NATURAL HISTORY AND ILLUSTRATED JOURNALS AS TOOLS FOR PLACE-BASED EDUCATION

By

DAIRE MAGUIRE

A THESIS SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE OF

BACHELOR OF INTERDISCIPLINARY STUDIES

THOMPSON RIVERS UNIVERSITY

We accept this thesis as conforming to the required standards:

_____

Lyn Baldwin (Ph.D.), Thesis Supervisor, Dept. Biological Sciences

_____

Sharman Learie (MA.), Dept. Adventure Programs

_____

Kellee Caton (Ph.D.), Dept. Tourism Management

_____

Mark Rowell Wallin (Ph.D.), Co-ordinator, Interdisciplinary Studies

Dated this 2nd day of April, 2013, in Kamloops, British Columbia, Canada

ABSTRACT

The purpose of this research paper is to investigate the proposition that natural history and illustrated learning journals are tools for place-based education. Specifically, researching the literature on illustrated learning journals, natural history and place-based education has shown that natural history's methodologies of direct observation and hands-on documentation coupled with the documentation method of journals supports place-based education. As a case study, I use my own experience with illustrated field journals to highlight the reflective process of creating natural history based illustrated learning journals. This research adds to the relatively new but growing notion of sense of place and research regarding its efficacy and how it comes about. Finally, included are recommendations for future journaling practice.

Thesis Supervisor: Assistant Professor Lyn Baldwin

ACKNOWLEDGMENTS

First and foremost I owe much gratitude to my mother and father who have allowed me such incredible opportunities without asking anything in return, so that I may carve out a path, which makes me happy; Lyn Baldwin for inspiring me with her passion for ecology and place, for introducing me to illustrated learning journals, hitting the trails with me so I may see her journaling practice and love of the land, and for agreeing to be supervisor, which must have been frustrating at times; Sharman Learie for providing a unique perspective, his thesis has been an amazing resource, and he has continually been a source of support throughout this process; Kellee Caton for her enthusiasm in supporting this project, even with her busy schedule with her own students; Mark Wallin for providing a unique academic outlet with the Interdisciplinary program, there's no doubt I wouldn't have continued school if it wasn't for this program; Ross Cloutier for allowing me to explore many topic areas in his self-directed Outdoor Education courses, in which I discovered the field of place-based education.

TABLE OF CONTENTS

CHAPTER ONE: INTRODUCTION AND BACKGROUND

-- Researchers Perspective --

Journaling has changed my perspectives towards place by allowing me to revel in the splendor of the natural world. The act of journaling for me is the act of slowing down, and as such I am able to subscribe to the moment through the quite introspective lines I make on the page.

I bring to this research a childhood history growing up in an urban environment, where I never learnt the meaning of place. Conversely I am also influenced by the newfound experience as a wilderness guide/instructor and the recognition that place matters. These two perspectives have allowed me to understand the importance of having an ecological identity and what consequences result from a lack of relationship with place.

Born and raised in the ever continually sprawling metropolises of Dublin, I never garnered an overall strong connection to where I lived; 21st century globalization and homogenization robed me of the famed Irish sense of community my grandparents would have experienced. With sixty-two percent of the Irish population living in urban environments today (The Irish Times, 2012), Celtic culture and language has demised (Princeton University). In place of small local communities, I grew up amidst vast faceless housing estates. My childhood home was located in a land where deciduous forest had been replaced by asphalt. This process was ongoing so that even the remnant forest that housed the tree house that friends and I built was cleared to make way for more development. Continually squeezed out of natural places to exude our energy, and not being involved in organized sports, boisterous anti-social behaviour presided — a tale told throughout

developed nations. All this led to my disdain for the place where I had grown up. In fact I attribute my lack of sense of place to why it was so easy for me to leave Ireland and to why I consider a foreign land home, not the place I was born and raised. It was with recent musings then, on my own identity or lack of it that led me to the field of place-based education. Thomashow (1995) argues that ecological identity "is grounded in a person's relationship with the natural world" (Thomashow, 1995, as cited in Learie, 2009, p.36). Developing a sense of place is tied intimately with having an ecological identity, something I sorely lacked growing up in Ireland. Place-based education addresses feelings of placelessness and a lack of ecological identity by causing individuals to "consider how their actions, values and ideals are framed according to their perceptions of [place]" (Thomashow, 1995, p. xiii).

I have been truly blessed to have come to Canada and experience many natural environments; however, it is easy to glamorize the aesthetic of this place and create superficial connections with it. I believe my first two years in Canada were just that — superficial, fueled by the high octane adventure sports of the Adventure Guide Diploma, moving from one environment to another, the environment really being secondary — any place Canada — to the activity. However it was with the end of my two years adventure schooling that really led me to come and know (and love) a place. Spending the course of a summer backpacking in the Canadian Rockies and becoming in sync with the land profoundly affected my life. After I mused about how in such a short period of time I came to adore this place and knew as Bert Regally proclaimed upon seeing the Rocky Mountains in 1904, "A Canadian Switzerland I shall go no further"(Whtye Museum of the Canadian Rockies, 2011). The Canadian Rockies, endless as they are, evoke my sense of intrigue, deep reflection and desire to explore. As a lonely traveler in a vast landscape, one connects easily

with the terrain and for the first time in my life I found a sense of place. The sense of place garnered in the Rockies has fueled my want of a career in guiding and instruction, so that I may spend as much time as humanly possible there.

Although I had a devoted appreciation for the Rockies, I often wondered how meaningful that connection was. Was I merely a passive observer, unaware of all I was missing in the rush to camp or peak or ski run? — a question that also applies to the adventure community/industry at large. Questions like these led me to investigate illustrated learning journals when plant ecologist Lyn Baldwin introduced me to them. The journal for me was a way to reorganize the meaning and direction of my relationship with the land, simply to slow down and notice the natural wonderments all around. Journals allowed me to become my own teacher, a constructor of knowledge rather than recipient of it. Illustrated field journals are a juxtaposition of words and images on a page spread that allows me to reflect on the specifics of a place. In this way journals are a tool for documenting the moment. Becoming an amateur naturalist I have taken many courses I hoped would be useful to me —the natural environment, interpretation courses, and ecology courses— none have taught me as much as my own time spent outside with pen, journal, field guide and if I'm lucky someone with knowledge of the area.

-- Significance --

Place matters because it forms our identity as part of a community (whether that is urban, rural or wilderness), without it we are merely passive observers of it.

Today's world is an increasingly global place, Thompson Rivers University (TRU) has embraced this longstanding trend and become one of the leading international British

Columbian universities, hosting students from more that 80 countries (Thompson Rivers University, 2008). As a direct result of this international community within TRU, the university has been "embracing and promoting internationalizing the curriculum as an important part of the TRU culture (Baldwin, et al., 2010). There are many advantages associated with an international curriculum; students gain knowledge and understanding of many cultures, learn to be part of the modern global workforce, and as a result become global citizens representing Canada worldwide. However, there are also problems associated with curricula that only focus on generic and homogenized studies as students fail "to connect what they are learning to their own lives, communities, and regions" (Smith, 2002, p. 587) because local learning opportunities are largely ignored (Sobel, 2004). This disconnect is hereditary in an internationally focused curriculum as students are expected to internalize and master obscure knowledge (Smith, 2002), rather than becoming "participants in the construction of meaning" (Smith, 2002, p. 586). If one considers if it is even possible for students to truly learn about place on a country, continent and international level without first knowing their own (Baldwin et al., 2010), questions arise on the efficacy of international curricula. Comenius, a seventeenth-century education philosopher is known to have said, "Knowledge of the nearest things should be acquired first, then that of those farther and farther off" (cited in Woodhouse, 2001). In fact Laurie Lane-Zucker, executive director of *The Orion Society* as of 2004, ascribes the focus on international curriculum and the embracement of globalization as contributing to the process of disintegration between community connections with cultural identity, traditions, history and local environs, leading to "industrial pollution, biodiversity/habitat loss, and aquifer depletion (Sobel, 2004). In other words, our disconnection with place may be one of the root causes to the wide spread

environmental degradation we are currently struggling with. There is much at stake; the climate models are more alarming than ever, and the environment is suffering untold stresses at the hands of humanity. The "World Scientists' Warning to Humanity", has made it clear that, "human beings and the natural world are on a collision course...[that] human activities inflict harsh and often irreversible damage on the environment and on critical resources" (Kendall, 1992 from Introduction section, para. 1). With intertwined fates, humanity is also suffering; "the prevalence of cancer, asthma, and other public health epidemics is unprecedented" (Sahn, 2012).

Internationalization of curriculum is not just prevalent in the mainstream disciplines but can also be seen in adventure programming curriculum (wilderness communities), albeit in a different way. Whereas broader TRU curriculum focuses on internationalizing learning, the curriculum at the adventure department has become largely oriented towards, "technical and people skills rather than in land skills" (Baker, 2005, p. 267). While it is a guide training program and technical and people skills are the hallmark of a good guide, a total avoidance of understanding the environment seems slightly ignorant. Sharman Learie, a member of the faculty, reflecting on the changing curriculum stated, "Much to my dismay the adventure department decided to remove both natural history and the cultural environment from the department’s curriculum about five years ago" (Learie, 2013, personal communication). With such a focus on technical and people skills, students tend to perceive "the landscape as an interchangeable backdrop rather than developing a personal connection to it" (Baker, 2005, p. 267). This revelation is not just seen at the TRU adventure studies, but in the adventure industry as a whole.

In an urban, rural or wilderness context, place-based education can provide a solution for reorganizing curriculum towards the local as "it prepares people to live and work to sustain the cultural and ecological integrity of the places they inhabit" (Woodhouse & Knapp, 2000, p. 4). In this sense place-based education promotes what Orr (1992b) described as "Ecological Literacy", as participants gain "the knowledge necessary to comprehend interrelatedness, and an attitude of care or stewardship" (p. 92). Place-based education is particularly positioned to achieve these goals through its interdisciplinary and multidisciplinary nature. Place-based education is interdisciplinary as it is deeply connected with the field of outdoor and environmental education. Outdoor education's main purpose "is to provide meaningful contextual experiences...that complement and expand classroom instruction" (Woodhouse & Knapp, 2000, p. 4). Environmental education's instructional approach is "directed toward developing a citizenry prepared to live well in a place without destroying it (Orr, 1994, p. 14 as cited in Woodhouse & Knapp, 2000, p. 2). It is inherently multidisciplinary (Woodhouse & Knapp, 2000) as it encompasses such fields as: "literature, visual arts, ecology, geography, english language studies, and history" (Baldwin, et al., 2010). Like place-based education, the practice of natural history and illustrated learning journals often utilize many different disciplines as part of the process of coming to know place.

A loss of connection to the natural world often results in these places having a decreased value in our lives. Stephen Jay Gould insisted that, "we will not fight to save what we do not love" (cited in Orr, 1992a, p.6). Evidence of this came with the Federal Governments cuts to Parks Canada's budget in the summer of 2012 by approximately $30 million per year. But these places do have value; they "protect and present nationally

significant examples of Canada's natural and cultural heritage, and foster public understanding, appreciation and enjoyment in ways that ensure the ecological and commemorative integrity of these places for present and future generations" (Parks Canada, 2002). In an attempt to fill budget gaps Parks Canada has proposed increased park fees (Parks Canada, 2013), a net result that will equal higher fees and reduced services, evident through park closures in the wintertime (Herbert-Daly, 2013). It is worrying that the people whom we need to encourage to visit parks so that they connect with nature are being turned away due to increased costs, and moreover receive less value for more cost with the reduced services (Hebert-Daly, 2013). Richard Louv (2005) documented in his book "Last Child in the Woods" a whole generation that is devoid of nature due to urbanization and technology. This generation he says suffers from 'nature deficit disorder'. In what is now an urban country with more than eighty percent living in urban environments (Statistics Canada, 2009), our national parks have an ever "critical role to play in helping Canadians to connect with nature in a real and transformational way" (Herbert-Daly, 2013).

As a result of my research of the literature and my own practice of illustrated journaling, I believe that the use of illustrated learning journals in place-based education can be a powerful tool to connect with place. It disregards generic and homogenized studies, and instead, connects learning to participant’s identity and place. It creates an ecological identity through the formation of actions, values and ideas of place. It forms an ecological literacy where participants are not just aware of environmental wrongs but strive to right those wrongs, slow the forces of globalization, environmental degradation and protect the places we live and love.

-- Overview of the Research --

Illustrated field journals direct one in knowing a place, practice and reflection upon this interaction solidifies relationship with place.

Illustrated learning journals help link abstract concepts and theoretical knowledge to the phenomena seen locally at one's place. However, I have come to realize, that as much as they are tools for looking at the external landscapes of a place, illustrated journals are also tools for looking at the internal landscape of the mind. Reflecting on the journaling process encourages the participant to create meaningful connections to the land. Through reflection one can look back at the experience and process and give it purposeful meaning. Reflecting on the process is the act of transcribing the thoughts and feelings that led to a certain page spread, be it of a vast landscape or of a single leaf. By reflecting on these nuances, the actions, values and ideals of one's perception to place surface more easily.

Research Questions and Objectives

In recognizing that the scope of this paper could never do justice to this immensely broad multidisciplinary field of the topic, I focused this research on the following questions:

1. In my experience, is natural history an integral part of developing sense of place?
2. Is there efficacy in using illustrated journal for contextualizing natural history learning as part of a place-based pedagogy?

Objectives of the research included:

1. Creation of a literature review.
2. Creation of an illustrated learning journal.

3. Reflection on process of illustrated learning journal to my future role as a place-based educator and guide.

CHAPTER TWO: LITERATURE REVIEW

The purpose of this literature review is to develop a framework for describing how natural history bolstered by illustrated learning journals aids place-based education goals in creating sense of place among participants. The sections are as follows:

Place-Based Education. In this section I have highlighted the connections place-based education has with outdoor (Gair, 1997; Fitzpatrick, 1968; Martin, 2001; Learie, 2009), experiential (Carver, 1996; Cooper, 1994; Ewert, 1996; Martin, 2001; AEE, 2002; Dewey, 1938) environmental (Roth, 1969; Learie, 2009) and adventure (Gilbertson, et al, 2006; Bosch & Oswald, 2010; Miles & Priest, 1990) education. These interrelated fields provide a foundation for understanding place-based education. I have then discussed the key concepts of place-based education by drawing on work from key researchers (Smith, 2002; Knapp, 2005; Baker, 2005; Gruenewald, 2003; Raffan, 1993; Baldwin et al, 2010).

Illustrated Learning Journals. In this section I have mapped the history of journal keeping (Baldwin 2010; Leslie, et al 1996; Greene, 2011; Canfield, 2011), discussed the formats (Canfield, 2011; Baldwin, 2010; Hinchman, 1991), drawing on key work from researchers and theorists of the efficacy of journaling practice (Leslie, et al., 1996; Greene, 2011; Canfield, 2011; Baldwin, 2010) and discussed how journals enable students to become constructors of knowledge (Baldwin, 2010; Park, 2003; McManus, 2001; O'Connell and Dyment, 2006).

Natural History. This section sets out to define and to understand the field (Gilligan, 2009; Pielou, 1994; Fleischner, 2001, 2005, 2011; Kolan & Poleman, 2009) and track

its evolution (Pyle, 2001; Trombulak & Fleischner, 2007; Gilligan, 2009; Pyle, 2001; Fleishchner, 2001; Fuytuma, 1998; Kolan & Poleman, 2009; Wilcove & Eisner, 2009; Schmidly, 2005; Noss, 1996).

Weaving It All Together. This section weaves the concepts together in support of the research.

Collectively, the literature review presents a broad understanding of the current discussions in the field of place-based education, illustrated learning journals and natural history, and relates them to the research questions.

PLACE-BASED EDUCATION CONNECTS PARTICPANTS HOLISTICALLY TO THE LAND

Place-based education is a relatively new term in the literature; it has deep connections with *outdoor* and *environmental* education and as such is inherently *experiential* (Knapp, 2005; Woodhouse & Knapp, 2000).

Experiential education is a process of learning "that makes conscious application of student's experiences" (Carver, 1996, p.9). It is a holistic process, involving the entirety of the students: mind, body and spirit (Cooper, 1994). It can take place in a variety of settings. The settings don't have to be outdoor, adventure or environmental in nature (Carver, 1996), however "for many experiential activities the natural environment is the medium though which program goals and objective are realized" (Ewert, 1996, p.29). Experiential education is unique as students actively construct their own experience and it is the "belief that the process of personal growth occurs through change as a result of these direct experiences" (Martin, 2001). Furthermore reflection is paramount in solidifying experiences into personal

change, as "just having an experience does not necessarily mean learning will have occurred" (Dewey, 1938, as cited in Martin, 2001, p.32). Finally experiential education can be defined as, "a process through which a learner constructs knowledge, skill, and value from direct experiences" (AEE, 2002, p.5).

Outdoor education is concerned with the 'physical and mental development' of participants in an 'out of the classroom' curriculum (Gair, 1997). Fitzpatrick (1968) identified outdoor education as "a process of teaching and learning that uses natural, community, and human resources beyond the classroom as a motivation for learning and a means of broad curriculum enrichment" (Fitzpatrick, 1968, as cited in Martin, 2001, p.16). The goals associated with outdoor education are "to develop positive attitudes, appreciation, values, and a responsibility for the environment" (Martin, 2001, p.16.). The relationship between outdoor and experiential education has "long been recognized as a catalyst for inter and intrapersonal growth and change" (Learie, 2009, pg. 22).

Adventure education encompasses all that outdoor education does and as such is a subcategory of it. The difference between the two is that adventure education is most often conducted in a wilderness setting, where physical skills are taught that pertain to some sort of real and/or perceived risk, such as whitewater kayaking, rock climbing or backpacking (Gilbertson, Bates, McLaughlin & Ewert, 2006). The role that risk plays is paramount for adventure education to achieve its purpose, promoting interpersonal and intrapersonal relationships among participants, with the aim of creating positive change (Bosch & Oswald, 2010; Miles & Priest, 1990).

There has been considerable time spent understanding and defining environmental education (Disinger, 1983; Hungerford, Peyton, & Wilke, 1980; Roth, 1969; Stapp, 1969;

UNESCO-UNEP, 1976; UNESCO-UNEP, 1978), however throughout these definitions a common theme arises. That is, environmental education is structured to help students learn ecological concepts and environmental issues with the intent that students will be motivated to work on environmental problems (Roth, 1969). As discussed by Learie (2009), there is a long history of discussion in the fields of outdoor and environmental education in regards to the "benefits of time spent in nature upon the behavior towards the environment of program participants" (Andrews, 1999; Beringer, 2004; Colletto, 1997; Gillet, Thomas, Skok, & McLaughlin, 1991; Hanna, 1995; Miles, 1990; Miles, 1987; Purdue, & Warder, 1991; Thomashow, 1996).

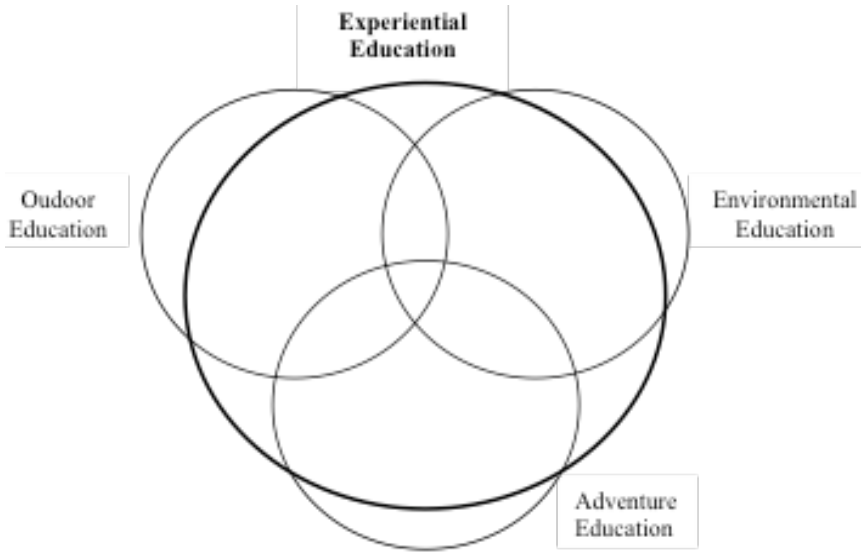


Figure 1. The relationships between the different inter-related fields of experiential education (diagram taken from Martin, 2001. p.23).

Figure 1 depicts how outdoor, environmental, adventure and experiential education are interrelated mutually supportive fields. Noting this is important, as place-based education

has emerged from these roots and as such, provides a starting point in understanding the field.

Place-based education is not a new phenomenon. John Dewey's 19th century lab school was an early experiment in linking student's interests to neighborhood contextual learning (Smith, 2002, p.586). One can go even further back to Comenius (1592-1670), an educational reformer who believed, "we should learn as much as possible, not from books, but from the great books of nature, from heaven and earth, from oaks and beeches" (Quick, 1890, p.77 as cited in Knapp, 2005, p. 279) and that "knowledge of the nearest things should be acquired first, then that of those farther and farther off" (Calkins, 1868, p. 242 as cited in Knapp, 2005, p. 279). Place-based characteristics include: (a) curriculum content that is multidisciplinary; (b) curriculum goals that are broader than just "learn to earn": and (c) a curriculum that integrates self, others, and place and includes ecological, economic, multigenerational, and multicultural dimensions (Woodhouse & Knapp, 2002 as cited in Knapp, 2005, p.280). Place-based education is concerned with the effects of place and setting (natural and cultural) on participants and aims to create a connection between the land, participant and community, as such developing a sense of place – a personal, social and natural history connection between the participant and their place (Baker, 2005; Cuthbertson, Heine & Whitson, 1997; Gillet, Thomas, Skok & McLaughlin, 1991; Gruenewald, 2003; Knapp, 2005; Miles, 1987; Raffan, 1993; Smith, 2002). Sense of place encompasses "the meanings and attachments that places hold for people...Its components [being] place attachment and place meaning" (Semken & Freeman, 2008, p. 1042). Smith (2002) recognized that while generic curricular models are inappropriate to place-based education, five thematic patterns could be adapted to fit different settings: cultural studies, nature

investigations, real-world problem solving, internships and entrepreneurial opportunities and immersion in to community life. Furthermore Smith (2002, p. 593) identified common elements in place-based curriculum, which include: (a) surrounding phenomena that are the foundations for curriculum development, (b) an emphasis on students becoming the creators of knowledge rather than only the consumers of knowledge created by others, (c) students' questions and concerns playing a central role in determining what is studied, (d) teachers acting primarily as co-learners and "brokers" of community resources and learning possibilities, (e) the walls of community and school buildings being crossed frequently, and (f) student work that is based on its contributions to community wellbeing and sustainability" (as cited in Knapp, 2005, p. 280). The terms landfullness and landlessness are terms generally applied in place-based education to describe participant's connection or lack of with their natural environs (Baker, 2005).

Place-based education is uniquely situated to reorganize the meaning participants have with place. It is positioned to do this through its innate connections with the proven models of outdoor, environmental, adventure and experiential education. There are many tools used in place-based curriculum owing to its multidisciplinary nature. One tool however that strongly supports place-based education is the illustrated learning journal. It is a flexible tool that allows participants to become creators of knowledge; it acts as a vessel of ideas and observations; and can be a catalyst for connecting the other disciplines associated with place-based education.

ILLUSTRATED LEARNING JOURNALS DOCUMENT THE MOMENT

Baldwin (2010) in *Documenting the Moment* discusses how journals have a long history as a medium for "transcribing the days' events", albeit the nature of journals has varied in content and medium, depending on the goals and the discipline. Leslie, et al (1996) notes journals are an ancient tradition of record keeping that span native people's accounts of the seasons and hunts to records of scientific expeditions. She notes how such prominent thinkers as Darwin, Thoreau and Leopold utilized the journal (Leslie, et al., 1996). In the eighteenth and nineteenth centuries, "the keeping of field notebooks was considered an absolutely essential activity" (Greene, 2011, p.251), evident by those eminent scientists who kept them: Maria Sibylla Merian, Thomas Jefferson, Meriwether Lewis and William Clark, John James Audubon, Charles Darwin, Alfred Russel Wallace, Henry Walter Bates, Henry David Thoreau (Creene, 2011, p.252) and Richard Spruce (Canfield, 2011). Charles Darwin even published his expansive field narrative, 'The Voyage of the Beagle', in which he described his observation of the Galapagos Islands. Carl Linnaeus, the man responsible for devising the classification system used to describe all living things, kept a journal of notes and sketches on his field excursions in Sweden (Canfield, 2011). William Dampier, who was known as a pirate naturalist wrote copious field notes in 'A New Voyage Round the World' when he circumnavigated the globe three times, observing birds, animals and the weather as he went (Canfield, 2011). Captain James Cook would later use Dampier’s notes, when he led expeditions from 1769-1771 aboard the HMS Endeavour. While it is true that "the status of field record keeping has come into questions in the recent age of technological proliferation" (Canfield, 2011, p.1), Canfield believes that, "meticulous record keeping is at the heart of good science" (Canfield, 2011, p.1).

Canfield (2011) says that field notes can be divided into several loose categories: diary, journal, data, and catalogs. "Diary entries record information on mundane daily occurrences...journal accounts include weather conditions, daily movements and geographic locations, and basic observations of plants and animals...data entries encompass substantial behavioral observations, factual records, and experimental results...catalogs record things collected and observed" (p.11-13). Rather than separated, Canfield (2011, p.13) "consider[s] the ways that field notes are cohesive documents composed of facts, theory, data and narrative". Baldwin (2010, p. 1) notes two formats of journaling that have been prevalent throughout history: the 'reflective journal' – transcribing internal emotional dialogue, and the 'informative journal' – describing country, natural history, people encountered etc. Hannah Hinchman (1991) described resonant journals as a way to capture both the internal (reflective journal) and external landscape (informative journal) verbally and visually (as cited in Baldwin, 2010).

Incorporation of visual images into the journal recognizes drawing as a method of observation (Dempsey & Betz, 2001; Whiteley, 2008). Keller (2011, p.161) notes that this is not a new discovery, "From Leonardo da Vinci to Charles Darwin, drawing has a long and illustrious history as a means of scientific investigation and communication". In fact da Vinci is quoted as saying, "And you who claim to demonstrate by words the shape of man from every aspect of his membral attitudes, dismiss such an idea, because the more minutely you describe, the more you confuse the mind of the reader and the more you will lead him away from a knowledge of the thing described. Therefore it is necessary to both illustrate and to describe" (as cited in Keller, 2011, p.161). Resonant journals incorporate verbal representation ("effective at depicting temporal and logical relations among events and

objects"), and visual representation ("effective at depicting spatial or typographical relations between objects or events") (McLoughlin and Krakowski, 2001 as cited in Baldwin & Crawford, 2010, p. 27).

Illustrated or resonant journals are flexible tools and connect nicely with the characteristics of place-based education by integrating many disciplines (Leslie, et al., 1996). Furthermore, Baldwin importantly mentions "writing an illustrated journal is also inherently an act of creation and enables students to become the active creators of knowledge rather than passive recipients of information" (Baldwin, 2010, p. 1-2). With the key phrase 'creators of knowledge' in mind, Park (2003), discussed how, "learning journals help to engage students in the learning process" (p.196), in that it "encourages independent thinking...and encourages them to take responsibility for their learning" (p.196). McManus (2001), coined the phrase 'Learning-Centred Paradigm, which describes learning, such as journaling that "situates learners at the centre of the experience, empowers and motivates them to assume responsibility for their own learning, and adopts teaching and learning strategies designed to encourage students to see themselves as active thinkers and problem-solvers (Park, 2003, p.183). After reviewing the literature on the subject, O'Connell and Dyment (2006) concluded, "how journals can be a useful instructional/learning strategy that allows students to reflect critically on material, to ground their learning in their lived experience" (p.672).

Becoming an active creator of knowledge has important associations with place-based education as Smith (2002, p. 586) noted that a problem traditionally associated with education "is that the job of students is to internalize and master knowledge created by other" rather than being "participants in the construction of meaning". The notion of constructing meaning shows the true value of journals to place-based education as the value lays "both in

the actual information that is recorded as well as in what is gained in the process of recording itself" (Canfield, 2011, p.14). Greene (2011), also see this value noting, "their ability to serve as an incredible fertile incubator for your ideas and observation (p.258). Clare Walker Leslie (1996) notes how nature journals gets students involved in watching "processes, patterns, shapes, cycles and changes in their own immediate landscapes" (p.36). The consequences of this holds to more than just nature observations but is multi-disciplinary utilizing English, mathematics, science, art etc, "it integrates many disciplines and allows opportunities for various styles of learning" (Leslie, et al., 1996, p. 37). Furthermore journaling speaks to place-based educations experiential routes, as it is " hands-on learning at its best" (Leslie, et al., 1996, p. 37).

Illustrated learning journals and natural history are mutually supportive. Natural history is a practice of observation and experience that utilizes the humanities, all which are congruent in journaling practice. Furthermore natural history promotes ecological identity and literacy; and as such strongly helps connect participants to place.

NATURAL HISTORY PRACTICE IS A METHOD OF DIRECT OBSERVATION AND HANDS-ON OBSERVATION OF NATURAL PROCESSES

Natural history can be defined as "a field-based science employing descriptive and comparative methods for understanding and interpreting the biotic and abiotic components of the natural world, the relationships among them, and their evolution through time" (Gilligan, 2009, p.25). Furthermore "natural history methodologies emphasize hands-on observation and interpretation of organisms in their natural habitat, and include identification and classification skills, and understanding the interplay between physical factors such as weather

and climate, geology, and soil formations and the life histories of organisms" (Gilligan, 2009, p.25). Natural History is comprised of varying subjects: sky, climate and atmosphere, terrain, seas, plant life, birds, mammals, fish and insects (Pielou, 1994). It differs from Ecology in that in that it deals with the non-living as well as the living (Pielou, 1994). Fleischner (2001, 2005) defined natural history as "a practice of intentional, focused attentiveness to the more-than-human world, guided by honesty and accuracy." There has been a "broad agreement that natural history concerns itself with direct observation, description, and comparison of natural features and phenomena" (Kolan & Poleman, 2009). Furthermore Kolan & Poleman (2009), see natural history as more than a "subject" or "discipline", instead regarding it as a *practice*. As a practice it is seen as "an inquiry that strives for depth as well as breadth and a commitment to deepen our sense of connection and belonging to this world" (Kolan & Poleman, 2009). Natural History comes naturally to us, hardwired as we are by an ancestry whose "patterns of attention were sharpened as [they] watched for danger and sought food (Shepard 1978 as cited in Fleischner, 2011).

In the 19th and early 20th century there was a Victorian obsession with Natural History (Pyle, 2001). In fact the study of nature was seen to be a critical component of an engaged citizen's life and practiced widely where at the very least "an educated person would have a basic acquaintance with local flora and fauna" (Pyle, 2001, p.17). However, in the 21st century it has been largely recognized that there has been a seismic shift away from natural history (Trombulak & Fleischner, 2007; Gilligan, 2009; Pyle, 2001; Fleishchner, 2001; Fuytuma, 1998; Kolan & Poleman, 2009; Wilcove & Eisner, 2009; Schmidly, 2005) that started in the mid 19th century with three main developments: (a) "the rise of highly quantitative, experimental, and specialized scholarship", (b) the depopulation of the

countryside and rise of the cities and suburbs", and (c) World War II and the subsequent Cold War (Pyle, 2001, p.20). Environmental education has tried to fill the void of natural history, but there are incongruent differences between the two: "nature study always and fundamentally stresses direct contact between student and organism" (Pyle, 2001, p.22), whereas environmental education oftentimes (but not always) moves away from direct interaction by focusing on secondhand connections, such as text books and online resources rather than the natural history surrounding students. In fact, "research has indicated that these programs are less effective than programs that are actually embedded in students' schools and communities in teaching children to be aware of their place (Sobel 2004 as cited in Baldwin et, al., 2010, p 14). However, now in the 21st century there has been a current resurgence in natural history (Pyle, 2001), seen by the "growing collective of academics who champion the legitimacy of natural history as an academic pursuit (Wilcove and Eisner 2000; Trombulak and Fleishner 2007)" (Baldwin et, al., 2010, p. 14).

An important justification for the use of illustrated journals to build a sense of place tool may be found in Gillman's observation that "natural history also stems from a rich tradition of humanities such as visual and literary arts" (Gilligan, 2009, p.25). Furthermore related to the idea of place, nature studies focused on the local – local flora, local fauna and habitat, whereas environmental education "tend to concentrate on the big picture of ecological roles, functions, habitats, relationships, and patterns" (Pyle, 2001, p.22).

WEAVING IT ALL TOGETHER

Natural History's methodologies of direct observation and hands-on observation coupled with the documentation method of journals supports place-based education.

Place-based education develops a sense of personal, social and natural history for participants by creating connections between them and the land. Natural history and illustrated learning journals can help in achieving these connections. Natural history practice focuses on the local, through direct observation and hands-on observation of natural processes and as such deepens participant's sense of connection and belonging to their place. Illustrated learning journals aids natural history practice. Journals allow participants to become the constructors of knowledge and document their moments so that they create connections between themselves and the land. From this discussion it is evident that in achieving a sense of place, natural history's methodologies and journal's innate documentation methods can support place-based education. The diagram (Figure 2) below shows the interconnectedness of the fields.

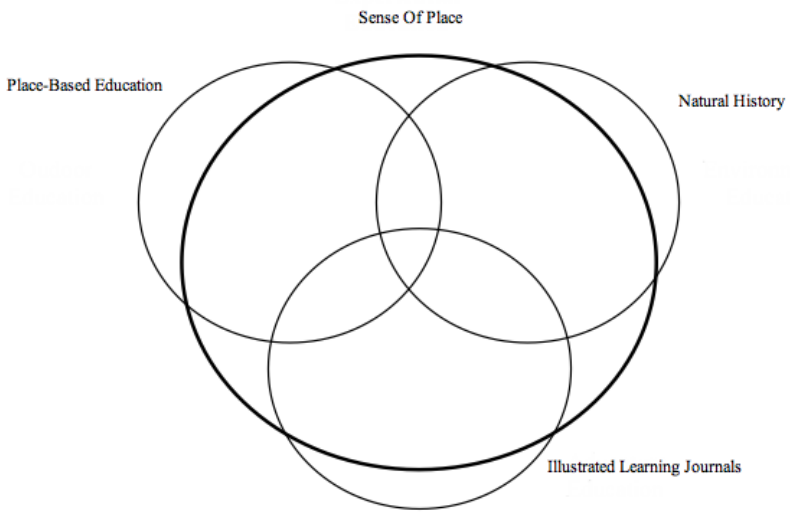


Figure 2.The relationship between place-based education, natural history, and illustrated learning journals and the cultivation of sense of place.
(Modeled after, Martin, 2001, p.23)

CHAPTER THREE: THE JOURNAL

To aid the researcher in understanding the efficacy of journaling as a tool for gaining sense of place, an illustrated learning journal was created. Throughout my entries four distinct modes appeared; Postcards from Home; Notes and Exercises on Art; Reflections; and Site Visits. Each mode represents a distinct way of interacting and coming to know a specific exterior landscape as well as interior landscape. The first three modes act individually whereas the site visits intertwine all three modes and as such is where the most authentic interaction of geographical and temporal space occurs. The focus on the journal was towards the learning of observation skills, rather than drawing skills. There were barriers to observing and drawing as noted throughout the process. The journal integrated many disciplines from literature, visual arts, ecology, geography and English language studies as seen in the examples throughout this chapter. Not as evident in the first three entries, but prevalent throughout the site visits entries was a systematic process of observation that followed a structural framework and then reflection on the entire learning process. A theme that the researcher wanted to have running through the journal was the idea of subscribing to the moment, a theme that was conveyed in the opening page (Figure 3).

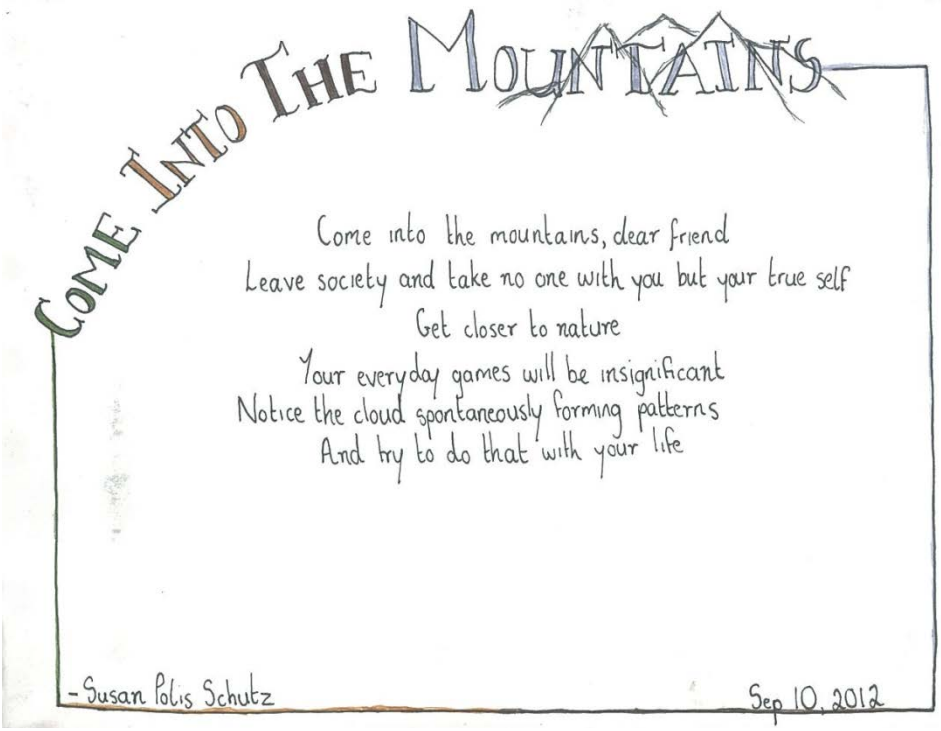


Figure 3: Example page spread that opens the journal

POSTCARDS FROM HOME

The 'postcards from home' entries are modeled after an assignment created by Lyn Baldwin as a way to help her Ecology students find the ecology of their place. Their place being home - Kamloops or another place with which the students are familiar. The assignment was designed to improve students "ability to transfer the theoretical knowledge learned in lecture to the specifics of a place" (Baldwin, 2012). The assignment had three learning objectives:

1) To encourage transfer of knowledge from the abstract to the specific.

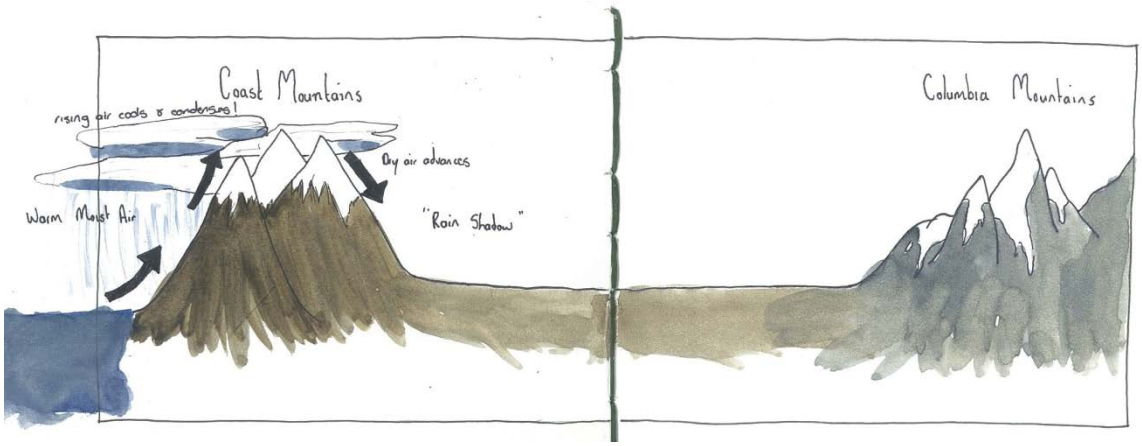
2) To encourage creativity in a content-rich course.

3) To stimulate reflection about the role of ecology in familiar landscapes.

(Baldwin, 2012)

Two of the 'postcards from home' that appeared in the journal are shown here, Figure 4 concerns the climate in Kamloops and Figure 5 the source of the Thompson River.

A:



B:

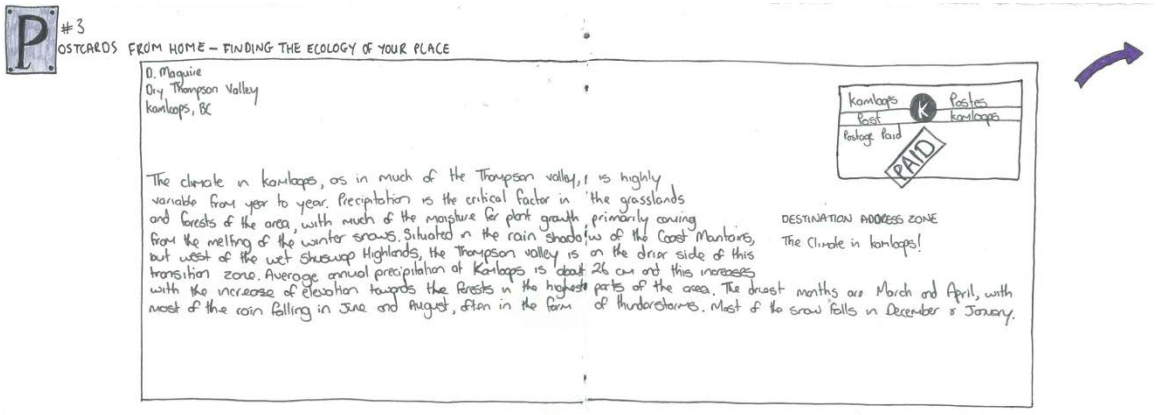
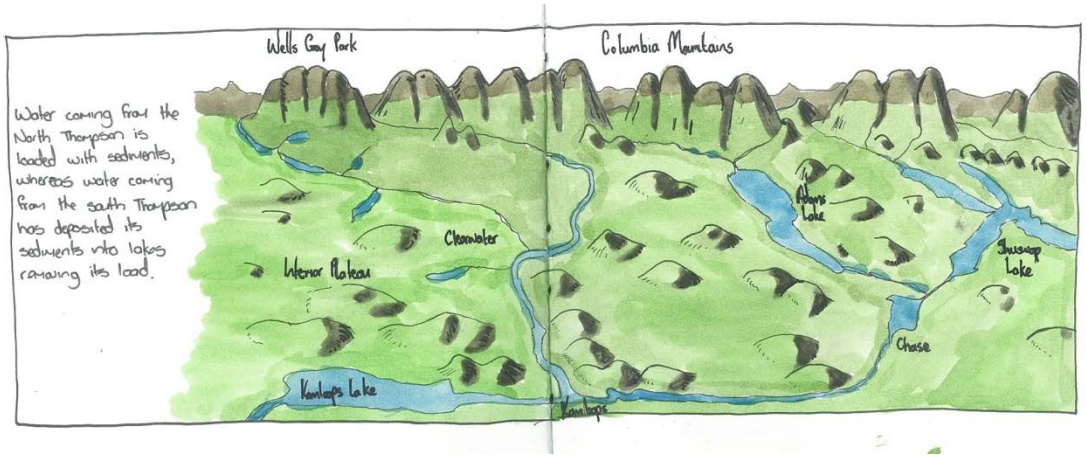


Figure 4: Example 'postcard from home', entitled 'Climate in Kamloops', showing (A) front side of the postcard and (B) text on the backside of the postcard.

The learning objectives of the 'postcards from home' assignment were achieved in Figure 4. Abstract knowledge of topography and rain shadow effects on regional climates was related to the specifics of Thompson Valley. It encouraged creativity in creating a different way of transcribing ecological information, which was done via the image Figure 4.

And indeed it stimulated reflection on the role of ecology in creating grasslands on the dry side of the transition zone, between the Coast Mountains to the west and Shuswap Highlands to the east. However, it seemed a level of authenticity was missing. Going back to the journals purpose as a tool of direct observation, the way in which the postcard simply depicted a theoretical map didn't seem to achieve those lofty ideals as the map above was transcribed from a similar one of a different region. Does this style of journaling, where one doesn't even need to leave the comfort of home help in achieving a connection to place? This I wouldn't learn until my next 'postcards from home' entry.

A:



B:

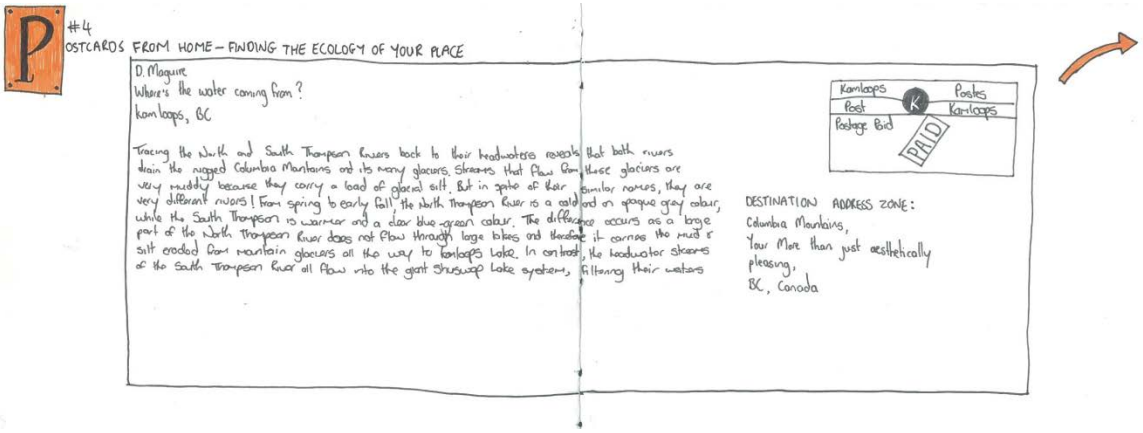


Figure 5: Example 'postcard from home', entitled 'Source of the Thompson River', showing (A) front side of the postcard and (B) text on the backside of the postcard.

This 'postcard from home' entry holds many of the same characteristics as the previous one (Figure 4) in that rather than direct observation; it really is a product of abstract knowledge. This entry aimed to ask the simple question 'where is the water of the South and North Thompson Rivers coming from? Again this entry aimed to enlighten the researcher as to why we have the regional climate we do. In light of my previous concerns regarding the efficacy of this style of journaling I came to the realization that yes, indeed, this style does aid in coming to connect with place. However, it must be seen as having purpose to give one an overview of a place, to open the enquiring mind and should be followed up with time on the ground. It is on the ground where much knowledge is gained. Here the practitioner can make further connections from abstract knowledge to local through direct observation, description and comparison of the natural features and phenomena of their place. In rearranging the abstract to local, drawing can be a powerful tool of observation and also creates for the practitioner an outlet in which s/he can describe and compare.

NOTES AND EXERCISES ON ART

Observations comprise the cornerstone of the journaling process. The observation tool utilized most in the journal was drawing as it "has long been recognized as a strategy for teaching observation skills (Dempsey and Betz 2001; Whiteley 2008; as cited in Baldwin & Crawford, 2010). Drawing has a second benefit as an observation tool in that it has permanence, the observations will have a form past the act. However if this form is to be true to the observation, drawing skill is vital. As such, it was seen pertinent to revitalize the researcher's art skills throughout the journals and it was with this that some interesting findings arose on barriers to journaling. Figure 6 shows an exercise in trying to understand

the elements of a landscape, which was shown to be various masses, set into various planes that recede into the distance. Figure 7 shows an exercise in trying to learn uniformity in tree gestures so that they may be called upon quickly in the field when making sketches. What ones sacrifices in authenticity they gain in speed.

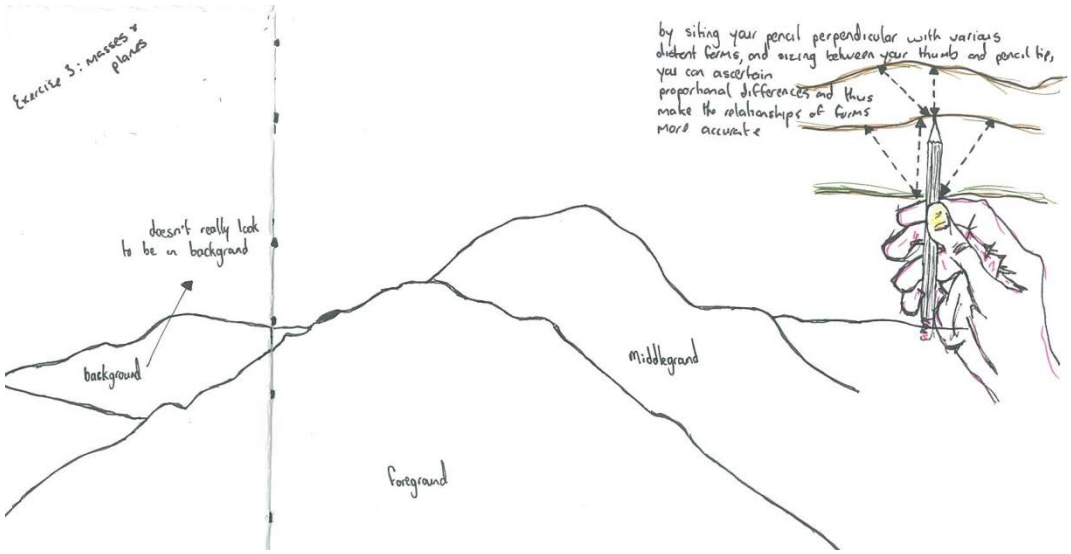


Figure 6: Depicting the Elements in a Landscape - Masses and Planes.

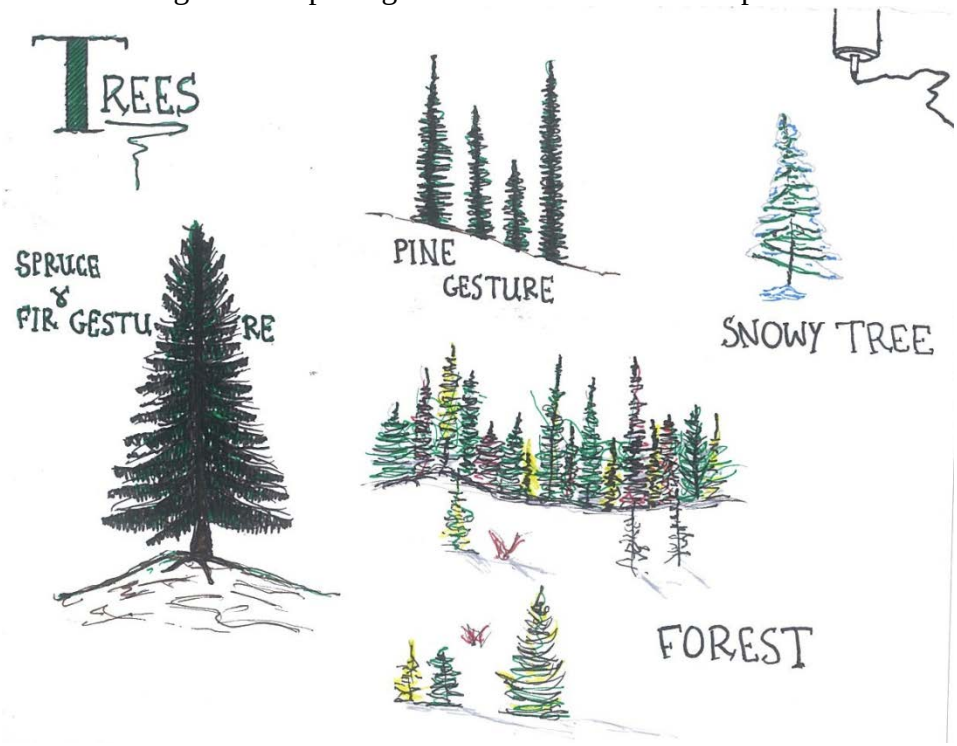


Figure 7: Depicting Tree Gestures.

The addition of 'notes and exercises on art' entries came with the frustrations the researcher felt towards his drawing ability. This has been seen to be one of if not the biggest barrier to the journaling processes. This barrier has been noted in other settings too. Notably when art was introduced into the botany lab (Baldwin & Crawford, 2010), "students reported feeling uncomfortable and intimidated by the required drawing" (p.26). There feelings surfaced in much the same way as this researcher experienced, as they had lacked art practice since grade school and "felt they had little ability to communicate visually" (p.26). Baldwin and Crawford noted that "the key to developing competence with drawing is practice" (p.29), with this in mind the researcher for this paper focused effort into approving artistic ability. Even still, it is very disheartening to ruin a page spread after spending countless hours in the field, it makes one want to put the journal away and take out the camera in fear.

There are other ways to observe other than drawing, and writing is another tool to make observations visible.

REFLECTION ON WRITTEN PIECES

The act of writing can reveal stories in the land and also in the mind. Writing is not just a means of expression but in journaling practice can be a means of exploration and discovery — "an attentive writing practice can extend perception like a microscope or an ultraviolet light to revel the unseen dimensions of our home places" (Tallmadge, 1996, p.5 in Leslie, et al., 1996).

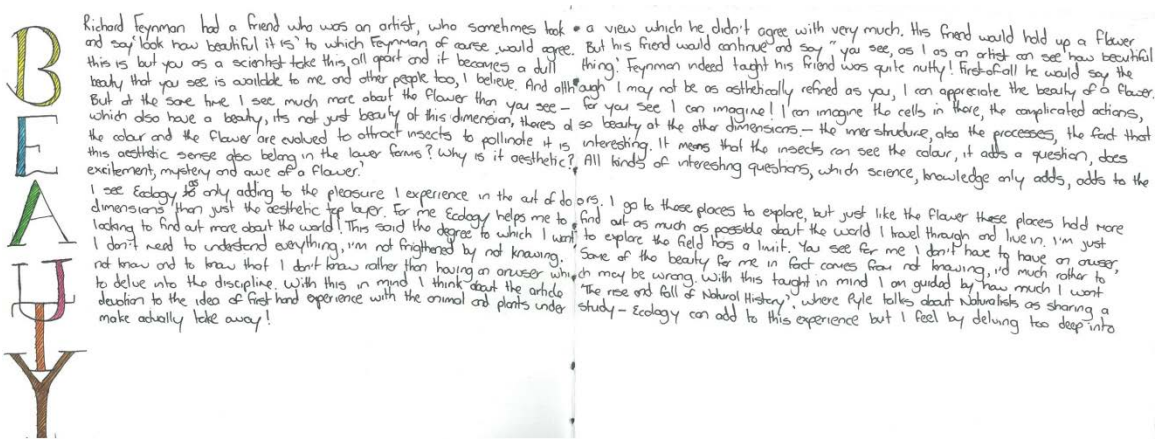


Figure 8: Reflective page spread, entitled, 'Beauty'.

The more I delved into my journaling practice, the more I noticed my want to reflect as I now had an outlet for it. A profound reflection came when I watched a video of Richard Feynman discussing beauty, as summarized in Figure 8 —

> Richard Feynman had a friend who was an artist, who sometimes took a view, which he didn't agree with very much. His friend would hold up a flower and say, "look how beautiful it is" to which Feynman of course would agree. But his friend would continue and say, "you see, as I as an artist can see how beautiful this is, but you as a scientist take this all apart and it becomes a dull thing." Feynman indeed thought his friend was quite nutty! First-of-all he would say, "The beauty that you see is available to me and other people too, I believe. And although I may not be as aesthetically refined as you, I can appreciate the beauty of a flower. But at the same time I see much more about the flower than you see - for you see I can imagine! I can imagine the cells in there, the complicated actions, which also have a beauty, it's not just beauty at this dimension, there's also beauty at the other dimensions - the inner structure, also the processes, the fact that the colour and the flower are evolved to attract insects to pollinate it is interesting. It means that the insects can see the colour, it adds a question does this aesthetic sense also belong in the lower forms? Why is it aesthetic? All kinds if interesting questions, which science, knowledge only adds, adds to the excitement, mystery and awe of a flower." (Gower, 2011).

Through reflecting on this piece (Figure 8) I discovered —

> "Having an outlet, my illustrated journal led me to discover that I'm a naturalist not an ecologist, nor do I have a desire to be. I mused on how I see ecology as only adding to the pleasure I experience in the out of doors. I go to these places to explore, but just like the flower these places hold more dimensions than just the aesthetic top layer. For me ecology helps me to find out as much as possible about the world I travel through and live in. I'm just looking to find out more about the world! This said, the degree to which I want to explore the field has a limit. You see for me I don't need to have an answer, I don't need to understand everything, and I'm not frightened by not knowing. Some of the beauty in fact comes from not knowing, I'd much rather to not know and to know that I don't know rather than having an answer which may be wrong, With this taught in mind I am guided by how much I want to delve into the discipline. I am reminded of the article 'The Rise and Fall of Natural History', where Pyle talks about Naturalists as sharing a devotion to the idea of first hand experience with the animal and plants under study - ecology can add to this experience but one needs to be careful as by delving too deep into this field that insists on quantifying it may actually take away" (Maguire, 2012).

These lived experiences in reflecting are supported by Baldwin and Crawford (2010), who noted how "learning journals have been used to promote a wide variety of learning outcomes...[such as] longer-term goals [in] promoting reflection" (p.27; from Connor-Greene 2000). In writing, one can shine a light on otherwise invisible landscapes. When drawing as a tool for observation there may be a tendency to avoid local nature. We lack appreciation for local nature that we would show for example toward the "Natural Sublime" (Tallmadge, 1996, p.5 in Leslie, et al., 1996) of national parks, which culture has taught us to beautify. Writing can focus one's eye on the seemingly banal local nature, showing us its natural sublimity "by throwing a light of attentive imagination upon the green world we normally

take for granted" (Tallmadge, 1996, p. 30 in Leslie, et al., 1996). Writing and reflection on nature as a mode of journaling aids in developing a sense of place as "one never observes in the abstract, but always at a certain time, with a certain intent, viewpoint or mindset. One never perceives things in general, but particular things, and these things manifest themselves in place, not floating free in some conceptual ether but grounded, embodied, rooted in a particular space and time" (Tallmadge, 1996, p. 24 in Leslie, et al., 1996).

Writing and reflection appears at its finest when we go into the field as engagement with nature provides raw internal dialogue. Everything one encounters posses a question. When writing and reflection are coupled with ecological thought (postcards from home) and art they complement each other and awaken the resonant journal in site visits.

SITE VISITS

It is during site visits where the journaling process feels most integrated, as this is where it most follows the 'resonant journaling' model, capturing verbally and visually the internal and external landscape. Here one can see the different ways of knowing weaving together — ecology notes (postcards from home, mode 1) investigate the external world with the help from art (mode 2) as an observational tool; writing and reflection capture both the internal and external landscape bolstered by the engagement of the site visit.

I never go out expecting what I'll find as I don't want to have preconceived notions of what may present itself, instead I let things present themselves in their own nature and my journal simply acts as "vessel" (Hinchman, 1999) in which to capture them.

Depicting the external landscape, Figure 9: "barefoot on the banks of the Thompson one suddenly develops awareness that these frigid waters are glacial fed from up high in the

Columbia Mountains. The channel between McArthur Island & Rabbit Island is only knee deep, being the lee side of the river. The north side of the island has large sandy beaches, whereas the south shoreline is steep, constantly being eroded back by the river. The island is much like the heart of the land, contracting in the summer to the heavy pulsations of the Thompson, and exploding in the winter when the water has less fervor. Much of the middle of the island is open grass and a few trees, but the northeast corner is denser and the northwest corner is overgrown. The island is an overwinter spot for deer, an island of nature in a sea of urban" (Maguire, 2012).

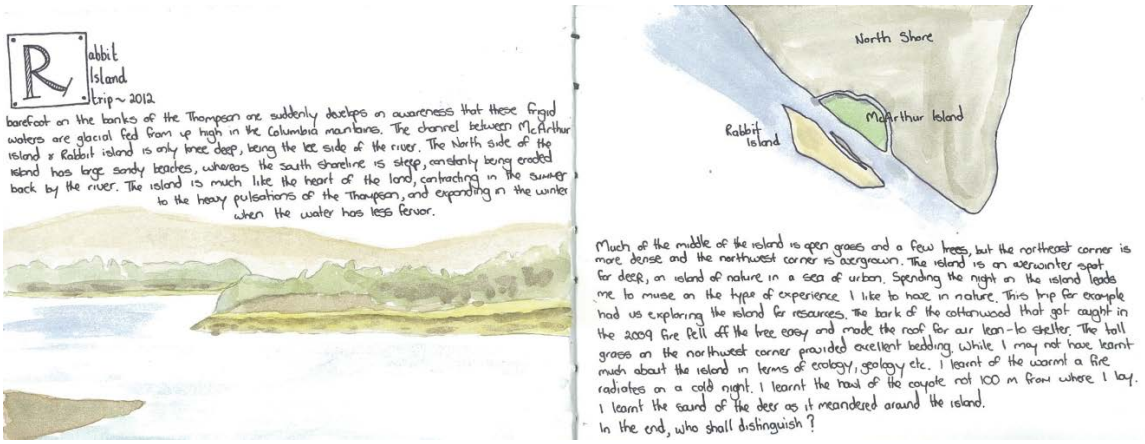


Figure 9: Page spread entitled, "Rabbit Island"

Depicting the internal landscape, Figure 9: "spending the night on the island leads me to muse on the type of experience I like to have in nature. This trip for example had Sean and myself exploring the island for resources. The bark of the cottonwood that got caught in the 2009 fire fell off the tree easy and made the roof for our lean-to shelter. The tall grass on the northwest corner provided excellent bedding. While I may not have learnt much about the island in terms of ecology, geology, history, etc, I learnt of the warmth a fire radiates on a cold night. I learnt the howl of the coyote not a hundred meters from where I lay. I learnt the

sound of the deer as it meandered around the island. In the end, who shall distinguish?" (Maguire, 2012).

Depicting the external landscape, Figure 10: "oftentimes it is easy to be mesmerized by the cloud that has swept into out valley and hidden all but a few peaks such as Mont Dufferin. At these times the air near the ground is colder than the layers of air above. The cold air is never very deep, often only 200-300m. Overlying it is air that is perhaps 10-15 degrees Celsius warmer. Not only is the air warmer above the inversion, it is often clearer as well. Standing atop Mount Peter and looking south, I am rewarded with a mesmerizing view of Kenna Cartwright Park and Mount Dufferin. I can count my blessings as I know below the inversion ceiling I would be faced with cold, dense air that is murky with ice crystals and trapped air pollution. However, being above the inversion ceiling tells a different tale, here I am greeted with the sun shinning brightly though drier cleaner air" (Maguire, 2012).

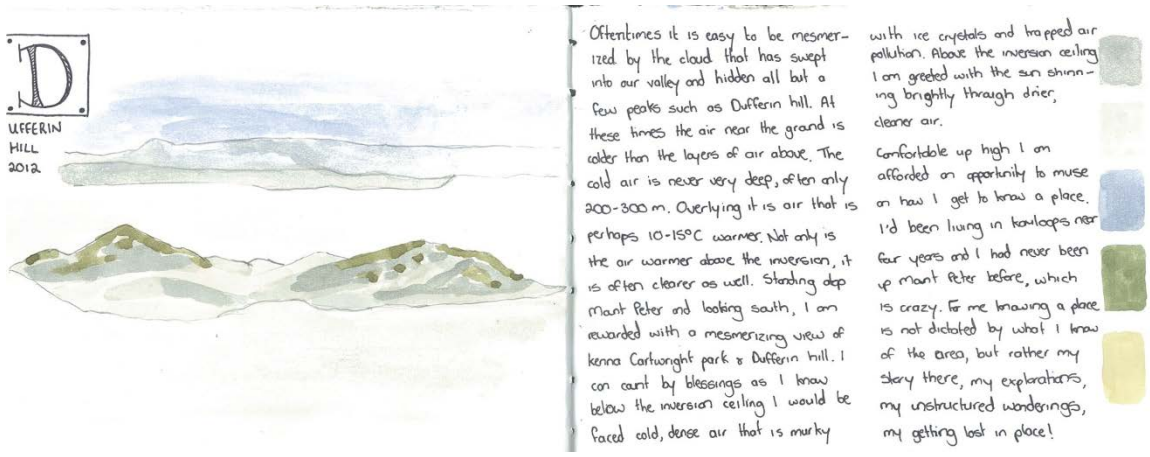


Figure 10: Page spread, entitled, 'Mount Dufferin'

Depicting the internal landscape, Figure 10: "comfortable up high I am afforded an opportunity to muse on how I get to know a place. I'd been living in Kamloops near four years before I ventured up Mount Peter. A sad statement considering for me knowing a place

is not dictated by my knowledge of the area, but rather my story there, my explorations, my unstructured wanderings, my getting lost in a place" (Maguire, 2012).

From my time journaling one over arching discovery continually comes to mind, that heading outside often leads within. The simple act of spending time outside can oftentimes lead to quite introspective thoughts such as the ones that came to mind when I sat down and looked at the ridgeline above Botany Pond, Figure 11. "Any day-spent journaling with Lyn is a rare treat indeed. Her observational skills are phenomenal, something towards which I hope to aspire. But what intrigues me most about Lyn is her thoughtful and introspective musings on the natural world. How she manages to communicate her thought process and observations is little short of pure poetry. Lyn has immersed herself into a naturalists life when journaling and every moment lived surrounded by natures symphony happens in the moment, no past, no future, just now — a split of a second" (Maguire, 2012).

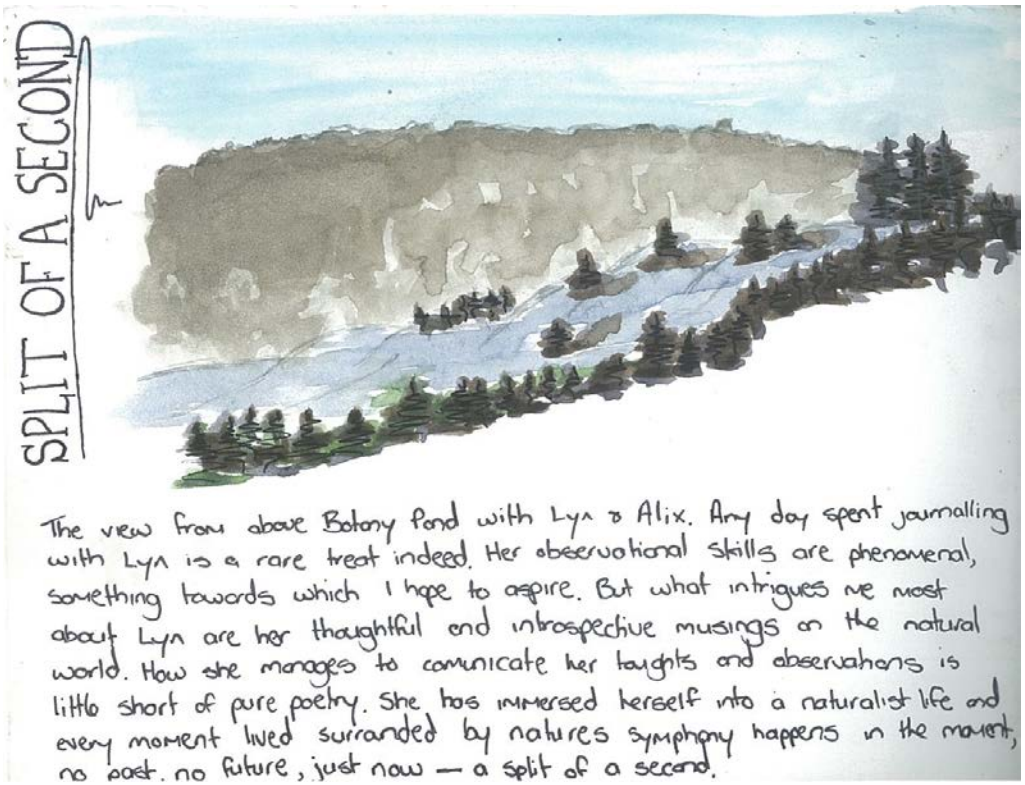


Figure 11: Page spread, entitled, 'Split of a Second'

It was with the 'Site Visits' that the journal truly came alive. In actuality it can be said to be the most authentic of the four modes, in that one must leave the comfort of the indoors in search of the internal and external, combing elements of the other three modes in syntheses to produce a vivid synopsis of the moment — forever captured.

In delving into journaling, four modes arose. In transcribing these modes, the researcher wanted to see if natural history was an integral part of developing a sense of place? If as stated early that sense of place is defined as the personal, social and natural history connections between a person and their locality then it is apparent that one (sense of place) cannot happen without the other (natural history). Natural history was prevalent throughout the four modes; being the purpose of ecological notes, being the subject of art practice; being the muse for reflection; and providing the stage for the site visits. If as I believe and as my research suggests that natural history can be an integral part of developing a sense of place, the next logical step in the research was in disclosing 'the efficacy of illustrated journal use to contextualizing natural history learning as part of a place-based pedagogy.' Earlier I suggested that illustrated learning journals as a method of constructing knowledge and documenting the moment provide a format for natural history's methodologies of direct observation and hands-on observation, thus supporting its efficacy in place-based pedagogy. Journaling practice only supported this finding. This was most evident in the 'Site Visits' where intimate connections were made between the researcher and the natural environment through observations made while journaling.

CHAPTER FOUR: CONCLUSION

This paper has explored if natural history and illustrated learning journals can act as tools for place-based education. This investigation was undertaken in two distinct ways. Firstly, the literature review aimed to see if there existed inherent connections that supported the proposition, 'natural history and illustrated learning journals as tools for place-based education'. Secondly, the journal chronicled the researcher's lived experience with illustrated learning journals and natural history in coming to know a place. In direct response to the investigations two distinct forms, the findings also emerged in two forms, those from the literature and those from the journal.

The first question the research sought to answer was if natural history is an integral part of developing sense of place? This was answered both from the literature and the journal. The literature review indicated that sense of place comes about through social, personal and a natural history of a place. Owing to this very definition it can be easily concurred that natural history is innate to sense of place development. Furthermore, the findings from the literature suggest that a sense of place can be achieved through natural history methodologies and illustrated learning journals innate documentation methods. As such both support place-based education objectives. The journal also answered the first research question, as its purpose was to aid sense of place development, and as place is a "space with meaning" (Baldwin et al., 2010) then I do believe the journal reorganized the meaning that the space of the Kamloops environs holds for me. Through the ecological notes I learned to focus on local ecological processes, allowing me to not only know but to appreciate why this place is the way it is. Through art practice I focused my eye on the previous unknown beauty that this space holds. Through writing, I reflected deeply on this

space but most importantly situated myself in the lived landscape. And through the site visits the journal combined all three modes that created a document of my experience with the land at that very moment.

Upon answering the first question, the second research question sought to explore the efficacy in using illustrated journals to contextualizing natural history learning as part of a place-based pedagogy. The literature review indicated that natural history is a practice, whereby the primary methods employed are direct observation and hands-on observation of natural processes. In aiding these methods nature study has historically utilized visual and literary arts. Journals, which have been defined as an observation tool through the use of visual and literal methods, hence are shown to support natural history. Secondly, the journal also answered the second question. This was especially seen throughout the site visits where the journal acted as a vessel in observing such natural phenomena: water sources, river erosion processes, deer habitats, historical fire patterns and inversions, to name a few.

In concluding, this paper has shown that Natural History can be fundamental to place-based education; furthermore it has shown that journals do indeed contextualize natural history learning. As such the findings suggest that there is efficacy in using illustrated journals for contextualizing natural history learning as part of a place-based pedagogy.

-- *Recommendations for Future Journaling Practice* --

Educated through a guiding program, a plethora of time spent recreating outdoors, and working in the industry taught me how my career and my industry undervalues natural places. There is appreciation, albeit superficial. Wanting to connect more deeply with these places I welcomed the practice of journaling. This paper has chronicled my journaling

practice and reflection on that practice. Through this a series of recommendations for my own future journaling practice have come to light.

Recreating and working in the adventure industry has led me to discover that the activity in question and journaling can be mutually supportive. However field journaling and outdoor activities—especially adventure activities—can be in conflict. This occurs due to the time consuming process of documenting the moment. If I step off the trail and take out the journal, this can be a major interruption to the rest of the group. However in noticing other journaling practitioners the same interruption doesn't seem to exist. This is largely due to artistic skill. If one is competent in art, a sketch of a landscape can materialize in less then a minute, whereas I painstakingly struggle to sketch a landscape in ten minutes. This highlights the importance of art in journaling practice. Good artistic skills also add rigour to one's representation of observed phenomena. However, as a place-based educator, I believe that illustrated field journals will play an important role in my personal and professional development and as such, they are worth the investment. In order to gain the greatest benefit from my journaling practice, I propose the following recommendations for myself (or any other outdoor educator who wishes to develop an illustrated field journal practice):

1. Seek out opportunities to develop art skills.
2. When at all possible, create time for reflective writing about the journaling experience.
3. Acknowledge the inherent tension between journaling and "doing" by articulating expectations for myself about when and where journaling is appropriate.

4. Develop an increased repertoire of modes of engagement. I found site visits to have the greatest impact on my connection with place, but there are numerous other exercises I can practice in order to develop my practice.
5. Begin to use illustrated journaling in guiding/teaching. This will include exploring the varying opportunities to share field journals with client/students.
6. Resist the critic—if journaling is about the process, then failed pages are part of the process and represent an important part of my practice. Accept that images that don't look like what I was drawing will stand beside later, more "accurate" images and that both represent authentic experiences.
7. Improve naturalist skills, such as joining naturalist clubs specific to the areas I will guide.

From growing up in urban Ireland, where a sense of place eluded me, to immensely feeling connected to spaces in Canada, this research has articulated how my feelings towards a place emerge. The research has spoken of the importance of sense of place as well as how it comes about. Orr (1992b) spoke of having Ecological Literacy when one "has the knowledge necessary to comprehend interrelatedness, and an attitude of care or stewardship" (p.92). Keeping an illustrated journal and tuning into nature led me to comprehend the interrelatedness of this place. It is impossible not to have an attitude of care once one has knowledge. The journals therefore undoubtedly instilled in me a "knowing, caring and practical competence" (p.92) for this place. This agrees with Thomashow's (1996, p. xiii) notes on ecological literacy, as causing one to "consider how their actions, values and ideals are framed according to their perceptions of nature". As such natural history and illustrated journals in coming to gain a sense of place led me to an 'environmental empathy' (Learie,

2009, p.37) of this place. The lessons of this project have lead me towards wanting to achieve a knowing of natural spaces and more so a care for them, such as those Sharon Butala spoke of in her book, 'The Perfection of the Morning: An Apprenticeship in Nature:

> It is one thing to come from the city and be overwhelmed by the beauty of Nature and to speak of it, and another thing entirely to have lived in it so long that it has seeped into your bones and your blood and is inseparable from your own being, so that it is part of you and requires no mention of hymns of praise (1994, p. 89).

References

Andrews, K. (1999). The Wilderness expedition as a rite of passage: Meaning and process in experiential education. *The Journal of Experiential Education, 22* (1), 35-43.

Association for Experiential Education (AEE). (2002). *What is the definition of experiential education?* Boulder: CO: Author.

Baker, M. (2005). Landfullness in Adventure-Based Programming: Promoting Reconnection to the Land. *Journal of Experiential Education, 27* (3), 267-276.

Baldwin, L. (2010). *Documenting the Moment: using illustrated journal as a teaching tool in undergraduate education.* Retrieved 2012, 12-April from Thompson Rivers University - Faculty - Lyn Baldwin: http://www.tru.ca/faculty/lbaldwin/Field%20Journal/Documthemoment_10.pdf.

Baldwin, L., Block, T., Crawford, I., Naqvi, K., Ratsoy, G., Templeman, E., et al. (Feb, 18-20, 2010). *Making Connections: Teaching through the Experience of Place.* Kamloops: A pre-conference workshop Educational Developers Caucus, Thompson Rivers University.

Baldwin, L., & Crawford, I. (2010). Art Instruction in the Botany Lab: A Collaborative Approach. *Journal of College Science Teaching, 40* (2), 26-31.

Baldwin, L. (2012, 11-April). BIOL 3240 - Ways of Knowing. *Class Notes, BIOL 3240,* 10/1-10/6. Kamloops, BC, Canada: Thompson Rivers University.

Baldwin, L. (2012, September). Postcards from home - finding the ecology of your place. *Course Outline*. Kamloops: Thompson Rivers University.

Beringer, A. (2004). Toward an ecological paradigm in adventure programming. *Journal of Experiential Education, 27* (1), 51-66.

Bosch, R. & Oswald, M. (2010). Adolescents' perceptions of an adventure-based program. *Perspectives in Education*. 28(1): 64-76.

Butala, S. 1994. *The Perfection of the Morning: An Apprenticeship in Nature.* Toronto: Harper Collins.

Calkins, N. A. (1868). *Primary object lessons for a graduated course of development.* New York: Harper & Brothers.

Canfield, M. R. (2011). Introduction, p.1-19 in *Field Notes on Science & Nature*, edited by Canfield, M. R. Cambridge: Harvard University Press.

Carver, R. (1996). Theory for practice: A framework for thinking about experiential education. *The Journal of Experiential Education, 19* (1), 8-13.

Colletto, H. (1997). Education, the deep ecology movement, and transition. *Trumpeter, 14* (2), 2-9.

Connor Greene, P. (2000). Making Connections: Evaluating the effectiveness of journal writing in enhancing student learning. *Teaching of Psychology, 27* (1), 44-46.

Cooper, G. (1994). The role of outdoor education in education in the 21st century. *The Journal of Adventure Education and Outdoor Leadership, 11* (2), 9-12.

Cuthbertson, B., Heine, M. and Whitson, D. (1997). Producing meaning through movement: An alternative view of sense of place. *The Trumpeter: Journal of Ecosophy*, vol. 14(2), 72-75.

Dempsey, B., & Betz, B. (2001). Biological drawing: A scientific tool for learning. *The American Biology Teacher, 63* (4), 271-279.

Dewey, J. (1938). *Experience and education.* New York: Collier books.

Disinger, J. (1983). Environmental Education's Definitional Problem. *ERIC Digest*.

Ewert, A. (1996). Experiential education and natural resource management. *Journal of Experiential Education, 19* (1), 29-33.

Fitzpatrick, C. N. (1968). *Philosophy and goals of outdoor education.* Unpublished doctoral dissertation, Colorado State College, CO.

Fleischner, T. (2001). Natural history and the spiral of offering. *Wild Earth*, 10-13.

Fleischner, T. (2005). Natural history and the deep roots of resource management. *Natural Resources Journal 45*, 1-13.

Fleischner, T. L. (2011). Why Natural History Matters. *Journal of Natural History Education & Experience*.

Fuytuma, D. (1998). Wherefore and whither the naturalist? *American Naturalist*, 1-6.

Gair, N. (1997). *Outdoor Education.* London: Cassell.

Gilbertson, K., Bates, T., McLaughlin, T., & Ewert, A. (2006). *Outdoor Education Methods and Strategies*. Champaign: Human Kinetics.

Gillet, D., Thomas, G., Skok, R., & McLaughlin, T. (1991). The effects of wilderness camping and hiking in the self-concept and environmental attitudes of twelfth graders. *The Journal of Environmental Education, 22* (3), 33-44.

Gilligan, D. (2009). Natural History from the Ground Up: Developing a College-Level Natural History Program in the New Millennium. *Journal of Natural History Education, 3*, 24-29.

Gower, R. (2011, October 2). *The Feynman Series - Curiosity*. Retrieved February 24, 2013, from YouTube:

http://www.youtube.com/watch?v=lmTmGLzPVyM&list=PL92F9FC91BBE2210D&index=3.

Greene, E. (2011). Chapter 12, p. 251 - 276 in *Field Notes on Science & Nature,* edited by Canfield, M. R. Cambridge: Harvard University Press.

Gruenewald, D. A. (2003). Foundations of Place: A Multidisciplinary Framework for Place-Conscious Education. *American Educational Research Journal, 40* (3), 619 - 654.

Hanna, G. (1995). Wilderness-related environmental outcomes of adventure and ecology education programming. *Journal of Environmental Education, 27* (1), 21.

Hebert-Daly, E. (2013, 27-January). *The Future of our National Parks*. Retrieved 2013, 20-February from CPAWS Blog: http://cpaws.org/blog/the-future-of-our-national-parks

Hinchman, H. (1991). *A life in hand: creating the Illuminated Journal.* Layton, Utah: Gibbs Smith Publisher.

Hinchman, H. (1999). *A Trail Through Leaves: The Journal As A Path To Place.* New York: W. W. Norton & Company, Inc.

Hungerford, H., Peyton, R. B., & Wilke, R. (1980). Goals for curriculum development in environmental education. *Journal of Environmental Education, 11* (3), 42-47.

Keller, J. (2011). *Field Notes on Science & Nature.* Cambridge: Harvard University Press.

Kendall, H. (2008). World Scientists' Warning to Humanity. Retrieved March 13, 2013, from http://www.ucsusa.org/about/1992-world-scientists.html.

Knapp, C. (2005). The "I-Thou" Relationship, Place-Based Education, and Aldo Leopold. *Journal of Experiential Education,* v27 n3 p277-285.

Kolan, M., & Poleman, W. (2009). Revitalizing Natural History Education by Design. *Journal of Nature History Education*, 30-40.

Learie, S. (2013, March 10). Adventure Curriculum. *Personal Correspondence*. Kamloops, BC, Canada.

Learie, S. (2009). Changing Lives, Creating Leaders: Transformational Environmental Education. *Unpublished doctoral dissertation, Royal Roads University, British Columbia, Canada*.

Leslie, C. W., Tallmadge, J., & Wessels, T. (1996). *Into The Field: a guide to locally focused teaching.* Great Barrington, Massachusetts: The Orion Society.

Louv, R. (2005). *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder.* Chapel Hill: Algonquin Books of Chapel Hill.

Martin, A. (2001). Towards The Next Generation Of Experiential Education Programmes: A Case Study Of Outward Bound. *Unpublished doctoral dissertation, Massey University, Palmerston North, New Zealand*.

McLoughlin, C., & Krakowski, K. (2001). Technological tools for visual thinking: What does the research tell us? *Paper presented at the Apple University Consortium Academic and Developers Conference, James Cook University, Townsville, Queensland, Australia*.

McManus, D. (2001). The two paradigms of education and the peer review of teaching. Journal of Geoscience Education, 423-434.

Miles, J. (1987). Wilderness as a learning Place. *Journal of Environmental Education, 18* (2), 33-40.

Miles, J. (1990). Wilderness Keeping by wilderness educators. *Journal of Experiential Education, 13* (3), 42-46.

Miles, J., Priest, S. (1990). *Adventure Education*. Pennsylvania: Venture Publishing, Inc.

Noss, R. F. 1996. Protected areas: how much is enough? Pages 91-120 in R. G. Wright, editor. National parks and protected areas: their role in environmental protection. Blackwell, Cambridge, Massachusetts.

O'Connell, T., & Dyment, J. (2006). Reflections on using journals in higher education: a focus group discussion with faculty. Assessment & Evaluation in Higher Education, 31 (6), 671-691.

Orr, D. (1992a) Environmental literacy: Education as if the earth mattered. *Twelfth Annual E. F. Schumacher Lectures,* Great Barrington, Massachusetts.

Orr, D. (1992b). *Ecological literacy: Education and the transition to a postmodern world.* New York: State University of New York Press.

Orr, D. W. (1994). *Earth in mind: On education, environment, and the human prospect.* Washington, DC: Island Press.

Park, C. (2003). Engaging Students in the Learning Process: the learning journal. Journal of Geography in Higher Education, 183-199.

Parks Canada. (2002). The Parks Canada Charter: Our Mandate. Retrieved March 13, 2013, from: http://www.pc.gc.ca/agen/chart/chartr.aspx.

Parks Canada. (2013, 20-February). *Proposed 2013 Prices*. Retrieved 2013, 20-February from Parks Canada - Fees: http://www.pc.gc.ca/eng/agen/tarifs-fees/consultation.aspx

Pielou, E. C. (1994). *A Naturalist's Guide to the Arctic.* Chicago: The University of Chicago Press.

Princeton University. (n.d.). *Demographics of the Republic of Ireland*. Retrieved 2013. 4-March from Demogrpahics of: http://www.princeton.edu/~achaney/tmve/wiki100k/docs/Demographics_of_the_Republic_of_Ireland.html.

Purdue, R., & Warder, D. (1991). Environmental education and Attitude change. *The Journal of Environmental Education, 2* (4), 27-28.

Pyle, R. M. (2001). The Rise and Fall of Natural History: how a science grew that eclipsed direct experience. *Orion, 17*, 17-23.

Quick, R. H. (1890). *Essays on educational reformers.* New York: E. L. Kellogg & Co.

Raffan, J. (1993). The experience of place: Exploring the land as teacher. *The Journal of Experiential Education,* 16(1), 39-45.

Roth, R. (1969). Fundamental concepts for environmental management education (K-16). *Doctoral dissertation. The Ohio State University, Columbus.*

Sahn. J. (2012). Thirty-Year Plan: Thirty Writers on What We Need to Build a Better Future. Massachusetts: The Orion Society.

Schmidly, D. (2005). What It Means to Be a Naturalist and the Future of Natural History at American Universities. *Journal of Mammology, 86* (3), 449-456.

Semken, S., & Freeman, C. B. (2008). Sense of Place in the Practice and Assessment of Place-Based Science Teaching. *Science Education*, 1042-1057.

Shepard, P. (1978). *Thinking Animals: Animals and the Development of Human Intelligence.* Viking Press.

Smith, G. (2002). Place-based education: learning to be where we are. *Phi Delta Kappan, 83* (8), 584-594.

Sobel, D. (2004). *Place-Based Education: Connecting Classrooms and Communities.* Great Barrington, Massachusetts: The Orion Society.

Stapp, W. B., Bennett, D., William Bryan, J., Fulton, J., MacGregor, J., Nowak, P., et al. (1969). The concept of environmental education. *The Journal of Environmental Education, 1* (1), 30-31.

Statistics Canada. (2009, 22-October). *Population, urban and rural, by province and territory (Canada).* Retrieved 2012, 20-February from Statistics Canada: http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo62a-eng.htm.

The Irish Times. (2012, 30-March). *Urban boom as over 2.8 million people are now living in towns.* Retrieved 2013 йил 4-March from IrishTimes.com: http://www.irishtimes.com/newspaper/ireland/2012/0330/1224314099276.html.

Thomashow, M. (1996). *Ecological identity: Becoming a reflective environmentalists.* Cambridge, MA: MIT Press.

Trombulak, S., & Fleishner, T. L. (2007). Natural History Renaissance. *Journal of Natural History Education*, 1-4.

UNESCO-UNEP. (1976). The Belgrade Charter: A global framework for environmental education. *Connect: UNESCO-UNEP Environmental Education Newsletter, 1*(1), 1-2.

UNESCO-UNEP. (1978). Recommendations of the intergovernmental conference on environmental education Tbilisi, USSR.

Whiteley, L. (2008). Q&A: Science sketched out. *Nature, 455* (7212), 468.

Whtye Museum of the Canadian Rockies. (2011). *Whyte Museum Blog: Gateway to the Rockies Exhibition*. Retrieved March 10, 2013, from Whyte Museum Blog: http://whytemuseum.blogspot.ca/p/gateway-to-rockies-exhibition.html.

Wilcove, D., & Eisner, T. (2000). The Impending Extinction of Natural History. *Chronicle of Higher Education, 47* (3).

Woodhouse, J. (2001). Over the River and Through the Hood: Reviewing Place as a Focus for Pedagogy. *Thresholds in Education 27, nos. 3 and 4.*

Woodhouse, J., & Knapp, C. (2000, December). Place-based curriculum and instruction: Outdoor and environmental education approaches. *ERIC Digest*, EDO-RC-00-6.