While birding, I experienced another birder making an effort to photograph what she saw. After taking an image of a bird that she did not know, she remarked to me that she would just wait to go home to make the identification. Cameron echoes this perspective as he talks about what he might do with a camera, birding:

> Where, if I end up getting a camera, and it will be something that I will take with me, and I'll likely every so often take a picture. Part of that, I think, is to help identify birds that I am having trouble with and that.

Taking a picture of a bird freezes it. No longer, in these cases, does the fleeting nature of the bird's presence matter to making an identification–or it matters insomuch as it needs to last long enough to "get" the photograph. When at home,

birders now upload the file to a computer, look at the image on the monitor and, with the help of her bird identification books, make the identification. This changes the tone of bird identification, an act that is not necessarily easy and sometimes frustrating. As Law and Lynch describe, when trying to link a bird body to a species, birders suffer "not from a defect of eyesight or an inability to see or optically resolve birds in the field, but rather from an inability to collect and re-collect species identifications" (1988, p. 273). Bird identification books augment the limits of memory and aid in this recollection. To date, it has been typical practice for birders to make an identification in those moments between birder and bird while out birding. As I have mentioned, part of the significant of this identification in the field is the contextualizing role other components of the environment can play in the act of identification. While the act of fixing an identity can be reductive, at least it can occur in ecological context—a less-reductive approach. If an identification cannot be made, some birders practice collecting field marks and other relevant characteristics in a field journal to later attempt an identification while others simply let the identification go—all together, as if it was they never saw the bird, or more generically saying, "It was a warbler we saw" rather than, "It was a Blackburnian Warbler". If we want to characterize this kind of identification, it is imperfect. Something akin to an LP record: an analog object that contains hisses, pops and scratches but, according to audiophiles, with a richness in sound not to be reproduced by other means. Identifying a bird by a photograph is the attempt to seek a kind of perfection in

this act. Identifying birds to species using digital photographs becomes clinical: like a CD, the hisses and pops are gone, but what artefacts have been introduced through the encoding?

My concern with this new ability to indefinitely pause the moment of identification to a more convenient time and place is the loss of the larger ecological context. Bird identification becomes an examination of the detached image on the screen, done at a pace set by the birder and not the bird. While this may fix more identities, let me suggest that the cost will not only be the loss of context in identification but, ironically, birders who are poorer at identifying birds. And I have begun seeing this. An example from April 30th at Rondeau:

> I walk down Bennett, sit down on the first bench and write down some thoughts. I then return to the car that is parked in the Spicebush trail parking lot. As I'm getting into the car, a fellow walks out of the trail with a camera and long lens in hand. I see him coming before he sees me, quickly ditch the binoculars and grab my camera in an attempt to match the interest. It also helps that there is a phoebe flycatching in trees overhead.
>
> As I watch it, I can hear it snap its bill shut around some food as it flies from perch to perch. The man that walked out of the trail has pulled out in his truck, notices me taking photographs of the phoebe and rolls down his window. He sticks his camera out the opening and fires a few shots. The shutter is triggered in quick succession—he is holding down the shutter release.
>
> We start to talk. It turns out he was in Pelee earlier today and there was "nothing" there—he clarifies this statement by saying everything that is expected to be there is there; nothing unusual, nothing migratory. He came to Rondeau and he is equally disappointed (at the lack of the unusual or new); though he says that there was literally nothing along the Spicebush trail. He points to the phoebe and says, "I didn't even get close enough to see what that is."

Simply, it now does not matter what is photographed—just that it is. If a photographer is interested in knowing what it is they are photographing, then that can occur at a later time. But it may not even occur at all.

This is a trend that others have noticed, with birders writing that they hope "these photographers-cum-birders would work to frame their photos within a narrative or experiential context" (Eubanks, 2007, p. 38). I bring a camera when I go birding, so I am a part of this movement towards including digital photography as part of field birding. I will often use the camera to help me figure out an identity while in the field by looking at the image that I had captured. But, I still bring binoculars with me and prefer to bird with them. My camera, in my mind, is an opportunity to engage aesthetically with what I see—it is another way of knowing. In my practice, I try to use it to augment the experience, like Eubanks suggests, to help tell the story of the day, perhaps in ways I cannot using my voice or by text. It is my hope that the images I capture are still referent to the context inside and outside the frame and that I put knowing more about that context before capturing an image of it. While at Rondeau, I paid attention to the ways that those around me used their cameras to watch birds. On May 4th, I had friends visiting me, joining me in my outings that day. I took them around to sites at Rondeau, like the log pond, where I had seen species of birds that I considered they might like to see and photograph (see Figure 6, below) too:

> Once we get to the log pond, we begin looking for the Prothonotary Warbler. Walking north, we cross the top of the pond when we come across two people taking photographs and

Figure 6: A photograph of the Prothonotary Warbler seen at the Log Pond, Rondeau Provincial Park, May 4th, 2008.

> two other people with binoculars. As I pause, the Prothonotary Warbler pops up on to a branch above my head in a tree between the photographers and myself. I'm carrying my camera, so I bring it up to my eye and attempt to get a photograph. I hear the shutters on the other cameras fire.
>
> The Prothonotary Warbler doesn't stick around long and after it leaves again, the two photographers immediately look at their cameras to see the results. One photographer says to the other, with a laugh, "You can go home now." The other smiles and nods his head. Later the same photographer says, "You can go home satisfied today."

If we look at the historical progression of the object under study in field birding, it moved from the specimen, to the sight record. In both cases, while these objects represented an abstraction from away from the bird itself, it was understood that behind these inscriptions there was a material bird. With the propagation of digital photography, a transition is occurring and the digital photograph is gaining prominence as the new object under study. These images have significant appeal in comparison to the preceding birding objects: they appear to solve some of the problems in both. Compared to the study skin, no bird has to be killed. Compared to the sight record, new confidence can be put into the verity of the bird.

Yet, there is evidence that the photographs become the referent; rather than a means to a material body, they become an end in and of themselves. It was Berger who suggests that it is the detachment, the decontextualization, of an image from place in time that is the concern. I see, at times, the further decontextalization of bird lives in the way that they are captured by bird photographers: the photographer who snaps a series of photographs then says

that he did not see what it was; the satisfaction of achieving the goal of "getting" a photograph of a Prothonotary Warbler. These two thumbnail sketches do not indicate a connection to a larger context inside and outside the frame. Rather, they appear to be reductive with little interest in the bird life they are capturing beyond ensuring it cooperates for long enough for the shutter to fire. While binoculars can act as metaphorical extensions to our own body to let the more-than-human in, the kind of photography practiced where birds are unknown and a good image is king does more to reify a separatedness by effectively erasing the bird's life outside the photograph's frame.

It is not only amateur birders who are collecting digital objects in their quest to know birds: recently, in the rush to find traces of the Ivory-billed Woodpecker, ornithologists have deployed robotic photographic equipment in the hopes of capturing a glimpse of the bird. Unfortunately, birders appear to be caught in something of a double-bind. Their evolving practice of using digital photography equipment to augment identification is also being adopted by ornithologists. The significance of this deployment is in the (implicit) proposed exclusion of amateurs, replaced by the photograph, in being able to make any claims within the official discourse.

Robots watching

In the Big Woods of Alabama, the site of the 2005 IBW "re-discovery" reported in *Science* (Fitzpatrick, et al., 2005), researchers have been searching in earnest, with millions of dollars spent and little to show for these efforts.

Technological advances have played an important role in these searches, with camera equipment and even robots entering the enacted network to find the IBW. Part of the original search involved the use of RECONYX cameras—remotely deployed programmable cameras "that incorporate passive infrared (PIR) motion detection, infrared illumination, and a variety of image sensors and lenses" (Connolly, 2007, p. 283). In over 6000 hours of searching in 2006, no evidence was found to support the bird's rediscovery (Connolly, 2007). As a result, efforts in 2007 were augmented with the installation of more than a camera: researchers installed a robot, described as "a high-resolution intelligent robotic video system" (Connolly, 2007, p. 285) that collects images and examines them in real time. The software is designed to look for birds that are large enough to be an IBW and discards images "that contain nothing of interest" (Connolly, 2007, p. 285). The developer of this system is quoted as saying that "the presence of a human observer can affect the behaviour of the animals…robots can help" (Fildes, 2007, ¶ 14). This idea that a robot's software can delete images that contain nothing of interest and, with the removal of humans, have access to a different (and better) truth about the natural world is key in understanding this technology's impact on how birds come to be seen and how amateur knowledge could be treated in the future.

Excluding the amateur: implications of the "Turing" of Ornithology

In the deployment of robots to search for the IBW, the amateur as inscription device in Ornithology is being replaced by different technologies. It is

true that technological advances, including the use of Global Positioning Systems (GPS) today and the historical availability of field glasses and access to automobiles in the early 20th century (Barrow, 1998), have been an important part of birding and, in turn allowed amateurs to make regular significant contributions to knowledge about bird populations. Rather than through its use, it is the context in which a technology is employed that creates moral and ethical dilemmas (Franklin, 2004). Amateurs have used and continue to use binoculars and automobiles in a context where knowledge and experience are intimately linked. New technologies of surveillance, such as robotic video devices disconnect experience and the creation of knowledge by erasing the need of an individual to be present at the moment an image is collected.

It is true that amateur birders, while distributed and diffuse, are imperfect inscription devices. They make mistakes. While amateurs themselves have attempted to police the boundary between good and bad observations with a systematized collection and reporting procedure, in the search for the IBW they are being excluded from the networks of objects, birds and landscapes enacted to uncover scientific truths about this bird population. Birders are being cast free from their interessment in these particular networks. In this act, these amateur birders' power, in the eye of the dominant discourse on the more-than-human world, is diminished in their ability to come to know nature.

In turn machines, robots if you prefer, are being sought out for their "perfection." This perfection means that these new inscription devices are

understood as being able to access a different kind of truth about the natural world than is normally accessible to humans. These new methods of wildlife observation act as purification devices, getting rid of unwanted video frames and unwarranted observations. The digital evidence that the high-resolution intelligent robotic video system provides becomes the gold standard for describing bird populations and the enacted relationships between birds and birders disappear. These robot "watchers," in turn, reinforce a nature that is separate from humans and that is only accessible when humans are removed from the process of inscription.

Alan Turing is described by many as the father of computer sciences. He, posthumously, has lent his name to a term that describes the process through which the computerization of a discipline irrevocably changes the kind and quality of information available to those in the discipline. The term, *Turinged*, is used as a verb if a discipline has gone through this process of computerization. References to this process are irrevocably positive: "Once you are Turing'd it is much easier to believe other occupations which we humans used to do uniquely, can be done by computers. You tend to be open to disruptive technology in all parts of your life" (Kelly, 2008, ¶ 8).

The changes that I have outlined here may mark the beginning of the *Turing* of Ornithology. While some may be open to disruptive technology, it appears that little thought is occurring to the ramifications of this process. In this sense the birds become nothing more than inscriptions, or in Charles Bergman's

(2005) words “beasts with no body.” They become artificial animals, a term used by Ursula Heise to describe the digital proliferation of animals as solutions to current problems. She writes that this offers a convenient “means of escape from the unpleasant realities of ecological deterioration and species extinction into a digital world that is not subject to the same sets of problems” (Heise, 2003, pp. 70-71). The irony here is that the proliferation of digital animals by these inscription devices is made in the attempt to provide information to help answer questions of ecological deterioration and bird species extinction.

Amateur birders, acting as inscription devices for citizen science projects, have offered the science of Ornithology important longitudinal information on the bird health and population. If birders disappear from official ornithological knowledge, so too does their first-hand experience of birds. While this relationship may seem to be inconsequential to the quality of data collected, it has significant impact on how wild bird populations are known. Rather than through first-hand experience, these organisms become known as pixels on a screen. This reductionistic approach to the more-than-human world does little to question or challenge underlying assumptions of what it is to be animal or what it is to study nature.

Conclusion

The emergence of the digital object in birding marks one moment in the on-going negotiation between technology, nature and knowledge. For the contemporary birder, technologies are used to augment the practise in three

broad ways: to change the nature of space; to change the nature of time and; to augment our own species' limitations. All the technologies used in birding, in some way, affect the agency of the birds being watched. They are largely attempts to turn the power in the relationship towards the human. So successful are amateur birders in finding and seeing birds, in manipulating this agency, that they have been a part of the official knowledge making about birds since the emergence of Ornithology as a recognized scientific discipline.

From the specimen to the population represented by sight records, as Ornithology emerged, the object under study available to birders has shifted. Underlying all of this work is the concept of species as birding's organizing principal. For birders, it is not species *per se* that organizes what they see. Rather it is the visual organization of adult birds into similar categories that *happens* to neatly map to the concept of species. But it is this concept of species as a function of biological relations, echoed by taxonomists, that resonates throughout birding. Bird books are organized, for example, by taxonomic relations. As a consequence, they regulate what kind of seeing occurs in birding: individual birds have a known, fixed identity; organized into species; that are separate from each other but also related. Most significantly, the organization of bird books tell birders that other ways of organizing or knowing birds simply do not count.

As the object in birding became the meta-individual represented by sight records, a split occurred between ornithologists and field birders. Bird bodies were still considered the gold standard in knowing birds, but birders were not

allowed to collect bodies in their attempt to make claims. As such, a movement appeared to regulate the observation of birds, with amateurs policing their own ranks. Consequently, only para-ornithologist "experts" could say that species *X* was officially seen and a hierarchy between birders becomes visible. In this stratification of practice, the bird only becomes valuable if recorded as a sighting. This, in turn, steers all birding practice toward documentation and further dematerializes the bird life under observation.

I attempt to describe the contemporary use digital objects as potentially marking a change in eras in birding, using the examples of: the OntBirds LISTSERV to share sightings; a new sense of vision created by Nexrad radar and; the mediated acts of looking shaped by digital photography. In short, the technology underlying the reporting of bird sightings via the Internet denatures the social relationships that previously existed and amplifies the observations. The implication is that more birders read about more sightings, without any sort of evaluation as to the consequences of this proliferation. Nexrad radar, in predicting the movement of birds during migration, is an attempt to domesticate the act of field birding. Yet, I illustrate that these are acts of interpretation and cannot provide, perhaps as promised, a perfect vision of the phenomena.

Optics, prove to be a largely unexamined objects in contemporary birding practice. This may be, in part, because binoculars offer something of an invisible extension of our own sensory apparatus. The danger of binoculars may lie in the impression that they offer an unmediated entry to the world and are, in fact,

props in two senses of the word: first, their presence signals that you are a birder, acting as a boundary object between those who are / are not birders. Secondly, their use supports a particular human relationship with the more-than-human world that, without these optics, would cease to exist.

While binoculars and cameras both create images, there is a qualitative difference in the images that they create. Digital cameras, and the images that they produce, promise to change the way that bird identification is done—independent of birds' actions, at the birder's leisure. While that may increase the accuracy of birders' identification, there could be significant consequences as birding with cameras is adopted. Digital images represent a further evolution in the object under study in birding. I have found evidence, however, that the image, not the bird, becomes the referent. This is a significant departure from prior birding objects which still make reference to a material bird.

This adoption of photography to know bird's identities puts birders in something of a double-bind within their larger ability to make official claims about the more-than-human world. Ornithologists are also deploying robots to collect visual images to prove the existence of rare or difficult to find species. Robots remove the need for human presence and act as a purification device for the collected data, further abstracting an understanding of the more-than-human. Reinforcing a separate nature only accessible when humans are removed, this movement threatens to replace the amateur by disconnecting first-hand experience and the creation of knowledge.

While I have illustrated how technologies help shape the act of birding as well as birder's perspectives towards birds, it does not act independently in the creation of these understandings. With this in mind, I now turn to contemplate the role that place has in birder's conceptualizations of the birds they watch. More than simply being the inanimate landscape through which humans travel to see birds, place acts as a lens, bending field birders, backyard birders and bird rescuers' understanding of the more-than-human.

Chapter 5: Birding, place and visibility: the work to expand social worlds

In the following chapter I will expand upon the connection of birding and place showing that place, more than simply being a discrete location where the activity occurs, in fact, becomes the lens through which birds are seen and rendered as valuable, insignificant or unseen. Finally, I will share the experiences of those who, in their work with birds in the city of Toronto, engage in creating a different ontological alignment. These bird rescuers see the material lives of birds in the city and have reconstructed their perspectives of what it is to fit in the category of human and bird. While not entirely breaching the human sphere, both birds and humans exist in a space where care operates and individual birds are rendered visible.

The bird "out of place"

As I outlined in Chapter 3, some kinds of birds are more powerful in attracting birders' attention than others. Birds considered to be rare or beautiful (or some combination of both), such as the Prothonotary Warbler at Rondeau, draw and capture birders' attention. Birders' determination of value can take more than aesthetics or rarity into account: understanding, in a particular location, what species are to be expected or are unexpected also impacts a bird's value to birders.

The everyplace

Values change because when a bird is seen where it is expected, it is seen as usual. Take Darren's comment in Chapter 3 about the hierarchy of birds, for example. Red-winged Blackbirds (*Agelaius phoeniceus*)—"God, we've got them all over the place"—are lower on his hierarchy of sought-after birds at Rondeau. Why? Because their presence is not unique. During the breeding season, with the exception of the far north, they can be found clear-across North America. At these times, they are never unusual because they are *never* out of place. House Sparrows are at the bottom of Darren's particular hierarchy—"Then you get down to the House Sparrow, we see them every day". This relative location of House Sparrows to other species of birds is not just unique to Darren: many of the participants showed an equal *dis*interest in this species of bird. Often, as an interview was unfolding, a bird's presence would capture the attention of a participant or myself. We usually would stop to watch the bird together. While at Rondeau, Margret saw something out the corner of her eye: "...it's also so challenging, and so interesting that you just keep going. I think a little white bird just popped up. I think it's down on the—no. That's just a—what is that? It's just female House Sparrow. Sorry." Without missing a beat, the interview continued. Just a House Sparrow.

House Sparrows, a species of non-native (to North America) birds, live commensally with humans. Their distribution to urban areas worldwide is as a consequence of our own Western culture's spread. Once established, however,

they have become part of the ubiquitous, everyday experience that people have with birds in urbanized areas. Like Rock Pigeons (*Columba livia*) and Ring-billed Gulls (*Larus delawarensis*) in Toronto, they are not seen as being particularly valuable and they just are: just are tolerated, just are there, just are ignored.

Thinking about a bird species' value, then, appears to have something to do with their distribution and how this affects perceptions of their abundance. Such is the case of the Red-winged Blackbird: with distribution across North America they considered a common bird. They are not unique to one place, they are everyplace. This notion of everyplace-edness, as a characteristic on its own, however, cannot explain the perception of the House Sparrow. While they have worldwide distribution, they are only found with humans: it would seem that their characteristic as a commensal species changes how they are understood.

The out-of-place

Imagine if, and I acknowledge this is an extreme example, a House Sparrow appeared outside a scientific station somewhere along the Antarctic peninsula. This would be a sighting of note and the bird, away from where it would be expected to see, would change: a birder seeing it would be unlikely to put the observation aside as "just" a House Sparrow. This is the power of the bird seen as out-of-place: it is novel in its particular situation. While my Antarctic example is only theoretical, while at Rondeau on May 5th, 2008, I experienced first-hand the power of an out-of-place bird. The following is an excerpt of my field notes from that day:

I drive back up to the Visitor's Centre and I see what's going on. There is a great crowd of people around the picture window in the centre, watching birds. I didn't really find out if there was something in particular they were looking at, but it was neat to see the two-deep birders at the windows. I walk back to the entrance and talk with one of the naturalists. As we're chatting, a woman almost literally bursts through the door, "Listen up. Stop your conversation—I've got big news."

Pausing momentarily she goes on, "There is a long-tailed…" she says, "Is Stan here?" (Stan is the birder hired by the park to lead tours and compile bird sightings into reports) Someone goes to get Stan. This woman, who I would later find out, is Kelly, is obviously jazzed and speaks again quickly, "We were so excited—we don't care if we see the prothonotary." Stan is found and brought over. Kelly blurts, "We saw a Scissor-tailed up the road."

Stan seems to kick into high gear and grabs a piece of paper. He asks, "Do you know the address?" followed quickly by, "Do you have a picture?" Kelly says that there was another man taking pictures who was going to be emailing her a photograph. There is some discussion about this. While I suspect that everyone is talking about a Scissor-tailed Flycatcher (STFC), I ask, "Do we know what bird we're talking about here?" Kelly says, "A scissor-tailed flycatcher." In this time Stan has grabbed his hat and is ready to go out the door. I ask, "What is the address?" Stan says, "We're going up there now, so just follow us."

So I do. I get into the car and drive up the park road to the area where I know the bird was supposed to be seen. I drive up the length of the park, beyond the entrance to the campground, almost to the entrance park. The area by the road here is occupied by cottages built in the 1920's & 30's. Grass is cut and while there are a few naturalized lots, the whole area is quite open, with trees punctuating the surface of the clipped grass.

Stan's car is pulled over to the side of the road and I pull my car over and turn the engine off. There are five or so people already here. Kelly meets up with her birding companion and the group of three now begin to scan the trees of the cottage named Kilarney. In a moment, the bird is spotted. It certainly is a STFC.

Particularly funny for me is the fact that I saw this bird three weeks ago when I was in Austin, Texas. Because of this, I felt

> quite calm about the fact that the bird was, indeed, real and present in front of us. It was sitting in the canopy of a Norway maple and would fly from flower cluster to flower cluster looking for food. The odd time it would fly out to catch a flying insect on the wing. This flying behaviour was much more similar to the birds I had seen in Texas.
>
> Almost immediately, more people start arriving. They have their binoculars and cameras (ranging in size from pocket cams to camouflaged wildlife photography rigs) at hand. The group that forms to try and see the STFC gives off a perceptible excited vibe. There is energy in the group that is different here than, say, watching warblers along Bennett Trail.
>
> As people walk in they are more agitated, walking quickly and are very quick to ask where the bird is—on the whole, it seems as though they're afraid they might not see it: a fear of missing out. After they see it people are usually jovial and social barriers break down: people are chit-chatting back and forth. At times the group takes on the feeling of a community event.
>
> I manage to find Kelly in the group with her partner and noticed that they have been excitedly telling others the same story, so I get them to tell me again. The excitement—even joy—in their voices is evident. After they tell me their story, I ask if they would sign the waiver forms giving me permission to use their words. When Kelly finds out the information will remain confidential she says, "Awww. And I thought I was going to be famous!"

This Scissor-tailed Flycatcher (*Tyrannus forficatus*) at Rondeau was an example of a bird seen as being out of place: if you were to examine a range map, the species' breeding range is limited largely from eastern Colorado and Nebraska south to northern Mexico, Texas and western Louisiana. Had Kelly been in Austin, Texas and seen this bird, her reaction, and the subsequent actions of those who found out about the sighting, would have been wholly different. In place, the bird's presence fades into the expected everyday. Out-of-place, the bird's presence is unexpected and becomes an event (see Figure 7, below, for a

Figure 7: Part of the larger group of birders who gathered to see the Scissor-tailed Flycatcher, a bird "out-of-place", at Rondeau on May 5th, 2008.

photograph taken of birders looking at this Scissor-tailed Flycatcher) a bird to experience and a sighting to collect where the everyday has yet to set in. Birders experience, through travel, a similar sense of novelty where, in these cases, it is the birder who is out of place, rather than the bird. I asked Joshua, for example, if while travelling, he found birds that locals would find to be ordinary, exotic:

> J: Yeah.
>
> G: Or do they eventually then become expected, and not that interesting. Whenever I'm traveling somewhere—being in the Yukon there's White-crowned Sparrows all over the place, and they're calling, and they're really, they're neat. However, if I was living there they would probably fade into the woodwork.
>
> J: Well, they'd become trash birds pretty quickly. Well in Greenland the Snow Buntings, and [indistinguishable name of place] Snow Buntings; flocks of them around. We weren't in either place long enough for them to become nuisance birds, but you could see how. We saw small flocks.

Both examples—the Scissor-tailed Flycatcher in southern Ontario and the southern Ontario birder in Greenland—illustrate how perceptions about birds can change through a lens of place. In everyplace and out-of-place, it is understood that birds are seen as more valuable the more novel they are. When birds appear as part of the everyday, they are ignored and slowly disappear from sight. When a bird's presence is a novelty, even the most "ordinary" species can be seen in a new, often more valuable, light. Part of this construction of value is linked to the practice within field birding of wanting to see the most number of species in a given unit of time. The metaphorical House Sparrow in Antarctica is now valuable because it can be added to a birder's list: it is a unique sighting. The

House Sparrows chirping in the White Cedar outside a southern Ontario birder's house offers little to the birder interested in collecting a varied list of species. Once seen, identified and recorded, the potential of the new species has been realized and can be safely ignored on the continued lookout for the unique.

Place and shadow places: Val Plumwood's politics of dwelling

Before returning to the practice of birding, this chapter now turns to the late environmental philosopher Val Plumwood and her 2008 work on the politics of place. In this paper, Plumwood argues that a sense of place that focuses on one place, elevated above others, is a largely unexamined assumption in environmental dialogues and, subsequently, dangerous. This concept of "singular homeplace" (Plumwood, 2008, p. 139) is driven by Western, consumptive culture which forces the disassociation of economic place and affective place. Shadow places, according to Plumwood, are those locations which provide unrecognized and unknown material and economic support. This loss of recognition is the dematerialization of these places, a "process of becoming more and more out of touch with the material conditions (including ecological conditions) that support or enable our lives" (Plumwood, 2008, p. 141). Work taken up under the mantle of place-based education, then, must caution itself with reifying the idea of a singular homeplace while continuing to render shadow places invisible:

> The problem is that in the context of the dominant global consciousness, such ideals encourage us to direct our honouring of place towards an "official" singular idealised special place

> consciously identified with self or soul, while disregarding the many unrecognised places that provide the material support of self, most of which, in a global market, are likely to elude knowledge and responsibility. (Plumwood, 2008, p. 146)

Authors within the field of place-based education have begun to address Plumwood's concerns (for example, see Gruenewald, 2003; Lowan, 2009) towards reformulating place, yet some work continues to leave economic and affective place unexamined. For example, Plumwood believes bioregional approaches to place "evade rather than resolve the problem of the split by focusing exclusively on singular self-sufficient communities, thus substituting a simplistic ideal of atomic places for recognition of the multiple, complex networks of places that support our lives" (2008, p. 139). Simply, power relationships need to be taken into consideration when considering place. A politics of dwelling, then, will not only consist of care for "your" place, but will take into the consideration other places, where "'other places' include other human places, but also other species' places"(Plumwood, 2008, p. 147).

I would like to extend this metaphor of shadow places beyond the literal. I want to include places that cannot be visited physically; that do not exist on a map. Affect is clearly implicated in Plumwood's work—economic place divorced from affective place—but I want to make explicit the multiple meanings of this word. It is not entirely clear if Plumwood is speaking of affect as in "to have effect upon" or affect as in "to have an emotional impact upon." I want to clearly state that as I think of shadow places, not only am I thinking of discrete places but I

am also deterritorializing the concept to include values, attitudes and beliefs. When Plumwood writes about dematerialization, I feel as though she is focusing on the literal—the loss of the physical places that provide economic and material support. I want to write about dematerialization as a loss of affect, marking a conceptual "disappearing" and, as a consequence, the subsequent support to think about objects differently.

Backyard birding: homeplace and birds

Birding is enacted in different ways by different kinds of birders. One group that I spoke to were those who had bird feeding stations set-up in their backyards. As I imagined, these different kinds of birders enacted a different kind of practice. One that was, in comparison to the birders who leave their homes to bird, not about travelling to and moving through a variety of places, but was about a sustained relationship to one place—the backyard. Conversations about bird feeding were not just limited to these so-called backyard birders. Many birders also feed birds in their backyard and, as a trajectory of practice is concerned, feeding birds appears to be a step in the development of a birder. This speaks to the nature of larger practice of birding—birders are not just limited to only one practice; they are more likely a hybrid of many practices. What does occur, however, is the link between location and what is done: "birding" at home is qualitatively different than "birding" at Rondeau.

An invitation into the homeplace

Backyard birders, in the deployment of their feeding stations, expect wild birds to broach the boundaries of their private property and invite the birds into their private sphere. This kind of birding, located in people's homeplace, is enacted differently than others. The act of identification that occurs, for example, is not so focused on identification to species. Most often, if a bird can be identified to species it will, but backyard birders are much more comfortable with less specific identifications: they had a hawk (versus Coopers' Hawk) kill a bird in the backyard; some sparrows (versus American Tree Sparrows) visited the feeder during the winter. It is safe to say while identification compliments the activity, it is not the aim (see Figure 8, below, for a literal illustration of this). A taxonomy of classification, however, is still at work. It appears that rather than being biological in nature, a type of folk taxonomy exists with backyard birders. It is a taxonomy that places birds into one of two broad categories: wanted and unwanted (see Appendix R: Backyard birders folk taxonomy, for more detail). Falling into the unwanted category are Rock Pigeons. Jessica outlined her concerns with these unwanted birds in her backyard:

> J: And the pigeons, I don't really want to attract pigeons to the yard. So I—and I made the mistake of throwing the popcorn out. They were there so fast. So okay, so you don't throw popcorn out, the pigeons recognize that. There's a couple mourning doves that will hang out in the bottom, that's okay.
>
> G: What's wrong with pigeons?
>
> J: Just messy.

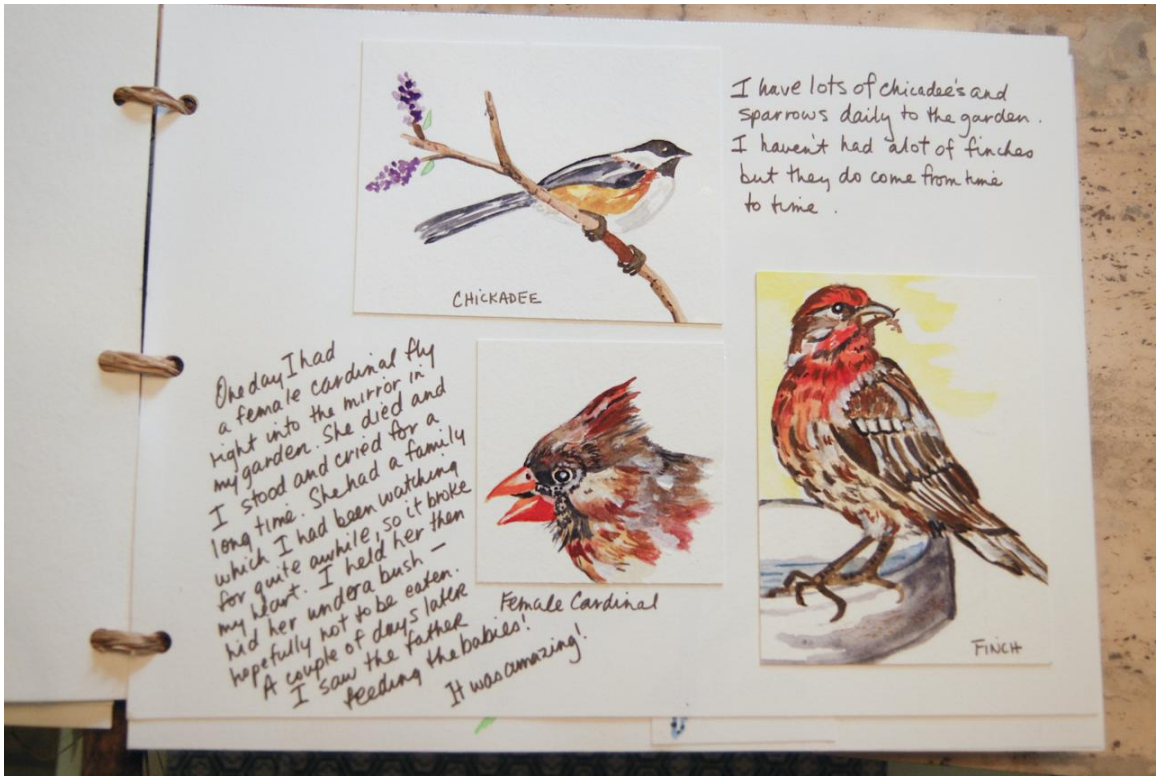


Figure 8: It should be noted that the House Finch is identified as Finch and Black-capped Chickadee as Chickadee, illustrating the lack of specificity to species but attention to birds in backyard birders' identifications.

> G: They'll get into the feeder or?
>
> J: No, they don't get into the feeder, they attract way too many friends and they have way too much poop, that's all.

Backyard birding is a significant practice because it is the active invitation of wild birds into people's private sphere—their backyards. While this kind of invitation is not without precedence (landscaping in backyards have been designed, for example, with butterfly-friendly plant species in the hopes of attracting the aesthetically-pleasing insects), the urban relationship with the more-than-human is more often adversarial in nature. Raccoons (*Procyon lotor*) "raiding" garbage can, Striped Skunks (*Mephitis mephitis*) digging for grubs in lawns and bats,

such as the Big Brown (*Eptesicus fuscus*), entering a building and flying indoors, mark behaviours that raise many humans' ire. Birds, however, are actively attracted to enter these kinds of personal spaces through the deployment of feeding stations.

This interest in attracting birds, as illustrated by the folk taxonomy, is not spread equally across the Aves order. Birds that make a mess, perhaps due to their high numbers—pigeons in Jessica's case—are often unwanted. The primacy of homeplace, over other places, does change the perception of birds. As Jessica said later in the interview, "I like pigeons; I just don't want them in my yard (laughs)". Looking at this notion of mess, and linking it to the mammals' behaviours I mention above, we see a significant observation about when these organisms cross the line from invited or unnoticed to unwanted. When an individual exerts their own agency in ways that impacts us, in a place that we consider our own and that result in us to making some kind effort to "right" the results, a cognitive line is crossed.

Intriguingly, though the activity is centred on attracting birds, it could be said that a mammal is included in the unwanted category. Backyard birders in Toronto have something of a contentious relationship with the Grey Squirrel (*Sciurus carolinensis*) and the presence of unwanted species, both avian and otherwise, means an ever-evolving strategy to keep "unwanted" organisms out of the feeding stations. As I described in Chapter 3, American goldfinches are a species that backyard birders are interested in attracting to the yard. Nyjer, a

thistle seed, is purchased to be used in combination with specifically-designed feeders that allow these birds to eat while excluding others.

Just as technology can be used to attract species of birds, backyard birders often deploy objects to keep the unwanted species away, or, at least discourage their presence. Andy, who has been feeding birds for more than five years, describes how seed choice can discourage squirrels:

> A: Yeah, yeah and that would—that [feeder] has safflower seed which attracts cardinals for starters but squirrels don't like it.
>
> G: Right.
>
> At: So it wasn't so much that I think we wanted the cardinals but when we found out that there was a seed that that squirrel won't be interested in and cardinals like, then okay bonus. And it's down now because that feeder's got a lifetime guarantee. It's now crap, we're gonna take it and get it repaired before the winter comes.

Accessories and station placement are also used to exclude squirrels. A stove-pipe baffle, for example, can be installed around a feeding station pole, preventing squirrels from climbing up the pole to get to the seed, as Jessica outlines:

> G: Do you have any problems with squirrels?
>
> J: No, not with the baffle.
>
> G: So the baffle does really work.
>
> J: It works, yeah. And the feeder's far enough away that they don't bother the house. I'm always concerned about the squirrels on screens. They can be a pest, so I try to keep them away from the house and I throw a little handful.

Yet, the relationship between backyard birders and these unwanted species is not as clear-cut as, "I don't like them, so I want to keep them away." There is an

appreciation that there is some intelligence at work here—first tries to exclude do not often work and unwanted organisms often figure out alternative ways to get the seed. This turns into something of an arms race, where more and more complicated exclusionary devices and systems are deployed (see Figure 9, below, for an example of one such system).

As evidenced by Andy and Susannah, as I visited them in their backyard in the fall, they respect the intelligence of their unwanted pigeon visitors. Knowing that I was coming, the couple put up their feeding stations earlier in the day. Then the pigeons arrived:

> A: Look at that. Now there's an intelligent bird because I put that green feeder up maybe two hours ago.
>
> G: The pigeon, yeah.
>
> A: And now it's got it going and now bingo.
>
> S: What's in the green feeder?
>
> A: Safflower. Because I put safflower there because I wasn't sure if the cardinals would be going to the tray feeder.
>
> S: So you can see it's got one leg up and one leg down.
>
> G: And it's obviously remembered this from last year?
>
> A: Yeah because while we were here, Gavan, no pigeon approached it.
>
> G: Yeah.
>
> A: So according to the first time they knew what stance to take.
>
> G: Yeah, interesting.
>
> A: Yeah.

Figure 9: One backyard birder's solution to exclude squirrels from a feeder. Unsatisfied with commercial solutions, the participant created and installed the poultry mesh device.

In the case of these unwanted species, it is not that backyard birders are unappreciative of the ingenuity it takes for the birds and mammal to get the seed. It is just that they find them too numerous or messy. At these moments, where individuals exert their agency in the ways deemed unacceptable by the humans, in the places humans think of home, that this kind of taxonomic arrangement around value takes place.

Species versus individuals

While the concept of seeing species, rather than individuals, is a guiding principle for the enactment of field birding at places like Rondeau, some backyard birders, on the other hand, begin to see individuals. Alice and Ryan, who have been feeding birds for five years, describe some of the individuals that they have known over their years feeding:

> R: Yeah, I am assuming it's always the same Cardinal pair because they seem to have their territories. So that's the only way I can say with them, but there are some like Blue Jays, like the baldie.
>
> A: We always name them.
>
> R: Yeah. If they got a little something about them, like we've had a bald Blue Jay so he's Baldie. We had one last year. He had a bad leg. We call him Stumpy.
>
> A: Yeah Stumpy, he only had one leg or his leg was all–his other leg went that way.
>
> R: Yeah, but other than that we had–
>
> A: And Harry, our Hairy Woodpecker that comes.
>
> R: There's only one.

> A: And he came solo for two years and then I was all excited because this summer he showed up and there was a—Harrieta I called her—and he got a girlfriend.
>
> R: Yeah.
>
> A: And the same with the Downies, the pair of Downies. We assumed that it's the same pair that are here and then their young.

It is a general characteristic between the backyard birders interviewed that when they are able to distinguish one member of a species from another, they can recognize when that bird returns to their feeding stations. I suspect that this ability to recognize individuals comes from this longer-term relationship to place, and the homeplace thus renders the birds differently: backyard birders are helping the birds that visit their backyards. Jennifer outlines how she perceives her feeding helps:

> And I just think that I'm helping them in a way, because I feel that so much of their habitat has been destroyed and is being destroyed as we speak and they're having a harder and harder time finding food. So I feel that if I can help them I will.

Just as a looser kind of identification is a characteristic of backyard birders, humans involved with this enactment of birding allow themselves a different kind of relationship with the birds in their backyards. In this offering help, there is an extension of the social sphere. Often, these relationships with birds are different enough that they do not always consider themselves birders. After asking Susannah if she thought she was a birder, she replied:

> And you asked about a list, I think a birder is somebody who has a list and is checking things off. I know that we have lots of

> sparrows. I couldn't tell you what kind of sparrows and I think a birder would be able to say that kind of thing.

Jessica, another backyard birder, answered the question this way:

> J: I've never thought of myself as that. Because I don't really know; a the birder is –
>
> G: So then in your mind's eye what's a birder?
>
> J: Well, I watch birds and I feed birds but I don't go out on hikes specifically, you know, on bird tours and that type of thing and studying birds that way. But if I feed them and like to watch them and they bring me enjoyment and hopefully I bring them enjoyment.

In the backyard, in the homeplace, I am suggesting that a kind of reciprocity emerges between individuals. In these cases, where Baldie and Harry can be recognized and the hope of mutual enjoyment is the motivation, the focus on knowing species names is, at moments, backgrounded. Birds are known, but the established parameters of knowing are differently enacted, a complimentary effect of place, individuals, perceptions and feeding stations. It is the homeplace, associated with a change in the level of intimate encounters in place where birds are invited into personal space, where this change occurs.

Birding hotspots

During my analysis, I kept track of all the places in Ontario mentioned by birders during interviews (see Appendix S: Places mentioned by field birders, for the complete list). With the exception of sewage lagoons, which I collected as a generic category and therefore without place, I mapped these locations on a map of Ontario. See Figure 10, below, for the map generated.

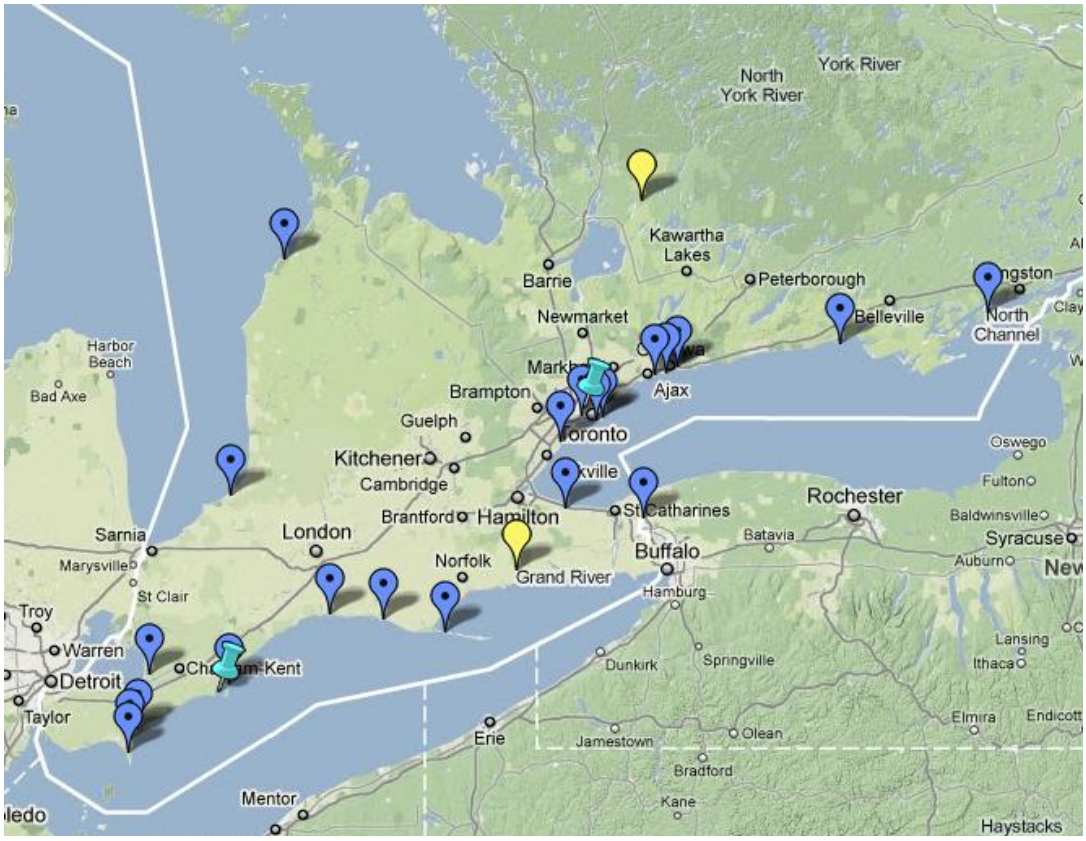


Figure 10: Locations in Ontario mentioned by Ontario birders. Inland locations highlighted; thumbtacks represent major interview locations. Basemap © 2010 Google.

Immediately apparent: with two exceptions (the highlighted locations of Fisherville and the Carden Alvar) all these places are on or within a short distance of a Great Lake. It tells us, in part, that birds are found where there is suitable habitat as most of these locations are marshes, woodlots or other (relatively) undisturbed or protected natural areas. It also tells us that birders purposefully look for them in these places. This certainly falls within conventional wisdom about where birds are to be found.

There are, however, protected habitats that birds could be found distributed throughout the province. So, the mention of these places does raise

the question, “Why there would be such a focus on these near-lake habitats?” Clearly, the Great Lakes play a role in the kind of field birding that takes place in Ontario: let me suggest that they act as a concentrating device. In the spring, migratory songbirds fallout in these remnant habitats (e.g. Point Pelee and Rondeau as a spring hotspot for songbirds) and the lakes act as a barrier against which birds fly during fall migration (e.g. Cranberry Marsh, High Park, Hawk Cliff for raptor migration in the fall). Interestingly, it emphasizes that conventional birding practice focuses on migratory birds (not surprising if novelty is an important characteristic in valuing a bird species). And more specifically for Ontario, migratory birds as they move to and from the shore of a Great Lake, in part, because these places are the most reliable spots for finding higher concentrations of birds. With this observation, it would be fair to say that as this research was conducted in the spring and fall, when birds are migrating through Ontario and that something of a selection bias appeared in the locations mentioned by birders.

Two notable outliers: First, Fisherville. This region has hosted a winter population of Long-eared Owls and, it appears as though people love to see owls (in some cases, too much “love” as is the situation in Ottawa mentioned in Chapter 4). Second, the Carden Alvar. A unique habitat, with many rare or unusual bird species that cannot be found elsewhere in Ontario found here (the Loggerhead Shrike, for example). So this points out two allied practices: birders

travel to find unusual birds (hence, the Carden Alvar's emergence as a location) and birding practice changes in the winter (thus Fisherville appears).

Winter field birding

In winter, time is more diffuse and the birds are less predictable—irruptions of unusual bird species from the north occur in a discontinuous pattern over years rather than in a regular seasonal pattern like spring and fall migration. Birds that appear in the winter are here primarily looking for food rather than being on the move to nesting or wintering grounds. In my experience, you know that Snowy Owls will be near Arthur, but they are diffuse enough that they can be hard to find. So, the places that concentrate these winter birds (e.g. Fisherville, Amhurst Island) emerge as destination birding locations, or hotspots. Hotspots, in birding, are particular places that through a combination of biotic and abiotic factors, act to concentrate the number of birds that are present. Again, even though it is the winter, there is a focus on locations that seem to concentrate birds.

Economic hotspots

But it is more than just an amalgam of ecologically significant characteristics. As specific places become known by birders as better places to bird over others, they begin to gain power: Fisherville is known as *the* place to see Long-eared Owls in the winter and the Carden Alvar is known as *the* place to see Loggerhead Shrikes in the summer. In turn, they become destinations: places birders seek out to find birds. And this is not without impact.

A *New York Times* article (Saulny, 2008) outlines the fact that it is the material presence of Greater Prairie Chickens (*Tympanuchus cupido*) that attracts humans. Following a typical pattern, it is the fact that these birds are perceived as being rare that attracts birders to come and see them. Rarity is not the only reason that birders are interested in these birds, aesthetics plays a large part in attracting humans—the prairie chicken's spring-time display, visually stunning, is a key component. This mating display between males is unique to one time of year and so rarity is compounded—an aesthetics that is rare in time in addition to the chicken's diminishing numbers.

Humans travelling to take in the display have had a positive, significant impact on the local economy. Animal agency and human preference becomes bird tourism, where birders travel and spend money in the same area that these birds are being seen. Since the agricultural economy in the region has softened, this is seen as a positive influx of money for the local economy–money spent on lunches, gas and accommodation.

Ironically, the prairie chickens are in this sparsely populated region for the reason that humans are not; the birds need undisturbed prairie habitat. No mention is made in the article how the increased attention could impact the number of birds in the future. Likely, there is the rosy forecast that more attention paid to the birds will improve their profile and, in turn their numbers.

Quite often, however, this conclusion is made without any real interrogation of the potential birders' impact.

Beyond conventional wisdom: sewage lagoons

Not all field birding, however, occurs in these distant, naturalized habitats. As I mentioned, the one location that I did not add to the Ontario map of birding locations (Figure 10, above) were sewage lagoons. But these places were not insignificant. They were mentioned three different times in interviews and I visited the local lagoon while I was conducting my research at Rondeau. Not my first time to lagoons, my grandparents seemed to have an unnatural ability to locate the nearest sewage lagoon while out birding. My field notes from that sewage lagoon visit on April 28th:

> After our meals, Iris and David took me to the Ridgetown sewage lagoons. These large ponds of open water are magnets for all sorts of interesting birds. I've often found it interesting that these are spaces that most people would stay away from, yet birders, because of the birds, have interesting, even intimate relationships with these ponds: they know the pond manager and the history. Iris and David were sharing with me where the ponds used to be, where they are now and where they'll be in the future (as Ridgetown is building a new sewage treatment plant).
>
> With the move to sewage treatment plants, one has to wonder what will become of the sewage lagoon? Will birders be able to convince municipal governments to keep them? The Ridgetown lagoons have a viewing deck, so up we went and had a look.
>
> Lots of bird activity. Ducks, such as Northern Shoveler, Ruddy Duck, Bufflehead, Gadwall, Mallards & Scaup; dozens of Cliff and Tree Swallows were flying over the water eating insects; Canada Geese and; shorebirds: Dunlin, Semipalmated Sandpiper and Yellowlegs sp.

Stephen Schaffner (2009), writing about the practice of birding in polluted places, links field birding to toxic waste writing that "birders often seek out polluted environmental niches" (p. 212) and rather than confronting the tension of our culture's creation of the waste, the sport (Schaffner believes birding is a sport more than anything else) acts to hide or ignore it. I find this argument challenging.

My reasoning: birders look for birds in significant concentrations. Sewage lagoons (which, of the three polluted areas Schaffner describes in the paper, I have experience with) act to concentrate birds, hence their emergence as a place for birding. They are sought out *in spite* of their shitty origins because they offer an opportunity to see many birds in one place. Birders would be complicit if they were ignoring the risk to birds by visiting such sites.

These lagoons, with their increased nutrients from the effluent are a source of food for invertebrates (Hamilton, Robinson, Taylor, & Wilson, 2005), attract avian predators. What is worth questioning is if there are compounds that birds, attracted to the lagoons, could ingest and impact their ability to thrive. Research on this question conducted in sites around Ontario suggests that the answer is that it depends: yes, these places are sources of pollution but the birds appear not to ingest enough compounds to impact their overall health:

> Significantly elevated concentrations of eight contaminants were determined in domestically raised mallards released at Hamilton Harbour CDF, Winona SL, and Big Creek Marsh. However, most of these concentrations, with the exception of PCBs and DDE, were lower than concentrations found in other studies. All

> concentrations were below levels believed to have harmful effects on birds. (Gebauer & Weseloh, 1993, p. 241)

Significant in this paper was the finding that Big Creek Marsh was a source of contaminants. The marsh, part of a National Wildlife Area surrounded by a large cattail marsh complex, would typically not be seen as a waste facility. The results indicate that it is not just classically-constructed "waste spaces" that pose health risks to avian populations. Culturally, and this is damning, Western culture has impacted the environment in such a way that we cannot judge the "health" or "toxicity" of a location by its ecological role or appearance as natural—marshes and sewage lagoons can be sinks of organic contaminants and our own judgements about the toxicity of places might be misplaced.

So, to critique the act of birding at sewage lagoons as ignorant to pollution, rendering toxicity invisible is an argument made more difficult given the diffuse nature of pollution. I am not sure that birders would identify a sewage lagoon as inherently "healthy" because they visit and find birds there. The argument could be made that any outdoor activity that does not actively interrogate the source and persistence of environmental pollution is complicit with its creation—and perhaps that is true. In my research, birders who regularly visit sewage lagoons are aware of their presence in the landscape and what they contain. The presence of birds unmasks these locations that would otherwise go unnoticed. Just what they do with this knowledge of sewage lagoons remains unanswered.

I am left wondering where Schaffner's argument will get us (us being those that are interested in bird conservation, birder, environmental pollution and the larger more-than-human world). I do agree that birders have a unique opportunity to engage with the conservation of bird species, populations and individuals and, that for the most part, these kinds of interventions are left for others to do on birders' behalf. This is where I turn next.

Birding and shadow places

While place is important to these acts of birding, the significance of place as a lens through which birds are seen is often unexamined by birders. Through their own practice of birding, their relationship with observed birds and where these acts of watching birds occur, a kind of politics is enacted. At one end of the continuum, where birds are replaced by records the material core of the activity is under threat of disappearing.

While birding is not specifically about supporting the core functions of lives, there are the practices of field birding where collecting observations of species and accruing a reputation as a good birder are deemed as important. Paradoxically, at the same time, the practices appear to remain oblivious (or at least unengaged) with the reality that bird populations are in decline and the day-to-day life we lead as members of Western culture have a direct impact on the lives of these organisms. I describe this unrecognized and unknown denial as the mind's "shadow place" of birding.

In the mind's shadow place: personal action in bird conservation

I often asked birders, since beginning to bird, if there were any personal actions that they had taken with birds' well-being in mind. Investigating these personal actions represents, for me, an engagement with the notion that birds are more than a homogeneous species; that it is individuals who, as a collective, "makes" a species; and in turn, the individual is a scale in bird conservation that should not be ignored. While species and populations may be the common language of biological conservation, a species does not live a material life. Looking at the materiality of individual birds has importance, then. With individuals in mind, I spoke with Daniel while we were both counting migrating hawks in Toronto's High Park. The following is his reply to my personal action question:

> D: No. Not really. Apart from putting up a Martin house but no Martins ever looked at it. We've had Great Crested Flycatchers nesting here.
>
> G: I guess it's a house. A bird house.
>
> D: No. They'll find something without me. I just want them to be near where I can see them. It's quite selfish. There's no altruistic motive there. I can't think of anything else that I've done.
>
> G: Well, I guess Hawkwatch.
>
> D: Monitoring populations absolutely. We're just a tiny part of a continent-wide monitoring service but somebody has to collect the data. If we don't do it, it's not there.

The act of dematerialisation occurs on a continuum and in reality peoples' practices are much messier than existing at either absolute end. It is clear that, on one hand, Daniel explicitly does not know of any actions that he takes with birds'

lives in mind; his action of providing a nesting site was largely a self-described selfish act. I have to remind him that he is involved with Hawkwatch, a citizen science project that collects migrating raptor observations. Thus, in being involved with this project he does have an impact, though largely depersonalized and downstream, on the species he counts. It seemed to me that there was little acknowledgement or recognition on Daniel's part about how his day-to-day actions, when not birding, impact bird lives.

Birders, those who travel to places like Rondeau in the spring to observe species or sit in the September sun counting migrating raptors, tend to think of bird conservation in terms of populations and biodiversity in terms of species. Acts of conservation for birders I interviewed appear to include: collecting species sightings data for citizen science projects like Project Feederwatch; donating money to the organizations that organize the research projects like Bird Studies Canada; and supporting environmental organizations like Ontario Nature to act on their behalf to protect habitat or lobby political bodies. It is true that all of these actions have an effect and they are not insignificant: important bird habitat is protected and ornithologists can say with certainty that species *X* is declining in numbers while species *Y* is expanding. Bird conservation, in this way, is less about changing individual actions and more about providing the information (in bird inscriptions) or the means necessary (in donations) for organizations to make changes on your behalf. Rather than a change in individual behaviour, there is collective action. It is individual change by proxy.

Birding ≠ bird conservation?

While I have just acknowledged the importance of birders for monitoring bird populations or contributing to campaigns to protect habitat, I am left wondering just what are the personal actions that birders' take on bird's behalf. I return to Schaffner, who wonders the same thing and makes a larger argument suggesting that birding is simply *not* the same as bird conservation:

> The brand of environmentalism promoted by mainstream environmental organizations is made in ways palatable, conservative, and legitimate through a relationship with the accepted sport practice of birding. Unlike the growing environmental movement to end global warming, for instance, which threatens to radically change entrenched aspects of industrial capitalism, protecting wild birds has only involved relatively undisruptive changes such as the establishment of trade and hunting laws, small-scale nature preserves, and pesticide regulation. (2009, p. 212)

I have yet to see a cogent reply from the birding community to address this critique. In fact, it is an argument that could be made from my own work: when asking birders what kind of rules they follow when out watching birds, I was amazed at the human-centred (e.g. avoid trespassing on private property: "Yeah, well we try not to trespass. Hard to do sometimes"; follow the rules of the road when birding in a car: "Yeah, I tend to do be very conscious of where I am, what's around me. And I will make an effort to get off the road as quickly as possible.") or instrumental (e.g. do not drop trash: "Do not start going off the beaten path and leaving any garbage, empty your water, carry it out with you.") nature of the responses. True, there were thoughtful multicentric (Weston, 2004) responses,

but when birds were mentioned in most birder's ethical approaches to birding, it is often along the lines of Danny's response:

> I don't want to try and get too close, but I will approach one quietly and sort of let the bird—their instinct for self-preservation, you know, rule that. If you make too much noise, it's just going to fly away. But I don't want to disturb the bird. I want to get a good look at it but beyond that some move away.

Getting that good look is at the heart of the activity with little self-regulation or questioning about what might be in the best interest for the bird. In this case, the birder is leaving it to the bird to make the decision that he is too close—by flying away. This perspective, for example, ignores the energy required for the bird to fly away and the possible negative result on the ability for the bird to survive. This is a particularly important consideration during migration when birds are expending huge amounts of energy and time to feed and refuel. Nowhere in that practice is there any form of self-control on the part of the birder. Some birders, such as Norman, are notable for placing birds before sightings: "It's more important that the birds survive than we have a good look at it." Thus, while approaching birds to the point of them flying off is not everyone's practice, I have seen enough similar behaviour to this that I know it is not isolated.

Birding as sport or birding as conservation

Which returns us to the larger question that Schaffner raises: is field birding an act of leisure (sport) or is it an act of conservation? And if it is more than leisure, how does the birding community address critiques that birding is an activity that does little more than promoting the *status quo*—appearances that, as

an activity, participants appear to be doing little to address larger environmental concerns or, as I suggest, the personal well-being of birds watched?

I know that birders feel when they participate in citizen science programs that they are participating in the monitoring and conservation of bird populations. I know that birders feel that when they join an environmentally-oriented group that purchases and protects habitat for birds that they are participating in habitat conservation. What is good enough?

It is clear that people do not like to hear that what they are currently doing is not enough—we would all like to feel like we are well-informed and competent. It is also clear that bird populations are continuing to decrease. We know this, ironically, through bird population monitoring. What I think Schaffner raises is that uncomfortable feeling, an inner psychological state of angst, that what we do in the name of birds, on the whole, is not enough. It is the antithesis of the feeling one gets when seeing a bird. There are at least two responses to this discord: dismiss these claims outright (as I heard from birders as the paper was published) or reflect on the larger claims of the paper and make an effort to do more. More birders may simply choose to ignore the findings.

In this research, I did hear from birders who are starting to make connections between their larger lives and the act of birding. Take this conversation, for example, between Raymond and Elizabeth, birders interviewed at Rondeau:

> G: Would you say that, or do you have any examples of times where you have made—whether you have made behavioural changes or even purchasing changes based on the lives of birds?
>
> R: Absolutely.
>
> G: Can you explain to me maybe some of those things?
>
> R: I read Bridget Stuchbury's book *Silence Of The Songbirds*.
>
> E: It's a book at our Nature Club.
>
> R: Also, we are much more conscious of where a product comes from now. For example, we're a little more sensitive about buying products in the winter that comes from South America. We worry about the practices.
>
> I have even thought—I mean I haven't acted on this, but I have thought of going up to the produce manager of the local supermarket and say "I'm not going to buy these asparagus from Peru because I don't know what's on it, for one, and I don't know if there's something on it, what impact that has had on something that I care about, birds." So I have not done that, but it has crossed my mind, I should. I probably don't do it because I'm generally not a confrontational and I just figure he's going to look at me and say, "What's this jerk talking about anyway?"

It appears clear that bird conservation, in this case, is not a question of having the proper knowledge, it is a question of personal action, and the risk of looking like a jerk.

Just as Daniel had difficulty expressing the personal changes he had made with birds' well-being in mind, the notion of the individual exists in a shadow place. There is an act of double-blindness where birders, involved in bird conservation, shift the imperative for action away from the self to larger organizations and, when watching and discussing birds, disappear individual birds into organizing constructs *about* birds.

It may be difficult for birders to conceptually engage with the notion of individual birds for a number of related reasons: as I outlined in Chapter 4, birding is organized around a construct, the notion of species, that can disappear the individual; in this chapter, I have suggested that this notion of species guides conservation concepts like biodiversity and; birders are tasked with collecting data or donating money to be used by larger organizations to take action with that data or money on their behalf. In all of these, there is a generalized trajectory away from the individual. As can be seen with backyard birders, the individual can re-appear, but only within the context of a sustained relationship to place (one that often is, when compared to other places, asymmetric in nature).

Dematerialisation and rematerialisation

This is not, of course, always the case. Take Mara, for example. When I ask her if there are any personal actions she has taken with birds in mind, she is quick to reply: "Yes, very much so. The Piping Plover was in north Sauble Beach so I've been a guardian for that for the last 2 years." She is a birder from the eastern shores of Lake Huron, and has been involved in the daily monitoring of plovers nesting in the sand dunes near her home. She signs up for a morning, afternoon or night shift and watches the nesting birds. If people come too close or approach with a dog, she alerts them that there are plovers nesting on the beach. During these weeks, her practice of birding is deeply entwined with the lives of the plovers.

Piping Plovers (*Charadrius melodus*) are small shorebirds that nest in sandy areas near water. Significantly, COSEWIC (Committee on the Status of Endangered Wildlife in Canada) identifies members of this species as endangered. After a nesting pair was detected and became the first successful Ontario nesting in three decades near Sauble Beach in May 2007, (Ontario Ministry of Natural Resources, 2009), a program was instituted to protect the nesting plovers, including nest exclusion and the volunteer monitoring of the nests by birders from the area. In 2009, it was one of eleven projects along the Lake Huron shoreline that were funded with a total of $300,000 (Ontario Ministry of Natural Resources, 2009).

The scarcity of Piping Plovers has motivated these actions and has led to the high value of the species: as birds disappear, each nesting bird is seen as counting more towards the overall success or failure of the population as a whole. This perception of the bird's status helps explain Mara's interest in volunteering to monitor the few nests. It also explains the existence of a government-funded program to volunteer for in the first place.

In the light of the earlier discussion on dematerialisation and the obscured nature of the individual, this increased value of each Ontario plover is an ironic turn. The focus of an endangered species monitoring program is on the very material and ecological nature of the individual birds: egg numbers are counted, incubation days are calculated, predators are excluded, and the general public is educated about the birds' presence. Work is taken in earnest to become more

connected to the attributes which support the plover's nesting success. That this occurs *only* as the Piping Plover is disappearing is a repeating failure of our attention towards the more-than-human. These birds, as Bergman (1999) argues, are now our creation and a more a part of our culture, apart from nature. It is particularly damning that there was a time when individuals were ubiquitous, ignored and, as a consequence disappeared into a shadow place.

Birds in the shadows: urban spaces and birding

Part of the appeal of field birding, for many I interviewed, is the experience of the environment, absent of birds. Janette, who I spoke with at Rondeau, said that her interest in birding is "just the fresh air and outdoors you're out of the city. Quiet." Sonya and Darren also described the appeal of birding at Rondeau, even when there are no birds to see:

> D: Again, um, we like being out in this stuff. And we were here, a month ago?
>
> S: Yeah, three weeks…
>
> D: I don't know. Did we see any birds? But we still enjoyed ourselves, just walking in the woods, just listening to water bubbling or wind in the trees. So actually being out here is probably the great thing. I think if we had to go to the middle of Toronto to see birds, we wouldn't.

Field birding, in this case, becomes more than the collection of observations. It is the excuse to leave the house and visit a "natural" space. It is more than recreation. Arguably, through their sensory experience of the park, birders are building a connection with the place. Rondeau is an appealing enough

destination to visit that it does not matter if birds are present or not—the place has its own intrinsic appeal.

While I conducted interviews, birders would often remark about the appeal of the particular place where they were birding. At other times, birders also shared characteristics that would make a place ideal for birding. During my analysis, I collected these characteristics as they appeared in the interviews. These ideal places' characteristics, ranked from highest to lowest by frequency mentioned, were: 1) the place would have a low density of humans; 2) there would be a high density of birds; 3) there would be a variety of bird species to see; 4) the place would require little effort or time to get to; 5) you would see birds that are not found elsewhere; 6) you would have good views offered of the birds present; and 7) the place would be large enough to bird all day. The most frequent characteristic of an ideal field birding location, a low density of humans, is summarized by Barbara in this way:

> B: Sometimes we'll leave the madding crowd and go, "There's too many people there so let's go do that trail. There's not people on that side."
>
> G: Is that part of the appeal of Rondeau that it's not as busy?
>
> B: That's right. That's a big, big, big plus.

The act of birding, not surprisingly given its informal and personal nature, occurs most-often in appealing places that hold the characteristics of a desired birding place: few humans, a diversity of species. But what about the opposite: the places filled with humans and a high number of a low diversity of bird

species? If we return to Darren's comment that, "If we had to go to the middle of Toronto to see birds, we wouldn't", we can begin to answer that question. Field birding, typically practiced in my study, was unlikely to occur in places that lack appealing characteristics. Birders did not list, for example, downtown Toronto as one of their birding destinations. This does not mean, however, that the material presence of birds is absent in these kinds of places. Just as migrating songbirds travel through Rondeau along flyways on their way to breeding grounds in the spring, members of the same species travel though the city. During spring and fall migration, Toronto is full of the kinds of birds that most birders want see. The context of their presence, though, is often fundamentally different.

People looking for birds are not absent from the city. It happens, however, that their practice is often differently enacted. Members of FLAP (the Fatal Light Awareness Program) visit urban hotspots during migration to collect birds that are distressed, dead or dazed after flying into the city's downtown core. The fatal light in the organization's name refers to the lights that are left on at night in downtown commercial buildings. Something akin to moths being drawn to a porch light, migrating birds are drawn into the light of the city and cannot easily escape flying into the brightly-lit building. With collisions occurring at night, most bird rescue occurs in the early morning. Leesa, an experienced bird rescuer with FLAP, described her first experience with these migratory birds:

> I went in the morning once and there weren't really any birds around. My husband and I went when I got off work one night at 11pm, so although this is unusual for FLAP to have a lot of birds

> at midnight, it's more around dawn, this particular night was a very, very, very busy night. As we opened the car door, we stepped over dead warblers to get out of the car.
>
> Um, then we went to the CN Tower, which was, at that time, lit up and you could just see the birds fly in and drop. Fly in and hit, drop. Fly in and hit, drop. Um, flutter and try and go out of the light, just get to darkness and fly back in. You could hear, of course, the migrating chips. So you heard the sound and saw them try to leave and they couldn't leave out of the light and hit and drop and hit and drop and hit and drop. Just over and over again.

Thus, desired birds are found in the undesirable urban spaces in Toronto, but they are rendered away and made invisible. Again, this occurs because the birds are not in the right place: birders do not go birding among the steel, concrete and glass of the Financial District, they go birding to get "away" from the city. Field birders do not go birding to find dead and distressed individuals, they go birding to count the species they see flitting from tree to tree.

FLAP volunteers, however, work during the spring and fall migration to rescue the birds that have become victims of bird-building strikes. And these volunteers' focus on individual birds is offered as a way people are thinking differently about birds.

Engaging with the individual

Bird identification books, binoculars, notebooks, pens and nexrad radar images. These are all objects that bird rescuers use in their outings around the city. Significantly, these objects are not that different—some exactly the same—from the objects that birders used at Rondeau (see Appendix Q: Complete list of

technologies deployed by bird rescuers, for a list of all technologies mentioned by bird rescuers). Yet, when speaking with these bird rescuers, they were reluctant to call themselves birders. True, there are other technologies implicated in the task of rescuing birds: paper bags, clothespins, nets and homeopathic remedies. But if we look at the objects used, these two acts—bird rescue and bird watching—should not be that different. Nevertheless, they are. Morgan, who before becoming involved with bird rescue, started watching birds over twenty years ago. His response to my question, if he considered himself a birder, marks the difficulty with a label:

> M: I think what needs to happen is kind of what we're trying to accomplish here is different categories. We need to identify it. What is a birder? What is a conservationist? I think I am more of a conservationist, to tell you the truth.
>
> G: But what's fascinating is that, a lot of the qualities that people would say—Oh that's—If I took, if I described your abilities as it relates to birds and just broke them down bullet form and gave that to somebody and say, "Describe who this is." They might say, "This is a birder." Incredible, I mean you have an ability to identify birds to species, you have a knowledge of seasons, how seasonally, birds move through a particular place, a connection to a landscape. All of these are traits that birders have, I would say.
>
> M: Let's see here, yes. Those are certainly characteristics, but you know what? You take a birder, an avid birder, bring him into an environment where they can pick up and hold that bird. They'll go, "What species is that?" It's a bird in the hand, is quite different to a bird you see in a branch. And that warbler they see, that they take for granted year after year after year, is just on their checklist already. And they suddenly get a chance to hold in their hand and they can't identify it, "Wow, this is, I can't believe I have difficulty identifying this bird." So it's a different, to them it's a different type of bird, really. And, I don't know, it's, I don't know what I would call myself. I think I'm a combination of

> birder, conservationist, bird enthusiast. I don't know, it's a tough call.

Here, he is suggesting that the act of identifying of a bird in the hand and the act of identifying a bird through binoculars are really two different things. Morgan is also suggesting that there is something more fundamentally different; that identification is a means and not an end to the act of rescue. I asked Leesa, while discussing why more birders were not bird rescuers, if there was a need to identify birds to species at the moment of rescue:

> L: And people are drawn to birding because of that excitement we were talking about—you know, "Here's a new species." You get that, sort-of, collection idea but you also get the excitement of seeing birds free and wild and that connection to a different creature that, and that quality of connection is greatly changed if the animal is hurt. So that, that I think is one, sort of, in one way, very justifiable reason it's hard to deal with [ui].
>
> Another one, I guess you could say apathy is there and is, you know "What do I get out of it?" Yeah, and we were surprised actually that birders weren't more involved and more excited and we didn't get more support. We did have several birders who were involved and several birders who came from the Ornithological Club; Toronto Ornithological Club member who tried to get people involved in FLAP. So our volunteers have been, by and large, like the founders: people who have just heard about the problem, or seen the problem [ui].
>
> G: It's interesting, though, that perhaps on the surface, as you become more and more involved with bird rescue you get more and more; bird identification isn't the be-all and end-all because you can [fill out on forms submitted by FLAP volunteers] "unidentified warbler"...
>
> L: Who cares? It's not going to matter to the bird if you know what it is or not...
>
> G: ...because, in fact, it is the life that is most important? I'm guessing that...

> L: No, no, no. I agree totally and emphatically. In fact it says in the training manual "Don't sweat it if you can't identify it."

Not surprisingly for an activity where collecting distressed birds is the aim, the initial act of rescue is at the core of this way of knowing the more-than-human. This does not mean, however, that the birds are not identified. Rather, the identification is less important at the moment of rescue. If a bird is rehabilitated, for example, it will be identified at the rehabilitation centre.

Dead birds are collected, their bodies stored in a freezer and, at the end of a migratory season, their bodies are brought out and identified all at once. In comparison with keeping a life list, the act of identifying these bodies to species and inscribing them as a record is a distinctly different kind of political act. Morgan outlines how the data FLAP collects about birds allows them to speak to the bird's presence:

> But the, yeah, one of the biggest obstacles that we encounter when trying to convince a property manager or owner of the building that they have a significant problem is, you tell them, "You know, bird collisions with buildings are a big problem." But on the most part, the typical reaction would be, "Well we don't have that problem here." And so if we have the ability to throw statistics down and say, "Yeah, well as a matter of fact if you look at this list, this is what we've collected over the past seven or eight years at your building here." There's a general shock that this can't be happening at my building. And it kind of intrigues them more, to listen more. And pay attention more. They will still, in some cases, be sceptical.
>
> ...
>
> And they soon learn that, yeah, birds are colliding with our building, okay. So for that reason alone, the data is very valuable. It's just unfortunate that we have to keep those stats to be able to justify and prove to them that problem is in fact happening.

In this case, the act of recording renders the birds and the places where they die, visible to those who have not, or are unwilling to see the problem. These records are much like lists in field birding. They mark what species have and have not yet been collected. For bird rescuers, however, records do not guide an internal imperative to try and collect missing species. There is no effort to become the rescuer who has collected the most species of birds. There is no travel across continents to collect bird species yet to be rescued. Collecting birds, for rescuers, is a clear indication that something is *not* working.

Collecting. This verb is at the heart of bird rescue and is a part of birding. While the verb is the same, the intended meaning behind the actions are different. Collecting while birding is about gathering species observations. Conversely, collecting by bird rescuers is about saving individual birds. I believe that this distinction, gathering versus saving, marks a change in the ethical dimension of the acts and the conceptual location of both birds and humans.

Expanding social worlds

The scope and dimension at work in bird rescue is markedly different to other bird conservation efforts. It is an act of conservation that operates at the scale of individuals. This does not mean that it is divorced from the notion of populations, or that species do not exist. These ideas are, for the volunteer rescuers, an effect of knowing birds; they are not salient concepts to completing the act. Rather, this configuration of knowing the more-than-human foregrounds the welfare of each individual. It is easy to understand why: the life of a bird is

materially rendered in front of a rescuer (and not in comfortable ways: as I experienced on the mornings I joined rescuers on their rounds, it was easy to see how dying birds are suffering and how dead birds, with broken beaks or blood leaking out of mouths, suffered).

This act of rescue, where the individual does matter, involves a different perception of the location of the individuals (both human and more-than-human) involved. Through exhibiting caution and concern for the birds she rescues, Maria shared with me she feels a sense of guilt while holding a bird:

> And I found it difficult to learn the identification using a bird in the hand because I feel very guilty about holding it. Not because of the holding because it's quite nice to hold the bird. But I keep thinking, you know, it's scared. It wants to get away.

This illustrates how a sense of responsibility is matched with an empathetic understanding about what it might feel like to be held beyond your will. While both acts, field birding and bird rescue, involve being proximal to birds, Maria's perspective is a marked difference from those who approach birds as close as they possible in order to get a better look. Here, while physical distance is collapsed, a different understanding of this proximity, perhaps complimented in an emotional dimension, changes the nature of the interaction. The Cartesian understanding of space looses coherence and emotional space takes over as the defining parameter of place.

On the part of the majority of bird rescuers interviewed, rather than there being a distinct separation between the sphere of human and others, there is

often a blurring. Rescued birds are more likely to be seen as part rather than apart from the city. While their presence is troubling, the city does not denature them; they are part of this particular urban configuration. Alan, a bird rescuer in eastern Toronto, describes one way that bird networks are integrated into the urban space: "But specific species and stuff, let's say for instance I figure that ever since we were kids, seeing the same birds coming through every year, every year and hitting the buildings [that] we're on some sort of a flyway here and these building seem to be right, smack in the middle of it." Leesa, involved professionally within the field healthcare, sees the act of bird rescue as a kind of multi-species service:

> It's a community-health service, FLAP, in some ways, is a community-health service because for a community to know that those who are hurt, those small [birds] don't seem to matter, there are people who will look after them. There are people who can take care of them. There is somewhere where you can take them if they are injured. Part of the success of being out there is the community to know those kinds of things are looked after and it makes people feel more secure.

Maria echoes this perspective by suggesting that rescuers are "...probably doing more social work (laughs) because we are looking at the human environment. At buildings, at the city, really. And trying to rescue the birds that get lost in our city." Here birds are penumbral, their ontological origins uncertain. It is clear that they are not thought of as entirely human, but nor are they thought of as entirely distinct. It appears as though these acts of rescue mark moments where meta-species relationships emerge and concern for individuals—be they human,

more-than-human or otherwise—illustrate an understanding of the continuum of life between individuals.

Conclusion

Being present, in place, is a key assumption for the practice of birding. Place further influences birding—under the dichotomy of in place/out-of-place—by co-creating the perceived value of birds. Informed by Plumwood's (2008) work on politics of dwelling, I have outlined how the most common enactments of birding suffer from failures associated with how place is conceptualized. As a consequence, these enactments of birding, paradoxically, work to dematerialize the lives of birds and the conditions that support the pursuit of the activity.

If there is significance in the shift of ontological boundaries, where a different conceptualization of what it is to be both bird and human emerges, it is that it demonstrates that we, as members of Western culture, do have the ability to re-engage with the more-than-human in ways that do not appear to be consumptive; that an ethic of care can exist beyond the categorical human. Jordan and Serena, birders in their late twenties and early thirties, describe how they are concerned with similar themes in other birders' practice:

> S: I like to share. Like when [Jordan] saw the Kentucky warbler last year and he really wasn't moving. So I went down Bennett road and grabbed a bunch of people because they'd want to see it. I'd want someone to come and get me if there was this rare bird there that people don't often see. It bothers me to see that quality in other people. I mean competition is fine but, "I got that one, I got that one."
>
> J: Yeah, the "got." The "got" is a thing...

S: The bird does not belong to you!

While not marking the same ontological shift as those who rescue birds, Serena's claims acknowledge that in field birding, the bird can be backgrounded in relation to the birder's own feeling of need to see birds. As David said as we spoke about the relationship between ethics and being a successful birder, "I don't know if I tie the ethics to successful. The ethics is more related to the way it should be as opposed to a successful bird watcher. It might have a variety of definitions. But an ethical bird watcher. He's out there to see the birds that he can see without disturbing what's going on around him—without being a noticeable outsider." Birding, it would seem, configures the human as the outsider. Success in field birding, seeing the most number of species over a given amount of time, can be an act in direct opposition to what ought to be done if the ontological boundaries—of humans, of birds, of places—shift. What emerges is an understanding of a continuum of life and a more sophisticated understanding of place, where presence is not ignored on the grounds of location alone.

Chapter 6: Birding as environmental learning

Enacting birding

In turning from the description and analysis of the data collected, I begin to move towards some concluding remarks on this work. The caveat here is that while conclusions are often understood to mean an end, I offer these remarks—reflections if you will—as a beginning. As outlined in Chapter 1, by seeing birding as an enactment, as an ontological object itself, means that there is an opportunity to look at what might be missing from powerful enactments of birding and ask how they might be brought *differently* into practice.

As I describe in Chapter 3, field birding is understood as the act of identifying individual birds to species, often augmented with the technologies described in Chapter 4. When describing birders' understanding of birds within the dominant enactment of practice, birds appear to be rendered outside a sphere of social consideration (with specific, notable exceptions). It is not one thing that affects this perspective—e.g. the act of listing—rather, it is affected by the power of the particular assemblage, with each object working in conjunction. In this regard, checklists, binoculars, provincial parks, rare birds and acts of migration (plus many other objects not describe here) all work congruently to foster perspectives and subsequent relationships. Change one object, and the assemblage can change, with different perspectives and relationships with the more-than-human as an outcome. Different understandings of place, for

example, such as the homeplace, appears to foster a sense of sociality with the birds that visit the backyard largely absent from field birding.

Powerful enactments are those with the most coherence: they are the networks of relations in which the objects are most tightly bound together. These networks become taut through their repeated practice, their visibility increasing and in turn quickly become perceived as *the* system. This can be seen in the acceptance that field birding is the act of traveling to naturalized spaces to identify birds to species assisted through the use of optics. While just one of many possible ways to enact a practice of birding, this particular enactment is understood to be synonymous with the act of birding, and as a result, has great coherence. Any thought about how to differently enact birding will have to take into consideration the notion of coherence: there is a dense nucleus of objects here that might prove difficult to separate.

It is clear from the results that birding, in addition to being an economic stimulus or a form of leisure *is* a kind of environmental learning. Most powerful is the fact that enactments of birding, be they at Rondeau, in the backyard or in the downtown core of Toronto, lay bare a range of possible relationships between humans, the more-than-human and the places they are to be found (or, significantly, remain hidden). In the preceding chapters, I unfurled a story that described a paradox in many enactments of birding. For an activity steeped in the lived experience of wild birds and based on collecting and ordering knowledge about bird species, often little thought is given to the material and individual lives

of birds themselves. While I offered a reasoned narrative why this perspective may have emerged, which was based on personal experience, observations and interviews, I also showed that any particular enactment that backgrounds the material life of birds does not have to be the *only* way that birding gets "done". Now, these different kinds of birding can offer the dominant enactment examples of a different practice, one where individuals are engaged in a multicentric (Weston, 2004) ethical space. A challenging of concentrism—understood to be a judgement of worth emanating from a central core like ripples expanding from a pebble dropped in a pond—in ascribing value, multicentrism decentres the human as the focus of moral judgement. In its place, it posits that there are many centres of moral worth, and consideration of the multiplicity of these centres calls forth a different kind of etiquette: "a willingness and ability to make the space, not just conceptually, but in one's own person and in the design and structure of personal and human spaces, for the emergence of the more-than-human others into relationships" (Weston, 2004, p. 31). Assuming that birding—in all its configurations—is concerned with the welfare of both the birds observed and the larger material networks that support their lives, are the members of this community of practice able to recognize the limits of their activity while still being able to freely watch birds? This is the crux that the birding community faces: how ought a practice be best enacted that fully acknowledges the power, privilege and responsibility of watching wild birds?

This final chapter begins with a synthesis of the work outlined in the preceding chapters, which leads to a short discussion of the strengths and limitations of the research undertaken. Then, I introduce the concept of reflexive birding, a model of practice, which allows birding to remain recognizable and maintain its coherence, while offering the possibility to recognize the individual materiality of bird lives.

Practices of coming to know the more-than-human: a summary and discussion of results

Connecting to the material nature of the world

Generally, birders, backyard birders and bird rescuers believe that their actions foster a connection to the birds they see and to the greater context in which the birds dwell. Take Chester's experience, for example:

> C: Well I think in addition to the sheer pleasure of watching birds, there is also the fact that one becomes tuned into nature which is a virtue in itself.
>
> G: Can you tell me more about that? What do you mean by tuned in?
>
> D: Well thinking about things that matter for the birds, one can't help but go from there to ecosystems, and various other things.

As suggested by Chester, birding is a deeply pleasurable practice: this pleasure, I theorize, comes from two related factors: the sensory experience of identifying birds and excitement felt from seeing birds. First is the sensual nature of the act, as Sheri mentions: "Well, I love that birding involves all the senses, you know, your aesthetic senses. You know your sight and your ability to observe and also

the sound and hearing." Through a birder's attention, birds (while appearing more and more in expected places) begin appearing unexpectedly, these unexpected encounters "present" themselves as a result of a birder's sensory attunement to birds' presence. As birders become more sensually engaged with the world, they can determine the identity of birds through a gestalt, know to some birders as a "giss[7]", rather than through the collection and mapping of a list of field markings. This sense of discovery coupled with openness to the world, encourages birders to keep looking and listening.

Second is the sense of excitement that comes from detecting and then successfully seeing a bird. Leesa, a birder as well as a bird rescuer and a health care professional, imagines the underlying physiological responses that come from seeing a new species of bird:

> G: Do you still watch birds today? Would you consider yourself a birder?
>
> L: Um. Good question. I've become much less and less of a birder. Um, probably I would only go out birding a couple of times each season typically looking for birds. And part of that is, is that I've seen sorta everything in the area so there isn't the, "Oh! I want to see these other species." Certainly when I travel, one of the reasons I travel is birding and to go [ui]. So in that sense I'm kind of a travel birder. I'm not an everyday birder.
>
> G: What is the appeal of birdwatching being the focus of travel?
>
> L: See a whole lot of new birds [laughs].
>
> G: So, there is still something, there is still some, I'm putting words in your mouth...

[7] Giss is an acronym standing for General Impression of Size and Shape.

> L: ...go ahead...
>
> G: ...there is still some kind of joy in seeing new birds?
>
> L: Absolutely. There is the interest, the intrigue and the excitement of seeing new species, for sure.
>
> G: Is it an emotional reaction? Do you have a reaction? Can you reflect on it?
>
> L: It's a combination. Certainly it's an, it's an emotional reaction, seeing another sort of creature is very exciting. There is some of that intellectual challenge. If you're looking for something, trying to find habitat, know where it's going, when you see it, to be able to match it to what you know about it and the picture in the book and do the identification is, uh, is um, is a little bit of its own...
>
> G: ...intellectual challenge and your dopamine starts flowing...
>
> L: Definitely dopamine... (laughs) ...well your amygdala, actually. There's definitely that little bit of dopamine and serotonin release, triggered by the amygdala, the emotion centre.

In short, seeing (hearing, touching) birds feels good. Identifying individuals to species provides a sense of accomplishment. The pleasure of watching birds can expand into an awareness of the living and non-living contexts necessary for birds' continuing existence; in this way it can become a practice of natural history. Of those I interviewed, be they a birder, backyard birder or bird rescuer, participants often shared that through their activities they gained a greater awareness of the more-than-human world. Judy and Bill, both birders for less than five years, expressed field birding's influence on their perspectives of the more-than-human:

> B: We've talked about, uh, just in our landscaping...This house that we're looking at restoring, and so on; we've talking about the

> feeding stations at the [Rondeau nature] centre. And we got into a discussion yesterday about–
>
> J: Well the property is getting quite overgrown. And being careful as to how we–what we weed out, and what we leave as to what we'll maintain the habitat of what has moved in.
>
> G: So in a sense, perhaps even without planning, you have a naturalized yard that birds use as habitat.
>
> J: Definitely. Again it's just an awareness of nature versus nature is here for my good time. It's a different attitude.
>
> B: So many people go through I think through their lives just don't stop, and think. And be it birding, be it any aspect of nature, it's just there.
>
> J: Bill has an awful time if you hit the butterfly with the vehicle. It bothers us all.
>
> G: So taking the time to stop, and think about the impact is important. And birding seems to connect you to beyond yourself, as it were?
>
> J: Yeah, just more acute awareness. It's just a heightened awareness. There are those that want to be made aware, and there are those that don't. So we do in every way we can.

It appears, then, that beyond learning to identify wild birds, being interested in some combination of watching, feeding or rescuing wild bird facilitates an awareness of the larger environmental context surrounding their practice. Barbara described this openness to other noticings to me:

> But even if we go up and we don't see a lot of birds, if we don't see any birds, we get to notice everything else. I've now got an interest in butterflies, in wildflowers, in fauna, and that sort of thing because you get to notice, as you're standing around waiting for birds, you can't help but notice everything else that's going on.

This ecological awareness can even be used to assist with the act of identification, where knowledge of habitats and their skills in amateur phenology[8] work together to help a birder narrow down the possible identities of a sighting.

Rendering places visible

While field birding often occurs in places perceived as following conventional bird environment wisdom—naturalized spaces that provide food and habitat—there are configurations of biotic and abiotic factors that bring birders to unexpected places. One such type of place is the sewage lagoon. Birders visit these constructed wetlands because they attract birds, who are attracted here by other members of the nutrient-rich food chain. At the base of the chain is human waste and these lagoons are perceived as waste-spaces. Birders have been critiqued as being complicit in the creation of this waste, but I argue that birders are simply following the presence of birds. More significantly, places perceived as naturalized are often significant sources of toxicity themselves (Gebauer & Weseloh, 1993). Birding in this sense, rather than ignoring the presence of our bodily waste, helps to change the visibility of the sewage lagoons visited.

Blurring the social

In the case of some backyard birders and bird rescuers, their practice subtly blurs the social location of birds. Backyard birders think of the act of feeding as a form of avian assistance and support. Because of the potential for

[8] This is the study of events in plant and animal lives, influenced most often by seasonal variations in climate—knowing that migrating warblers return to Rondeau late in April and early in May is an example of phenological knowledge.

birds and humans to be in the same place over time, some birds are recognized and known as individuals. This belief, for backyard birders, that their actions are assisting these (often long-term) visitors, opens the possibility of a social relationship between the birds and human neighbours. Backyard birding is as much about fostering this social relationship with birds through food as it is about identification or awareness about the larger more-than-human world. There has been fear that feeding birds may promote a dependency on human-provided supplements, but no proof supporting that claim has been found (Brittingham & Temple, 1992). Intriguingly, recent research (Robb, McDonald, Chamberlain, & Bearhop, 2008) proposes that supplementary bird feeding could "artificially perturb" natural selection, yet no evidence exists to suggest this is occurring.

Bird rescuers see their work outside the sphere of recreation or leisure—as Alex described, rescue is laborious: "That's why I don't think—our numbers might fluctuate as far as volunteers go or something but I don't think we're getting people banging on the doors to volunteer or join. And a lot of them, I believe—we had a little flurry a couple years ago and it didn't take very long before they disappeared because they actually realized that it was a little bit of work." Rescuers, involved with the collection of dazed, distressed and dead birds, shared with me how they thought of their practice as a kind of social work or a community health service with implications for both birds and humans.

Birds seen in these contexts have intrinsic value and exist in reciprocity within an expanded social sphere. Active at the same time, however, are practices of observing birds that work both to dematerialize birds from the conditions that support bird life and render away the presence of an individual from the first-hand-experience. Remember that I am using dematerialization in two ways: the first is how Plumwood (2008) writes of the term, meaning to become out of touch with the material conditions that support lives. The second is my attempt to deterritorialize the concept by including a loss of affect, marking a conceptual "disappearing" and consequently the subsequent support to think about objects differently.

The contradiction of birding

Individuals matter: they are the literal constituting bodies of populations and species; they exhibit agency and subjectivity in their own right. For example, tool use, imagination and causal reasoning, once hallmarks of human intelligence (and superiority), have been shown by members of the Corvid family (consisting of Jays, Crows, Ravens and other close relatives) not to be our exclusive domain (Emery & Clayton, 2004). Those who spend time observing wild bird behaviour could likely provide their own anecdotes to confirm and expand these scientific results. In June 2009 I, for example, watched two Northwestern Crows (*Corvus caurinus*) in the coastal town of Haines, Alaska arrive as a line-up for a ferry formed and they proceeded to cooperatively pick off and eat dead insects from car grills (see Figure 11, below). While one was working to remove the

Figure 11: The two Northwestern Crows (*Corvus caurinus*) I observed cooperativley feeding in Haines, AK.

invertebrate carcasses from the grill, the other was eating the insects on the ground. Each took turns to as the puller and the eater. In my mind, these were two individuals at work to make use of a novel source of food.

While different kinds of individuals appear to backyard birders (repeat visitor often differentiated by distinguishing characteristics) and bird rescuers (birds are rendered as individuals in need, where identity is a secondary characteristic), most birder's conglomerate the individuals they see into sighting records that reduce the experience to a tick-mark in a bird list. At its worst, these enactments of birding have little to do with birds: they could be seen as an act of animated stamp collection, devoid of life, agency or intrinsic value.

Rendering the act of birding

Birding, as a knowledge-making practice that emanated from the amateur's re-alignment under the scientific inquiry of ornithology, inherited a legacy of looking at birds as objects of knowledge to be captured. Amateurs assisted with early ornithological work to describe the variety and number of bird species in North America. The concept of biological classification continues to define the practice of birding today, visible, for example, in the organization of species and families found in modern bird identification books. I suggest, however, that the biological notion of species easily maps to a birder's encounter with birds: birds of the same biological species look alike; hence they are lumped into a "like" category based on visible characteristics rather than underlying genetics. As birders move away from this concept of species to family, this

taxonomy begins to lose coherence. That bird lists and bird identification books, for example, are organized by biological taxonomy legitimizes this perspective as *the* right way to know birds and acts to exclude other possible ways of knowing and organizing wild birds.

As a result of the earliest modern conservation movement to protect species of migratory birds, the material bird body was no longer available to birders. Consequently, sighting records rose to prominence as the right way to inscribe the presence of a bird. Value in this particular practice of birding is created when an ephemeral sighting is made durable through the creation of a sighting report. Birds become an object to be regulated with observations as the way this bio-power is accumulated. Luk suggests (2000) this watching, monitoring and counting brings birds into "codependent intersubjectivity" (p. 9), making bird life and its subsequent survival dependent on the activities and operation of conservation organizations, such as, in the case described by Luk, the Audubon society.

While a record allows, on one hand, a collection of experts to vet the authenticity of a reported sighting, it also works to reduce different acts of birding into the act of documentation. Birding, practiced in this way, risks becoming an act, which values the collection of a proxy (sighting report) of a proxy (bird specimen) of the organism in question. Value, as perceived by birders, is also determined by the place that birds are seen. Simply, if a bird is understood to be out-of-place, then birders will seek it. These values further this

notion of codependent intersubjectivity, but place new emphasis on those species of birds deemed aesthetically pleasing or as scarce.

The technologies used by birders to find, see and record bird sightings have remained largely unchanged since the early 20th century. Birding practice, however, is undergoing a transformation with digital objects refracting current practice into something different. While the adoption of these technologies by birders promises to improve the ease with which birding is practiced—by continuing to change the nature of time, collapsing space and reducing our own biological limitations—there are also new ethical considerations in their use. Using the resources of the Internet to sharing bird sightings lowers the barrier of entry to access this information. Therefore, these reports proliferate, often with little thought to the consequences of birders visiting the reported birds' location. The new visibility of bird bodies using Nexrad radar presents the radar images as an authentic depiction of migrating birds' presence. What is left unexamined is the implication of forecasting "good" birding days: radar can only provide an incomplete vision of bird migration and little thought is given to what may be missed if a decision to not go birding is made using this technological sense of surveillance and vision alone. A digital image, captured by digital cameras, perhaps marks the greatest change. With the adoption of a digital camera to the suite of optics used to see birds, birders can freeze the sighting of a bird. This works to effectively change the nature of identification: captured images can be brought home to ensure a correct identification. This, I anticipate, would do more

to dematerialize the act of field birding, than any of these other practices. As suggested by Bergman (2005), in the use of these technologies, birds risk becoming simulacra, where "animals as physical beings seem to vanish" (p. 268) with representations replacing the birds themselves. The image takes precedence over the living organism and as a consequence, birding risks becoming an act of collecting images out of context, independent of identification.

The use of digital photographic equipment by birders speaks to a larger relationship enacted between humans and the-more-than human. "The storybook wolf", a striking image taken by José Luis Rodriguez, won the 2009 Veolia Environnement Wildlife photographer of the year competition. The competition, co-managed by the BBC Wildlife Magazine and the Natural History Museum, is intended to showcase striking images of nature. The winning entry's subject is an Iberian Wolf (*Canis lupus signatus*) captured leaping over a farm gate in the darkened Spanish countryside. Awarded in October 2009, by January 2010, Rodriguez was stripped—technically speaking, disqualified—of the award. From the special statement announcing the disqualification:

> The judging panel was reconvened and concluded that it was likely that the wolf featured in the image was an animal model that can be hired for photographic purposes and, as a result, that the image had been entered in breach of Rule 10 of the 2009 Competition. ("A statement regarding the image–The storybook wolf, the 2009 overall competition winner," 2010, ¶ 1)

The disqualification is an interesting development as clearly signals that a boundary had been crossed between what is considered wild and what is not. The

2010 rules of this competition state that “only pictures of wild animals and plants and landscapes are eligible. Images of animal models or any other animal being exploited for profit may not be entered” ("2010 competition rules," 2010, ¶ 14). Rodriguez’s boundary-breaching choice of using an animal model was the ostensible reason for the disqualification. Read, however, how this image was crafted:

> Watching the animals as they returned to the same spot to collect food each night, Mr Rodriguez decided on his dream shot.
>
> He eventually captured it using a photographic trap that included a motion sensor and an infrared barrier to operate the camera. (Gill, 2009, ¶ 11)

Given that there is photography involved, an act that already works in ways to remove the viewer from the subject, as Evernden (1985) suggests, that the animal subject should be seen as now falling into the pejorative category of “not wild” is fascinating. The winning photograph was never an example of a chance moment, where human, photographic equipment and wolf all masterfully and fatefully converged. It was, rather, a measured, long-term exercise involving bait to attract wolves, cameras to record the image and an infrared trap to trigger the shutter. The winning photograph, regardless of the status of the subject, was never an unmediated image of wildlife. Matt Brower (2005b) writes of a model of nature photography as “non-interventionist” (¶ 1) offering “a vision of nature as a non-human space in which humans do not belong” (¶ 1). That these images are seen as authentic entries into “nature” works to further reinforce an assumption that humans are separate from the more-than-human world. In fact, the actions taken

to capture the wolf suggest that we, as viewers, are entangled in these boundaries, enacting a network where we are not distinct from the photograph of the wolf, but bound up in it. That viewers do not recognize the production of these images and how they connect "to a network of practices relating to the conceptualization of nature, the human and technology" (Brower, 2005b, ¶ 36) promise to reinforced in birding's move to digital photography.

Individuals in shadow places

It has been suggested by authors like Schaffner (2009) and Karnicky (2004) that field birding is a sport not meaningfully engaged with the long-term survival of the bird species it seeks to find. I found that birders descriptions of their ethical alignment while birding more often fell on the side of an anthropocentric or instrumental continuum with some birders suggesting, for example, they were most concerned with not trespassing on private property. I suggest that the imperative to get a good look at a bird can trump the bird's own right to be left alone. This need for a good look can be seen, for example, in the technologies that "bring" birds closer: while often working to leave the bird undisturbed, binoculars act to subtly manipulate the agency of a bird. Most of the birders that I spoke with did mention the importance of not disturbing birds, but at the same time, told me stories of birders not showing the same respect. Barbara and Paul shared a story they heard from a father and son who baited a Northern Hawk Owl (*Surnia ulula*) in order to attract it closer to them:

> G: So how did you hear about the fact that they were baiting the hawk owls?
>
> B: They told us. We were talking to them as they were looking for the Harlequin [ducks] with their cameras. And they said, "Oh, you should have seen us up in Hamilton. We got this Hawk Owl. We baited it. We just put the dead mouse right here and it swooped down. I put it there then my son got the photos."
>
> And we were going, "Oh my god."

It can be hard, when success in field birding is constructed as either the correct identification or the capture of an image of the individual seen, not to want to try and get a better look. Birds that are not identified can be seen as a lost observation rather than something else. This imperative might drive the kind of behaviour that Barbara shared with me. But it is not the only motivation at play. Some birders, like Serena, are okay with the fact that the unknown bird remains a mystery:

> G: Have you felt like that, not necessarily that somebody is pointing there finger and saying you must identify it. But do you feel like a pressure in birding to know what the bird is?
>
> S: I think it's better to say I don't know than to misidentify a bird, you know, in front of someone who is a bird bander. Or doing it for like 50 years. I'd rather say I don't know and then have them give me some pointers or something like that. And then, I really don't, like, there are some birds that we just don't know and we look up the picture. We look through all of our field guides and still a mystery. And let it be a mystery. That's fine. It's still a bird.

Barbara's anecdote, however, does raise the question if underlying actions in birding are wholly congruent with the well-being of individual birds.

As I outlined, often the action birders take in the name of conservation is at a collective, rather than individual, scale: collecting bird population data for citizen science projects; donating to environmental organizations to protect habitat. Research into environmental action (Emmons, 1997) provides a model which suggests that individuals grow and learn as they carry out and reflect on personal actions. Emmons' model suggests that there is an intimate connection between actions, learning and further actions, with preceding actions informing subsequent acts. The nature of this relationship between past and future environmental actions, when applied to the kinds of collective actions undertaken by most birders, works to reinforce a notion that someone else—conservation organizations, environmental NGOs—will undertake the difficult work required in the conservation of birds. When actions are often offloaded to organizations to work on individuals' behalf or data is collected in the name of tracking populations, the individual (human action and bird bodies) is dematerialized; disappeared. The dematerialized individual excuses those from examining and making the meaningful personal changes required to interrogate the kind of power that has created birding as an end in itself or forging "any strong connections between human and avian consciousness" (Karnicky, 2004, p. 257).

This is not to say that this scale of conservation is insignificant. Rather, it is to point out that actions at an individual scale appear to lack significance in birding. In fact, when speaking about conserving bird populations, the only time that the material life of an individual bird gains significance is when a population

is under threat: here, mating individuals gain more and more value as the population on the whole decreases. It is ironic, however, that the material lives of these rare birds only appear as they are disappearing.

The urban shadow place

Birders, while they did bird in unexpected places like sewage lagoons, stated that they preferred to bird in distinctly non-urbanized spaces. Field birding locations mentioned in the Greater Toronto Area (GTA), for example, were parks and conservation areas: naturalized spaces, understood to be more a part of nature than otherwise. Birders did not talk about birding in the downtown core. I did not find field birders in the downtown core. Some birders stated that if they had to bird in a place like Toronto, they simply would not.

In cases like these, birding is a bucolic activity. A challenge to this perspective is the physical presence of birds throughout the GTA, including the downtown core. Especially during spring and fall migration, birds do not discriminate based on a rural / urban divide. It appears as though, in the minds of birders, birds' presence has been rendered away by larger cultural notions of the urban, a place devoid of significant more-than-human life. Birds' visibility, then, is not only affected by their material presence, but also by the practice itself. Bird rescuers, in enacting a kind of birding based on an understanding that birds, independent of the place found and the condition they are found in, render these birds visible.

Summary

This study represents the most comprehensive to-date qualitative investigation of the practices of watching birds, using multiple methods including: semi-structured interviews; participant observation; photography; naturalist field journals; and spatial data. Seeing the practice of birding as an example of environmental learning made explicit, this study constructed birding, as more than a leisure activity or sport, but as a kind of environmental education. Further, this work describes the often contradictory cultural relationship that humans have with the more-than-human world whereby some birders' practices rendered birds as little more than inscriptions, and others began to redefine ontological understandings of what it is to be human and non-human. Let me be clear: these are both ethical and political engagements with birds.

I am, however, interested in practices involving humans and wild others that redefine a consumptive, instrumental and anthropocentric construction of nature as a binary to our humanity. In investigating and describing just some of these multiple practices, I have illustrated that the act of birding is not homogenous. Objects and places combine with humans and birds; each contributing differently to the many networks of relations. In rendering birding as an ontological object itself, I want to offer the possibility of redefining the edges to help construct a different practice. One where the senses thrive and a practice of natural history emerges, but renders a different kind of visibility by foregrounding the material individual, in the ultimate hope that birding, at all

scales of practice, can be an inquiry with the more-than-human rather than a query about it. In this move, birding can further become an act that helps to illuminates the multicentrism of the world. Given that we, ontologically, can shape the world around us, Weston (2004) suggests that "ethics itself must be a form of invitation or welcoming" (p. 32) where, as the welcomers, we "are called to a kind of attentiveness much wider and less pre-structured" (p. 31) in order to take the kind of care a multicentric perspective would require.

Contributions and key findings

This study expands the field of environmental education research in two broad directions. First, in positioning the informal act of birding as a kind of environmental education, this work expands the boundaries of what gets to count as environmental learning, explicitly including questions of ethics and politics. Secondly, through the adoption of a methodological approach that did not pre-assume the location and agency of objects under study, birding was investigated as an enactment, where its coherence as a practice emerges from the specific configuration of objects.

As a result, several key findings of this research have emerged. As suggested by Mol (2002) and Law (2004a), objects may be more fractal in nature than typically understood. This research suggests that bird identities are fractal and that birds are multiple objects. Simply, participants suggested though they may be observing members of the same species, a bird in the hand is not the same as a bird observed through binoculars. A related finding illustrates the

central role of certain objects in the enactment of birding. Bird books and their taxonomic organization, for example, assist in regulating what kind of seeing occurs through their use. This kind of regulation echoes the work conducted by Law and Lynch (1988) on the organized gaze of the birder, but expands to show this particular kind of organization renders other possible enactments away. Particularly visible in the enactment of field birding, sight records appear to steer birding into acts of documentation. As a result, other enactments are devalued: birding is not about the experience of emotions; the unidentified bird typically disappears from official acknowledgement and; the importance of the larger ecological context within which the act of birding occurs is under-emphasized.

This research also found that an economy exists within the enactment of field birding, where the observations of birds act as the currency shared between birders. A "good birder" is someone who is able to find (and communicate) the location of a desired species of bird. Intriguingly, because these observations are still directly linked to a living organism, sightings are considered perishable objects. As a result, systems have emerged to transmit these observations as quickly and efficiently as possible, with transmission speed and reach becoming critical factors in determining the success of a system. This reputation economy of observation appears to place the need for a "good look" at a bird before the consideration of a bird's own interest in (not) being approached. As some birders move to the use of digital cameras to aid in the identification of species, the act of capturing an image works to reify the notion of separateness between birder and

bird. Attempts to regulate the more-than-human world, implicitly connected to the earlier findings concerning the observation and dissemination of bird observations, can also be seen in the backyard. This research suggests that backyard birders are particularly interested in attracting a particular subset of birds. As a result, backyard birders often deploy exclusionary devices to keep unwanted species from eating the provided seed. In these developments, distinct ethical movements are being made—the separation of bird from birder; on accruing a good reputation as a birder; an emphasis on getting a good look over all else—on the part of birders that work to dematerialize the lives of birds from larger ecological and economic contexts.

Study limitations

No study design is without its limitations and I acknowledge that my own work is limited in different ways. I started by citing the economic impact and participation of birders in the United Kingdom and the United States. This lays one assumption bare: that birding and birders are similar in the United States, the United Kingdom and Canada. I based this assumption on the similarities between our cultures, yet other research may prove this to be incorrect. I believe, however, that this work and the implications drawn from it are transferrable between contexts, in part due to the use of multiple methods to collect rich data.

The scope of the work was limited by the time and funds available to conduct the research. I could have spoken with members of other groups who interact with wild birds, such as bird banders, for example. I also, with more

time, could have visited more rare bird sightings within Ontario to conduct interviews and participant observation. These kinds of sightings are not reflected in the work.

Methodologically, I found that as I moved from Rondeau to Toronto and beyond, it became more and more difficult to keep track of all the objects implicated in the variety of practices enacted by participants. In a sense, it felt like the implicated networks were proliferating outside the illumination of my methodological spotlight. When discussing multiple practices, implicit is a lack of homogeneity. I found that it was difficult while writing and reporting results to both acknowledge the many different practices while still speaking with any kind of coherence about the enactments. As such, I tended to retreat into the categories I had initially described: field birding, bird rescue and backyard birding. This suggested, in a sense, that there was more coherence within these categories than between them. I fear that what was lost, or reduced, in retreating to these categorizations was the difference between each interviewee's practices.

The credibility of this research was enhanced by the use of multiple methods as well as identifying reflexively my own situatedness and positionality in the practice of bird watching. Simply, I could not exclude myself from this work. During data analysis, I revisited the collected interviews more than once, further enhancing the work's credibility. Finally, I spoke with other birders of my work and tentative findings. In so doing, I was able to gauge reactions and see whether our impressions fit.

Implications for practice: becoming a reflexive birder

Thus far, I have described the practices of birding enacted by participants. In the following section, I turn to generating possibilities for the practice of watching the more-than-human that begin to address the concerns raised in the preceding chapters. The defining characteristic of this practice of birding, I will argue, is reflexivity. Here, to be reflexive means being (more) aware of the relationship between a birder's kind and context of practice, and the process of knowledge production—these structures are always politically and historically situated (Lotz-Sisitka, 2002). A corollary to this awareness is an understanding that there are limits to this knowledge, as well. This is part of my research project's larger agenda: by laying bare some of this context, I hope that birders can be more critical, ethically and politically, in crafting a particular set of practices. Rather than being prescriptive in nature (thou shalt…), I will offer possible directions for the popular practice of birding.

With nearly one third of North American adults considering themselves birdwatchers (A. Scott, 2004), I want to make an argument for the value of these first-hand experiences watching birds. What needs recognition is the way certain enactments offer entries into a rematerialized life of birds. At the same time, birding, by virtue of the complex lives birds lead, offers the opportunity for birders to "substitute a simplistic ideal of atomic places for recognition of the multiple, complex networks of places that support [both] our lives" (Plumwood,

2008, p. 139). This is, in my opinion, where critically-informed environmental education has a role to play in the activity of birding.

Beyond beginnings and ends

When I look at the range of birding practices I investigated, those who rescue birds appear to hold a clearer understanding about the material conditions that impact (no pun intended) birds' lives. To become a "bird rescuer" implies a realignment of moral and political considerations and an understanding that regardless of place and time, if there is a bird in distress, there is something that can be done to help remedy the situation. Thus, to consider yourself a bird rescuer means that there are very few times when you would not consider acting on behalf of a distressed bird. Not seen as an act of recreation or leisure, the act of rescuing birds is inherently a political act interrupting the *status quo*; it is a politics of dwelling enacted.

Most enactments of field birding, and even backyard birding, have distinct beginnings and ends. Field birders decide to "go birding" and visit a place for a given period of time, in an attempt to see as many bird species as possible. Experiences are temporally framed with objects like trip lists. Additionally, backyard birders can begin and end feeding birds, for certain seasons. I suggest that thinking of birding in this way, in discrete chunks of time, means that there are other times and places where birds are encountered. Yet, because a birder is not explicitly looking for birds these birds do not appear, perhaps as a result of being rendered into a mental shadow place. Witness, for example, the presence of

migratory songbirds in the downtown core of Toronto and the absence of downtown birders. As Morgan described to me, the ranks of bird rescuers are absent of birders:

> G: And it seems as though we have this incredible opportunity, and I just wonder, whether again, we need to be asking more of birders, in a sense.
>
> M: Tried.
>
> G: Yeah?
>
> M: Yeah, I think it's, again, there, saying that for the vast number of whatever birder you are, they are a means of entertainment. And until the right strings are struck where, I want to see these guys here, my children, my children's children and not just in the short term on how many birds identified today, um, it won't change.
>
> You know, we've had, I've experienced having a few birders come down, train them, and one even had the audacity to pull out this check list and start checking off the birds that we were picking up off the sidewalks. And I go, "You're missing the point."

There are benefits for birders coming to see birding as more than an activity with a distinct beginning and end: acknowledging birds' presence becomes a core value, enacted anywhere, rather than something that is done in the right time and place. The notion of birding beyond ends means that a birder could not as easily ignore the significant presence of the more-than-human just because they are not "out birding".

Redefining the novel

What might the consequences be of a birder who is more engaged with bird life? For one, the everyday could still hold interest. As described, birders

seek out the novel: birds out-of-place; unseen species; the rare. While there are calls from within the world of field birding to change practice, such as Eubank's (2007) appeal for birders to ground their practice in the senses rather than technology, this article still foregrounds the acts of detection and identification of the new or unusual *as* birding. This emphasis on novelty dichotomizes birds into a taxonomy of wanted / unwanted, with unwanted species often being ignored and undervalued. Challenging birders to examine what counts as novel offers an opportunity to redefine and disrupt the wanted / unwanted binary. How could birders find novelty in the everyday? Rather than disregarding urban birds because they have already been seen, bird watching could become more of a practice of natural history, a practice that fosters through observation, a greater understanding of human and non-human impacts on the larger landscape (Bell, 1997). Let me suggest that what this might look like in specific terms is an emphasis on observing behaviour.

Backyard birders, in a sense, already practice a flavour of this kind of birding: they get to observe a smaller subset of bird species over a longer period of time. Trying to "outsmart" pigeons and squirrels from getting into feeders requires attention to specific behaviours. All birders could benefit from finding novelty in the everyday. I enjoy, when I come across a House Sparrow, simply watching what they do around me. Rather that ignoring them because their species is no longer novel to me, I am engaged by their behaviours. Just days ago, I watched in front of me what appeared to be a flock of four adults violently

chase—feathers literally flew—a female. While I have seen House Sparrows squabble, I had not seen anything quite like this kind of action before. Why were they chasing a female? Why were males and females both chasing? What had been the transgression? Clearly, I still have things to learn about House Sparrows. It is these kinds of first-hand observations of bird behaviour, such as the House Sparrows fighting or the Northwestern Crows I described above, that work to expand my notion of what birds are capable of. This openness is the etiquette that Weston (2004) suggests is integral to ethical encounters.

Significantly, it is this kind of knowledge, perhaps best described as natural history, which enriches my understanding of the more-than-human world. The act of birding, in light of this openness, promises to be more than the identification and collection of species. Already, birders watch bird behaviour. Because enactments of birding often work to de-emphasise an inquiry of looking for unexpected behaviours and relationships in favour of seeing as many species as possible, I am suggesting that rather than disregard a bird sighting because it has already been seen, birders should look beyond the need to collect the species and take the opportunity to slowly observe—really watch—the bird's behaviour.

Playing with checklists: the possibility of digital objects

If the objects used by birders shape the practice of birding towards dematerialization, one solution could be to "get rid" of these objects: stop using checklists or bird identification guides as they do more harm than good. Yet, a challenge of reflexivity in birding will be maintaining the coherence of the act

while adopting a more reflexive stance. Simply, I do not believe that birders would continue to bird if they could not use these objects to help figure out and record birds' identities. Rather than to argue for their purging, these objects should be re-imagined.

Smart phones

Bird checklists, in collapsing sighted individuals into one checkmark, are reductive objects that offer little fidelity in record and re-describe the richness of birding. The single checkmark is, in a sense, a reaction to the limitation of the paper checklist: it is not feasible to cram 54 small tick-marks in a 1 cm x 1 cm box. Yet, I believe that checklists could be amended to more faithfully reproduce the richness of the act. Obviously, a larger check box could offer a solution to the physical limitations. I, however, want to turn to location-aware smart phones as an alternative to paper objects.

The physical nature of paper limits what checklists and bird identification guides could be. Many bird identification guides, originally published on paper, are now available as applications on smart phones. In these applications, organization of species by their taxonomic relationship is backgrounded—finding a species of bird simply means typing in the name. In present applications, species can be reorganized on the fly: alphabetically *or* taxonomically. Search functions allow the further re-organization of species by habitat, physical size or month of the year. These identification applications, while providing the typical suite of images and information found in paper bird books, also add bird sounds.

Identification, then, easily goes beyond the act of matching a sighting with a species. The textual and the visual are amplified by the auditory, and obviously bird song can be used in the field to augment identification. The integration of bird songs into these applications are not without issue, though, as the recordings can be used to attract birds closer to the birder. This is considered a birding faux-pas. Pamela, a participant I interviewed at Rondeau suggested that, "People would throw things at you" if you played a bird recording while in the field. It is generally understood by birders that playing recorded songs to attract birds could cause these birds unnecessary stress or disturb other birders and one application, Sibley Birds, includes the following suggestion: "Please consider the birds and other birders before playing audio recordings in the field."

Identification applications on smart phones work, however, to integrate the multi-sensory nature of birding in ways that paper bird identification books could not do as easily. Their flexibility in searching and organization allows for multiple ways to classify birds. While I have not seen it yet in these applications, it could be possible to organize birds by plumage colour rather than bird families, giving flexibility to the way that these organisms are organized.

Location, location, location

Returning to checklists, though, re-imagining them as digital objects removes the limitation of most paper lists. Bird sighting applications now exist that allow you to record your every observation as it happens. In these applications, your location and time is determined by GPS and the bird species

seen is entered by the birder. In some of these programs, these records are immediately uploaded to the Internet for later perusal. I would like to see this basic entry expanded to include some of the richness that disappears in listing: it would be simple, for example, to automatically link weather conditions to each particular report. In looking over sighting records connected to weather, new meanings could be made of observations.

I, of course, would like to see a checklist generated that includes the number of individuals seen and the places observed. Paper lists can only record so much detail. With digital checklists, the level of detail for recording place is limited by the sensitivity of the GPS and the level of detail for recording observations is limited by the interest of the birder. The key here is that this proliferation of information collected, while certainly appearing to atomize the act, is not as disconnected from the physical act, and works, in theory, to offer more fidelity as a record of the activity. With a digital checklist, it would be possible, rather than remembering you saw Yellow Warblers at Rondeau during the spring of 2007, to say that you saw 87 individuals over your five days and most of them along the Spicebush Trail. Certainly, there is space for more inspiration here, and while beyond the scope of my research, the re-imagination of some birding objects in the digital domain offers the possibility of countering some of my own criticisms in regards to their reductive nature.

Beyond time and place

Another possibility in birding is the laying bare the "complex network of places" (Plumwood, 2008, p. 139) because birds' lives are already implicated in these complex networks. Take the Cerulean Warbler (*Dendroica cerulea*), for example. These birds nest as far north as Ontario and overwinter as far south as the Andes of Bolivia. This migratory pattern is similar for dozens of other species of neotropical migrants, and their lives are intimately connected to places other than our own. Species decline has been, in a sense, a failure of migratory imagination: away from the gaze through binoculars, what is it like to be a Cerulean Warbler in Venezuela or Ontario? This is not an irrelevant question. In the past decades the population of Cerulean Warblers have decreased 3% a year, faster than any other warbler species (Nickens, 2006). By not asking about a bird's life history, it is easy to limit birding to the immediate first-hand-experience. By asking about bird decline and seeking an answer, habitat loss, both in wintering and breeding grounds emerges as a likely cause. Slowly the network knowledge expands: loss of overwintering habitat due to agriculture, fragmented nesting habitat and increasing nest predation and parasitism (Nickens, 2006).

There is not a lack of information when it comes to the pressures individuals and species face, yet populations are still declining. Birding, as an activity, should be pushed to expand beyond in-place watching. As I outlined in Chapter 5, many birders' in the study support the work by conservation

organizations to protect habitat and argue political change. But as I argued, these actions, while important, work by proxy and remove individual agency from solutions.

I would argue that, in addition to these larger-scale efforts, birders also need to engage in personal actions that take birds' well-being in mind. Certainly, feeding birds is one such action that individuals take. This is not insignificant, yet, it does reaffirm the central location of a homeplace—and the implicit notion that what is worth saving is that, which shares *my* home space. Expanding our imagination outward, and thinking of other places, we can return to thinking about what is it like to be a Cerulean Warbler in Venezuela and ask, "How are our lives materially linked to these places?" Easily observable, when thinking about Venezuela, is the quantity of coffee we consume. "Bird friendly" shade-grown coffee is now an option for North American consumers, and a link noticed by participants. Luke, involved with bird rescue, outlines how his purchasing habits have changed with birds in mind:

> L: I only drink shade-grown, organic, yadda-yadda-yadda. I'll buy recycled toilet paper and so on because I've made that connection now.
>
> G: Between boreal forest trees and birds?
>
> L: Yeah.

Our consumption of coffee and toilet paper connects our daily lived experience to Central, South America and the Boreal Forest (Stutchbury, 2007). This is a beginning in a larger effort to lay bare these material links, but does show that

those interested in birds can be involved in making daily decisions that arguably have an impact on the lives of birds beyond the places where they see birds.

Implications and directions for further research

Additional qualitative studies centred on wild bird-human interactions are warranted, I believe. Birding, as a practice, has been characterized in the literature as recreation, leisure or a kind of sport. While some of my results compliment the critical work done to date on birding, I believe there is value in continuing to look at the ontological nature birding in order to help shape an understanding about different engagements with the world are enacted. As I outlined in Chapter 1, I delimited my work by focusing on birders, backyard birders and bird rescuers in Southern Ontario. With so much reflection on the act occurring in the United Kingdom and the United States, comparative cross-cultural studies engaging with birding's enactments in are warranted.

Beyond looking across different political boundaries, it would also make sense to research other birding groups *not* investigated in my research project. A group that immediately comes to mind are bird banders: they have hands-on experience with birds, in a similar vein to bird rescuers. Banding is also enactment steeped in conservation and scientific discourses. Thinking about the individual—it is individual birds that are banded—could be particularly interesting. Banders, in the re-capture of marked birds, provide a powerful narrative of where birds go when they are out of sight. The recent re-capture of a Pine Siskin in Oregon, originally banded in Wellington County, Ontario,

illustrates this claim. The question becomes how, if at all, is bird banding ontologically revolutionary or does it simply re-affirm a dominant perspective of birds and the more-than-human? To exemplify, I know of a bird bander who wrings the neck of any European Starling he finds in his net. The bander believes that this behaviour is justified given that Starlings are labelled as an invasive species.

Another group that comes to mind are those who consider themselves bird photographers. Birders interviewed in this research spoke of the actions of photographers in less than positive ways. Many saw photographers as being qualitatively different than birders. Norman's perspective outlines how he sees this difference:

> N: I think that photographers are probably worse than birders generally, and that they'll disturb birds. That really bothers me.
>
> G: Why do you think that is? Why are bird photographers more likely to do that?
>
> N: Well, they've got something they want to show, whereas the rest of the people are happy with the memory, and obviously some of them are either commercial photographers, or they are freelance, and sell the odd picture, and it has to be good to be sold, and to be competitive.

I have also heard from bird photographers who suggest that their work takes patience, often staying in one place and letting birds come to them. One particular photographer I spoke with saw birders as typically arriving, making the determined effort to quickly see a particular bird, and leaving almost as quickly. The subtext may be that some photographers access a different kind of nature,

one where the patience some photographers exhibit while waiting for a photographic moment allows them to spend more time with birds and, as a consequence, see different kinds of bird behaviour.

Norman mentioned that birders, rather than pictures, have the memory of the birds they have seen. A more explicit study of the relationship between memory and birding could prove to be a fertile area for environmental education research. Ideas of memory, such as Pyle's "extinction of experience" (1993) signifying an estrangement of people from nature, acts as powerful guiding concept in environmental education. Memory serves as the only reminder of the way the more-than-human was. Yet, there is a certain assumption that memories are stable, that they are accurate reflections of what once was. Neuroscience research suggests, however, that the act of remembering can change memories (Miller, 2010) and instead of stability, there is "a very dynamic neurobiological basis of memory" (Nader, 2003, p. 65). The creation of lists in birding, such as the life list or the trip list, is an act of augmenting the fickleness of memory. When people find out that I research birders, I am often asked if *I* keep a list. I do not, but I often know if I have seen a particular species of bird before. However, I also add that if I have seen a species and since forgotten, why not count it as a new sighting? These separate notions about memory: that memories represent a connect to a (lost) past; that memory may be less fixed than originally thought; and that memory is a powerful aspect of birding, point towards a future tack to take with this research.

The method assemblage developed for this project, with its theoretical underpinning in contemplating all actors—be they human or otherwise—allows inspiration, or more humbly, an intellectual toehold in taking the more-than-human seriously in environmental studies and education research. I understand that any method assemblage brings a certain perspective into view and I do not claim perfection in including the-more-than human in this research. I do believe, however, that the sustained attention to the more-than-human coupled with a critical perspective focused on decentring the taken-for-granted location of human actors offers a way to conduct research with the more-than-human. Such work could look at the recent emerging popularity of the amateur study of Dragonflies and Damselflies (Brunelle, 1997). This is particularly significant given the status of Odonata as invertebrates (a taxon more often maligned by humans than celebrated) and the seemingly familiar shape of practice that has emerged, complete with field identification guides and the use of binoculars—is this birding redux or a disciplined, policed form of natural history?

Finally, to reiterate, I believe it is important to look at ways that digital objects, or technology more generally, can play in rematerializing birds' lives. As Elder, Wolch & Emel (1998) write, technological change can change society which, in turn, can change ideas about animals. Perhaps the technology that has had the greatest impact is, in fact, the (quite literal) network of different technologies collectively known as the Internet. Recently on the Web, a suite of websites that utilize and, in turn, act more like programs than static "pages" have

appeared. This transition and the ensuing hybrid page-programs have been called "Web 2.0." Alan Gilbert describes:

> Web 2.0 and its "open source" technology of collective contribution, nonproprietary distribution, and seemingly indiscriminate mixing, which supposedly renders obsolete, once and for all, notions of high and low, authority and amateur, producer and consumer, artist and audience, etc. It's the potential realization of post-modernism's failed dream, despite lingering questions as to whether Web 2.0 will fundamentally change basic relationships of power. (2007, p. 10)

In Web 2.0, community and collaboration have emerged as important benchmarks in the design of these web sites. In the late 1990s, discussions about what the Web (Web 1.0) was going to achieve often centered on the individual. Ideas, echoed in academic post-modern discussions of post-humanism and cyborgs, were focused on a new human that sheds the confines of its biological shell, through the interface of the Internet (Gilbert, 2007). Web 2.0, rather, is the Internet's post-structural enactment. As Gilbert outlines above, the structure challenge questions of power in the way that information can be mashed-up or reorganized at a user's whim. Most optimistically, this transformation "could lead the way to a truly democratic network, where producers and consumers are one and the same" (Weiss, 2005). In relationship to birds, birders and technology, I would consider examining how, if at all, bird photographs on a Web 2.0 digital photography website Flickr.com rematerializes the life of the bird.

If I am to agree with the premise that Web 2.0 allows for the possibility of a different kind of power relationship, then I believe that discourses describing

Flickr could operate outside the more typical or traditional discourses concerning animals and technology. Writing about a new kind of electronic zoo, where live animals are replaced with digital copies, Gail Davies (2000) invokes typical criticisms of technology on the quality of relationship between humans and non-humans. There appears to be certain passivity to the notion of the electronic zoo, an idea where human visitors consume animal representations chosen by others. I believe that while there may be surface similarities between the electronic zoo and Flickr—disembodied digital images, for example—that Flickr is more active and engaged. In electronic zoos, the dissemination of information is "one or few to the many" (Davies, 2000, p. 257), where exhibit contents are selected by a curator. In contrast, Flickr users pool photos in curated collection consisting of other user's photographs. This then means that those consuming the images are also involved in their creation. This has important implications for one of Davies' (2000) criticisms of film: in suggesting that in filming of animals human traces of labour and material objects are removed, film (and the ensuing representations) is/are powerful in creating separate human/animal worlds. Flickr photographs, on the other hand can be storied, through captions and subsequent comment discussions (see Figure 12, below), potentially allowing traces back in. But what, in those traces, filters back through?

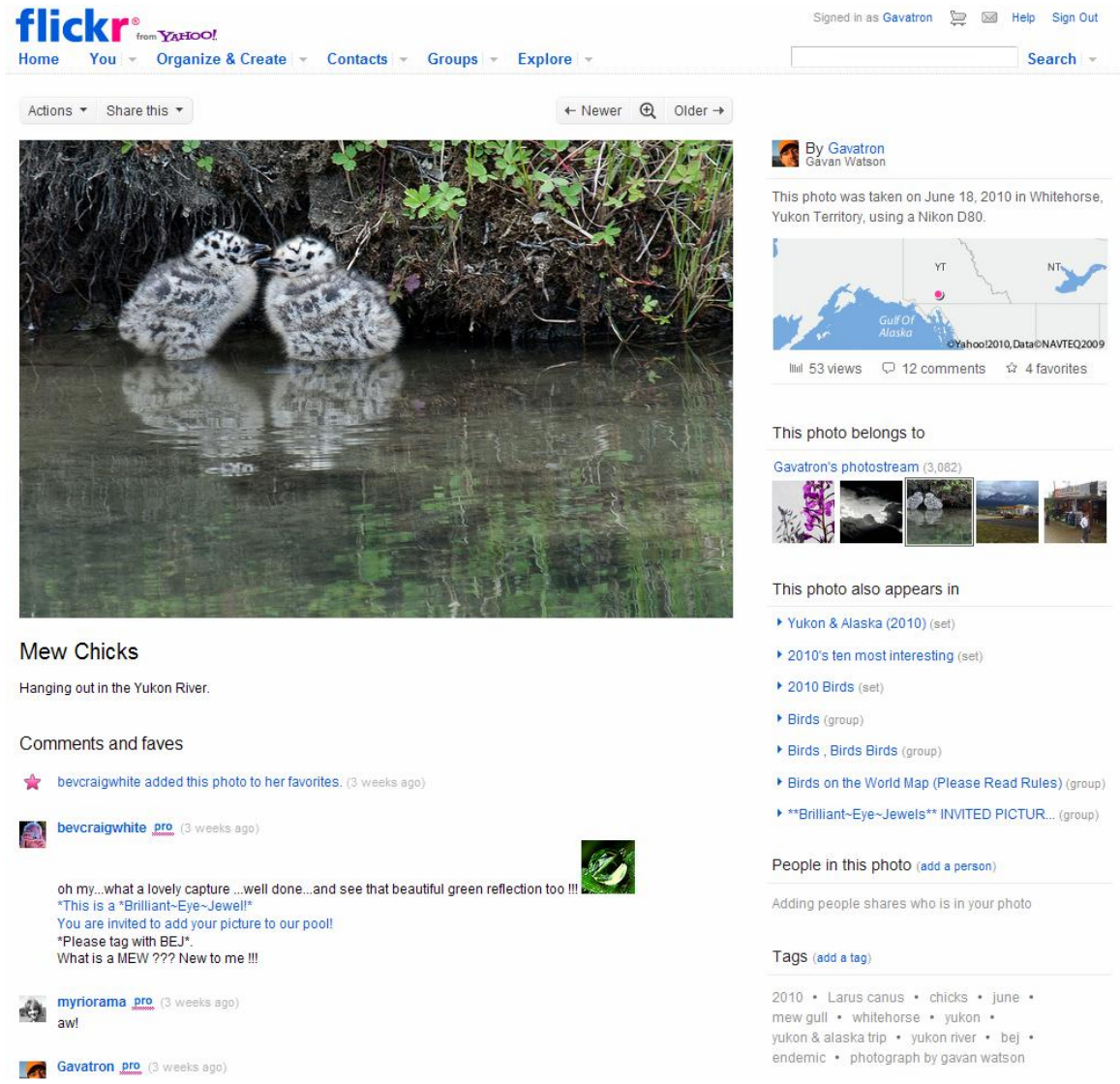


Figure 12: A screen capture of a typical Flickr page.

Critical pedagogy of birding

At the end of this dissertation, it is valuable to return to the notion that I opened with: that many believe birding to be a return to a more authentic kind of relationship with the natural world. To me, authentic means an ethical and

political relationship where our ontological boundaries of self are always up for questioning. This is what I meant when I wrote in Chapter 5 about the penumbral location birds: like the edges of a solar eclipse not being fully in or out of shadow, birds are not totally part or apart from the human sphere. Livingston (1983) wrote in a similar vein about the being of a singing bird, where the bird's song creates a membrane of "extended being" larger than the bird's physical entity. More importantly, Livingston suggests that "everything contained in that envelope—all the plants, all the animals—are in the most real and literal sense built into [the bird's] being" (1983, p. 68). What I hope is promised in this kind of penumbral thinking is a biological *inverse* of Livingston's claim: that birds, and their ecological supports, can become a literal part of a birder's being and, in turn, work to disrupt consumptive, instrumental and anthropocentric constructions of nature.

This is why I offered the notion of reflexive birding as a possible practice: it would be my hope that if one aims to become a reflexive birder, birding becomes a core value such that it occurs at times and in places it currently does not; by moving beyond identification and to watching behaviour, there is novelty to be found in the everyday; that new objects used for birding work against the reductive nature of current objects; and finally, when birds are out of sight, that birders develop a migratory imagination concerning their lives. Again, if we understand that enactments of birding are forms of environmental learning made explicit, then these actions together could be a critical pedagogy of birding, where

culturally dominant beliefs and practices are challenged and questioned by the act.

What I can state irrevocably is that reflecting on the notion of reflexive practice should matter to birders because birds, whether conceptualized as individuals, populations or species, are intrinsically linked to our own well-being. This can be seen in instrumental ways, such as through the "services" birds render, like scattering scarified seeds and scavenging carcasses. I would, however, emphasize the more intrinsic ways birds are linked to our well being: the joy of the dawn chorus or the excitement in uncovering the life that surrounds. In approaching these encounters as a practice of natural history from a multicentric ethic that invites the more-than-human to participate, birding becomes more than an act of identification. By combining acts of watching with a loving eye with the reflexive and compassionate use of technologies to facilitate these encounters, a transformative practice of coming to know the more-than-human emerges.

Appendices

Appendix A: **Summary of research locations and data collected**

Location	Data type	Number
Rondeau Provincial Park	Semi-structured interviews	n=16
	Field journals	n=10
	Geo-tagged photographs	n=38
	Spatial data	n=10
GTA / Ontario	Semi-structured interviews	n=11
	Photographs	n=64
Bird Rescuers	Semi-structured interviews	n=5
Backyards	Semi-structured interviews	n=5

Appendix B: **Interview participants data**

Location	Name	Date	Age (decade)	Sex	Length	Education	Included
Rondeau	David	April 28-08	70	M	01:02:34	Some high school	Y
	Sonya	April 29-08	60	F	00:56:07	Undergraduate degree	Y
	Darren		60	M		Technical school graduate	
	Fred	April 30-08	60	M	00:32:02	Some college	Y
	Janette		60	F		Some high school	
	Don	April 30-08	70	M	01:33:53	Some university	Y
	Cynthia		70	F		Some high school	
	Chester	May 01-08	70	M	00:48:05	Undergraduate degree	Y
	Helena	May 02-08	60	F	01:10:45	Some college	Y
	Gary		70	M		Technical school graduate	
	Margret	May 02-08	50	F	00:53:06	Post-graduate degree	Y
	Judy	May 03-08	50	F	01:11:44	College graduate	Y
	Bill		50	M		College graduate	
	Pamela	May 03-08	60	F	01:39:45	Undergraduate degree	Y
	Roger		60	M		Post-graduate degree	
	Barbara	May 04-08	60	F	00:40:00	College graduate	Y
	Paul		40	M		College graduate	
	Jim	May 04-08	50	M	00:38:32	Undergraduate degree	Y
	Melinda		50	F		College graduate	
	Jordan	May 05-08	30	M	01:09:03	Undergraduate degree	Y
	Serena		20	F		Undergraduate degree	
	Raymond	May 05-08	60	M	00:55:42	Undergraduate degree	Y
	Elizabeth		60	F		Undergraduate degree	
	Roland	May 06-08	40	M	00:27:47	College graduate	Y
	Cameron	May 07-08	50	M	00:35:27	Technical school graduate	Y
	Niles	May 07-08	70	M	00:45:50	Grade 8 graduate	Y
					15:00:22		
GTA/ON.	Daniel	Sep 11-08	60	M	00:42:26	Post-graduate degree	Y
	Lara	**Sep 13-08**	**40**	**F**	**00:30:48**	**Post-graduate degree**	**N**
	Mara	Sep 13-08	50	F	00:29:25	High school graduate	Y

Location	Name	Date	Age (decade)	Sex	Length	Education	Included
	Shannon	Sep 13-08	60	F	00:32:32	Post-graduate degree	Y
	Danny	Sep 14-08	30	M	00:23:30	Undergraduate degree	Y
	Michelle	Sep 23-08	70	F	00:49:20	Undergraduate degree	Y
	Josh		70	M		Undergraduate degree	
	Norman	Sep 23-08	80	M	00:56:09	Post-graduate degree	Y
	Sheri	Sep 23-08	60	F	00:59:45	Post-graduate degree	Y
	Amber	Sep 24-08	50	F	00:49:52	Post-graduate degree	Y
	Jackson	**Oct 28-08**	**50**	**M**	**01:05:15**	**Undergraduate degree**	**N**
	Chad	Dec-22-08	40	M	01:51:16	Undergraduate degree	Y
					09:10:18		
Backyard	Alice	Sep 28-08	30	F	00:59:50	College graduate	Y
	Ryan		30	M		High school graduate	
	Andy	Sep 28-08	50	M	00:54:54	Post-graduate degree	Y
	Susannah		50	F		Undergraduate degree	
	Jennifer	Oct 07-08	50	F	00:52:56	College graduate	Y
	Jessica	Nov-17-08	50	F	01:04:26	Undergraduate degree	Y
	Sasha	Jan-23-09	50	F	01:07:09	Post-graduate degree	
					04:59:15		
Bird Rescue	Morgan	Oct 03-08	45	M	01:13:51	College graduate	Y
	Alex	Oct 21-08	55	M	01:56:43	High school graduate	Y
	Maria	Oct 21-08	66	F	00:48:00	Undergraduate degree	Y
	Leesa	Oct 24-08	40	F	00:57:25	Post-graduate degree	Y
	Luke	Nov 04-08	30	M	00:47:57	Undergraduate degree	Y
					05:43:56		

Appendix C: **Informed Consent Document**

Date: May 13, 2008
Study name: Assembling the bird(er): multiple acts of birding
Researcher: Gavan Watson, PhD Candidate, Faculty of Environmental Studies
Sponsors: York University

Purpose of the Research: This research is being conducted in the partial fulfilment of the requirements of a PhD degree. The central question that this study seeks to answer is: How do the enactments of birding—understood as the varied assemblages of practice that includes humans, birds, landscape and objects—shape our perspectives of and relationships to the non-human? Anonymized transcripts will be created from interviews conducted; theory concerning the act of birding will be derived from these transcripts and help answer the central research question of this study.

What you will be asked to do in the Research: You will be asked questions about your practice of birding and to reflect on that practice. This will require a time commitment of 30—60 minutes.

Risks and Discomforts: We do not foresee any risks or discomfort from your participation in the research.

Benefits of the Research and Benefits to You:
Benefits to You: You may benefit on a personal level from this study. New awareness or appreciation of the phenomena under study may lead to a greater personal awareness or appreciation of it.
Benefits of the Research: This investigation has many potential positive implications. Examining the results from a conservation viewpoint, the outcomes will assist bird conservation, as a better understanding of the birder/birdwatcher relationship will impact conservation policy and practice; from an environmental ethics perspective, the results will offer new perspective on the relational moral space that exists between non-humans and humans; and from an education perspective, the results will offer new insights into the role that informal, free-choice learning can play in the creation of knowledge and perspectives of the natural world.

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 the ongoing relationship you may have with the researchers or study staff or 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 researchers, York University, or any other group associated with this project. Should you withdraw from the study, all data generated as a consequence of your participation will be destroyed.

Confidentiality: All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research. Your data will be safely stored in a locked facility and only Gavan Watson will have access to this information. Personally identifiable information will be destroyed within two years at the conclusion of the research project. Confidentiality will be provided to the fullest extent possible by law.

Questions about the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Gavan Watson, PhD Candidate, Faculty of Environmental Studies, HNES Building, York University (e-mail gavan@yorku.ca) or the Faculty of Environmental Studies' Graduate Program Office, 137 HNES Building, York University (telephone 416-736-2100 extension 22602).

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, Research Ethics, 309 York Lanes, York University (telephone 416-736-5914 or e-mail acollins@yorku.ca).

Legal Rights and Signatures:

I_____, consent to participate in *Assembling the bird(er)* conducted by *Gavan Watson*. I have understood the nature of the project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Participant	Date
Principal Investigator	Date

Appendix D: **Field Birder Interview Questions**

- Sex (male/female)
- Self-described level of birder (e.g.: beginner / intermediate / advanced)

1. Can you remember what drew you to watching birds?
2. What is most enjoyable now about birding for you?
3. Do you keep a list or tally the birds you see?
    a. What does that look like?
4. What did you bring with you today? Why?
    a. Is this typical of what you would normally bring birding?
5. Please share with me how you decide where to go on a given day.
6. What is one thing you could do to make you a better birder?
7. Is there one bird that you would be most-excited to see today? / What bird did you see today that made you the most excited?
8. Tell me about the most interesting bird you've ever seen.
9. People suggest that while watching birds, it would be wrong to disturb a bird on a nest. Are there personal guidelines that you follow when birding?
10. What are your sources of information about birds or bird-watching?
11. How often, would you say, that birds are aware of your presence?
    a. What do you imagine birds are thinking while you're watching them?
12. Are there any personal actions you've taken with birds' well-being in mind?
13. What is one thing you could do to improve your birding skill?
14. Thinking beyond your knowledge of birds, what have you learned, if anything about the larger world from birding?

- Age range (in decades) (e.g.: 0-9,10-19,20-29,30-39,40-49,50-59,60-69,70-79,80-89,90-99,100+)
- Education level (highest level attained) (e.g.: some high school, high school graduate, some college / university, university graduate, some post-graduate education, post-graduate-graduate)

Appendix E: **Backyard Birder Interview Questions**

- Sex (male/female)

1. Tell me how you attract birds to your yard.
2. Can you remember what drew you to feeding birds?
3. What is most enjoyable now about feeding birds for you?
4. Do you keep a list of the birds you see in your yard? What does that look like?
5. What do you use to observe birds?
6. Would you consider yourself a birder? Why / Why not?
    a. Self-described level of birder (e.g.: beginner / intermediate / advanced)
    b. Do you bird elsewhere other than your yard?
7. Tell me about the most interesting bird you've ever seen.
8. What are your sources of information about birds or bird-watching?
9. Are there some birds you would rather not have visit your feeders? Why?
10. How often, would you say, that birds are aware of your presence?
    a. What do you imagine birds are thinking while you're watching them?
11. Do you feed birds year-round or seasonally?
    a. How did you make this decision?
12. Feeding birds is an example of an action you've taken that directly benefits birds. Are there any other personal actions you take with birds' well-being in mind?
13. Thinking beyond your knowledge of birds, what have you learned, if anything about the larger world from feeding them?

- Age range (in decades) (e.g.: 0-9,10-19,20-29,30-39,40-49,50-59,60-69,70-79,80-89,90-99,100+)
- Education level (highest level attained) (e.g.: some high school, high school graduate, some college / university, university graduate, some post-graduate education, post-graduate-graduate)

Appendix F: **Bird Rescue Interview Questions**

- Sex (male/female)
- Self-described level of birder-rescuer (e.g.: beginner / intermediate / advanced)

1. Can you remember what drew you to wanting to rescue birds?
2. What keeps you engaged with the rescue efforts now?
3. Do you keep a list or tally the birds you rescue?
    a. What does that look like?
4. What did you bring with you today? Why?
    a. Is this typical of what you would normally bring to rescue birds?
5. Please share with me how you decide where to go on a given day.
6. What do you think of the Business District?
    a. What do you imagine birds think of this landscape?
7. Tell me about the most interesting bird you've ever seen.
8. How often, would you say, that birds are aware of your presence?
    a. What do you imagine birds are thinking while you're watching them?
9. Though you rescue birds, would you consider yourself a birder / bird watcher?
10. Beyond rescuing birds, are there any personal actions you've taken with birds' well-being in mind?
11. Thinking beyond your knowledge of birds, what have you learned, if anything about the larger world from rescuing birds?

- Age range (in decades) (e.g.: 0-9,10-19,20-29,30-39,40-49,50-59,60-69,70-79,80-89,90-99,100+)

- Education level (highest level attained) (e.g.: some high school, high school graduate, some college / university, university graduate, some post-graduate education, post-graduate-graduate)

Appendix G: **Rondeau Poster**

TODAY!

Assist with birding research

Birders of <u>all</u> levels of expertise are requested to assist in birding research project.

Park-approved interviews to be conducted daily with interested participants to explore people's birding practice. All information remains confidential. The data collected through this project will be used by York University doctoral candidate Gavan Watson <u>and has important implications for environmental education and bird conservation.</u>

Interested? Look for Gavan Watson, identified with a name tag throughout the park, or meet him at the Visitor's Centre at 12:00 pm daily.

Interviews can take place to meet your schedule.

Contact Gavan by email: gavan@yorku.ca or by mobile phone (416) 878-2495

Appendix H: **Fall 2008 Research Flyer**

Assist with birder research

About the research

Bird-watching remains one of the few ways that people have direct experiences with wild animals. Participation in birding is a kind of education which subtly shapes and reinforces participants' perspectives of the birds they watch, the environments they watch them in, and how they come to value both. This research investigates the varied practice of birding and promises to make contributions to the fields of bird conservation, environmental ethics and environmental education. Conducted in the partial fulfilment of the requirements of a PhD degree, this research is based in the Faculty of Environmental Studies, York University.

What would be required?

This research is qualitative in nature. Participation involves having a recorded conversation about your birding practices. These interviews range in length from half an hour to an hour and would be scheduled at your convenience—they could occur after a morning of birding, at your house or a mutually agreed upon location.

But I'm just a beginner…

Expertise is not a prerequisite! Birders & bird watchers of all interest and ability levels are being sought for this research. Rather, enthusiasm and interest in the activity is the only requirement for participation.

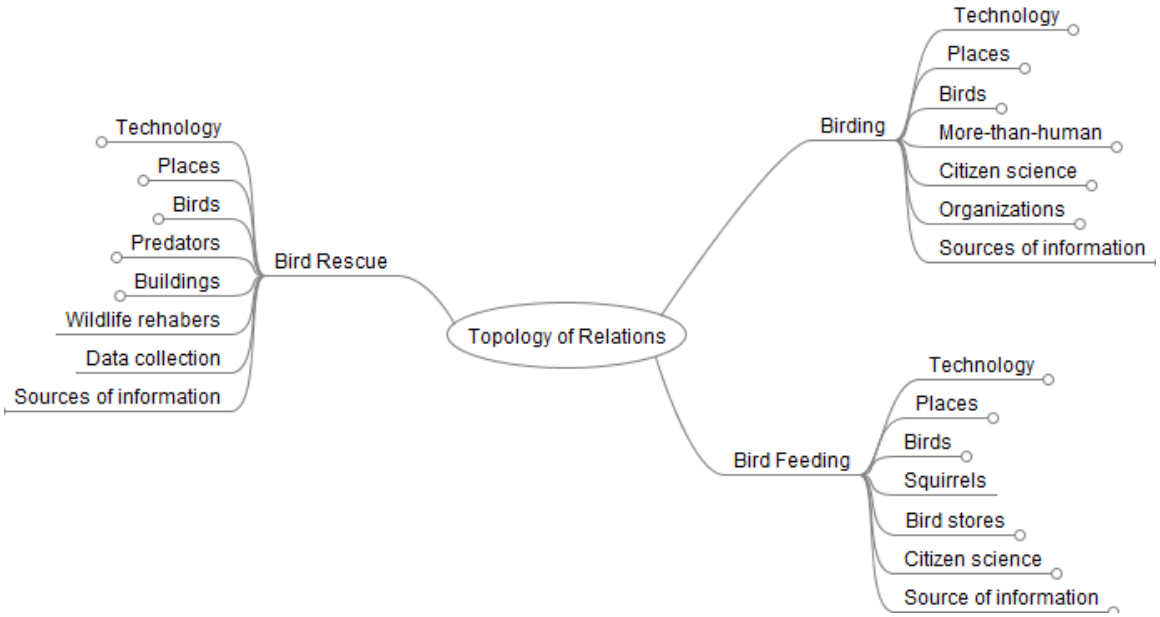
Ethics & privacy

The ethics of this research has been approved by York University. All information is stored securely and is anonymized. You will never be personally identified in the dissertation or in subsequent publications.

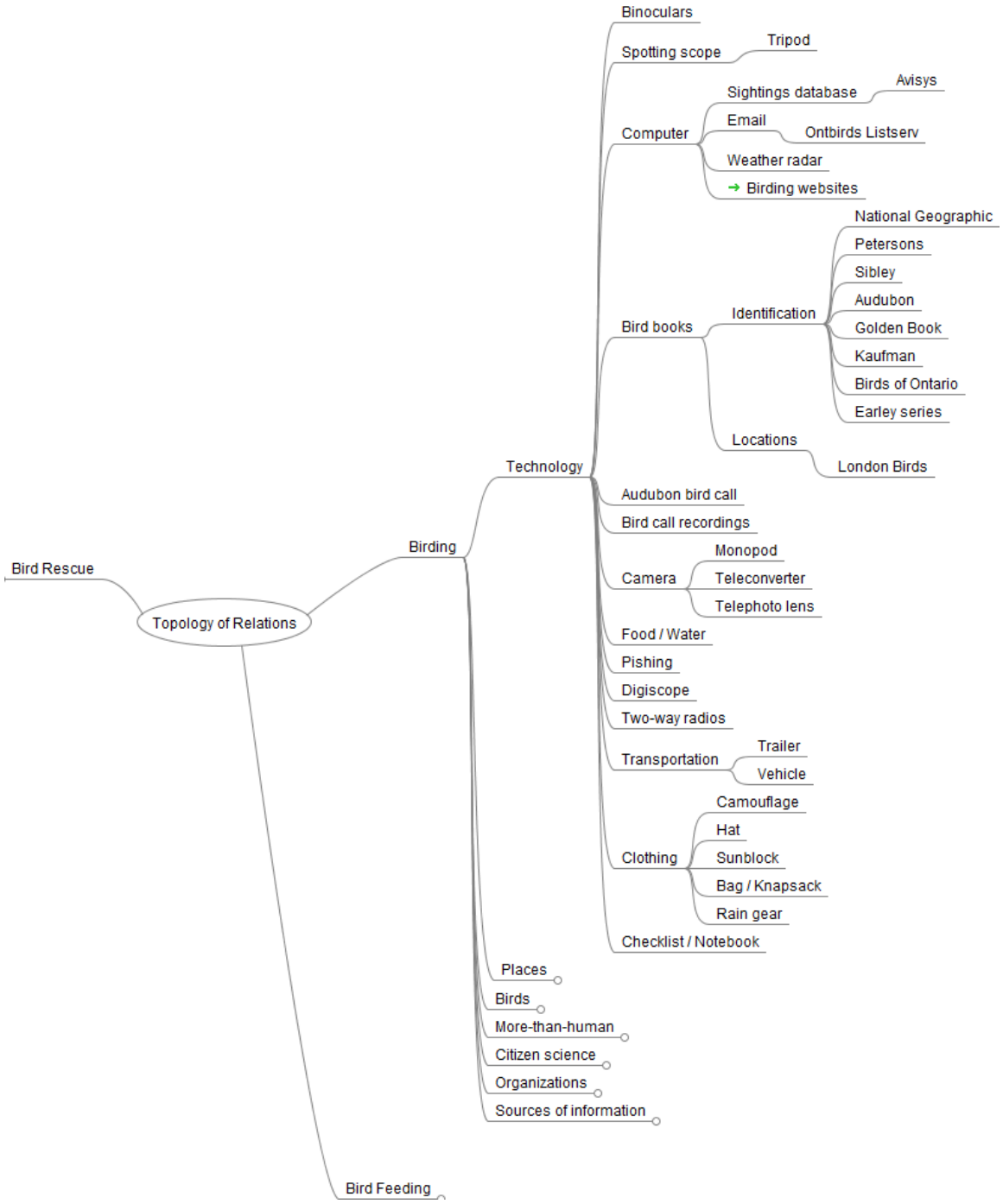
Interested in participating? Want more information?

Please get in touch with the researcher, Gavan Watson, by email: gavan@yorku.ca, by phone: (647) 439-0271 or read more about the research on-line: http://www.gavan.ca/academic-information/dissertation-research/

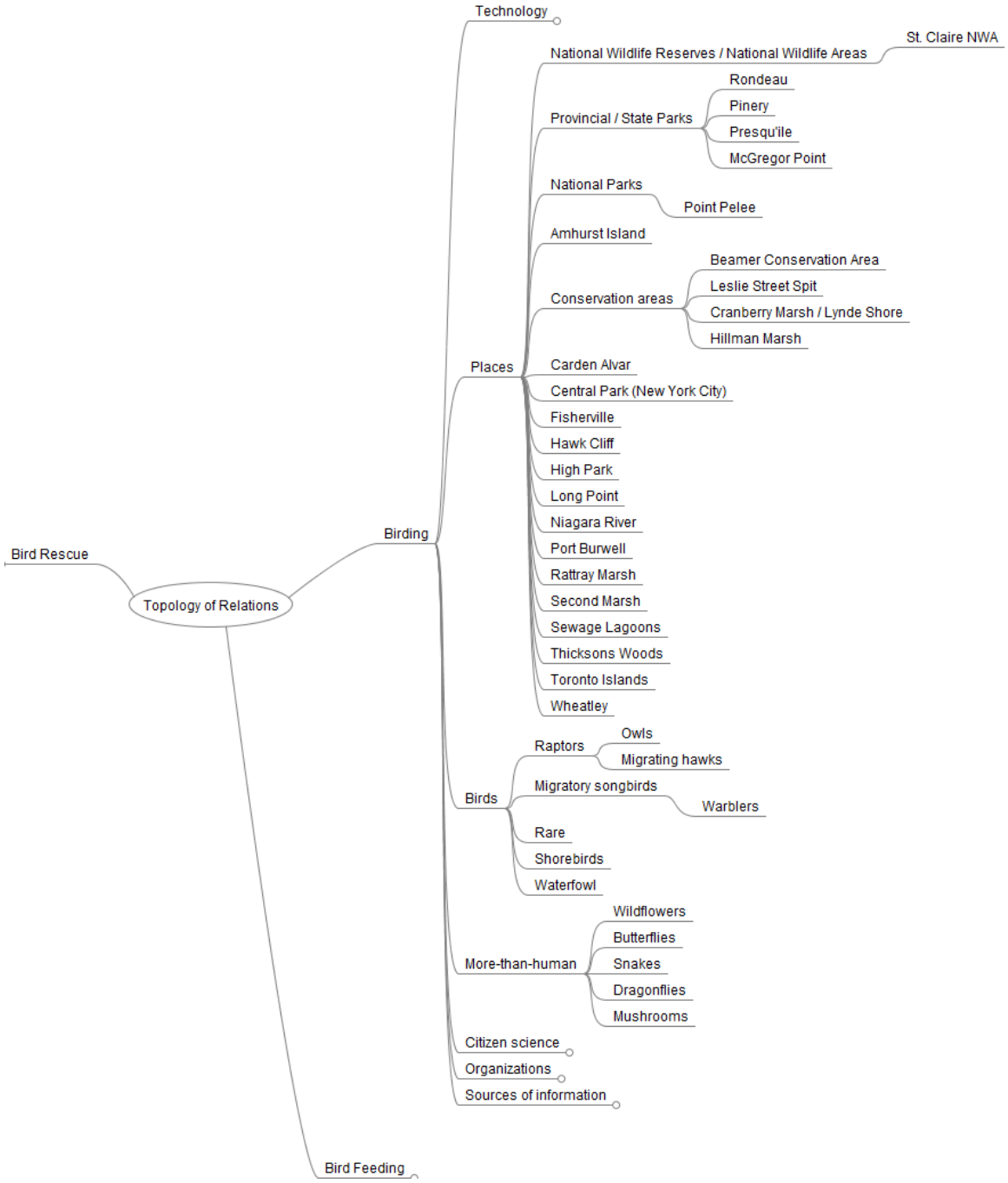
Appendix I: **Topology of Relations, First Order Categories**



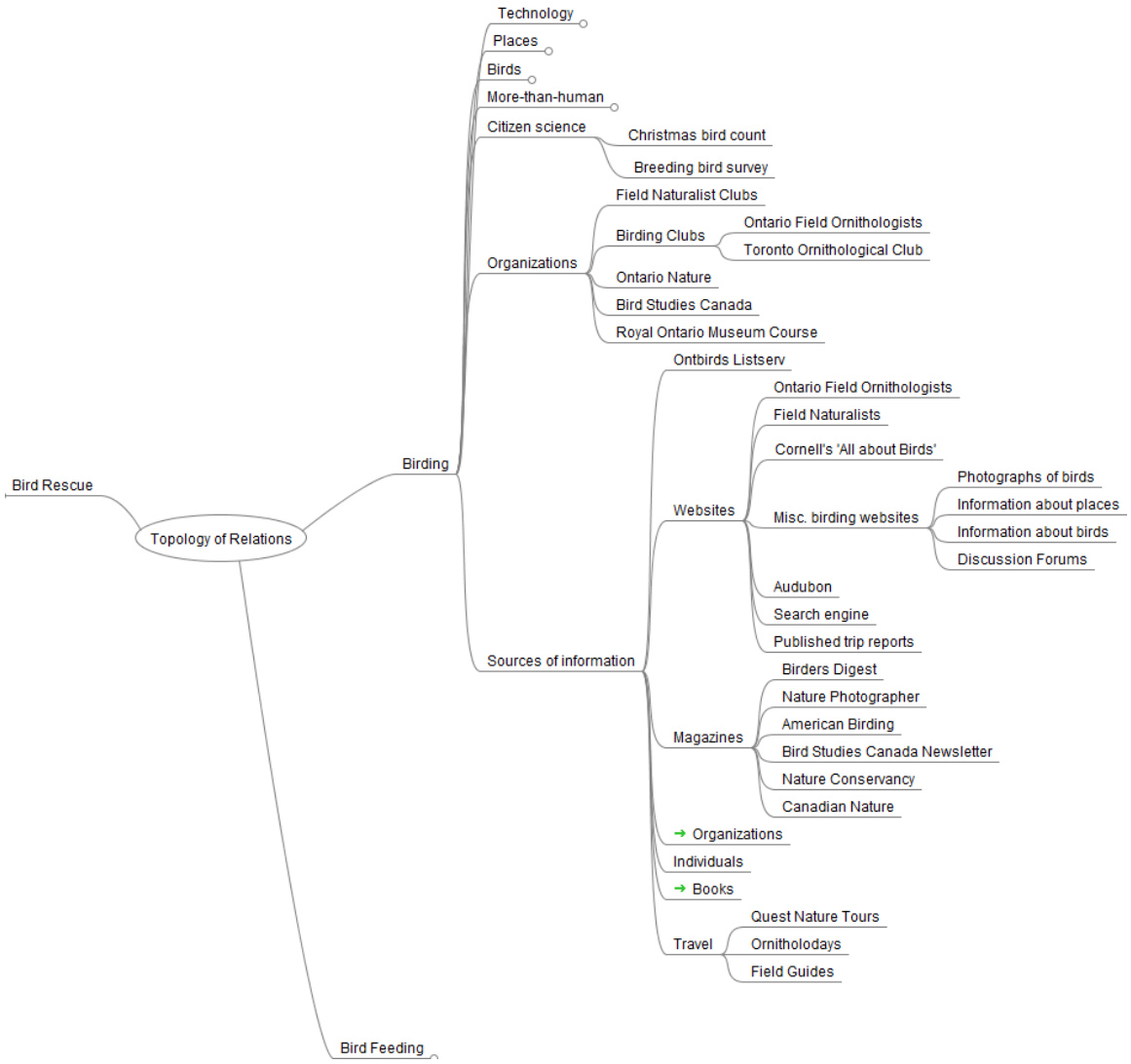
Appendix J: **Topology of Relations, Field Birding: Technology**



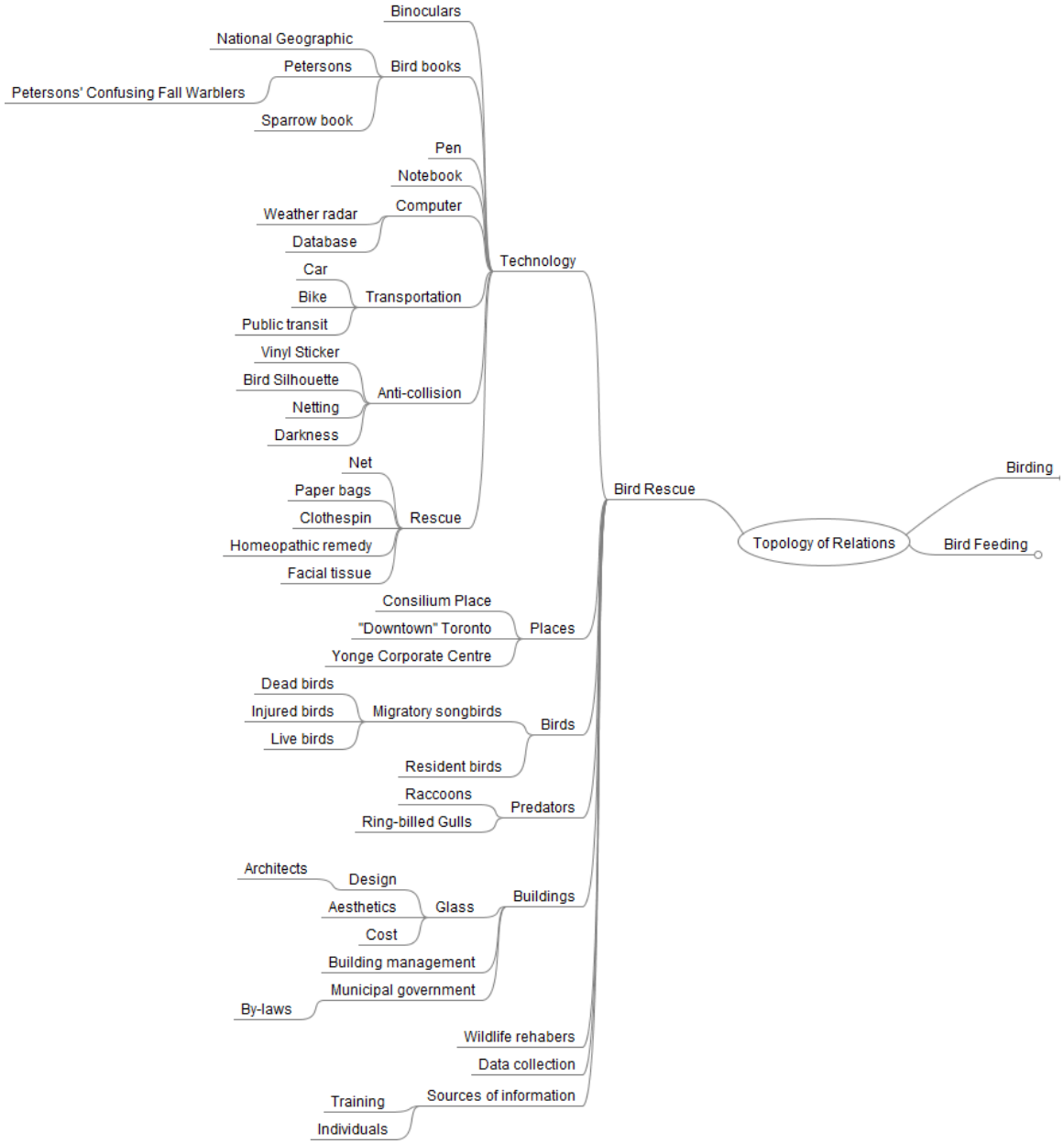
Appendix K: **Topology of Relations, Field Birding: Places, Birds and the More-than-human**



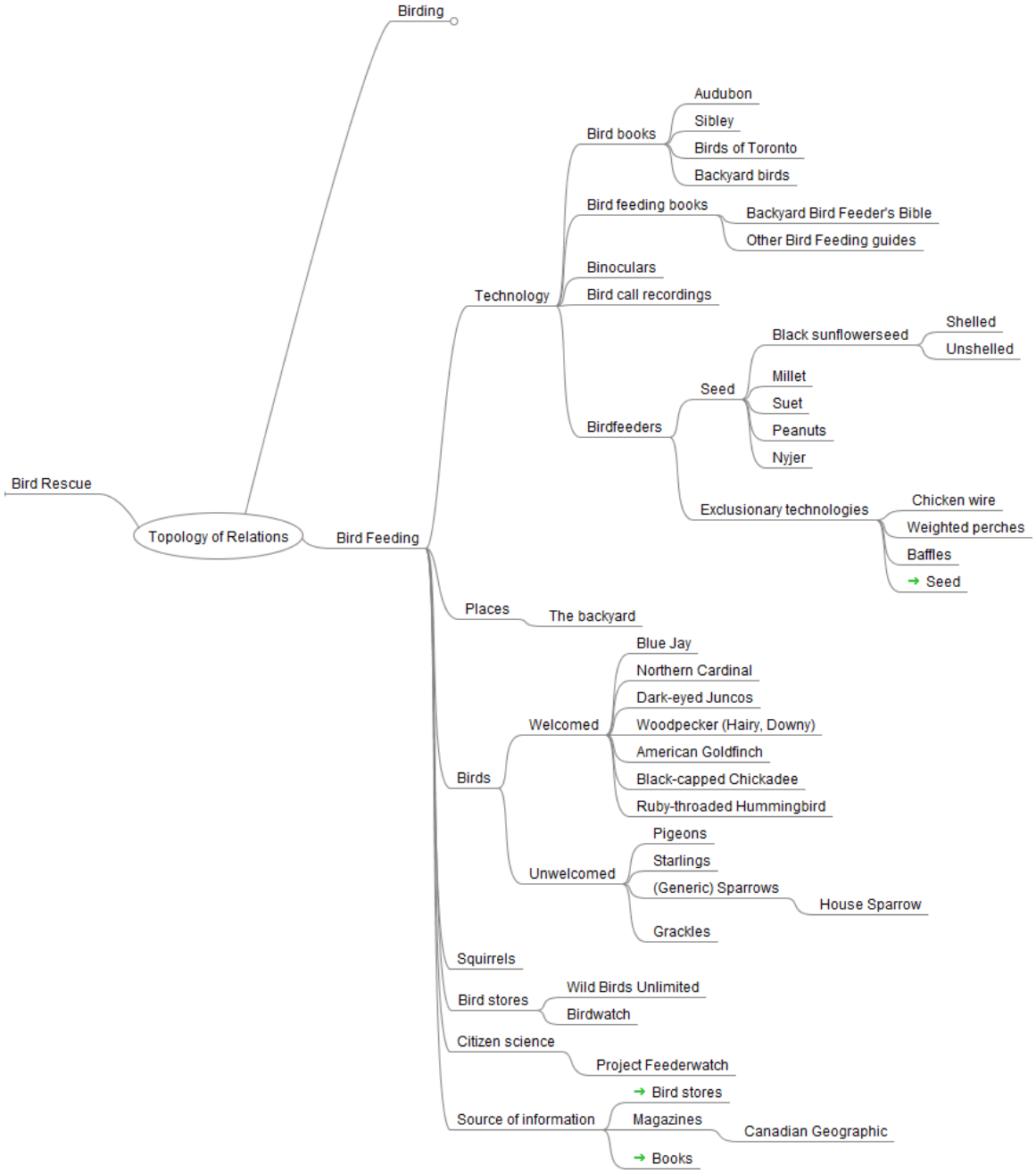
Appendix L: **Topology of Relations, Field Birding: Citizen Science, Organizations and Sources of Information**



Appendix M: **Topology of Relations, Bird Rescue**



Appendix N: **Topology of Relations, Backyard Birding**



Appendix O: **Complete list of technologies deployed by field birders**

- Binoculars
- Spotting scope
    - Tripod
- Computer
    - Sightings database
        - Avisys
    - Email
        - Ontbirds LISTSERV
    - Weather radar
    - Birding websites
- Bird books
    - Identification
        - National Geographic
        - Petersons
        - Sibley
        - Audubon
        - Golden Book
        - Kaufman
        - Birds of Ontario
        - Earley series
    - Locations
        - London Birds
- Audubon bird call
- Bird call recordings
- Camera
    - Monopod
    - Teleconverter
    - Telephoto lens
- Food / Water
- Pishing
- Digiscope
- Two-way radios
- Transportation
    - Trailer
    - Vehicle
- Clothing
    - Camouflage
    - Hat
    - Sunblock
    - Bag / Knapsack

    - Rain gear
- Checklist / Notebook

Appendix P: **Complete list of technologies deployed by backyard birders**

- Bird books
  - Audubon
  - Sibley
  - Birds of Toronto
  - Backyard birds
- Bird feeding books
  - Backyard Bird Feeder's Bible
  - Other Bird Feeding guides
- Binoculars
- Bird call recordings
- Birdfeeders
  - Seed
    - Black sunflowerseed
      - Shelled
      - Unshelled
    - Millet
    - Suet
    - Peanuts
    - Nyjer
  - Exclusionary technologies
    - Chicken wire
    - Weighted perches
    - Baffles

Appendix Q: **Complete list of technologies deployed by bird rescuers**

- Binoculars
- Bird books
    - National Geographic
    - Petersons
        - Petersons' Confusing Fall Warblers
    - Sparrow book
- Pen
- Notebook
- Computer
    - Weather radar
    - Database
- Transportation
    - Car
    - Bike
    - Public transit
- Anti-collision
    - Vinyl Sticker
    - Bird Silhouette
    - Netting
    - Darkness
- Rescue
    - Net
    - Paper bags
    - Clothespin
    - Homeopathic remedy
    - Facial tissue

Appendix R: **Backyard birders folk taxonomy**

Birds

- Welcomed
    - Blue Jay
    - Northern Cardinal
    - Dark-eyed Juncos
    - Woodpecker (Hairy, Downy)
    - American Goldfinch
    - Black-capped Chickadee
    - Ruby-throated Hummingbird
- Unwelcomed
    - Pigeons
    - Starlings
    - + - (Generic) Sparrows
        - House Sparrow
    - Grackles

Appendix S: **Places mentioned by field birders**

Places

- + - National Wildlife Reserves / National Wildlife Areas
    - St. Claire NWA
- + - Provincial / State Parks
    - Rondeau
    - Pinery
    - Presqu'ile
    - McGregor Point
- + - National Parks
    - Point Pelee
- Amhurst Island
- + - Conservation areas
    - Beamer Conservation Area
    - Leslie Street Spit
    - Cranberry Marsh / Lynde Shore
    - Hillman Marsh
- Carden Alvar
- Central Park (New York City)
- Fisherville
- Hawk Cliff
- High Park
- Long Point
- Niagara River
- Port Burwell
- Rattray Marsh
- Second Marsh
- Sewage Lagoons
- Thicksons Woods
- Toronto Islands
- Wheatley

Appendix T: **Places mentioned by bird rescuers**

Places

- Consilium Place
- "Downtown" Toronto
- Yonge Corporate Centre

Appendix U: **Places mentioned by backyard birders**

Places

- The backyard

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