The Preservation and Stewardship of Archaeological Sites in the Boreal Forest: A Public Issues Approach

by

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Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners. I understand that my thesis may be made electronically available to the public.

Abstract

Archaeological sites in the boreal forest are facing threats due to urban development, resource exploitation, vandalism, and infrastructure development, among others. In the context of archaeological site preservation as a public issue, I examine the perspectives of various publics towards the preservation and stewardship of archaeological sites in the boreal forest. Through a series of interviews, I examine the opinions of three publics involved in the archaeological process in Ontario: developers, First Nations, and archaeologists. I outline the participants' opinions on the meaning and goals of preservation, the preservation of non-physical aspects of sites, such as oral history and site spirituality, preservation methods, site ownership and access, land use and development, involvement in the archaeological process, and funding. I also identify common themes which presented themselves throughout the interview process, such as the importance of education; the necessity for communication, collaboration, and cooperation; the problem of artifact curation; the perceived lack of genuine government involvement; and the publication of cultural resource management (CRM) archaeology's "grey literature".

Finally, I present suggestions on the preservation of archaeological sites which take into account the participants' perspectives uncovered during the interview process. I conclude that preserving archaeological sites can be done using three techniques: education; communication, collaboration, and compromise; and using one of three general methods to preserve sites and artifacts. Education can be used to create public issues, teach people about the importance of archaeology and archaeological sites, and teach the involved publics about the goals and methods of CRM archaeology in Ontario. Encouraging communication, collaboration, and compromise between the interested publics includes the perspectives of formerly neglected parties, builds relationships between publics, and creates newly vested interests in site preservation. Three methods to preserve archaeological sites include site stabilization and monitoring, allowing sites

to decay naturally, and excavating sites and curating the artifacts and oral histories for the long-term.

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This thesis is dedicated to my awesome parents, Roman and Céline

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CHAPTER 1

Introduction

> *We suspect that unless archaeologists find ways to make their research increasingly relevant to the modern world, the modern world will find itself increasingly capable of getting along without archaeologists.*
>
> *- Fritz and Plog 1970:42*

My inspiration for this thesis came to me as I worked for an archaeological consulting firm during the summers of 2010-2013. Prior to my employment, I had no interest in North American archaeology. I figured there was nothing of importance in North America and I did not wish to preoccupy myself studying unremarkable lithics. However, over the years I developed a passion for Canadian archaeology and the archaeology of the boreal forest in particular. My job brought me from site to site all over Northern Ontario and I learned about the rich and exciting history of the peoples who lived in this region. From the earliest Palaeo-Indian sites of 10,000 BCE to the early mining camps of the 1930s, I was introduced to a world of history I never knew existed. Yet with my introduction to boreal archaeology, I was also introduced to the problems of archaeological site destruction.

One site in particular, the New Post Hudson's Bay Company trading post, allowed me to see the extent of the damages caused to archaeological sites. Situated on a bend in the Abitibi River, erosion had already claimed a large portion of the site. Every three years a metre of shoreline was lost to erosion, along with its artifacts and their contexts. As we walked along the shore we found pre- and post-contact artifacts scattered in the mud: a large red jasper biface, an 18th century musket ball, glass medicine bottles, the bones of butchered animals, and a myriad of other artifacts which had lost their contexts and were decaying on the exposed shore. Since we

were only conducting a small site-visit, we could only mark the locations of artifacts with flagging tape and hope to recover them during the Stage II assessment.

When I made the two-day canoe trip during the summer of 2012 to revisit the site, I was surprised to see that many of the flagged artifacts had been lost or stolen. I even encountered a tour guide who told me he frequently stopped at the site so his tour group could take artifacts home with them. Even in some of Ontario's most remote areas, it seems, sites remain vulnerable to looting. Plus, erosion had caused new portions of the shore to slump into the river due to the lack of simple preservation measures. With this site and many other boreal sites in mind, I decided something had to be done to enable a public approach to preservation of heritage sites in the boreal forest.

The boreal forest has played a large role in forming a "Canadian" national identity. In middle school, Canadian children learn of the adventures and discoveries of the Aboriginals and early European fur traders who trekked through the boreal forest. Also, many Canadian heritage symbols such as canoes, beavers, fur traders, coureurs des bois, moose, loons, and the Hudson's Bay Company are intricately tied to the boreal forest and its rich and varied history.

The largest intact forest on Earth (PEW Environment Group 2011), Canada's boreal forest is often seen as some of the last "pristine", "untouched" wilderness. However, these areas are not as "untouched" as previously believed. People have been living in Canada's boreal regions for thousands of years since the last glacial maximum (Arundale et al. 1989; Johnson and Miyanishi 2012). The long-term First Nations presence in the region has resulted in the creation of thousands upon thousands of archaeological sites, the vast majority of which remain undiscovered.

Euro-Canadian settlement in boreal regions is a relatively recent phenomenon, with the majority of settlement occurring in just the past 150 years. Additionally, recent years have witnessed the rapid expansion of humans in this region for mineral exploration, hydroelectric projects, and forestry. The north is opening up to development and exploitation (Johnson and Miyanishi 2012). As such, threats to archaeological sites from developmental pressures are on the rise.

While the boreal regions of Ontario and Canada face challenges due to development and growth, their relative lack of anthropogenic alteration and disturbance presents us with rare educational and preservation opportunities. Archaeological sites discovered in many areas of the boreal forest present us with original or near-original environmental contexts, meaning the conditions on-site are similar to those which existed at the time of the site's use. Conversely, archaeological sites in built-up areas of Canada, such as Southern Ontario, have often been altered by urban, rural, or agricultural development. This contextual difference allows archaeologists and local communities to better understand the socio-economic setting and settlement patterns of past boreal peoples. It also allows archaeologists, First Nations, developers, and other involved groups to successfully preserve the archaeological site and its environmental context *in situ*, if need be.

In this thesis, I will explore the perspectives of a variety of interest groups, or publics, towards the preservation and stewardship of archaeological sites in Canada's boreal forest. I present the results of a number of interviews with individuals drawn from three major publics: the archaeological public, the First Nations public, and the development public. I outline themes which commonly arose during the interview process and provide suggestions on how to effectively preserve boreal archaeological sites.

The goals of my thesis are threefold: 1) to undertake a public approach to preservation by using education to "make public issues [and] not simply respond to them" (Scheper-Hughes 2009); 2) to build relationships and include alternate perspectives towards preservation by fostering communication, collaboration, and compromise among the involved publics; 3) and to explore interviewee-suggested methods to preserving archaeological sites in the boreal forest. It will be argued that the optimal method of preserving archaeological sites in the boreal region is through a three-pronged approach focusing on education; communication, collaboration, and compromise; and methods such as stabilizing sites, allowing them to decay naturally, or conducting excavations when necessary and properly curating the artifacts.

Chapter Two examines the importance of archaeological sites and their preservation as a public issue, outlining four major publics involved in the archaeological process. Chapter Three provides a brief legislative background of the archaeological process in Ontario. Chapter Four outlines the methodology behind the interviews conducted with members of three of the four aforementioned publics. Chapter Five examines the results of the interviews and outlines themes recurring throughout the interviews. In Chapter Six, I use interviewee perspectives to define "preservation" and the ownership of sites. I also conclude that the most effective way to preserve archaeological sites in the boreal forest is by using education to create public issues and teach people about Ontario's history and the importance of archaeology; using communication, collaboration, and compromise to include diverse viewpoints in the preservation discourse and to generate interest in site preservation; and by protecting sites through the use of stabilization techniques, using buffers and barriers to prevent encroachment onto archaeological sites and allowing them to decay naturally, or by excavating sites and adequately curating the artifacts for the long-term.

CHAPTER 2

Public Issues

2.1) Why are archaeological sites important and why is excavation not the only option?

Archaeology remains one of the few ways of gaining reliable information about the past, Archaeological sites are often excavated to provide us with insights into the cultures, customs, and beliefs of the past or to salvage archaeological materials before land development. They help us understand who we are, where we have been, and where we can go. As Adams states, "[h]eritage sites have the power to provoke public introspection, reawakening cultural memories of crises met, and by reminding us of varied pasts, suggest the possibility of alternate futures" (2007:195). Archaeological sites and landscapes add meaning to our cultural narratives and heritage.

The preservation of sites is a necessary precondition to their excavation; if sites are destroyed before they can be excavated, meaningful contextual data will be lost. Over the past few decades, scientific advances in field archaeological methods such as dating, remote sensing, determining provenance, and computing have been instrumental in the analysis of archaeological data (Renfrew and Bahn 2007; Williamson and Nickens 2000). Preserving heritage sites allows future archaeologists to analyse them with a range of new techniques.

In addition to providing enough time for new scientific techniques to become available, preserving sites allows time for the diversification of the archaeological discourse through the inclusion of underrepresented groups of people, each bringing new perspectives to the interpretation of history. According to Yellowhorn (2006), internalist perspectives into archaeology are required to counter colonial hegemonic ideals and to provide Indigenous people

with the ability to "articulate nativist thought in the dialogue with the larger world [and] mitigate the impact of a modern world on cultural traditions" (2006:206-207). Preserving sites can afford time for Indigenous archaeologists to become better represented in the archaeological discourse.

However, excavation is not our only option, and may not be possible or desirable in every circumstance. By preserving archaeological sites, our site management options remain open for future generations of researchers. Logistics, time, and resource limitations often prevent the excavation of sites. The *in situ* preservation of sites affords the involved publics time to prioritize sites and explore potential site management options.

2.2) Why is archaeological site preservation a public issue?

Recent times have seen the threats to archaeological sites grow in number and intensity. The intensification of threats such as climate change (Goetz 2010; Howard et al. 2008; Reeder et al. 2012), development (Boone 2010; Meguerditchian 2012; Reeder et al. 2012), vandalism (Canadian Broadcasting Corporation 2013), and religious and cultural extremism (Francioni and Lenzerini 2003; Karimi 2012; Prakash 2011) often pose threats which must be mitigated to archaeological sites around the world. By their very nature, archaeological sites are non-renewable resources; an archaeologist can only excavate a site once before its context is totally destroyed. The non-renewable nature of sites combined with the growing threats due to natural and anthropogenic forces contribute to the need to protect and preserve archaeological sites. However, site preservation is not a one-dimensional issue with a single solution; rather, this multidimensional problem involves many groups, or publics, with their own preservation solutions. This Chapter briefly outlines four groups with an interest in what happens to

archaeological sites: the archaeological public; the national/general public; the development public; and the Indigenous public. While these interest groups only represent a small portion of all publics involved in the global preservation of cultural heritage sites, they can provide an idea of the varied perceptions of archaeological sites and the methods involved in protecting them.

2.2.1) Archaeological Public

One of the groups with an interest in the fate of archaeological sites is archaeologists themselves. Archaeologists gain useful data from the artifacts and their burial contexts. As such, the physical integrity of the archaeological site is very important. Through the processes of excavation and interpretation, they gain information of past human behaviours, actions, and lifeways.

Archaeologists use scientific methods and techniques in order to excavate and interpret sites with the intention of gaining knowledge about past peoples (Johnson 2011). In addition to the excavation of archaeological sites, scientific methods and techniques can also prove invaluable to their preservation. Through the preservation of cultural heritage sites, Nixon (2004) states that archaeologists wish to ensure that the artifacts and the context of the site remain unaffected by potential disturbances. However, in order to properly protect the sites from these disturbances, archaeologists must understand the environmental, physical, biological, and chemical processes which affect the preservation of buried cultural heritage remains (Nixon 2004). Archaeologists' application of scientific techniques and their understanding of taphonomic processes are essential in protecting archaeological sites and the information they contain.

2.2.2) National/General Public

Another group with an interest in the preservation of archaeological sites is the national/general public. Archaeology and cultural heritage is often intimately tied to the identities of national, regional, ethnic, and religious groups. According to Anderson (1991), people form their identities based on their construction of "imagined communities". Anderson (1991) argues that national identity is a socially constructed concept in which people consider themselves as belonging to a larger unified community with commonalities such as a shared history, set of values, language, or location. These national communities are imagined "because the members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them, yet in the minds of each lives the image of their communion" (Anderson 1991:224). These imagined communities often draw on archaeological knowledge in order to create, strengthen, and enforce their identities (Miller 2001). Miller argues that these imagined communities often use material evidence from the archaeological record to "symbolize a historical unified nation with common values" (2001:160).

For example, the modern Greek state has used archaeological sites such as the Parthenon to simulate continuity with an imagined Hellenic cultural past. Until the establishment of the Kingdom of Greece in 1830, the area occupied by modern Greece had never existed as a unified "Greek" state, and had instead been governed by various entities including the Classical Greek city-states Athens, Sparta, and Corinth as well as their successor states. Upon the formation of the Kingdom of Greece, King Otto and his successors created the Archaeological Service in order to excavate, record, and protect archaeological sites and to support the idea of Hellenic continuity with the Ancient Greeks (Damaskos 2010). Though the Parthenon is globally seen as a symbol of Greek national identity and Hellenic continuity, this "supreme ideological symbol of

Modern Greece" (Damaskos 2010:12) was in fact an *Athenian* edifice and was never intended as a pan-Greek symbol at the time of its construction. For non-Athenians, the Parthenon would not have been a "Greek" symbol representative of common cultural values and ideas; rather, the Parthenon would have been seen as an Athenian icon. Likewise, Canada has appropriated cultural symbols in an effort to enforce a "Canadian" national identity. The controversial display of Inuksuit during the 2010 Vancouver Olympics involved the appropriation of an Inuit heritage symbol to represent *all* Canadians.

Additionally, after the Israeli State was established in 1948, biblical archaeology was used as a means to justify the founding of the modern Middle Eastern nation (Abu El-Haj 2001; Masalha 2007). According to Abu El-Haj (2001), the first Israeli archaeologists attempted to identify the historical presence of the original Israelites with the means of archaeology. These early Israeli archaeologists, "dug in search of Israelites, an 'ethnic group' that presumably entered Palestine in the transition from the late Bronze Age to the early Iron Age" (Abu El-Haj 2001:99). Archaeology was used exclusively to testify to Israeli claims to Palestine and to understate traditional Arab and Muslim attachments to the land, thus "legitimis[ing] the dispossession of the indigenous inhabitants of Palestine" (Masalha 2007:4). Throughout the 1950s, Israeli archaeologists were digging for the reassurance of their imagined cultural roots.

Thus, as Miller (2001) argues, the archaeological record may often be interpreted in a nationalistic fashion in order to portray imagined communities like Greece and Israel as continuous and cohesive nations with shared ideals through history. Archaeology has also been used to legitimize national land claims and validate the dispossession of the land's inhabitants.

In Canada, the preservation of archaeological sites is seen as an important public issue. A survey conducted on members of the British Columbian public in 1999 showed that a majority (61%) of respondents felt that archaeology was "relevant" or "very relevant" in contemporary society while less than 11% felt it was not relevant (Pokotylo and Guppy 1999:409). Additionally, Pokotylo and Guppy's (1999) survey suggest nearly 86% of British Columbians believe that archaeological sites should be protected. However, while there is a high level of public interest in archaeology and site preservation, there is also a significant amount of misunderstanding regarding the archaeological past and the legislative measures which are supposed to protect it. Only 20% of respondents were able to provide reasonably accurate responses to questions covering basic British Columbian history while over 73% of respondents had no knowledge of the Province's heritage legislation (Pokotylo and Guppy 1999:409-410). Therefore, despite having little accurate knowledge of the topic, the British Columbian public views archaeology and archaeological sites as matters of national/provincial interest.

2.2.3) Development Public

Another public with an interest in the preservation of archaeological sites is what I term "the development public". The development public contains a number of different groups, each with their own reasons to protect (or destroy) cultural heritage sites. The development public is unified in their goal to repurpose the archaeological site. While often this may include the destruction of the historic remains, developers can also repurpose an archaeological site into a tourist attraction.

In many cases, development poses a large threat to archaeological sites. In the case of urban, rural, and agricultural development, developers often see the site and the archaeological process

as obstacles in the way of progress (See Chapter 5). Under increasing pressures from rising populations and progressive industrialization, rapid development "leads to ever-greater consumption of land – destroying not only archaeological evidence under the earth but entire historic cultural landscapes – and to faster and faster cycles of demolition and new construction with their concomitant burden on the environment" (Machat et al. 2010:12). Historically, development has led to the destruction of archaeological sites with little to no excavation. For example, it has been estimated that over sixty percent of metropolitan Toronto's archaeological sites had disappeared by 1970 due to developmental pressures (Coleman and Williamson 1994:67-69; cited in Birch 2006:12). Even in Ontario's boreal forest, the New Post Hudson Bay Company trading post has undergone intensified and destructive erosional forces due to the presence of a hydroelectric dam upriver. Thus, developmental threats to archaeological sites are not limited to developing countries with poor heritage legislation; they also exist in wealthy countries like Canada with long-established heritage legislation, and in both urban and non-urban regions.

Yet despite the often destructive effects of development, some developers wish to preserve archaeological sites. The goal of these developers is rarely to expand our knowledge of past peoples; economic gain is often their main incentive, though some sites are preserved for cultural and educational reasons. Tourism on archaeological sites, sometimes called archaeotourism, can be a lucrative business. For example, the archaeological site of Pompeii attracted over 2.1 million visitors in 2001 and generated approximately US$23,000,000 (Wilkinson 2003). The funds generated through tourism at Pompeii are directly funnelled back into the preservation of the site (Wilkinson 2003). In Canada, a themed highway on the northern coastline of Newfoundland named the Viking Trail is a popular tourist attraction. Nearly 100,000 visitors

travel the length of the highway in order to learn more about the rich and varied histories of the numbers of ancient cultures by touring archaeological sites, museum exhibits, and interpretation centres (Viking Trail Tourism Association n.d.). While not preserved for economic reasons, Northern Ontario's Manitou Mounds Historical Centre, known in Ojibwe as Kay-Nah-Chi-Wah-Nung, is a National Historic Site with a visitor's centre, museum, restaurant, and archaeological site tours. Despite the site's remoteness, the summer of 1999 saw a daily average of 110 people visiting the 23 pre-contact burial mounds (McArthur 2000). By engaging tourists and allowing each one to deposit a handful of dirt, a new mound has been created and already measures approximately four feet high (Interview with Participant 5, August 7, 2013).

Therefore, the views of the development public on the preservation of archaeological sites are diverse. While some members of this public view archaeological sites as obstacles in the way of progress, others opt to preserve sites and repurpose them as tourist attractions.

2.2.4) Indigenous Public

Another public with a massive interest in the protection and preservation of archaeological sites is the Indigenous public. Indigenous people are present wherever colonial forces have been: the Americas, Africa, Oceania, and some parts of Asia and Europe (Figure 1). In the majority of these areas, Indigenous people have had their histories written by colonial powers. Thus, Indigenous people worldwide have an interest in the preservation of their own cultural heritage for a variety of reasons, including to promote self-determination and self-governance and to decolonialize themselves and reclaim their cultures and histories.

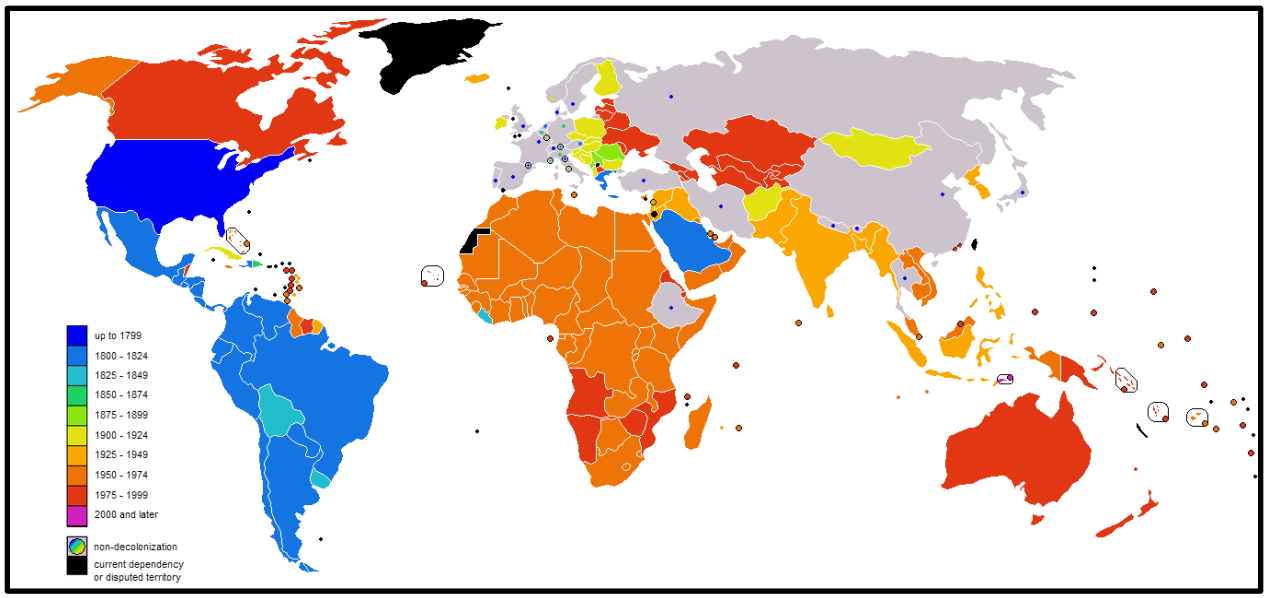


Figure 1: Coloured nations indicate areas which have been subjected to modern colonialism (from https://upload.wikimedia.org/wikipedia/en/9/90/World_decolonization.png)

The preservation of archaeological sites has been an important issue for Indigenous people in Canada in recent years, especially since archaeology is often used as a method to validate First Nations Land Claims (Simonsen 1996). Since archaeological sites provide lasting material evidence of occupation, First Nations and Provincial and Federal courts have frequently called upon archaeologists as expert witnesses in order to substantiate (or unsubstantiate) land claims by Aboriginal groups (Simonsen 1996). Canada contains dozens of federally unrecognized First Nation groups such as:

> the Innu in Labrador (up to their novel recognition in 2002), most of the Mi'kmaq of Newfoundland, several Mi'kmaq and Maliseet groups in Atlantic Canada as well as the Passamaquoddy community in New Brunswick, a variety of Algonquin and Nippissing and Cree communities in northeastern Ontario and northwestern Quebec, and a number of Cree communities in northern Alberta. (Groves 2007:155-156)

Federally unrecognized Indigenous groups such as Beaverhouse First Nation in Northeastern Ontario's boreal forest were left out of the recognition process when commissioners for Treaty 9 failed to include them as signatories in the early 1900s (Wabun Sun 2003). Beaverhouse First

Nation, despite having been established for hundreds of years, still remains unrecognized by the Canadian government (Wabun Sun 2003). Therefore, Beaverhouse and other unrecognized groups hold a vested interest in the preservation of their archaeological sites until a time where excavation becomes necessary. Once preserved, the option to excavate remains open in the event they file a land claim in order to seek recognition from a government which values material evidence over oral history. If Indigenous archaeological sites remain unprotected and are subsequently destroyed, the lasting legacy of their occupation is lost. Therefore, in the struggle to become self-governing First Nations bands, these unrecognized Indigenous groups must preserve their cultural heritage and material legacy.

Indigenous people have historically been prevented from governing themselves or having a say in their own affairs, as seen in the colonial histories of Canada, the United States, and other countries where European colonials have been present. Since their histories have been written by colonial oppressors, Indigenous internalist perspectives, "play an active role in tearing down the image of the past produced by traditional archaeology and consumed in the popular culture" (Yellowhorn 2006:198). Preserving archaeological sites also gives Indigenous groups a voice in the interpretation and public perception of their modern and historic culture. In the case of Wet'suwet'en First Nation in British Columbia, the goal of site preservation is "not to preserve *all* Wet'suwet'en cultural heritage resources, but rather to preserve what was primarily important to Wet'suwet'en" (Nicholas 2006:370). In this way, Aboriginal people are able to decolonialize themselves, create their own version of First Nations history, and reclaim their cultural values and redefine their heritage beyond what is outlined in the legislation (Nicholas 2006).

Archaeological sites also offer a tangible link to the history, values, culture, and traditions of Indigenous peoples. Ganiatsis (2011) argues that heritage values, including archaeological

sites, are themselves manifestations of the Indigenous values and as such must be preserved. Protecting archaeological sites keeps the link open between the values and traditions of the past and the peoples of the present. The process of colonization undermines the culture and values of Indigenous peoples, and the preservation of the ancestral archaeological sites provides modern First Nations with a way to reclaim their history and culture. In areas where written records before colonization do not exist, archaeology plays an important role in the interpretation of the history of peoples who seek decolonization or cultural reclamation (Miller 2001). It also gives Aboriginals an opportunity to form their own interpretations of the past and educate the general population. This way, indigenous people can undermine the ingrained colonial interpretation of their culture and "resist the hegemony of imperialist archaeology" (Yellowhorn 2006:207).

The Indigenous public has an obvious interest in the preservation of cultural heritage sites. Archaeology can be wielded by Indigenous groups in an effort to become self-determined and self-governing. The preservation of sites is also important to protect the cultural values and traditions of Indigenous groups, and is necessary until Indigenous archaeologists are given a voice in interpreting their own past and culture. Thus, archaeology can be seen as an issue of paramount importance to Indigenous groups.

2.3 Conclusion

The varied interpretations of archaeological sites and the methods used to preserve them (or not preserve them in some cases) have added complexity to the already complicated task of site preservation. A number of different interest groups, or publics, with widely differing opinions are involved in the conservation of archaeological sites. Four generalized publics have

been presented: the archaeological public, the national/general public, the development public, and the Indigenous public.

Like the archaeological public, some groups may wish to conserve archaeological sites in order to maintain the physical integrity of the site's context and artifacts, thus preserving the knowledge contained within. While some publics are concerned with the preservation of knowledge, others are concerned with the creation, maintenance, and enforcement of their identity, such as the national/general public. Archaeology is often used by nations to promote unity through a perceived identity. However, the goals for site preservation vary from one interest group to the next, and often within the group, as demonstrated with the development public. While some developers view cultural heritage as an obstacle in the way of progress, others wish to preserve the site for tourism and economic gain. Finally, like the Indigenous public, other groups may wish to conquer a legacy of colonialism. These groups may desire to become self-determined or reclaim their perceived lost heritage. To these groups, preserving cultural heritage sites is necessary to maintaining a tangible link to a pre-colonial past.

Therefore, the preservation of archaeological sites is a difficult and multifaceted issue involving many different groups. While only four public interest groups have been outlined, others exist such as religious groups (Thompson 1999), ethnic groups (Brather 2002; Dietler 1994), and political groups (Bettina 1990). The variety of opinions and perspectives regarding the management of sites can cause disagreements which may be difficult to resolve. Nonetheless, archaeology and the preservation of sites is an important public issue and solutions must be provided.

CHAPTER 3

Legislative Background

3.1) Ontario's Legislation

According to Section 2 of the *Ontario Heritage Act* (*OHA*), the Minister of the Ministry of Tourism, Culture and Sport is responsible for the enactment of the *OHA* and may "determine policies, priorities and programs for the conservation, protection and preservation of the heritage of Ontario" (Ontario Heritage Act 1990). Though the Minister is charged with these goals, they are usually accomplished through legislative acts other than the *OHA*, including the *Planning Act* and the *Environmental Assessment Act*.

In Northern Ontario, some of the most commonly invoked acts with regards to archaeological assessments are the *Planning Act*, the *Environmental Assessment Act*, and the *Aggregate Resources Act*. These acts contain clauses which mandate the protection of archaeological resources. For example, the 2005 Provincial Policy Statement, issued under Section 3 of the *Planning Act*, states that in cases where the *Planning Act* is concerned,

> "*Development* and *site alteration* shall only be permitted on lands containing *archaeological resources* or *areas of archaeological potential* if the *significant archaeological resources* have been conserved by removal and documentation, or by preservation on site. Where *significant archaeological resources* must be preserved on site, only *development* and *site alteration* which maintain the heritage integrity of the site may be permitted." (Provincial Policy Statement 2005:s2.6.2)

Similarly, the purpose of the *Environmental Assessment Act* is to "provid[e] for the protection, conservation and wise management in Ontario of the environment" (Environmental Assessment Act 1990:s.2) where the environment is defined as "the social, economic and cultural conditions that influence the life of humans or a community" and "any building, structure, machine or other device or thing made by humans" (Environmental Assessment Act 1990:s.1[1]). Additionally,

the 1997 Provincial Standards for the *Aggregate Resources Act* states that archaeological assessments must be undertaken as well as any "mitigation through excavation, documentation, or avoidance, if recommended" (Provincial Standards 1997:s.2.2.5). Due to these additional legislative acts, the conservation, preservation, and protection of boreal Ontario's heritage resources are achievable goals.

While other legislative acts usually accomplish these goals, the *OHA* does, in fact, govern the *practice* of archaeology in the province. The Minister is responsible for licencing qualified archaeologists in order to ensure high archaeological standards within the province, including high standards for research, curation, and consultation. As a result, it is currently illegal in Ontario to disturb an archaeological site without the proper permits and individuals or companies guilty of such actions may be subject to a CAN$1,000,000 fine. Any work (archaeological or not) involving ground disturbances, including archaeological surveys and excavations, can only take place with the proper licences. In theory, all archaeological sites within the province are protected from destruction.

Once the archaeological work has been carried out, a report is submitted to the Ministry of Tourism, Culture and Sport where Ministry staff assesses whether the archaeological work meets the 2011 *Standards and Guidelines for Consultant Archaeologists*. According to the *Standards and Guidelines*, there are two methods of mitigating impacts to archaeological sites: avoidance and protection as well as excavation. The *Standards and Guidelines* state that the preferred mitigation method is avoidance and protection, allowing the site to be preserved intact (Ontario Ministry of Tourism, Culture and Sport 2011). Avoidance and protection refers to "protecting the archaeological site from impacts during construction … [and] using legal, planning and administrative tools to protect the archaeological site and ensure that concerns for

the archaeological site are addressed in any future land use changes" (Ontario Ministry of Tourism, Culture and Sport 2011:67). This may involve the use of buffers, barriers, off-limit areas, monitoring activities, property ownership transfers, and zoning by-law amendments. Excavation, on the other hand, is only performed if avoidance and protection are not viable. Excavation involves the destruction of the context of the archaeological site in favour of data such as excavation records and artifacts. The *Standards and Guidelines* provides recommendations to licenced consultant archaeologists for the excavation of sites, including methods involving soil sampling, hand and mechanical excavation methods, unit sizes, and stratigraphic profile records, among others. Furthermore, it states that full documentation during Stage 4 excavations "is necessary to ensure the conservation, protection, and preservation of the heritage of Ontario" (Ontario Ministry of Tourism, Culture and Sport 2011:74).

Ontario's legislative framework clearly attempts to provide protection and preservation for its cultural heritage sites. While Ontario's heritage legislation is generally seen as effective legislation, it is not without issues. Nearly every participant I interviewed took issue with various aspects of the Ministry of Tourism, Culture and Sport; the *Standards and Guidelines*; or other legislation, and offered suggestions. The interviewees occasionally described the process as "onerous", "lacking flexibility", and purely "bureaucratic". These views will be expanded upon in Chapter 5.

CHAPTER 4

Methodology

Published studies in archaeological site preservation have largely focussed on North-West Europe (see Coles and Oliver 2001; Kars 1997; Lee 1994; Nixon 2004; Van de Noort et al. 2001 as examples). Such studies have focused on quantitative data such as decay rates, microbial activity, and hydrological activity in order to provide archaeologists and other cultural heritage professionals with an accurate view of the processes involved in the decay of sites as well as the effectiveness of the applied mitigation measures. However, my research focuses on a Canadian context and employs qualitative data through the use of interviews in order to determine the opinions and perspectives towards the preservation of archaeological sites of the people living and working in the boreal forest. While previous research has examined the logistical issues surrounding site preservation, my research explores the social and cultural aspects to the preservation of sites. It is hoped that this new qualitative data focussing on boreal Canada would complement the quantitative data gained from studies in Western Europe.

4.1) Scope

During the initial stages of my research, my intent was to develop a comprehensive guide outlining the potential methods which could be applied to the *in situ* preservation of sites in the boreal forest. However, upon conducting the interviews, it became clear that the specific *methods* of preservation were not as important to the interviewees as other thematic factors. One sole interviewee provided a detailed perspective on preservation methodologies while a number of others suggested simple non-archaeological protection options. Despite this apparent lack of interest or knowledge in specific preservation methods, major themes emerged on how to

preserve sites. As a result, I changed the scope of my study from an analysis of methodological approaches to site preservation to a narrative analysis of reoccurring themes and ideas discovered during the interviews.

4.2) Setting

In the Province of Ontario, the majority of archaeological projects are undertaken by archaeological consultants working for cultural resource management (CRM) firms. When development proponents identify an area to be developed, archaeological consultants are required to perform archaeological resource assessments under legislation such as the *Environmental Assessment Act* or the *Planning Act*. As a result, of the 3,000 sites added to the provincial site database in the 1991-1997 period, over eighty percent were documented by CRM firms (Birch 2006:14). The current percentage of consultant-identified sites is presumably higher due to increased CRM activities in the province.

Three main interest groups have been identified: First Nations, developers, and archaeologists. These three interest groups formed the main sampling strata of my study. Ideally, I would have liked to include two more groups: legislators and the general public. However, obtaining a representative sample of the general public would have necessitated a prohibitively large number of interviewees while time and interview constraints prevented access to legislators and government personnel.

4.3) Recruitment/Selection Process

The recruitment criteria for this study focussed on obtaining a number of participants with experience and knowledge as members of their respective interest groups. All participants were required to have experience living and/or working in the boreal forest of Northern Ontario

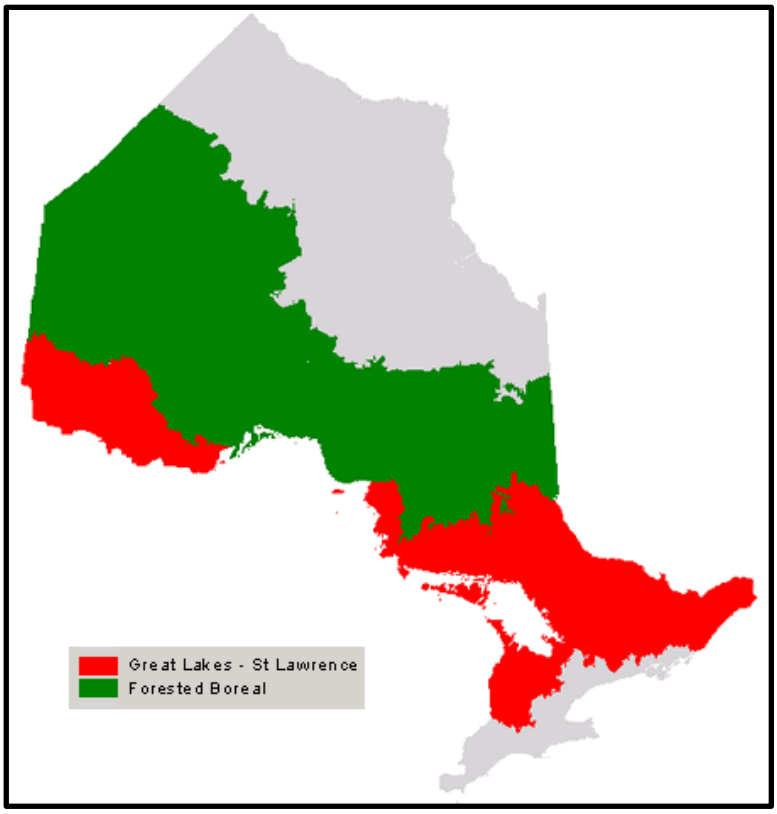


Figure 2: Map of the boreal forest (green) in Ontario. (Map from http://essa.com/wp-content/uploads/2011/03/ontario1.gif)

(see Figure 2). First Nations people were selected based on their knowledge and understanding of traditional First Nations cultural values and beliefs or on their self-identification as First Nations Elders. Developers were defined as people working in positions of experience and authority in the development field, such as at aggregate, mining, land development planning, forestry, and hydroelectric companies. Archaeologists were chosen based on their career involvement in locating, documenting, and excavating archaeological sites in the boreal forest. Two museum curators were included with the archaeologists and selected based on their experience as the curators of local museums located in towns in the boreal forest.

To recruit participants, I initially approached current and former colleagues from the CRM firm with which I was employed. This company actively engages all of the involved interest groups and snowball sampling business contacts was seen as an appropriate method of

gathering initial participants. To these potential interviewees, I sent emails outlining my information, my project information, my supervisor's information, and the purpose of my study and requested an interview lasting approximately one hour. Upon completing these interviews I snowball sampled more potential participants to whom I sent introductory emails. Finally, at a community event, I approached prospective participants and verbally outlined my research goals and requested interviews.

4.4) Interview Process

A total of 17 respondents agreed to be interviewed, though only 13 interviews could be completed (see Figure 3). Despite my best efforts, I was no longer able to contact four potential interviewees through email. Potential reasons for this will be outlined in Chapter 5. The interviews were held in the location of the participant's choosing, usually in their home, office, outdoors, or in a mining camp cookery. On occasion, telephone or Skype interviews were necessary due to distance and scheduling concerns prohibiting the use of face-to-face interviews.

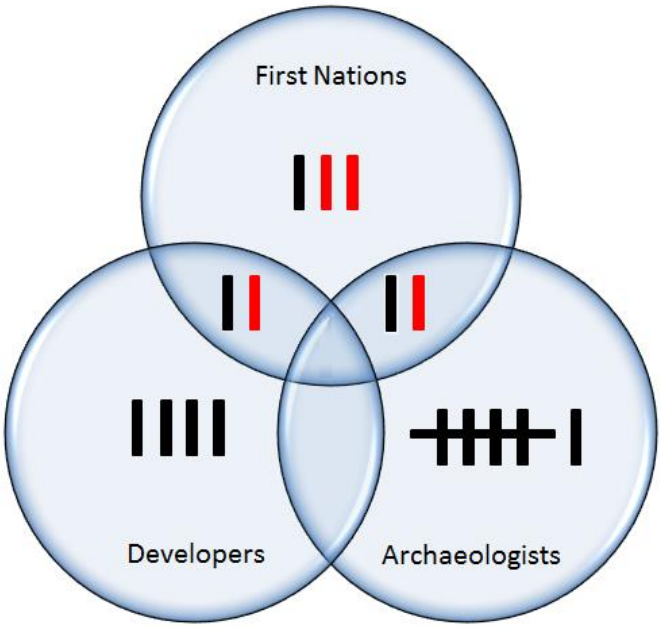


Figure 3: Black lines represent participants who were interviewed; red lines represent incomplete interviews (initially agreed to participate, later failed to reply)

Before each interview began, I once again informed the participants of the purpose of the study, presented them with an information cover letter, and asked them to provide written consent (or oral consent in the case of telephone/Skype interviews). The interviewees were given the option of anonymity in the final compilation; all participants opted for anonymity. With permission, the interviews were audio-recorded, allowing me to follow the general flow of the conversation, ask relevant follow-up questions, and take notes. Each interview included both a structured and unstructured component, allowing me to extract specific information as well as gather information that the participants deemed relevant or pertinent (See Appendix A for the question list). Many questions were open-ended in order to allow participants to answer with their own opinions and follow their own lines of thought. The interviews lasted between 30 minutes and three hours with an average time of just over one hour. After the interviews were completed, remuneration in the form of a $20 Tim Horton's gift card was offered to all participants. As one of the Four Sacred Herbs and as a sign of respect, a pouch of tobacco was also offered to traditional First Nations participants. Finally, additional notes were taken following the interview and the interviews were transcribed.

The contexts of the interviews varied. According to Briggs (1986), interviews are communicative events which are made up of a number of components such as *code, channel, interaction goals, message form, and social situation* (see Figure 4). "These considerations may be crucial, because an interview will proceed differently if it is the central activity and other participants are excluded or if it takes place while planting, attending a ceremony, or the like" (Briggs 1986:41). For example, one participant's speech mannerisms suggested he perceived our *type of communicative event* as an educational event wherein he was educating me about a variety of preservation methods. Unsurprisingly, his assumed *social role* would be that of an

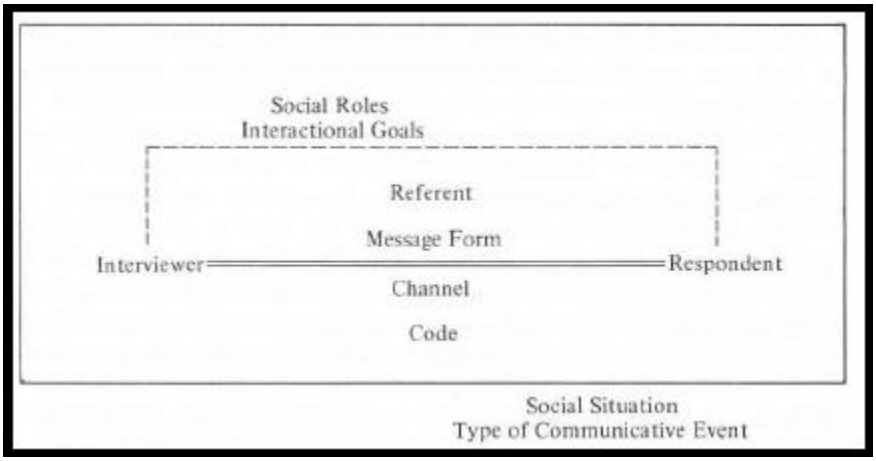


Figure 4: Components of the interview situation and their potential effects on the interviews (Briggs 1986:41).

educator and mine as a student. During another interview, a participant perceived the type of communicative event as a friendly casual conversation. While these meta-communicative differences were present, they were governed by the participants themselves (they chose the *social situation*) and ultimately worked to my benefit because they allowed the participants to express their opinions in a familiar and comfortable environment. As such, the data gained from the interviews may not be taken out of their specific contexts.

4.5) Ethics and Risks to Participants

The physical and psychological well-being of the interviewees were not at risk at any point during the interview process. Deception techniques were not used. However, limited employment risks presented themselves to participants. Interviewing participants employed by development companies may result in interviewees providing embellished "official" responses or in the reluctance to express unpopular opinions for fear of company reprisals. This issue was resolved through the complete anonymization of identifying details, allowing participants to freely express their opinions.

4.6) Analysis

A narrative analysis of the participants' interview transcripts was used to uncover reoccurring themes, ideas, and opinions found in the dialogues (Bernard 2006:475). Upon reviewing the transcripts, I noticed recurring terms such as *education*, *communication*, *curation*, *learning*, and *government*, among others. I undertook a closer examination of the transcripts to identify additional terms referring to particular themes. These reoccurring themes allowed me to identify differences and similarities between the interest groups' responses to questions. The participants also provided additional anecdotes, experiences, and recommendations which enabled me to identify further common themes. These themes will be outlined in Chapter 5.

In addition to interviews, a significant literature analysis was undertaken to identify current methods of site preservation around the world (refer to Appendix B) as well as environmental concerns pertinent to site preservation specific to the boreal forest. The vast majority of preservation literature originates from Western Europe, indicating that there is a much stronger focus on site preservation in Europe as opposed to Canada. The interview analyses further revealed that there is a significant disconnect between European and Canadian interpretations and implementations of the preservation of archaeological sites.

4.7) Limitations

A number of methodological limitations were present in my research. Firstly, the length of the interview and transcription process necessitated a small sample size. Additionally, while my original sample size was n=17, a number of participants became unreachable and my sample size dropped to n=13. While this may seem like a small sample size and certainly did not attain saturation, I still managed to gather enough data to confidently identify some recurring themes

and draw some conclusions. However, a greater number of interviews would have to be completed in order to attain full data saturation from the interviewees.

Secondly, the representativeness of the sample was also a limitation. Snowball sampling is not a random, representative sampling method; chain referral methods can often result in selection bias towards well-known individuals or individuals who share similar opinions with the referee. Moreover, the sample is unlikely to be representative due to the small sample size and the limited number of First Nations participants. Possible reasons for the low participation rates for First Nations interviewees are outlined in Chapter 5.

Finally, another complication emerged from the lack of a standardized definition of the term "preservation". One goal of my research was to discover what is understood by the term "preservation". As such, a standardized definition was not provided to interviewees, leading to a variety of opinions regarding the preservation of sites. In some cases, participants shared similar opinions yet provided different answers.

CHAPTER 5

Results

In this chapter, I present the results of the 13 interviews with the developers, First Nations individuals, archaeologists, and museum curators. The chapter is organized by specific questions and by question categories used in our interviews. I present the opinions of the interest groups and provide relevant quotations which summarize the viewpoints of the participants or offer insights into the opinions of the group.

5.1) Interviewee Introduction

Participant 1 is a Euro-Canadian individual employed with a mining company operating in the boreal forest.

Participant 2 is a Euro-Canadian individual employed with a mining company operating in the boreal forest.

Participant 3 is a Euro-Canadian individual employed with an aggregate company operating in the boreal forest.

Participant 4 is a Euro-Canadian individual employed with a land planning and development company operating in the boreal forest.

Participant 5 is a First Nations individual with over 20 years of boreal forest archaeological experience.

Participant 6 is a First Nations individual employed with a hydroelectricity company operating in the boreal forest.

Participant 7 is a First Nations individual and Elder.

Participant 8 is a Euro-Canadian archaeologist with decades of archaeological experience in the boreal forest.

Participant 9 is a Euro-Canadian museum curator employed at a local museum in the boreal forest.

Participant 10 is a Euro-Canadian museum curator employed at a local museum in the boreal forest.

Participant 11 is a Euro-Canadian archaeologist with decades of archaeological experience in the boreal forest.

Participant 12 is a Euro-Canadian archaeologist with over a decade of archaeological experience in the boreal forest.

Participant 13 is a Euro-Canadian archaeologist with decades of archaeological experience in the boreal forest.

5.2) Interview Results

5.2.1) Q1 - How do you view archaeological sites? Are archaeological sites important to you?

My belief before conducting the interviews was that First Nations and archaeologists would be the only groups to show an interest in archaeological sites. I had originally expected that developers would perceive archaeological sites as hindrances to their development goals and assign them little importance. However, all interviewees (13/13) regardless of their interest group recognized the importance of archaeological sites for a number of reasons.

Developers rarely went into detail regarding their reasoning behind the importance of archaeological sites, other than simply stating that archaeology helps us gain knowledge of the past. One member of the development public said that archaeological sites were “important to

find out history and act as proof of existence and land-use" (Interview with Participant 2, July 24, 2013) while another simply stated that "[w]e like to find out what's in the past" (Interview with Participant 1). However, while all developers found sites to be important, they also suggested that archaeological projects often posed significant setbacks and delays to development projects and are occasionally regarded as obstacles in the way of progress.

The First Nations view is more heritage-based. Regardless of their classification as developers or archaeologists, the First Nations individuals that I interviewed shared the view that archaeological sites represent *their history* and *their heritage*. These interviewees provided more in-depth responses to the question and commonly brought up their First Nations heritage as well as current social issues. For example, one participant stated that archaeological sites:

> hold a very strong significance. It's physical evidence, tangible evidence of First Nations people here in Canada dating back 6000 years, some of these artifacts. For me, that's important because First Nations people are very undermined in Canada and feel like immigrants in their own country. To have these archaeological sites and these studies and research only provides concrete evidence of our presence here in Canada. (Interview with Participant 6, July 17, 2013)

All First Nations interviewees believed archaeological sites provide lasting evidence of their settlement in Canada. One interviewee said that archaeological sites were also useful in learning about the past, and said archaeological sites were important because "I'm a First Nations person so I view it as my heritage. But I think archaeological sites of any type, whether it be Aboriginal or non-Aboriginal sites, contribute to our understanding of the past" (Interview with Participant 5, August 7, 2013). It is clear from these statements that the First Nations people that I interviewed view archaeological sites as important aspects of their cultural histories. Sites not only offer us ways to learn about the past, but also offer First Nations people ways of proving their long-term settlement in Canada and affirming their cultural identities.

The archaeologists and museum curators that I interviewed held diverse views as to the importance of archaeological sites. While all primarily agreed that sites were important to uncovering information about the past, most members of this public offered additional reasons for their importance such as their scientific, spiritual, cultural, and economic values. For example, one museum curator suggested they were important because they help create a "Canadian" identity. This interviewee suggested archaeological sites were important because:

> we define ourselves … as a young country. People don't make that connection to the distant past. I think that's where archaeology in this country can be very useful and important. Not just archaeological sites that they're doing regarding the Franklin expedition. I mean it's great, but we have to recognize that we do have pre-Columbian history. It's important. It's just the beginnings, and [we're] just starting to really realize that. (Interview with Participant 10, July 11, 2013)

This museum curator also suggested that archaeological sites can help us overcome misconceptions about our past and "better understand the region that [we] live in" (Interview with Participant 10, July 11, 2013).

Another museum curator held an artifact-based view of the importance of archaeological sites. Though this participant suggested all archaeological sites were important, the *quantity* of artifacts was crucial in determining how important a site was.

All archaeologists suggested that archaeological sites enable us to learn about past lifeways. One archaeologist stated that archaeological sites "represent the last vestiges of the past that can be read. [They are] the only remaining opportunity for the ancestors to actually speak to the people of the present day" (Interview with Participant 12, July 22, 2013). Another archaeologist suggested that, in addition to helping us learn about past peoples, archaeology "provid[es] a lot of work, for one thing, [and also allows us to] recognize First Nations people and their attachment to the land" (Interview with Participant 13, July 23, 2013).

Interestingly, this public often described archaeological sites as if they were bodies of "literature" which could be "read". The language used to describe sites often involved "literary" language such as describing archaeological sites as "the buried *history books* of the First Nations people" (Interview with Participant 8, July 3, 2013), "*text books* that should be preserved and *some pages read* at some times to get different information" (Interview with Participant 12, July 22, 2013) and using archaeology to discover the "*story* that [the site] tells" (Interview with Participant 9, July 6, 2013). This is likely due to the archaeologists' confidence that excavating and interpreting (i.e. reading) sites can provide concrete knowledge and understanding of history.

Therefore, all of the involved publics recognize the importance of archaeological sites for a number of reasons. There is a common acceptance that archaeological sites are important educational resources which help us learn about the lifeways, beliefs, cultures, and values of the past. However, while the developers I interviewed stated that sites were important to learn about the past, the First Nations individuals that I interviewed suggested sites were socially and culturally important because they have the ability to affirm First Nations presence in an area. Additionally, the archaeologists I interviewed said sites were important not only for educational values, but because they can help create a "Canadian" national identity, provide employment through the archaeological process, and correct misconceptions about our history.

5.2.2) Q2 – What does preservation mean in the case of archaeological sites?

I refrained from defining the term "preservation" before conducting the interviews because I suspected that individuals' interpretations of preservation would differ. I felt that participants would hold differing views regarding what is considered preservation, how to preserve sites, whether excavation is part of the preservation process, and so on. I felt that a

standardized definition of preservation would unnecessarily limit their responses and a definition should be created after the interviews were conducted in order to include as many viewpoints as possible (see Chapter 6). One interviewee declined to answer this question due to the bulk of their experience resting in museum curation as opposed to site excavation and preservation.

As expected, there was significant variation between individuals' perceptions of preservation. However, one commonality shared by the majority of participants was the idea that preservation was site-specific. Interviewees thought that how preservation occurs will depend on a variety of factors surrounding the involved publics, the type of development, and the type of artifacts among other factors. For example, one developer stated:

> My definition of preservation would be a broad one. I don't think that you can pigeonhole the term preservation to any particular set definition; I think you have to broaden that definition and look at what development is proposed, how important the artifacts are, and the different tools that can be used to preserve the artifacts. … [W]hat are the priorities? How important is the artifact? What mechanism is there that would allow the preservation to continue on site or whether it requires excavation? (Interview with Participant 4, August 14, 2013)

Another developer suggested that the preservation of a site should involve its protection until its significance and importance can be fully evaluated by the involved publics. Only then can a decision be made on how to manage the site.

One First Nations archaeologist suggested that the preservation of sites might not focus on the physical site at all. This participant said "[p]reservation … can happen in many different ways. It's very site specific. Sometimes you have just one item and the preservation of that item may not be the physical item; it might be the story you can attach to it" (Interview with Participant 5, August 7, 2013).

Archaeologists tended to be consistent in their responses. Typically, archaeologists defined the preservation of sites as leaving them "in their original states … [and] curbing recent human impacts" (Interview with Participant 12, July 22, 2013) in order to "retain the integrity of the information that exists at that location as best as humanly possible" (Interview with Participant 11, August 5, 2013). This view of preservation focuses on a physical view of sites and the processes which affect them. One archaeologist nicely summed up the archaeological public's common view when they said:

> preservation means to store that information in the ground. And if you're storing that information in the ground, you don't disturb that ground. So essentially that means no disturbing sites. That doesn't mean that if it's necessary, in some cases, you couldn't have a walkway or a boardwalk across a site. But it means taking all the measures against the site being dug into, walked on, compacted, stuff thrown on it, or fill put on it, or anything. … [I]t's the physical integrity of it. Ideally it's a fenced off, no go/no work area. Or if it's in a remote area, you can keep the location secret and nobody knows about it. It's unlikely to get disturbed. (Interview with Participant 8, July 3, 2013)

Compared to European examples of preservation (refer to Appendix B) where the aim is to prevent any biological, chemical, and physical changes to sites, archaeologists working in the boreal forest adopted a more laissez-faire approach to site preservation. Both archaeologists and First Nations people argued that sites should remain free of interference and be allowed to decay naturally. As stated by one archaeologist,

> as strange as it may sound, I feel the best way to preserve an archaeological site is … [for it to] be left the way it was, especially with pre-contact sites. With pre-contact sites, I think that it fits well with the Native view I have come to understand that it is just the way that things go. … **[B]y trying to encapsulate the archaeological site in resin as a mode of preservation, I feel like we're interpreting the site as though it hasn't been in a constant state of flux.** There have been how many thousand frosts, how many hundreds of forest fires, how many influential storms and we're still able to identify archaeological sites. **I'm in favor of non-intervention approaches to preserving them** [and] also by putting into place mechanisms that you need to keep development out of there to make sure it's not impacted by bulldozers or flooded out. (Interview with Participant 12, July 22, 2013)

Both the archaeological and First Nations publics said that while sites should be shielded from developmental impacts, the natural progression and decay of the site should be allowed. These publics said that allowing the site to proceed naturally was essential to correctly interpreting the site as part of the natural landscape and also to "respect the First Nations' wishes and the integrity of the value or the cultural artifacts that lie within the area" (Interview with Participant 6, July 17, 2013). Even though archaeological sites in the boreal forest may be vulnerable to disturbances such as forest fires (Bergeron 1991; Hinshelwood 1996), tree root penetration (Bauhus and Messier 1999; Strong and La Roi 1983), freeze-thaw cycles (Bowers et al. 1983; Hilton 2003; Peacock 1999), and animal burrowing (Bocek 1986; Langmaid 1963) among many other processes, archaeologists and First Nations participants said that a preserved site should follow "a natural process [and] naturally meld its way into the earth" (Interview with Participant 6, July 17, 2013).

It should be noted that archaeological sites in the boreal forest are generally devoid of biodegradable materials such as fabric, wood, leather, and other commonly used materials due to the harsh burial conditions. If boreal sites contained more than lithics and other non-biodegradable materials, it is my suspicion that archaeologists would opt to follow the European example and strive to preserve sites from all chemical, biological, and physical processes.

Though excavation is destructive to sites, half of the participants suggested that excavation could be an acceptable method of preserving sites. By conducting excavations to educate the public, these individuals said that sites would be preserved on-paper and in the collective minds of the public. Three interviewees (all archaeologists) said that excavation was not conducive to preservation while three other participants (one museum curator, one developer, and one First Nations person) were either undecided or unclear. Those who suggested excavation

as a preservation option said that locating an archaeological site, excavating it, preserving the artifacts, taking detailed notes and photographs, and properly documenting the site was preserving its context. One museum curator said that excavation was the main part of the preservation process. From a curation point of view, this individual said that keeping artifacts in the ground to decay would destroy the artifacts, and therefore the site's context.

A number of interviewees said that sites should be preserved by excavation if development was to occur. One participant stated "that development is part of human nature. If we had to avoid every place that we ever had a footprint, we would have no place to develop" (Interview with Participant 5, August 7, 2013). These interviewees believed that land development was necessary for economic reasons and that archaeological sites should be preserved via excavation if they could not first be protected *in situ* by modifying the development plans.

Many participants said that the proper post-excavation curation and preservation of artifacts was necessary to preserve the information and context of the site. However, these individuals said that forcing archaeologists to personally curate artifacts currently leads to inconsistent curation practices, artifact mismanagement and neglect, the decay of artifacts, and the loss of crucial information.

Initially, my own interpretation of "preservation" involved the complete stabilization and monitoring of all biological, chemical, and physical elements of the site, much like the European examples from the literature. However, the interviewee-suggested perception of preservation is very different from my original interpretation and involves a less technical approach to site protection. As a result, there is a need to develop a definition of "preservation" which

encompasses the viewpoints of the major publics involved in the archaeological process. A suggested definition is proposed in Chapter 6.

5.2.3) Q3 - Should archaeological sites be preserved?

Ten out of 13 participants agreed that archaeological sites should be preserved while the remaining three said that the decision on whether to preserve a site depended on many factors and that preservation was not always necessary. Two developers, both of whom suggested that archaeological sites did not always require preservation, said that site management decisions should be made after initially assessing the sites' significance. According to one of these developers, "[m]aybe some things could be, I use the word destroyed for the lack of a better term, after it has been fully evaluated" (Interview with Participant 3, July 17, 2013). These participants also said that only a few examples of site types should be preserved.

Overall, while the interviewee-suggested definitions of preservation varied, the interviewees generally agreed that archaeological sites should be preserved. Of those who suggested that sites should be preserved, five said that excavation was an appropriate way of preserving sites, especially where future development was concerned. The three archaeologists who said that excavation was not a form of preservation believed that sites should only be excavated in cases where unalterable development was to occur or to fill in data gaps:

> [W]e should always try to preserve sites instead of excavate them. The reason for that would be that in most cases, you already have sufficient samples. … There might be some sites that for scientific reasons you might want to do some excavation to fill out data gaps. But until those are identified, and nobody has really done anything to identify data gaps yet from pre-contact cultures, and until that's done I think the prudent thing would be to preserve as many sites as possible. (Interview with Participant 8, July 3, 2013)

However, the majority of participants said that the decision on whether or not to preserve a site should involve the interested parties. According to the interviewees, these groups should communicate their goals and agree on a site management strategy. The final decision should be "a cumulative decision of the people involved" (Interview with Participant 3, July 13, 2013). Such a decision should involve meaningful engagement, communication, collaboration, and compromise.

5.2.4) Q4 – Which part of archaeological sites should be preserved? (physical, spiritual, etc.)

When asked about the preservation of the spiritual aspects of archaeological sites, five participants declined to answer due to their perceived lack of knowledge about the non-physical nature of sites. Of these participants, four of the five were Euro-Canadian developers.

Participants with a First Nations heritage said that the preservation of the spiritual aspects of sites was important, but site-specific. According to one participant,

> I don't have a preference over spiritual or physical preservation because I really do believe it is site-specific. There are some sites that you can definitely feel; Manitou Mounds is an example … because it has a history that's not just physical. The story of Kay-Nah-Chi-Wah-Nung, or Manitou Mounds, goes down for generations. If you talk to people, you can hear stories from the past and you understand what people are really trying to pass down to you. It's not only because the site is special, but it's who we are as a First Nations people and what our significance is to the being of the Earth. (Interview with Participant 5, August 7, 2013)

According to another participant, while not all sites are spiritual sites, those which are can be deeply significant. The preservation of the spiritual aspects of sites can be done in an effort to preserve (or rekindle) the cultural values of the people:

> There are different types of archaeological sites. You have burial sites, which I think definitely should be preserved. ... Other sites of significance where ceremonies were held like rites of passages are very important to people. Unfortunately, it's been lost through the residential school system. Therefore, I think it definitely is important to try and

> preserve the energy and the spirit [of these sites]. (Interview with Participant 6, July 17, 2013)

Archaeologists held diverse opinions about the preservation of the spiritual aspects of archaeological sites. While all archaeologists and curators acknowledged that the spiritual element of archaeological sites was important, two said that the goal of preservation was solely to protect the physical aspect of sites. These interviewees stated that it is the physical aspect of sites which conveys the information; if archaeologists' goals are to uncover knowledge about the past, preservation projects should aim to protect the physical site since spirituality is individual-specific and open to interpretation.

The remaining archaeologists and curator said that both the physical and spiritual aspects of archaeological sites were equally important since "sites exist far beyond the artifacts" (Interview with Participant 12, July 22, 2013) and that spirituality cannot be separated from the context of the site. As a result, the spiritual aspect of sites should be preserved, but the manner in which it is preserved will depend on those with a stake in the spiritual nature of the site. According to one archaeologist,

> I think both aspects are equally important. It's important to have good science so you can collect information from the past, especially when excavating a site because you're essentially destroying the information. It's important to have the best science possible. And it's important to recognize the spiritual meanings for sites. … [I]n most cases, the artifacts aren't worth a great deal of money. The value is in the cultural value, and that rests in the First Nations communities. And it's important to recognize both. (Interview with Participant 8, July 3, 2013)

Therefore, opinions on the preservation of the spiritual aspect of archaeological sites are varied. While some interviewees had neither knowledge nor stake in the spiritual nature of sites, others found it to be a deeply important feature which may necessitate preservation. Participants viewed this aspect of sites as important due to its cultural or contextual implications. However, methods of preserving the spiritual nature of sites were not suggested by any participants.

5.2.5) Q5 – Should oral history be preserved along with the site?

Another important aspect of sites is the oral history surrounding them. While sometimes not dealt with by archaeologists, oral history in the form of stories, legends, folklore, and songs can be useful in locating and interpreting archaeological sites.

Every participant who provided their opinions about the preservation of the oral history along with the site (11/13) believed that it should be preserved. The interviewees said that the oral history surrounding both Indigenous sites and non-Indigenous sites would be useful to preserve if they provided accurate information about the sites. The interviewees claimed oral history could provide a fuller narrative of the past.

One First Nations participant said that while the oral history should be collected and preserved, First Nations people may be wary of divulging too much information. According to this participant, "[s]ome First Nations people are very protective if they give too much information because they feel vulnerable. That's probably because all the past oppression that's taken place, decades and centuries of it. But it would be nice to see [preservation and oral history] go hand-in-hand" (Interview with Participant 6, July 17, 2013).

Another First Nations participant said that oral history should be preserved "[i]n some cases" (Interview with Participant 5, August 7, 2013). This individual believed that the information should be accurate in order to properly convey the story:

> Some sites don't have a modern cultural affiliation, and it doesn't make them any less significant, but I don't want to be making up a story to fit a site. A site can be significant without a story. Yes, preserving the stories is important but we have to be assured that the stories are accurate to the site, to the people, or to the Nation, or to our existence as a people as opposed to trying to make a site that fits a story. (Interview with Participant 5, August 7, 2013)

Interestingly, this individual said that the preserved stories should be accurate "to our existence as a people" (Interview with Participant 5, August 7, 2013). The preservation of oral history could be useful not only for educational values but also as a method of preserving a culture and its values.

Though concerned with the factuality of oral history, archaeologists agreed that its preservation was worth the effort since "there's nothing to be lost by attempting to gather oral history on a site or region" (Interview with Participant 11, August 5, 2013).

When asked how to preserve the oral history, the participants offered a number of methods. Some interviewees said that on-site preservation options such as plaques and displays could be useful, but two individuals outlined potential problems. One First Nations person suggested that on-site plaques and displays could draw unwanted attention to the area while one archaeologist outlined curation problems, namely that displays and plaques require maintenance, funding, and can be subject to vandalism. A museum curator suggested preserving audio clips of the stories and making them accessible to museum patrons, especially considering how modern electronic data storage techniques are inexpensive, simple, and do not take up much physical room. One archaeologist suggested the submission of textual forms of oral history to the involved parties along with the technical info about the site.

Overall, the most common suggestion involved the creation of a database of oral history which would be curated by local communities. This database could contain site information, locations, and artifact data along with the oral history of sites and regions. A number of participants said that this information should be made accessible to those who are interested,

such as archaeologists and First Nations people. This database could be referred to by archaeologists undertaking archaeological assessments or by other interested parties.

5.2.6) Q6 – Preservation methods

When I first began my research for this thesis, my focus was on the methods of preserving archaeological sites. However, when I conducted the interviews, I quickly discovered that the participants did not share the same opinions on site preservation as the European literature. In European-derived literature, there is a large focus on examining, mitigating, and monitoring the biological, chemical, and physical influences on archaeological sites (See Appendix B).

Over the course of the interviews, I outlined a number of preservation methods including sheltering, monitoring, stabilizing, excavating, and restoring sites among others. The most common response from all publics was that the preservation of sites was site-specific and depended on the goals and opinions of the groups involved. Interviewees stated that the involved publics should communicate their opinions and agree on the methods used to preserve (or not preserve) sites.

However, the three most commonly suggested methods included site stabilization and monitoring, allowing sites to naturally decay, and excavation. Archaeologists believed that natural and anthropogenic forces which disturbed the below-ground archaeological remains and interfered with the ability to interpret the site should be mitigated and monitored. Such mitigation measures would be dependent on the destructive factors influencing the sites and could involve a variety of experts such as hydraulic engineers, construction engineers, and planning experts.

In order to allow sites to decay with little human interference, participants suggested registering sites on legal and ownership maps, keeping site locations secret from the public, using buffer zones, and erecting barriers. However, a few participants suggested that fences have the opposite effect because they may generate curiosity and unwelcome intrusion. Establishing natural buffer zones and no-work areas was seen as an effective way of allowing sites to progress naturally.

Finally, excavation was seen as an appropriate method of preservation, especially in cases where site development was unavoidable. In cases where establishing buffers and barriers is impossible, such as at mine sites and hydroelectric sites where flooding is to occur, excavation is seen as an effective way of recording the context of the information in the ground and preserving the site by salvaging the archaeological remains. The proper long-term curation of the excavated remains is also necessary to preserve the site.

5.2.7) Q7 – Ownership of sites

The opinions on the ownership of sites are varied. Developers' views tend to favour the privatization of sites. One developer declined to answer the question. Two developers said that the ownership of sites should rest solely with the landowner. These participants said that responsible land ownership would not negatively impact sites. According to one of these developers, "if you own the property, [the site] should be yours to deal with. Have respect for it. Be more involved. Find out more about it by having the archaeologists do a study. If there's nothing, then away we go. To hold up a mining company or a forestry company… You can't stop going forward" (Interview with Participant 1, July 24, 2013). Another developer said that there should be a mixed approach to site ownership dependent on the site's importance. This

developer stated that sites of provincial or national importance should be owned and dealt with by the government while sites of non-provincial or national interest should be dealt with privately.

When asked who owned archaeological sites, one First Nations archaeologist stated it was "[e]veryone. Everyone. We're not just talking about Aboriginal sites. We're talking about non-Aboriginal ones as well. I think that we all have an obligation as a society to decide what we want to preserve and how we want to preserve it" (Interview with Participant 5, August 7, 2013). This individual went on to suggest that "while the crown may 'own' them, First Nations are the ones who know how to take care of Aboriginal sites. The Crown does not know how to take care of them. Specifically, the artifacts. I'm horrified whenever I go into the ministry labs and when I see how things are being 'preserved'" (Interview with Participant 5, August 7, 2013). This participant proceeded to describe at-length the Province's massive curation problem and the unacceptable conditions in which the government "preserves" artifacts.

Two participants with First Nations heritage suggested that Indigenous sites should belong entirely to Indigenous people. One First Nations Elder stated that they are part of "our traditional lands. It should go to the traditional people" (Interview with Participant 7, July 6, 2013). The other First Nations participant stated that there are methods of addressing issues of ownership politically and non-politically, especially "[i]f First Nations feel threatened enough [and] if they feel like they're backed into a corner and their Aboriginal and treaty rights are being infringed upon" (Interview with Participant 6, July 17, 2013).

Archaeologists and museum curators shared three views on the ownership of sites: strict government ownership, co-ownership with the government and First Nations, and full ownership

of First Nations sites by First Nations. One archaeologist believed that, since archaeological sites are public resources, the government should be in complete control of them:

> The Crown is supposed to act in the best interest of all Ontarians and Canadians. It's supposed to act in the best interest of the public. As soon as you allow varying degrees of private ownership over the sites, you lose control over them. Sites can be sold and this information becomes individually profitable. And I don't agree with that. I think it's a public resource. (Interview with Participant 11, August 5, 2013)

In this view of site ownership, the government is supposed to act as a responsible steward of the province's or nation's history. In an effort to maintain control over archaeological sites, sites must belong solely to the government. However, one museum curator suggested that First Nations sites should be owned entirely by First Nations. According to this individual, "First Nations own First Nations sites, period. And this is not a nice thing to say, but I think governments dropped the ball big-time in terms of saying 'It's all our stuff'" (Interview with Participant 10, July 6, 2013). This individual said that the government has a poor grasp on the management of sites and the issue of ownership "needs to be revisited again in terms of policy, particularly the Ontario government policy" (Interview with Participant 9, July 6, 2013). An intermediate view involving co-ownership was suggested by another archaeologist. While this individual acknowledged that the law states that archaeological sites are owned by the government, they said that pre-contact sites should be co-owned with First Nations:

> When I said they belong to the government, I didn't say I agree with that. The ownership of artifacts should be co-ownership with First Nations people, at least for pre-contact sites. I know of archaeology professional groups that have tried for decades to try and get some amendments, but to date it's been unsuccessful. I think that would be the way to go in the future. It would help get communities more involved with archaeological sites. (Interview with Participant 8, July 3, 2013)

Overall, the views surrounding the ownership of sites divide sharply. While developers are inclined to believe sites belong to landowners, thus giving them more influence in the management of sites, First Nations people and archaeologists believe sites should be owned by

the government and/or First Nations. Though the government is supposed to act in the best interests of sites, it is also argued that they have little skill in their preservation. After examining the responses of the interviewees, I propose a simple model of the ownership of sites based on the type of site (see Figure 6 in Chapter 6).

5.2.8) Q8 – Access

When asked who should have access to sites, I noticed interviewees had two ways of interpreting the question. The interviewees provided answers for *access to sites* as well as *access to information*.

As for access to archaeological sites, developers said that the landowners should have the ability to restrict access to the site. The landowner would allow access to individuals who were associated with the development such as archaeologists and others conducting environmental assessment (EA) studies and could also choose to "invite First Nations" (Interview with Participant 1, July 24, 2013) to the site. It was also suggested that sites of public significance could also be made open to the public as long as safety protocols were obeyed.

One individual with First Nations heritage said that access to archaeological sites should be based on "communication and talking and building relationships. That's what I'm all about. I'm not one to say that it's a First Nations value and that you shouldn't be going there, no ifs ands or buts. For me, it's about communication and working with the First Nation" (Interview with Participant 6, July 17, 2013). This participant went on to add that through communication with the First Nations, a common ground could be found and a compromise made regarding access to archaeological sites. They also suggested that First Nations sites should be accessible to First Nations people in order to preserve the culture:

> For me, I think it's important that if there is a site that's identified by First Nations, allowing access to continue their way of life, whether that be hunting and fishing and camping and social gatherings, why should that stop? [Restricting access] is not preserving our culture. It's not preserving our culture because we *are* our culture and if we stopped, the culture dies. Would our ancestors want that? I don't think that they would want nobody to be there. (Interview with Participant 6, July 17, 2013)

This individual as well as another First Nations individual said that access could be granted to individuals provided they treat the site with respect.

One First Nations archaeologist said that sites should not be open to the general public. They stated that making people aware of site locations and allowing them access was counter-productive to the goals of preservation; the increased presence on the site could cause needless disturbances. However, this participant suggested that Indigenous people should be granted access to First Nations sites, despite the Province's refusal to make site location data accessible to First Nations.

Archaeologists similarly stated that sites would suffer disturbance by making them known and accessible to the general public. This public said that sites would be subject to looting and other disturbances caused by unrestricted access. However, one archaeologist suggested that public access could be granted after the archaeology was complete in order to minimize damages to the site as long as it did not interfere with the current land use and health and safety protocols. Archaeologists stated that "until there is a system that is set up that can ensure the protection of [sites], the access should be restricted to the affected parties: archaeologists, First Nations, and developers. Only the people who need to know where they are [should] know where they are" (Interview with Participant 12, July 22, 2013). This public said that First Nations people should be given access to sites for ceremonial and spiritual purposes, as long as they do not "interfere

with the current use of the site and the have permission of the landowners" (Interview with Participant 11, August 5, 2013).

Additionally, the interview participants asserted that *access to information* was critical to archaeological preservation. One developer said that preserving archaeological sites involved making information regarding sites and artifacts accessible. According to this individual, "I'm thinking more of preservation as being aware. A lot of people don't know what archaeology is. The one thing that's lacking, like I mentioned earlier, is that the information is accessible and a lot is confidential. I think it's a good part of history. It shouldn't be kept a secret" (Interview with Participant 2, July 24, 2013).

Many participants stated that there could be more public interest in archaeology and the preservation of sites if the public was educated about them. Especially if archaeology is being performed in the public's interest, archaeologists and the government should be doing better jobs at disseminating information gained from archaeological projects for public use. Some participants suggested that there is a large body of unpublished "grey literature" from CRM archaeological projects which should be disseminated to the public. Two archaeologists even mentioned that archaeologists themselves are lacking access to information and as a result are unaware of recent archaeological findings in the province. According to one archaeologist, "[u]nless I physically talk to you or read your report, there's no mechanism for me or for you to learn about what other archaeologists in this province are doing. And we're doing the damn stuff!" (Interview with Participant 11, August 5, 2013). Participants constantly suggested that there be increased public education about the importance of archaeology and preserving archaeological sites, especially through the government and through the public school system.

5.2.9) Q9 – Are archaeological sites usable resources?

While two participants stated that archaeological sites were not resources in the traditional sense and could not be extracted and commoditised such as lumber or mineral resources, every participant implied that archaeological sites were "a resource to enrich humanity" (Interview with Participant 12, July 22, 2013) through education and knowledge. Most interviewees suggested that archaeological sites are *cultural* resources that could be used to uncover data and knowledge about past peoples and lifeways, interpret (and re-interpret, in some cases) the narrative of the past, and should be used for educational purposes.

In addition to being used as educational resources, a First Nations participant suggested that archaeological sites were resources which could be used to preserve culture and heritage by helping people "feel a connection to where they are and to who they are … [and] understand what the significance is just with that simple touch of the earth." (Interview with Participant 6, August 7, 2013). Other participants said that archaeological sites could be used to provide evidence of the presence of First Nations in an area, especially in land claims and other legal cases.

Developers often suggested that archaeological sites could be usable resources to complement a development and could be incorporated into these developments in order to make them more successful. One developer gave an example of integrating sites, especially those with standing heritage, into "themed" development projects such as subdivisions to generate interest in the development, generate tourism, and educate the public.

Finally, many participants suggested using archaeological sites for tourism, including one archaeologist who wholly supported archaeotourism. The interviewees often suggested that

preserving archaeological sites could "draw people" (Interview with Participant 4, August 14, 2013) to sites or cause "people to go see them" (Interview with Participant 3, July 17, 2013). Many archaeologists claimed that the general public has a thirst for information, and once this information is made available through education, there will be a push towards archaeological tourism, perhaps in conjunction with ecotourism due to the remote nature of many sites. One archaeologist stated that:

> If governments around the world took advantage of the hunger for archaeological knowledge and allowed or encouraged or sponsored the development of archaeological tourism, you would sell out in a second. … All summer long, I would have a lineup of old people wanting to be there to dig up those units. … Now imagine [archaeotourism] across the country and what that would do to the respect and knowledge that general people would gain about archaeology and native history! … What that would do for the detailed knowledge of an area would be incredible. And that could be repeated again and again and again across the country. (Interview with Participant 11, August 5, 2013)

According to the individuals who supported archaeological tourism, monetary gain was not the only – or even the main – incentive. Providing education and first-hand knowledge of archaeology and history was often suggested as a reason to provide tours of preserved archaeological sites and allowing the public to help excavate these sites.

5.2.10) Q10 – What type of land use should occur on sites? Should certain types be avoided or preferred?

In Ontario, the majority of archaeological projects are conducted by consultant archaeologists before development is to occur. Developers pointed out that archaeological work would not have been performed if the land was not going to be developed. Developers, First Nations people, and archaeologists stated that they were aware that the nature of Ontario's archaeology is development-driven and that in many cases, the development of archaeological

sites is inevitable. Some participants suggested that development is part of human nature and necessary to maintain a strong economy.

A number of developers stated that development could occur over archaeological sites without the need for excavation in cases where subsurface disturbances are not anticipated. These participants offered examples of situations where development had been allowed to proceed on golf courses and condominium complexes while preserving sites by capping them with sands, transferring ownership to public or private bodies, or by including no-disturbance policies in the condominium corporation's declaration. In cases where subsurface disturbances were anticipated such as at open-pit mines or gravel pits, a cost-benefit analysis of excavation was considered acceptable. If the resources on-site were worth more than the cost of the excavation, the excavation should proceed.

However, archaeologists and First Nations generally asserted that "any land-use that damages the mineral soil or create conditions where the mineral soil can be damaged in the future, anything other than what might naturally occur, should be prevented" (Interview with Participant 11, August 5, 2013). Their reasoning was that damaging the soil on archaeological sites would threaten the context of the site and the archaeological features and remains lying within. Two First Nations participants stated that significant sites should be free from development in all cases. Archaeologists argued that if the development plans could not be altered to avoid disturbing the archaeological site, it should be protected through prior documentation, salvage excavations, and site monitoring.

5.2.11) Q11 – Who should be involved in the preservation process?

Interviewee Suggestion	**Number of times suggested**
Government	4
Developers	7
Archaeologists	9
First Nations	7
General Public	6
"Affected parties"/"Stakeholders"	2
Museums	3
"Anyone depending on sincerity"	1
"Experts"	2

As the majority of archaeology in Ontario is development-driven, interview participants frequently suggested that developers be involved in the archaeological process. Participants stated that the opinions of developers should be included in the process and should have a say in the land management strategies of the land under development. Additionally, it was suggested that honest and respectful engagement on the part of developers would lead to stronger partnerships among developers and local Indigenous and non-Indigenous communities.

Archaeologists were the most regularly suggested group which participants felt should be involved in the preservation process. Interviewees believed that archaeologists should be included because they study archaeological sites and the processes which affect them. As such, this group would have specialist knowledge in the preservation of these sites.

Another commonly cited group for involvement in the preservation process was First Nations people. Many interviewees felt that First Nations people held a special attachment to archaeological sites and that these sites represented the history, culture, and ancestral lifeways of the First Nations people.

Six participants noted that the general public should have a higher involvement in the preservation of archaeological sites for a number of reasons. Despite the interviewees' large

focus on Aboriginal sites, participants felt that non-Aboriginals also have a significant history and associated archaeological sites which ought to be protected. Participants also suggested that though many sites hold a First Nations cultural affiliation, they are still part of Canadian history and are important to non-Native people. Two participants stated that involving the general public is crucial in preventing bureaucrats with no concept of Northern Ontario from making culturally uninformed preservation decisions. A number of interviewees also felt that the general public should be involved for educational reasons because "[i]t's teaching the youth, it's part of our history, and it goes back into education" (Interview with Participant 6, July 17, 2013) and it would generate interest in the preservation of heritage sites.

Four interviewees suggested that the government should have a role, or a more sincere role, in the preservation of sites. Many interviewees said that by claiming ownership over all of Ontario's archaeological resources, the government has made itself into a major interest group in the archaeological process. However, these interviewees also said that despite its position, the government has not been:

> promoting higher-quality archaeology or ensuring things are done in the best interest of the archaeological resources in this province. … It is not meeting its responsibilities with respect to archaeology. It's meeting its responsibilities with respect to bureaucracy. (Interview with Participant 11, August 5, 2013).

Another participant stated that the government has taken "their direction, vision, and policy … to preserve and protect the history of our nation, and they've whittled it down to the point of making it a bureaucratic nightmare where they watch for people to dot the i's and cross the t's" (Interview with Participant 11, August 5, 2013). In order for the government to properly fulfil its responsibilities and properly preserve archaeological sites, many participants said that instead of portraying itself as an uninterested bureaucratic player, the government should show genuine

interest and involvement in Ontario's archaeological history "to ensure that there is a neutral party representing the archaeological site and the integrity of the archaeological site" (Interview with Participant 11, August 5, 2013).

Museums were suggested as another party which could be involved in the preservation of sites. In addition to curating and preserving artifacts recovered from archaeological excavations, interviewees believed that museums could serve as vehicles to disseminate information to the general public to promote interest in archaeology and site preservation. Museums could prove useful in educating the public and promote community-driven preservation projects.

Finally, two participants suggested that "experts" be included in the preservation of sites. One archaeologist stated that experts such as hydraulic engineers and construction engineers could suggest specific methods to preserve sites while another participant suggested that experts consisted of anyone with specialized knowledge and vision for the future of archaeological sites such as First Nations elders, First Nations youth, economic developers, and landscape planners.

5.2.12) Q12 – Archaeological sites with mixed descendant groups

Archaeologists said that the most important factor was getting everyone informed and involved in the archaeological process. This public believed that all of the involved descendent groups should have the option to participate in the decision-making process and make their voices heard. Archaeologists' statements did not favour any particular descendant group, regardless of the cultural affiliation of the archaeological site. Where multiple descendant groups are affected, archaeologists said that all groups should be involved, informed about the expected archaeological course of action, and "ask them to work with each other to provide the timing and the people and the different specialists such as medicine men, arrange for ceremonies, and

community participation. It needs to be a collaborative effort on the part of everyone" (Interview with Participant 12, July 22, 2013).

Both museum curators focused on the interpretation of archaeological sites with multiple descendant groups. Both individuals said that all groups should be involved and collaborate to tell their stories. There should be no "prime narrative" and all interpretations should be considered equally valid.

One First Nations individual said that when there are competing interests regarding archaeological sites, "First Nations should have priority," and that other interest groups "should not have priority over First Nations interests or historical interests in an area" (Interview with Participant 6, July 17, 2013).

While all groups had different outlooks on the involvement of multiple descendant groups, all participants said that communication and collaboration between all groups was essential to making good preservation and interpretation decisions. Archaeologists, museum curators, and First Nations people stressed the importance of interpreting sites from the perspectives of all descendant groups to avoid providing biased or Euro-centric accounts of history.

5.2.13) Q13 – Involvement

Developers said that their involvement should rest in keeping all of the interested parties informed about the development process using "any avenue that facilitates understanding and involvement" (Interview with Participant 12, July 22, 2013) and frequent updates. The participants said that there should be "an open line of communication" (Interview with Participant 4, August 14, 2013) between all involved parties to promote higher quality

development and archaeological preservation. Developers suggested currently used methods such as open houses and newspaper ads (see Appendix C for an example) to spread awareness about the development activities, but also mentioned that these open houses suffer from low attendance and are consistently attended by the same individuals. They also mentioned that there are "problems on communicating about the open houses to the interest groups. … If you don't live [within 120 metres of the development], you don't talk to your neighbours, and you don't read the newspaper, you don't know about the public meetings" (Interview with Participant 4, August 14, 2013). The interviewees suggested that radio and internet ads, community meetings, and increased pressure from community members and leaders could help boost the attendance and involvement. Developers stated that the general public's job is to be aware of the on-site activities through the use of newspaper and online notifications.

First Nations individuals said that involvement should focus on using first-hand interactions to build trust and relationships with the First Nation. To improve involvement in the archaeological process, one First Nations individual stated that government terminology should be changed from requiring "consultation" or "involvement" to requiring "engagement" with First Nations communities. This individual believed that:

> engagement is a much friendlier word that helps people understand that they are important to the process. … Engagement means being actively involved in whatever method you choose or however far you choose. Some First Nations will choose not to be involved so their engagement level is lower while other First Nations will want to be actively engaged. (Interview with Participant 5, August 7, 2013)

Additionally, two First Nations participants stated that developers should tailor their methods of communication to the interested parties for the best results. These individuals asserted that communication with First Nations should be on a firsthand basis as opposed to through impersonal means such as emails or letters. According to one individual, First Nations people:

> don't always communicate well through email. They would much prefer phone call or face-to-face meetings and handshakes. … With First Nations, you're going to gain much more trust and you're going to get much more meaningful conversation and communication happening if it's done in person or with a phone call as opposed to an email or letter. … If a developer is really interested in developing a site and there is a[n] [archaeological] value within that area, then I think it would be in the best interest of that developer to understand the method of communication that works well with the interested parties such as First Nations. (Interview with Participant 6, July 17, 2013)

These interviewees stated that development companies should not be so hesitant to engage First Nations in a personal manner and should strive to build a relationship with the First Nation by working with the community and having an increased presence in community events. Another First Nations individual said that archaeologists should hold post-excavation meetings with the communities in order to display the recovered artifacts.

Museum curators said that museums could get involved in generating community awareness and participation. These individuals asserted that interest in archaeological sites and their preservation exists within communities and museums could behave as a hub for disseminating the proper information and awareness. One curator gave an example of a successful community meeting with over 300 attendees, including many young people, which the museum had advertised through word of mouth, publicity through the museum, and social media "as opposed to a group from outside [the community] coming in and trying to make that happen. … There is that hub in every community and the key is partnering with them" (Interview with Participant 10, July 11, 2013). Curators also stated that presenting the findings from archaeological excavations "is super important to get everyone aware and onboard. Then people will want to preserve sites" (Interview with Participant 10, July 11, 2013).

Archaeologists said that the optimal way to involve all interest groups was through firsthand interactions, community involvement, and public meetings. Interviewees said that

firsthand interactions could increase the exchange of information between the involved groups and were important to building relationships because they demonstrate "that you care" (Interview with Participant 12, July 22, 2013). The participants said that involvement through community outreach meetings and site visits was "the best possible value public relations dollars can spend" because they "demonstrat[e] to the community that we're being open, honest, and engaging directly with them in a respectful and human way" (Interview with Participant 11, August 5, 2013). Three archaeologists provided an example of a community outreach event where they were able to educate people, generate an interest in archaeological sites and their preservation, and resolve every objection from the community directed towards archaeology.

Opinion on open houses was divided among archaeologists; one archaeologist said that open houses provide "a neutral ground where proponents of the project and the community can meet, introduce each other, and share interesting ideas" (Interview with Participant 11, August 5, 2013) while another said they were of limited value due to their low turnouts.

A number of archaeologists also said that the government should be involved in more than a bureaucratic capacity. One archaeologist stated that the Ministry of Tourism, Culture and Sport had jeopardized archaeological sites by completely eliminating its non-bureaucratic involvement in the archaeological process, claiming:

> the Ministry of Tourism, Culture and Sport in Ontario, who is the steward and guardian of heritage in Ontario and the ministry responsible for enacting the Ontario Heritage Act, does not approve any recommendation made by archaeologists that it licenses and it directs on how they do archaeology. They do not approve archaeological reports. In fact, they have a huge disclaimer in which they say they basically have no responsibility in any way, shape, or form for any of this. They transfer any responsibility for approval to something they call the 'approval authority'. … All they do is say that my report has been written according to acceptable standards. That's all they say. In fact, the Ministry has so removed themselves from archaeology in Ontario that it's to the point where they are just

> checking checkboxes on a form when they are reviewing reports. (Interview with Participant 11, August 5, 2013)

These archaeologists suggested that in order to properly preserve archaeological sites in Ontario, the government should become directly involved in the archaeological process and trust its professional licensees to make effective and informed decisions regarding the preservation of sites. These participants also suggested that the government should play an active role in generating public interest in archaeological sites and their preservation by publishing and distributing information regarding current archaeological work in the province.

5.2.14) Q14 – Funding

Developers said that due to the government's claims on the ownership of archaeological sites, they should contribute funds towards the preservation of "their" sites. The interviewees said that forcing developers to pay the entire cost of preservation or excavation is "a bit unfair and unreasonable, especially when [the government] keep[s] increasing the regulations in terms of what a developer has to do" (Interview with Participant 4, August 14, 2013). Developers acknowledged that there was a financial risk involved when developing archaeological sites, but suggested methods of lightening the financial burden: the government could provide a grant similar to those given when conducting environmental studies and regional archaeological surveys could be conducted to provide developers with a better idea of developable areas free of archaeological sites. Otherwise, "[i]f the government wants to impose all these rules and regulations and there is a significant [archaeological] find, then I think they should be paying for the preservation of these artifacts" (Interview with Participant 4, August 14, 2013).

Two First Nations individuals suggested that the government could provide funds in addition to developer-provided funds to preserve sites following the examples set by parks and

nature conservancies. “Nature conservancies … don’t just preserve everywhere, even though they would like to. They have criteria, reasons, a budget… A lot of different factors play into their decision. I think that’s the way we would have to look at archaeological sites” (Interview with Participant 5, August 7, 2013).

Archaeologists and museum curators said that funding options were site-specific and context-dependent. They stated that the funding sources will differ based on factors such as the type of development, the proponent, and the reason for preservation. If an archaeological site is being developed, it is generally agreed that the proponent of the development should fund the preservation or excavation of the archaeological site, with participants occasionally stating that “it's part of the cost of business” (Interview with Participant 9, July 6, 2013). If First Nations are conducting site surveys and preservation projects, funding should come from that First Nation. If archaeological studies are being conducted in Provincial or National Parks or if the site is deemed to be of significant public interest, funding should come from the government. One archaeologist suggested that preservation efforts beyond what is outlined in the legislation should be subject to negotiation between all of the involved parties.

5.3) Recurring Themes

5.3.1) Education

Throughout the interviews, participants continually referred back to the subject of education. All interviewees said that one of the main reasons for archaeology is to learn about the past and teach the public about history. However, many participants said that the level of education in Ontario regarding history and archaeology is not sufficient. Ontario’s primary and

secondary history curricula currently lack adequate education about archaeology. Archaeology is briefly mentioned a total of three times, and only in sample questions referring to temples and mosques of Angkor Wat and Timbuktu (Ontario Ministry of Education 2013a; Ontario Ministry of Education 2013b). Though participants said there is a "hunger for archaeological knowledge" (Interview with Participant 11, August 5, 2013), members of the general public are woefully uninformed about the nature of archaeology. Two interviewees were even under the erroneous impression that archaeology included the excavation of dinosaurs. According to one archaeologist,

> when people think archaeology is about digging up dinosaurs, it's apparent that the level of education in the province is almost nonexistent when it comes to archaeology. Most people don't even know what it is we do. There are huge amounts of work that need to happen. … [L]earn[ing] about archaeology in the public school system would help educate people from an early age so that when they become adults, they will have an understanding that were not looking for aliens or dinosaurs. (Interview with Participant 12, July 22, 2013)

Additionally, a number of developers (and even one museum curator) had little knowledge of pre-European settlement history and held severe misconceptions about First Nations history. Many interviewees said that the knowledge gained from archaeological sites should be used to educate the public about the *entire* history of Ontario. According to one First Nations individual,

> I think it comes down to education and educating the general public because Canada hasn't done a very good job of educating its Canadian citizens on the true history of Canada and the role that First Nations people played. It comes down to education and informing the public of what [archaeology] is. I think that when people have that knowledge, they'll have that understanding and develop that respect. (Interview with Participant 6, July 17, 2013)

Many participants also said that providing education to the public would help people understand the importance of archaeology and could generate interest in the preservation of archaeological sites. One museum curator provided an example of a community which was

taught about archaeology and local sites, causing a push towards community-driven preservation projects: "the community … is trying to organize a group of people that will monitor [the site] on the off-season. They will be out there to make sure people don't chip things off. It's just a little small community. None of them archaeologists but they understand the importance of the site" (Interview with Participant 10, July 11, 2013). Without educating people about history and archaeology, sites "means nothing to anyone. The Province can try to protect all these resources, but if we don't know what they are, why would they do it?" (Interview with Participant 4, August 14, 2013).

Finally, some participants suggested specifically educating First Nations people about the methods and goals of archaeology in order to dispel common misconceptions about the nature of the discipline:

> When I was working on Lake Abitibi, when I first went there, people thought I was going to dig up their ancestors. I was not well received. That was 25 or 30 years ago. Just through archaeology and through education from [name redacted], Native people in Northern Ontario have a lot of respect for archaeology now. They know that it's giving them a lot of clout with land claims. (Interview with Participant 13, July 23, 2013)

According to this archaeologist, educating First Nations people about the mutual benefits of archaeology has created an ally instead of an enemy. However, there is still some occasional resistance to archaeological projects offered by First Nations people. Educating First Nations people and including them in the archaeological process would also open up the traditionally mono-ethnic discipline to internalist perspectives.

5.3.2) Communication and Collaboration

The interviewees stressed the importance of communication and collaboration among all involved publics for a number of reasons. Participants said that communication and collaboration

would allow the inclusion of opinions and perspectives of often overlooked groups towards the preservation or heritage sites. By engaging the involved publics through honest and respectful communication and collaboration, conflicting ideas can be discussed and the publics can "work on some type of solution … or compromise" (Interview with Participant 8, July 3, 2013). Communication and collaboration was also said to be necessary to include the culturally diverse interpretations of archaeological sites. According to one museum curator,

> "The parties have to come together and be given the same [involvement]. … How shall I put it? [A]n absolute partnership. … One group interpreted one side [of the story] while the other interpreted the other side. The meshing together was the important part. Everybody has the same amount of say around the table. One was not more important than the other. One was not making all the decisions. It was all very much a true partnership. (Interview with Participant 10, July 11, 2013)

Another archaeologist provided an example of a situation where there was no cross-public involvement in the preservation and interpretation process of a site, resulting in the improper interpretation of the site, in the archaeologist's opinion, and the misinformation of a number of people. Once First Nations people were engaged, the archaeologist said an accurate and culturally-informed interpretation of the site was offered.

A number of participants also suggested that communication and collaboration would help garner community support for preservation. According to one archaeologist, "communication is key" because it can help devise support for preservation projects through "early community engagement, explanation of the archaeological process and science and how the information is of benefit to the community, [and] through the involvement of community youth and Elders" (Interview with Participant 8, July 3, 2013).

Many interviewees also suggested that communication and collaboration would help build relationships between the involved publics and lead to better preservation solutions. According to one First Nations individual,

> [i]t's about communication and talking and building relationships. That's what I'm all about. … For me, it's about communication and working with the First Nation. If the First Nation feels confident enough with the relationship moving forward, there are compromises. Compromises can be made from both parties in that have an interest in this. They can find some common ground. (Interview with Participant 6, July 17, 2013)

These participants also stressed the importance of finding optimal methods to communicate with certain publics, such as personal communication with First Nations or communication with the general public through an information "hub" such as museums. Once the optimal communicative methods are found, "you're going to gain much more trust and you're going to get much more meaningful conversation and communication happening" (Interview with Participant 6, July 17, 2013). For example, at the beginning of my research, I used email and verbal communication to recruit seven First Nations individuals. However, four individuals who had initially agreed in-person to participate, including a Chief, failed to respond to any follow-up emails and had to be dropped from the study. While personal firsthand approaches were effective in recruiting participants, impersonal follow-up communications failed to get responses.

Participants also said that relationships could be built through collaborations with local communities during events such community meetings, feasts, and recreational events. By immersing themselves into communities, developers and archaeologists can "demonstrat[e] to the community that [they're] being open, honest, and engaging directly with them in a respectful and human way" (Interview with Participant 11, August 5, 2013).

Finally, high levels of communication and collaboration can help streamline the archaeological and development process by increasing the flow of information and preventing delays due to miscommunication and misunderstanding. According to one developer,

> there should be an open line of communication. … It would be nice to have a free flow of information from everybody: the owner, the developer, archaeologists, and the Province … to talk to them about what mitigation methods could be employed. … I think the more communication there is between those people, the better product you can have. (Interview with Participant 4, August 14, 2013)

5.3.3) Curation

The curation of artifacts was an important issue in the preservation of sites. Many participants suggested that the long-term curation of excavated artifacts was an aspect of proper site preservation. However, though my interview questions did not discuss artifact curation in depth, archaeologists suggested that the curation situation in the Province is "such an enormous problem nowadays because it's out of control" (Interview with Participant 5, August 7, 2013). Many participants lamented the system of personal artifact curation by archaeologists where artifacts "are simply put in boxes and put on the shelf and forgotten" (Interview with Participant 5, August 7, 2013). Though archaeologists are made to curate (read: store) artifacts for the long-term, they are not required to have experience curating artifacts to obtain an archaeological licence. Ministry of Tourism, Culture and Sport licencing regulations only state that applicants have "[e]xperience in analyzing archaeological fieldwork data and managing artifacts" (Ontario Ministry of Tourism, Culture and Sport 2013). Interviewees said that this system leads to inconsistent handling practices, the mismanagement and loss of artifacts, and the destruction and decay of archaeological remains.

To properly preserve artifacts, some interviewees suggested that large artifact curation facilities be established to standardize the artifact management and preservation procedures, such as the joint University of Western Ontario – McMaster University Sustainable Archaeology project (Sustainable Archaeology, 2013) or the creation of government-funded curation facilities; the education of archaeologists in long-term curation techniques; the use of modern technology such as 3D scanners and high-definition cameras to "virtually" preserve artifacts; and the curation and display of artifacts at local community levels.

5.3.4) Government Involvement

Another common topic was the lack of involvement of the Provincial government and the Ministry of Tourism, Culture, and Sport in the archaeological process. Most interviewees offered negative opinions on the involvement levels of the Ministry of Tourism, Culture, and Sport. Participants commonly suggested that the government had become a purely bureaucratic process and completely ignores their commitment to managing Ontario's archaeological record. One archaeologist stated that,

> the greatest tragedy in terms of site preservation and the ongoing interest in archaeological sites is the Ministry of Culture's complete lack of interest in archaeology. They have absolutely no interest in archaeology at all. They have no interest in promoting the knowledge that is gained or actually being responsible to the cultural resource. Their only interest is in satisfying their bureaucratic principles. I think that's criminal. They are imposing all kinds of rules and regulations on us about what we have to do and very few of them are in the interest of doing better archaeology were being more responsible to the resource. Most of their rules and regulations are about transferring responsibility from them to some other entity. (Interview with Participant 11, August 5, 2013)

A developer similarly suggested that the government has taken "their direction, vision, and policy … to preserve and protect the history of our nation, and they've whittled it down to the point of making it a bureaucratic nightmare where they watch for people to dot the i's and cross the t's. That's not what they should be there doing" (Interview with Participant 4, August 14,

2013). The interviewees suggested that by lacking genuine involvement and taking a bureaucratic approach to archaeology, sites are subject to a legacy of governmental neglect and preservation recommendations by the licenced archaeologists are ignored. Additionally, Dent's (2013) survey of ten archaeologists in the Province of Ontario similarly suggests significant discontent with the government's archaeological report review process since the establishment of the *2011 Standards and Guidelines for Consultant Archaeologists* (Figure 5). The process is viewed as greatly lacking consistency and transparency.

A number of developers and archaeologists suggested that the government provide funds to help undertake preservation projects. These individuals said that since the government claims ownership over all of the archaeological resources in the Province, they should be providing some funding to preserve "their" resources. One developer suggested that the government can lighten the financial burden on developers by offering a grant or rebate for archaeological work conducted during the development process, similar to grants offered for conducting ecological studies on development properties. This individual said "the money would be coming from the government of Ontario because they're using your property like a research lab. If they've done that with the environment, why can they do that with archaeology?" (Interview with Participant 4, August 14, 2013).

In addition to providing funding for archaeological projects, most participants who took issue with the level of government involvement suggested that the Provincial government should be taking a more active role in monitoring archaeological sites, trusting its licensees to provide reasonable and site-specific preservation suggestions, promoting Ontario's archaeological history to the general public through educational initiatives, and undertaking regional archaeological

surveys akin to those carried out in the 1970s and 1980s in order to avoid accidentally disturbing undiscovered sites.

Figure 5: Archaeologist perceptions to the consistency and transparency of the government's report review process pre- and post-introduction of the 2011 Standards and Guidelines (Dent 2013).

5.3.5) Grey Literature and Dissemination of Archaeological Data

Many interviewees also suggested that the information gained from archaeological projects is not readily accessible for research and education. Though archaeological reports are filed with the Ministry of Tourism, Culture and Sport, the information is not in a format which is accessible or practical for public use and education, resulting in a significant body of "grey literature". This "grey literature" is not subject to archaeological research and no new knowledge is gained. One archaeologist states that,

> there's a huge disconnect between the front-line researchers in archaeology and educators. We can consider an educator to be a high school teacher to even a popular television program. We're here doing all of this archaeology. We do more archaeology than anyone else. What efforts are we making to reinterpret [our archaeological data] and make our work more understandable to the general public? … The answer is none. [C]onsidering the amount of archaeologists in the Province and the amount of archaeology that's done, how much of that information actually boils down to public information? Virtually none. (Interview with Participant 11, August 5, 2013)

The lack of publication of this grey literature robs the people of Ontario, archaeology's primary audience, of their right to knowledge and education about their history. One museum curator suggested that to get people interested in archaeology and site preservation, "presenting those findings [from archaeological projects] is super important to get everyone aware and on board. Then people will want to preserve sites" (Interview with Participant 10, July 11, 2013).

Furthermore, it would seem that many CRM archaeologists' lack of publication is in violation of their ethical principles. The Ontario Archaeological Society's Statement of Ethical Principles states that "it is the responsibility of archaeologists to disseminate the results of research to the archaeological community as well as to the general public in an easily accessible manner, medium and format" (Ontario Archaeological Society 2003). Ontario's Association of Professional Archaeologists' Code of Ethics states that archaeologists should "make every

reasonable effort to disseminate research results to the public and profession" (Association of Professional Archaeologists 2011). Thus, archaeologists who do not publish CRM grey literature are in direct violation of their ethical principles as archaeologists.

Participants suggested that the Ministry of Tourism, Culture and Sport as well as the Association of Professional Archaeologists create an annual bulletin outlining recent advances and discoveries in Ontario archaeology and disseminating the data gained from archaeological projects. This bulletin or journal would be written in an easy-to-understand format for a generalist audience and could be used by educators or for leisure.

CHAPTER 6

Suggestions/Conclusion

In this chapter, I will use the perspectives and opinions of the interviewees to introduce interviewee-defined descriptions of "preservation" and "ownership". I will propose suggestions on how to undertake a public approach to the preservation and stewardship of archaeological sites in the boreal forest and also suggest methods which will lead to the effective preservation of boreal heritage sites.

6.1) Interviewee-defined Descriptions

6.1.1) Preservation

The preservation of archaeological sites refers to the documentation and protection of sites using a number of techniques which are perceived to ensure the integrity of the context of sites and their artifacts. Archaeological sites can be preserved in three main ways: 1) through *in situ* site stabilization and monitoring, 2) through natural progression and non-interference, 3) and through site excavation and artifact curation. Preservation always involves the documentation of the site's location and extent to ensure the appropriate parties are aware of the site's existence and can avoid it.

Preservation methods are broad and take into consideration the opinions of local stakeholders as well as the potential developmental, physical, climatic, biological, and chemical impacts operating on the archaeological site and the various ways of mitigating them. The preservation of sites involves engaging local stakeholders, educating them, and increasing their awareness of the site's importance to modern society. If sites cannot be avoided or if the

destructive impacts cannot be prevented, archaeological sites can be preserved through the careful excavation and documentation of the site and the proper long-term curation of its artifacts.

6.1.2) Ownership of sites

There are many conflicting perspectives on the ownership of archaeological sites. A number of developers argued that sites should be privately owned, First Nations people suggested First Nations ownership of Aboriginal sites, and archaeologists suggested varying degrees of government and First Nation ownership.

Since participants said that archaeological sites are public resources to be used for the benefit of every member of society, the privatization of sites is not recommended. Private owners may not have the best interest of the site in mind and varying degrees of private ownership may lead to inconsistent site management practices. Private ownership and management of archaeological sites and materials commoditises sites and enables them to be

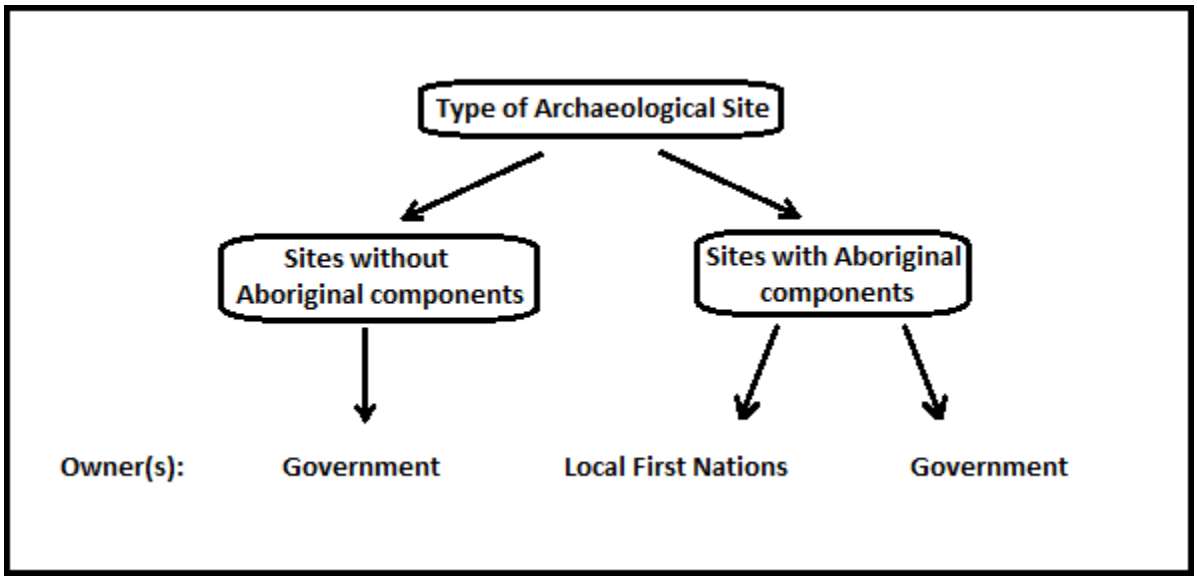


Figure 6: Proposed site ownership plan.

bought and sold, thus making them individually profitable. As such, the provincial government should maintain at least part-ownership over archaeological sites and behave as their responsible steward to ensure the consistent treatment of Ontario's heritage.

However, archaeological sites with Aboriginal components should be equally co-owned with local Indigenous groups due to their cultural, historical, spiritual, and political importance to First Nations people. The inclusion of First Nations people as site owners provides a voice to Aboriginal people towards the outcome and treatment of their heritage sites.

Figure 6 presents my proposed site ownership plan.

6.2) Suggestions

To properly preserve archaeological sites in the boreal forest, three tasks must be considered. Firstly, education must be used to introduce the preservation of boreal sites as a public issue, to generate knowledge interest in archaeology and the preservation of heritage sites, and to teach proper archaeological and curation methodologies. Next, the interested publics must be engaged to provide diverse opinions on possible land management strategies, build relationships, and generate interest in archaeology. Finally, the archaeological site must be preserved *in situ* or excavated and the artifacts curated for the long-term.

6.2.1) Education

In order to create public issues and to generate interest in archaeology and preservation, participants said that education must be provided to a number of publics. Three publics have

been identified as requiring some form of archaeological education: the general public, CRM archaeologists, and First Nations people.

Since "the goal of public anthropology is to make public issues [and] not simply respond to them" (Scheper-Hughes 2009), providing education to the general public thrusts archaeological and preservation issues into the public consciousness. The interviewees continually suggested that archaeological sites' primary purposes were educational and that providing education for the general public would lead to an increased interest in archaeology and site preservation. I recommend that education about archaeology, archaeological sites, and their importance be included in the Ontario primary and secondary schooling curricula in order to make archaeology and heritage an important part of the public psyche and turning site preservation into a significant public issue.

Additionally, the schooling curricula place minute importance on Ontario's pre-European settlement history (and even less on the history of the boreal regions of Ontario), leading to misconceptions and misinformation about Ontario's deep history in the boreal forest. In order to properly educate the general public about the full history of Ontario, the unpublished "grey literature" from CRM companies must be published and used in the educational system. I recommend that professional archaeological organizations which stipulate the publication and dissemination of project data, such as the Ontario Archaeological Society and the Association of Professional Archaeologists, enforce their ethical codes and make publication a required part of CRM archaeology. By publishing the grey literature, an enormous body of archaeological and historical data becomes available for use in the educational system and allows Ontarians to have a better understanding of history and the importance of archaeological sites. In accordance with the interviewees in Chapter 5, I believe that publishing grey literature in formats which are

accessible and understandable to members of the general public, directing this information towards educators, and using it in the education system will teach the public about the importance of archaeological sites and will lead to an increased interest in site preservation and community-driven preservation efforts.

Another public which requires further education is the archaeological public. While archaeologists are well-aware of the history of Ontario and the boreal forest, interview participants frequently suggested that the system of personal artifact curation by archaeologists is not sufficient to preserve the artifacts and site data. According to the Ministry of Tourism, Culture and Sports' archaeological licencing guidelines, experience or knowledge of long-term artifact curation is not a prerequisite to obtaining a licence. As such, I recommend that prior to obtaining a licence, archaeologists be educated about short-term artifact curation methods to prevent inconsistent handling practices, artifact mismanagement and neglect, the decay of artifacts, and the loss of crucial contextual information. For long-term curation, archaeologists should be required to transfer archaeological materials to capable curation facilities such as the joint University of Western Ontario – McMaster University Sustainable Archaeology project facilities.

Additionally, future CRM archaeologists operating in the Province of Ontario require better education and training in a non-academic Canadian context. Prior to obtaining an archaeological licence, this education and training could be provided alongside education about curation methods in a government-run seminar focussing on the practice of CRM archaeology in Ontario. While the majority of archaeological work in the Province is currently undertaken by CRM firms, archaeology undergraduate and graduate students are rarely prepared for the realities of CRM work. Potential archaeological licencees must often turn to self-education and on-the-

job experience (such as myself) to obtain the proper knowledge and experience to perform CRM archaeology in Ontario. Poor education and training for non-academic archaeology as well as the lack of publication of the "grey literature" has transformed Ontario's CRM industry into a form of 21st century antiquarianism, with little real research and knowledge gained from archaeological projects (Martelle, 2013). Proper education would lead to higher quality archaeological projects and better informed preservation practices.

Finally, educating First Nations people about the methods and goals of archaeology is necessary to dispel common negative misconceptions about the nature of the discipline. By providing education about archaeology to First Nations people, any resistance to archaeological projects encountered by archaeologists can be avoided. By explaining that archaeology does not conflict with First Nations culture and values and can mutually benefit each other, resistance to archaeological projects can be eliminated and create a partnership between archaeologists and First Nations.

Providing multiple perspectives to site preservation and interpretation is required in order to combat the archaeological discipline's historic Euro-centrism and lack of diversity. Since "antiquity was produced, packaged and presented for the larger society with little consideration for the people whose ancestors produced it" (Yellowhorn 2002:iv), post-secondary education in archaeology should be encouraged and promoted by First Nations so that the overwhelmingly mono-ethnic discipline can benefit from the inclusion of diverse internalist perspectives. Additionally, I recommend further research into exploring alternate routes towards including Indigenous people in the archaeological discourse, ranging from the integration of First Nations people into the archaeological discipline as internalist archaeologists through education or exploring methods to encourage partnerships and collaboration between First Nations and

archaeologists. The inclusion of internalist perspectives avoids treating Indigenous people as an audience with an interest in consuming archaeological reports and instead welcomes their input into the interpretation of their own heritage, changing the types of questions archaeologists ask as well as the answers which archaeology provides. Preserving sites can afford time for these Indigenous archaeology participants to become better represented in the archaeological discourse.

6.2.2) Communication, Collaboration, and Compromise

To properly preserve archaeological sites in the boreal forest, a comprehensive public approach to preservation is required. In order to undertake a public issues approach to the preservation of archaeological sites, the interview participants said the involvement of the interested publics must include abundant communication, collaboration, and compromise.

Communication regarding the land management strategies for archaeological sites should engage all interested parties such as developers, First Nations, archaeologists, museums, local and provincial governments, and the general public in order to consider the diverse perspectives towards site preservation. To access a public, participants recommended finding a method of communication which best suits that particular group, such as firsthand communication to engage First Nations or partnering with local information "hubs" like museums to engage the general public. Optimal communicative methods must be utilized in order to maximize the input from each public. Communication is the key to finding effective preservation solutions. With abundant communication and the free flow of information, the archaeological process can be streamlined by reducing delays due to misinformation and miscommunication. The involved parties can discuss the logistics of preservation as well as questions such as who to involve,

whether a site needs to be preserved, what aspect of the site needs to be preserved, and how to preserve them, among other questions.

Collaboration (not merely "consultation") between the publics is also necessary to preserve archaeological sites. While consultation implies "legal mandates, procedural steps, and compliance" bogged down in bureaucracy, collaboration takes a different approach and "emphasizes social relationships, joint decision-making, equitable communication, mutual respect, and ethics" (Silliman 2008:7). Interviewees said that collaboration can help build respect and relationships between publics, generate interest in archaeology and preservation, and educate people about the importance of sites. Close collaboration between publics facilitates the sharing of knowledge and experience, promoting understanding and strengthening relationships. The interviewees recommended that developers collaborate with local communities by immersing themselves in the communities and participating in local events, allowing them to engage local people, educate them about the planned development, and receive input for potential preservation strategies. Additionally, the interviewees suggested that archaeologists continue collaborating with communities by involving local Indigenous and non-Indigenous people in the archaeological survey and excavation process, providing short-term employment opportunities and educating members of that public. Collaborative community outreach events with site visits and community participation were also suggested to allow developers, archaeologists, First Nations, and local communities to engage each other, exchange ideas, educate each other, and create interest in local heritage and archaeology. The participants also recommended archaeologists to partner with museums by holding post-excavation meetings to display the artifacts and educate people about the local history and the importance of preserving heritage sites. A number of interviewees suggested First Nations people can collaborate with

archaeologists and museum curators in providing alternate interpretations of sites and artifacts. It should be noted that collaboration is a process, not an event. While archaeologists have been increasingly collaborating with local Indigenous and non-Indigenous communities for decades, building relationships through collaboration is a long-term process involving genuine effort and continued involvement. Thus, we can only build successful working relationships between the involved publics by continuing these collaborative processes.

Finally, interview participants said compromise is essential in the preservation process. Engaging many publics with differing (and occasionally conflicting) opinions will not lead to a definite solution. While considering every perspective is important, the interest groups must set priorities and compromise on important issues. All opinions are valuable and should be considered towards the final preservation solution.

Encouraging communication, collaboration, and compromise between the interested publics is perceived by the interviewees as beneficial because archaeology and the preservation process can include the perspectives of formerly neglected parties and create newly vested interests in site preservation. Communication and collaboration become the media of idea exchange between diverse sets of expertise. Meaningful communication and collaboration between the interested parties can streamline the archaeological process by building working relationships and trust between publics, generate interest in archaeology and preservation, educate people, and minimize development downtime.

Though my research participants said that communication and collaboration was key to preserving archaeological sites in the boreal forest, they did not provide me with concrete methods or approaches to undertaking such processes other that outlining simple strategies.

Therefore, I recommend further research into the implementation of the simple interviewee strategies as well as additional research into other viable communicative and collaborative approaches. These studies should include case studies outlining successful (and not-so-successful) strategies with different publics in variable contexts as well as explore the benefits and drawbacks of these potential collaborative approaches.

6.2.3) Preservation and Curation Methods

Finally, physical approaches to preservation are required to preserve archaeological sites and artifacts. Three approaches to preserving archaeological sites must be considered: stabilizing and monitoring sites, allowing sites to decay naturally, and excavating sites and curating the artifacts. Through the communicative process, a preservation method should be agreed upon. Stabilizing archaeological sites involves collaborating with experts to provide methods to mitigate and monitor the human and natural impacts to sites such as past development, erosion, vandalism, and destructive recreational activities. Allowing a site to decay naturally involves the erection of barriers or the establishment of no-work buffer zones to protect the archaeological site from human encroachment and follow natural taphonomic processes. Finally, excavating archaeological sites should be considered when development plans over the site cannot be modified. Sites should be carefully excavated and documented by trained and licenced professionals to record the context of the site and salvage the artifacts. Excavation allows a site to be preserved on-paper as opposed to *in situ*.

In addition to the preservation of sites, the preservation and curation of artifacts is necessary. The current system of personal artifact curation by unqualified archaeologists with inadequate curation facilities is unacceptable because it leads to inconsistent curation procedures,

artifact mismanagement and neglect, and the decay and destruction of artifacts. As such, the establishment of a system which ensures the consistent treatment and handling of artifacts and appropriate conservation methods is required. Such a system can involve sending artifacts to curation facilities with consistent and appropriate conservation techniques, the standardization of personal curation systems through the education of archaeologists in short-term curation techniques and the eventual transfer of artifacts to a curation institution, or the virtual preservation of artifacts by using modern technological techniques such as 3D scanning. Additionally, it is recommended that important oral history which can enrich our understanding of the history and context of the site is recorded and curated by local communities in an electronic database. This information should be made accessible to interested parties such as archaeologists and First Nations.

6.3) Conclusion

The preservation and stewardship of archaeological sites in the boreal forest is an important public issue involving many publics. Boreal heritage sites face threats from anthropogenic and natural forces which must be mitigated in order to ensure the successful preservation of entire sites and their artifacts. By analyzing the results of a number of interviews with members of the involved publics, successful strategies to preserve boreal archaeological sites were determined to diverge from European strategies and involve education; communication, collaboration, and compromise; and determining and enacting methods to preserve the physical site, its artifacts, and its oral history. It is my hope that the application of

the recommendations will result in publicly desirable and archaeologically feasible preservation initiatives for the preservation of boreal heritage sites.

More than forty years after its original publication, Fritz and Plog's (1970) quote remains true to this day: in order for archaeology to remain relevant to Canadians, archaeologists must make their research relevant to the modern world. By creating public issues surrounding site preservation, it is my hope that this thesis will be used not only by archaeologists, but by all groups involved in the archaeological process – from policy makers to descendant groups to developers – as a guide to the preservation of sites and the revaluation of Ontario's cultural heritage.

REFERENCES

Abu El Haj, Nadia

2001 Facts on the Ground: Archaeological Practice and Territorial Self-Fashioning in Israeli Society. Chicago: University of Chicago Press.

Adams, Jeff

2007 Global Climate Change: Every Cultural Site at Risk? *In*: Heritage at Risk: ICOMOS World Report 2006-2007 on Monuments and Sites in Danger (eds. Petzet, Michael and John Ziesemer), E. Reinhold-Verlag, Altenburg.

Agnew, N.

2001 Methodology, conservation criteria and performance evaluation for archaeological site shelters. Conservation and Management of Archaeological Sites, 5: 7-18.

Agnew, N. and M. Demas

2004 Monitoring through replication – Design and evaluation of the monitoring reburial at the Laetoli trackway site. Conservation and Management of Archaeological Sites, 6: 295-304.

Anderson, Benedict.

1991 Imagined communities: Reflections on the origin and spread of nationalism. New York: Verso.

Arnold, Bettina.

1990 The past as propaganda: totalitarian archaeology in Nazi Germany. Antiquity 64(244): 464-478.

Arundale, W. H., D. W. Clark, and P.M. Quick

1989 Current perspectives on western boreal forest life: Ethnographic and ethnohistoric research in late prehistoric and historic archaeology-a preface. *Arctic*, 42(2): 85-96.

Association of Professional Archaeologists

2011 Code of Ethics. Electronic Document. http://www.apaontario.ca/ethics, accessed November 29, 2013.

Bai, L., and S. Zhou.

2012 Issues of In Situ Conservation at Jinsha, People's Republic of China. Conservation and Management of Archaeological Sites, 14(1-4): 263-272.

Bauhus, Jurgen and Christian Messier

1999 Soil exploitation strategies of fine roots in different tree species of the southern boreal forest of eastern Canada. Canadian Journal of Forestry Research, 29:260-273.

Bergeron, Y.

1991 The influence of island and mainland lakeshore landscapes on boreal forest fire regimes. Ecology, 72(6): 1980-1992.

Bernard, Harvey Russell.

2006 Research methods in anthropology. Rowman Altamira.

Birch, Jennifer

2006 Public Archaeology and the Cultural Resource Management Industry in Southern Ontario, M.A. dissertation, Department of Sociology and Anthropology, Carleton University.

Bocek, Barbara

1986 Rodent Ecology and Burrowing Behavior: Predicted Effects on Archaeological Site Formation. American Antiquity, 51(3):589-603.

Boone, John.
2010 Mining threatens Afghanistan's Buddhist treasures. The Guardian, November 15, 2010. Accessed November 23, 2012 from http://www.guardian.co.uk/world/2010/nov/15/mining-threatens-afghanistan-buddhist-treasures.
Boone, John.
2010 Mining threatens Afghanistan's Buddhist treasures. The Guardian, November 15, 2010. Accessed November 23, 2012 from http://www.guardian.co.uk/world/2010/nov/15/mining-threatens-afghanistan-buddhist-treasures.
Bowers, P. M., R. Bonnichsen, and D.M. Hoch
1983 Flake dispersal experiments: Noncultural transformation of the archaeological record. American Antiquity, 48(3): 553-572.
Brather, Sebastian.
2002 Ethnic Identities as Constructions of Archaeology: the case of the Alamanni. On Barbarian Identity. Critical Approaches to Ethnicity in the Early Middle Ages, ed. Andrew Gillett (Studies in the Early Middle Ages 4, Turnhout 2002) (2002): 149-175.
Briggs, Charles L.
1986 Learning how to ask: A sociolinguistic appraisal of the role of the interview in social science research. Cambridge University Press.
Brooks, G.
1992 The Burra Charter: Australia's Methodology for Conserving Cultural Heritage [Standards]. Places, 8(1): 84-88.
Canadian Broadcasting Corporation
2013 Kootenay pictographs vandalized with paintball pellets. (2013, October 3). Canadian Broadcasting Corporation , October 3: http://www.cbc.ca/news/canada/british-columbia/kootenay-pictographs-vandalized-with-paintball-pellets-1.1894279.
Caneva, G., G. Galotta, L. Cancellieri, and V. Savo.
2009 Tree roots and damages in the Jewish catacombs of Villa Torlonia (Roma). Journal of Cultural Heritage, 10: 53-62.
Caneva, G., S. Ceschin, and G. De Marco.
2006 Mapping the risk of damage from tree roots for the conservation of archaeological sites: the case of the Domus Aurea, Rome. Conservation and Management of Archaeological Sites, 7: 163-170.
Canti, M.G., and M. Davis.
1999 Tests and Guidelines for the Suitability of Sands to be used in Archaeological Site Reburial. Journal of Archaeological Science, 26, 775–781.
Cleere, H.
2012 Preserving archaeological sites and monuments. *In* Archaeology – Vol II. Retrieved February 2013 from http://www.eolss.net/Sample-Chapters/C04/E6-21-04.pdf
Coleman, Derek and Ron Williamson
1994 Landscapes Past to Landscapes Future: Planning for Archaeological Resources. *In*: Great Lakes Archaeology and Paleoecology: Exploring Interdisciplinary Initiatives for the Nineties. ed. Robert I. MacDonald, 61-80. Proceedings of a symposium presented by the Quaternary Sciences Institute, University of Waterloo, September 21-22, 1991.

Coles, B., and A. Oliver
2001. The heritage management of wetlands in Europe. Europae Archaeologiae Consilium Occas Pap 1, Wetland Archaeol Res Project 16, Brussels and Exeter.
Cooke, L.
2007 The archaeologist's challenge or despair: reburial at Merv, Turkmenistan. Conservation and Management of Archaeological Sites, 9(2): 97-112.
Crow, P.
2004 Trees and Forestry on Archaeological Sites in the UK: A Review Document. The Research Agency of the Forestry Commission. Retrieved February 2013 from http://www.forestry.gov.uk/pdf/FR_archaelogical_review.pdf/$file/FR_archaelogical_review.pdf.
Damaskos, Dimitris.
2010 Archaeology and National Identity in the Modern Greek Museum. Unpublished MS, Department of Cultural Heritage Management and New Technologies, University of Western Greece.
Davis, M.
1996 In-situ monitoring of wet archaeological environments: a review of available monitoring technologies. In Corfield, M., Hinton, P., Nixon, T., and Pollard, M. (eds). Preserving archaeological remains in situ. Museum of London Archaeology Service, London, pp21-25.
De Beer, J., H. Matthiesen, and A. Christensson.
2012 Quantification and Visualization of In Situ Degradation at the World Heritage Site Bryggen in Bergen, Norway. Conservation and Management of Archaeological Sites, 14(1-4): 215-227.
Dent, Joshua
2013 Can You Hear Me Now? Connections and Disconnections in Ontario CRM. Paper presented at the Ontario Archaeological Society 2013 Symposium, Niagara Falls, October 26.
Dietler, Michael.
1994 "Our ancestors the Gauls": archaeology, ethnic nationalism, and the manipulation of Celtic identity in modern Europe. American Anthropologist: 96(3): 584-605.
Dods, Roberta Robin
1998 Prehistoric Exploitation of Wetland Habitats in North American Boreal Forests, Ph.D. dissertation, Institute of Archaeology, University College London.
Edwards, W.
2000 Contested Access: The Imperial Tombs in the Postwar Period. Journal of Japanese Studies, 26(2): 371-392.
Egloff, B.
1998 Practising archaeology and the conservation of Tam Ting, Lao People's Democratic Republic. Conservation and Management of Archaeological Sites, 2: 163-175.
Environmental Assessment Act
1990 (2010) Revised Statutes of Ontario 1990, c. E.18. Electronic Document. http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90e18_e.htm#BK1, accessed October 21, 2013.
Eres, Zeynep, and Nurcan Yalman
2013 National Concerns in the Preservation of the Archaeological Heritage Within the

Process of Globalization: A View from Turkey. In: Heritage in the Context of Globalization: Europe and the Americas. Peter F. Biehl and Christopher Prescott, Springer.

Francioni, Francesco and Federico Lenzerini
2003 The Destruction of the Buddhas of Bamiyan and International Law. European Journal of International Law, 14(4): 619-651.

Fritz, John M., and Fred T. Plog
1970 The Nature of Archaeological Explanation. *American Antiquity* 35:405-412.

Ganiatsis, Vassilis
2011 Heritage as Ethical Paradigms of Identity and Change: In Need of New Conceptual Tools, Practices or Attitudes? Paper presented at Annual Conference of the International Scientific Committee of ICOMOS Theory and Philosophy of Conservation "Paradigm Shift in Heritage Protection? Tolerance for Change, Limits of Change", Florence, March 4-6.

Goetz, Pauline
2010 Preserving Arctic Archaeology in the 21st Century: Threats of Climate Change, M.A. dissertation, Department of Anthropology, University of Waterloo.

Goetz, Pauline
2010 Preserving Arctic Archaeology in the 21st Century: Threats of Climate Change, M.A. dissertation, Department of Anthropology, University of Waterloo.

Goodburn-Brown, D., K. Norman, J. Elders, and E. Popescu.
2012 Preservation In Situ for Tourism: An Early Christian Monastic Complex on Sir Bani Yas Island, Western Abu Dhabi, UAE. Conservation and Management of Archaeological Sites, 14(1-4): 249-262.

Groves, Robert K.
2007 The Curious Instance of the Irregular Band: A Case Study of Canada's Missing Recognition Policy. Saskatchewan Law Review. Vol. 70, pp. 153-182.

Hansen, E.F., and C. Castellanos.
2004 Some considerations for the reburial of painted lime stucco facades in the Maya region. Conservation and Management of Archaeological Sites, 6: 259-274.

Hilton, M. R.
2003 Quantifying postdepositional redistribution of the archaeological record produced by freeze–thaw and other mechanisms: an experimental approach. Journal of Archaeological Method and Theory, 10(3): 165-202.

Hinshelwood, A.
1996 Boreal Forest Fire Ecology and Archaeological Site Formation: An Example from Northern Ontario. Ontario Archaeology, 62: 63-92.

Hinterland Who's Who
2013 Canada's Boreal Forest. Electronic document, http://www.hww.ca/en/issues-and-topics/canadas-boreal-forest.html, accessed October 17, 2013.

Holden, Joseph, L. Jared West, Andy J. Howard, Eleanor Maxfield, Ian Panter, and John Oxley.
2006 Hydrological controls of in situ preservation of waterlogged archaeological deposits. Earth-Science Reviews, 78 (1-2). pp. 59-83.

Hopkins, D.W., and L. Shillam.
2005 Do geotextiles affect soil biological activity in the 'reburial' environment? Conservation and Management of Archaeological Sites, 7: 83-88.

Howard, A.J., K. Challis, J. Holden, M. Kincey, and D. G. Passmore
2008 The impact of climate change on archaeological resources in Britain: a catchment scale assessment. Climatic Change, 91:405–422.
Howard, A.J., K. Challis, J. Holden, M. Kincey, and D. G. Passmore
2008 The impact of climate change on archaeological resources in Britain: a catchment scale assessment. Climatic Change, 91:405–422.
Johnson, E. A., & Miyanishi, K.
2012 The boreal forest as a cultural landscape. Annals of the New York Academy of Sciences, 1249:151-165.
Johnson, Matthew
2011 Archaeological Theory: An Introduction. Oxford: Blackwell.
Karimi, Faith
2012 International outrage grows over destruction of Mali shrines. CNN, July 13, 2012. Accessed November 30, 2012 from http://www.cnn.com/2012/07/12/world/africa/mali-shrines-destroyed/index.html.
Kars, H.
1997 Conservation science and the archaeological property: a review of current research, needs, and opportunities, in Archaeologcal heritage management in the Netherlands: Fifty Years state service for archaeological investigations (eds W J H Willems, H Karw and D P Hallewas), Assen.
Kavazanjian, E.,
2004 The use of geosynthetics for archeological sites reburial. Conservation and Management of Archaeological Sites, 6(3-4): 377-394.
Kenward, H., and A. Hall.
2000 Decay of delicate organic remains in shallow urban deposits: are we at a watershed? Antiquity 74, 519-25.
Kökten, H.
2012 In Situ Preservation of Ancient Floor Mosaics in Turkey. Conservation and Management of Archaeological Sites, 14(1-4): 303-309.
Langmaid, K. K.
1964 Some effects of earthworm invasion in virgin podzols. Canadian Journal of Soil Science, 44(1): 34-37.
Lee, G.
1994 Erosion control on Cawthorn Roman Camps, in Erosion on archaeological earthworks: its prevention, control, and repair (eds A Berry and I W Brown), 87-92.
Levine, M.A., K.M. Britt, and J.A. Delle.
2005 Heritage Tourism and Community Outreach: Public Archaeology at the Thaddeus Stevens and Lydia Hamilton Smith Site in Lancaster, Pennsylvania, USA. International Journal of Heritage Studies, 11(5): 399-414.
Logan, W.
2001 Globalizing heritage: world heritage as a manifestation of modernism and the challenge from the periphery. In 20th century heritage: our recent cultural legacy: proceedings of the Australia ICOMOS National Conference 2001, 28 November-1 December 2001, Adelaide, the University of Adelaide, Australia (pp. 51-57).
Machat, Christoph, Michael Petzet and John Ziesemer, eds.
2010 ICOMOS World Report 2008–2010 on Monuments and Sites in Danger. Berlin:

Hendrik Bäßler Verlag.
Maekawa, S.
2004 Monitoring of soil moisture in a backfilled soil for conservation of an Ancestral Puebloan great house in Chaco Canyon. Conservation and Management of Archaeological Sites, 6(3-4): 315-323.
Marchisio, G., A. Pichetto Fratin, L. Hesso, and J. Lehtonen.
n.d. The perception and value of foundations when renovating historic buildings: Analysis of Finnish and Italian Practices. Unpublished manuscript, Turku University, Turku, Finland. Retrieved May 1, 2013 from ftp://168.144.194.49/ISM-FinalPapersForProduction/05%20-%20Final%20Paper%208%20-%20Lehtonen%20Marchisio%20-%20Underpinning%20Challenges%20Facing%20Cultural%20Values%20of%20Foundations.pdf
Martelle, Holly
2013 The Death of Archaeology 101: CRM as the Practice and Administration of Archaeological Material Recovery. Paper presented at the Ontario Archaeological Society 2013 Symposium, Niagara Falls, October 26.
Martens, V.V, C.E. Amundsen, and O. Bergesen.
2012 Research on Conservation State and Preservation Conditions in Unsaturated Archaeological Deposits in Oslo. Conservation and Management of Archaeological Sites, 14(1-4): 72-84.
Masalha, Nur
2007 The Bible and Zionism: invented traditions, archaeology and post-colonialism in Palestine-Israel. New York: Zed Books.
Matthiesen, H., D. Gregory, B. Sorensen, T. Alstrom, and P. Jensen.
2001 Monitoring methods in mires and meadows: five years of studies at Nydam mose, Denmark. . In Corfield, M., Hinton, P., Nixon, T., and Pollard, M. (eds). Preserving archaeological remains in situ. Museum of London Archaeology Service, London, pp.91-97.
Mazar, A.
1999 The conservation and management of mudbrick buildings at Tell Qasile, Israel. Conservation and Management of Archaeological Sites, 3: 103-108.
McArthur, Douglas
2000 Futuristic museum brings ancient mounds to life. The Globe and Mail, June 3. Electronic document, http://www.theglobeandmail.com/life/futuristic-museum-brings-ancient-mounds-to-life/article4164486/, accessed October 24, 2013.
McIntosh, S.K.
1993 Archaeological Heritage Management and Site Inventory Systems in Africa. Journal of Field Archaeology, 20: 500-504.
Meguerditchian, Van
2012 Construction firm demolishes Phoenician port. The Daily Star, June 28, 2012. Accessed November 23, 2012 from http://www.dailystar.com.lb/News/Local-News/2012/Jun-28/178530-construction-firm-demolishes-phoenician-port.ashx#axzz2D5iHXIny.

Miller, N.F., and K. Bluemel.
1999 Plants and mudbrick: preserving the Midas Tumulus at Gordian, Turkey. Conservation and Management of Archaeological Sites, 3: 225-237.
Miller, Toby
2001 A companion to cultural studies. Blackwell Publishing, Blackwell Reference Online. Accessed November 21, 2012 from http://www.scribd.com/doc/87127162/Miller-A-Companion-to-Cultural-Studies.
Mughal, M. R.
1998 Heritage Legislation in Pakistan, Paris: The UNESCO World Heritage Centre.
Ndlovu, N.
2011 Management versus preservation: archaeological heritage management in a Transforming South Africa. Conservation and Management of Archaeological Sites, 13(2-3): 122-133.
Nicholas, George P.
2006 Decolonizing the archaeological landscape: The practice and politics of archaeology in British Columbia. The American Indian Quarterly 30(3): 350-380.
Nixon, Taryn
2004 Preserving archaeological remains in situ?: proceedings of the 2nd conference, 12-14th September 2001. Museum of London Archaeology Service.
Notice of Public Information Centre
2013 The Daily Press, October 10: A6.
Ontario Archaeological Society
2003 The Ontario Archaeological Society Statement of Ethical Principles. Electronic Document. http://www.ontarioarchaeology.on.ca/principles.php, accessed November 29, 2013.
Ontario Heritage Act
1990 (2009) Revised Statutes of Ontario 1990, c. O.18. Electronic Document. http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90o18_e.htm#BK0, accessed October 21, 2013.
Ontario Ministry of Education
2013a The Ontario Curriculum Grades 1-6 (Social Studies) and Grades 7-8 (History and Geography). Retrieved November 28, 2013 from http://www.edu.gov.on.ca/eng/curriculum/elementary/sshg18curr2013.pdf
Ontario Ministry of Education
2013b The Ontario Curriculum Grades 9 and 10 (Canadian and World Studies: Geography, History, Civics(Politics)). Retrieved November 28, 2013 from http://www.edu.gov.on.ca/eng/curriculum/secondary/canworld910curr2013.pdf
Ontario Ministry of Tourism, Culture and Sport
2011 Standards and Guidelines for Consultant Archaeologists. Electronic Document. http://www.mtc.gov.on.ca/en/publications/SG_2010.pdf, accessed October 21, 2013.
Ontario Ministry of Tourism, Culture and Sport
2013 Archaeological licensing. Electronic document. http://www.mtc.gov.on.ca/en/archaeology/archaeology_licensing.shtml, accessed November 28, 2013.
Peacock, E. and G. Turner-Walker.
2001 Building the new millennium : monitoring for the first ten years? In Corfield, M.,

Hinton, P., Nixon, T., and Pollard, M. (eds). Preserving archaeological remains in situ. Museum of London Archaeology Service, London, pp 65-71.

Peacock, Elizabeth E.
1999 A Note on the Effect of Multiple Freeze-Thaw Treatment on Natural Fibre Fabrics. Studies in Conservation, 44(1):12-18.

PEW Environment Group
2011 A Forest of Blue: Canada's Boreal. Electronic Document. http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Report/PEGBorealWaterReport11March2011.pdf, accessed October 22, 2013.

PEW Environment Group
2011 A Forest of Blue: Canada's Boreal. Electronic Document. http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Report/PEGBorealWaterReport11March2011.pdf, accessed October 22, 2013.

Pokotylo, David, and Neil Guppy
1999 Public Opinion and Archaeological Heritage: Views from Outside the Profession. American Antiquity 64(3): 400-416.

Pollock, John W.
1976 New Post Hudson's Bay Company post, 1867-1920 – Abitibi River, Ontario: an archaeological inspection and assessment. Report on file with the Ministry of Natural Resources, Cochrane, Ontario.

Prakash, Om
2011 Religious Fundamentalism, Public Apathy, and the Destruction of Heritage Structures in India: Need for a Public Policy. South Asian Journal of Tourism and Heritage, 4(2): 206-215.

Provincial Policy Statement, 2005
2005 Provincial Policy Statement. Electronic Document. http://www.mah.gov.on.ca/Asset1421.aspx, accessed October 21, 2013.

Provincial Standards of Ontario, Aggregate Resources Act
1997 (2006) Provincial Standards of Ontario - Category 9 - Pit Above Water. Electronic Document. http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@aggregates/documents/document/mnr_e000034.pdf, accessed October 21, 2013.

Reeder, Leslie A., Torben C. Rick, and Jon M. Erlandson.
2012 Our disappearing past: a GIS analysis of the vulnerability of coastal archaeological resources in California's Santa Barbara Channel region. Journal of Coastal Conservation, 16: 187-197.

Renfrew, Colin, and Paul Bahn
2010 Archaeology Essentials: Theories, Methods, and Practice, 2nd ed. New York: Thames and Hudson.

Rjoob, A.
2009 The Impact of Israeli Occupation on the Conservation of Cultural Heritage Sites in the Occupied Palestinian Territories: The Case of 'Salvage Excavations'. Conservation and Management of Archaeological Sites, 11(3-4): 214-235.

Scheper-Hughes, Nancy.
2009 Making anthropology public. Anthropology Today 25(4): 1-3.

Silliman, Stephen W.
2008 Collaborating at the Trowel's Edge: Teaching and Learning in Indigenous Archaeology. University of Arizona Press.
Simonsen, Bjorn
1996 Archaeology in the Service of Land Claims: The Scheidam Flats Case, Kamloops, British Columbia. Presented at the Canadian Archaeology Association Conference in Halifax, 1996.
Strong, W. L., & La Roi, G. H.
1983 Root-system morphology of common boreal forest trees in Alberta, Canada. Canadian Journal of Forest Research, 13(6): 1164-1173.
Sustainable Archaeology
2013 Sustainable Archaeology. Electronic Document. http://www.sustainablearchaeology.org/, accessed January 1, 2014.
Thompson, Thomas L.
1999 The mythic past: Biblical archaeology and the myth of Israel. Basic books, London.
Tillya, D.
1996 Preservation of the Stone Age site of Isimila, Tanzania. Conservation and Management of Archaeological Sites, 1: 243-246.
Van de Noort, R., H. P. Chapmap, and J.L. Cheetham
2001 In situ preservation as a dynamic process: The example of Sutton Common, UK. Antiquity, 75: 94-100.
Viking Trail Tourism Association
N.d.a Viking Trail Tourism Association Official Website. Electronic Document. http://www.vikingtrail.org/, accessed December 16, 2012.
Wabun Sun
2003 Beaverhouse First Nation A History With A Future. Volume 4, Issue 4, October 2003. Electronic Document. http://wabunsun.com/archive/ws_vol4-iss4.pdf, accessed December 16, 2012.
Wilkinson, Tracy
2003 Conservation Key to Pompeii's Self-Preservation. Los Angeles Times, November 16, 2003. Electronic Document, http://articles.latimes.com/2003/nov/16/world/fg-pompeii16, accessed December 12, 2012.
Williamson, Ray A., and Paul R. Nickens
2000 Science and Technology in Historic Preservation, New York: Kluwer Academic/Plenum Publishers.
Yellowhorn, Eldon Carlyle
2002 Awakening Internalist Archaeology in the Aboriginal World, Ph.D. dissertation, Department of Anthropology, McGill University.
Yellowhorn, Eldon Carlyle
2006 The Awakening of Internalist Archaeology in the Aboriginal World. *In* The Archaeology of Bruce Trigger: Theoretical Empiricism, Ronald F. Williamson and Michael S. Bisson, eds., pp. 194-209. Montreal and Kingston: McGill-Queen's University Press.

APPENDIX A

Interview Questions

Topics

General

- What do you know about archaeological sites and their preservation/excavation?
- How do you view archaeological sites? Are they important to you?
- Should archaeological sites be preserved?
- What is preservation to you?
- Which part of archaeological sites should be preserved? (physical environment, spirituals aspect, etc…)
- Which matter most: the physical remains of the site, the "feeling" and spirituality of the site? The resources on the site? Something else? A combination thereof?

Preservation Methods

- How should we preserve archaeological sites?
- Some methods (and explain pros and cons of each): Excavate? Excavate and reburial in-situ? Excavate and reburial ex-situ? In-situ preservation? Excavate and put in a museum? Allow access to the public? Shelter? Shore stabilization? Tourism? Restoration of "authentic" feel?
- Should sites be preserved completely? Should they be allowed to decay naturally?
- Should oral history be preserved along with the archaeological site? Should it be preserved instead of the site? How? How important is oral history to the preservation of archaeological sites?
- Do the preservation methods depend on the groups with an interest in their preservation?

Ownership of Sites

- Who do they belong to?

Access to Sites

- Who should have access to the archaeological sites?
- Should the general public have access to the site? Should only the descendant group have access to the site? Should only the landowner have access? Should tourists be allowed on-site? Should all access be prevented?

- Should those with access have free roam? Should certain areas be fenced off? Should people stick to the path? Should there be guided tours? Which areas should be fences off?

Land Use

- Are archaeological sites usable resources?
- How can they be used?
- Who should get to use them?
- What type of land use should occur on sites? Should certain types of land use be avoided? (destructive use such as mining, for example)
- Can archaeological sites be combined with new development? That is, can/should development projects occur over a site? If so, which type of development? If not, why not?
- Should resources on archaeological sites be exploited if the site can remain undisturbed? For example, if selective logging was to occur in the winter when the ground is frozen and the potential damage is minimized, should the resource be exploited?
-

Involvement in the Preservation Process

- Who should be involved in the preservation process? (archaeologists, developers, First Nations, general public, etc)
- In the case of multiple descendant groups, which groups should be involved and how much?
- How should these groups be involved and to what extent?
- Who should fund the preservation process? (the developers, the First Nation group, the government, the archaeological firm, a combination)
- How should the involvement occur? Should there be meetings, email exchanges, teleconferences, informal talks, etc? Where should the "trading zone" be?
- How much dialogue should there be between the involved parties?

For the unstructured interview, participants will talk about archaeological preservation topics which they deem important and pertinent to the study.

APPENDIX B

Global Preservation Background

B1.1) Current methods applied to the worldwide preservation of sites

The in-situ preservation of archaeological sites around the world is a multi-faceted issue. As countries strive to create and maintain identities, the protection of their archaeological sites and cultural resources becomes necessary. This Appendix outlines current methods of preserving archaeological sites from around the world and their relevance in a boreal context. Globally, the approach to cultural heritage preservation relies on both physical and non-physical protection methods. Physical methods seek to examine the chemical, biological, and physical impacts on archaeological sites and directly address them using effective preservation methods. On the other hand, non-physical preservation methods attempt to provide alternate solutions to in-situ preservation in the form of legislation and through the inclusion and education of local stakeholders.

B1.2) Physical methods of preservation

In order to effectively preserve archaeological sites in-situ, there are two main approaches: physical and non-physical methods of preservation. Physical preservation methods are direct efforts at conserving cultural heritage including, but certainly not limited to, monitoring regimes to assess and address the chemical, biological, and physical impacts on archaeological sites; the construction of shelters; the erection of fences and barriers; the reburial

of the site; and conservation intervention methods such as soil stabilization, plaster and mortar stabilization, vegetation and invertebrate removal, and micropiling among many others.

B1.2.1) Monitoring regimes

To properly preserve archaeological sites from chemical, biological, and physical impacts, a monitoring regime must first be undertaken. To ensure the integrity and preservation of artifacts and features, monitoring regimes are used to determine the various effects of the burial environment on archaeological remains and to establish pre-project baseline. Archaeological sites can be divided into two main categories: "wet" and "dry" archaeological sites (Davis 1996). "Wet" archaeological sites contain organic remains which have been preserved due to the anaerobic ground conditions while "dry" archaeological sites contain almost exclusively non-organic remains due to the decay of organic artifacts (Davis 1996). In the boreal forest, the majority of sites are "dry" archaeological sites due to the harsh burial environments, though waterlogged, anoxic conditions do exist. Nonetheless, wetlands comprise up to 30% of Canada's boreal forest (Hinterland Who's Who, 2013) and have been part of Aboriginal land-use for thousands of years (Dods 1998). As such, the potential for "wet" archaeological sites in pockets of waterlogged, anoxic conditions or in the wetlands of the boreal forest cannot be discounted.

According to Holden et al. (2006), the monitoring of in-situ archaeological sites is a very recent enterprise and, as a result, there are few examples of current projects. Most commonly used on the waterlogged "wet" archaeological sites which abound in Northwestern Europe, especially in Norway, Denmark, and the United Kingdom, site monitoring often involves the use of coopted agricultural monitoring devices (Davis 1996) coupled with laboratory and modelling

analyses (Holden et al. 2006). These devices were originally intended to monitor the groundwater conditions in agricultural fields. The parameters which are generally monitored include water temperature, pH, redox potential, dissolved oxygen, and electrical conductivity (Davis 1996). Davis argues that monitoring "wet" archaeological sites is necessary to "identif[y] changes in the conditions that are responsible for the preservation of organic remains" (1996:22), especially when excavation is neither possible nor appropriate.

For example, in an effort to prevent excavation and to minimize ground disturbances to a hemiboreal urban archaeological site in Trondheim, Norway, Peacock and Turner-Walker (2001) used a combination of a neutron probe and suction samplers to monitor ground conditions. Inserted vertically into the ground, the neutron probe emits neutrons into the soil which collide with hydrogen atoms. Neutrons are subsequently detected and the count-rate is converted into a volumetric soil moisture content reading. The suction samplers contain a PVC pipe with a porous ceramic cup in the lower end inserted into specific strata. Sealed at the upper end, a vacuum is created with the aid of a hand-pump and pumped to the surface. Suction samplers were used to determine water levels and obtain water samples for pH, conductivity, dissolved oxygen, temperature, ion concentrations, and redox potential measurements (Peacock and Turner-Walker 2001). Additional methods of monitoring "wet" archaeological sites include "chemical, electrochemical, geological and hydrological techniques; study of corrosion rates on modern materials; and examination of artefacts by X-ray and microscopic methods," (Matthiesen et al. 2001:91). Matthiesen et al. (2001) measured a variety of parameters which directly affected the decay of archaeological remains, the growth of potentially harmful microorganisms, and the redox conditions of the burial environment.

Peacock and Turner-Walker's (2001) use of a neutron probe system was deemed very effective, especially in urban areas where the optimal depths and locations of monitoring equipment could not be determined. While the use of these devices ultimately proved successful, Peacock and Turner-Walker (2001) noted some difficulties: soil water samplers were ineffective in cold, hemiboreal environments like Trondheim, where water samples were subject to freezing and only pockets of anoxic conditions were found. Additionally, problems with soil water samplers had arisen due to the unmapped stratigraphy and lack of detailed soil profiles to guide appropriate equipment placement. Peacock and Turner-Walker (2001) ultimately recommended that a multi-year monitoring baseline be developed before beginning construction disturbances.

Maekawa (2004) provides an example of monitoring at a "dry" archaeological site in America's Chaco Canyon. In order to ensure a previously-installed geomembrane was successful at improving the drainage of a backfilled Puebloan great house, Maekawa used an automated environmental monitoring system which consisted of:

> "[a] total of forty Watermark™ (resistivity-type) gypsum block soil moisture sensors and sixteen E-type thermocouple temperature sensors [and] buried at various depths in the fill of Room 50. These subterranean sensors and climate sensors (including a thermister-type air temperature sensor, a capacitance-type relative humidity (RH) sensor, a silicon pyranomenter, two tipping bucket-type rain-gauges and an ultrasonic snow depth sensor) were connected to solar-powered datalogging equipment and placed in the completely exposed Kiva I." (2004:316-317)

In addition to the environmental monitoring station, a total of forty soil moisture sensors and ten soil temperature sensors were installed in thirteen holes at varying depths. The in-situ monitoring methods employed by Maekawa (2004) proved successful at observing the on-site climate and examining changes in soil moisture and temperature. Through the use of monitoring

methods, the researcher was able to conclude that the geomembrane did, in effect, prevent precipitation from penetrating the fill below the geomembrane while preventing an increase in soil moisture content (Maekawa 2004).

In the boreal forests of Canada, monitoring programmes could prove incredibly effective. An alternative to the soil water samplers used by Peacock and Turner-Walker (2001) would be warranted due to the boreal forest's similar freezing ground conditions and frequently unmapped stratigraphy. Maekawa's (2004) monitoring methods would also prove effective at measuring the environmental conditions in the boreal forest, especially at sites where geotextiles are used. Additionally, since the majority of archaeological projects in Ontario are funded by land developers, a multi-year monitoring programme may be preferable due to its lower costs compared to complete excavations. Peacock and Turner-Walker (2001) state that a ten year monitoring programme is only 10% of the cost of the estimated price of a full-scale archaeological investigation.

B1.2.2) Shelters

Another way to effectively preserve archaeological sites in-situ is through the use of shelters. Despite the widespread use of shelters to protect archaeological sites, and its proposed use in the boreal forest by interviewees, there had been no formal methodology to their application until Agnew's (2001) examination of the conservation criteria and performance evaluations of shelters. Agnew (2001) argues that the construction of a shelter without the application of a proper methodology or prior experience amplifies the risks to archaeological sites. As such, Agnew (2001) outlines a series of tasks which must be undertaken before any actions are approved, namely the identification and ranking of the values on the site, the

documentation of the threats to the archaeological resources, the assessment of the management qualities of the site including funding and input from local stakeholders, and the consideration of other potential preservation strategies. Along with these tasks, other elements should be considered such as the creation of a monitoring regime, the assurance of long-term shelter and site maintenance, and the supervision of the construction process (Agnew 2001). If the decision to shelter an archaeological site is made, Agnew (2001) suggests that a good shelter should be effective at protecting the identified values from the documented threats, remain suitable with the context and environment of the site, function its interpretive and display roles without sacrificing its protective ability, and be easily maintained with the allotted resources.

Goodburn-Brown et al. (2012) evaluated the performance of a shelter built on Sir Bani Yas Island in the United Arab Emirates. While very few shelters have been constructed in the Gulf region despite the harsh climate, Goodburn-Brown et al. (2012) demonstrate their effective use in preserving a Christian monastery complex. Though not explicitly following Agnew's (2001) guidelines on effective shelter use, Goodburn-Brown et al. (2012) documented existing threats to the archaeological resources including extremes in rainfall, extreme fluctuations in humidity, erosion due to windblown sand, and the effects of plant roots and vegetation. The condition of the site was documented, including cracking walls, loose mortar, and vulnerable undercuts. Additional preservation strategies were considered, including installing fencing, reburial, stabilizing plaster walls, and removing vegetation. Goodburn-Brown et al. settled on a lightweight, open-sided shelter made of cost-effective materials which would be "unobtrusive [and] blend well into the landscape," (2012:256), thus preserving what Agnew calls the "harmony with the context of the site and the landscape," (2001:8).

A regular monitoring regime was established to assess the performance of the shelter, leading to the discovery of the formation of condensation on the steel beams as well as edge dripping. These problems were quickly rectified with the use of hemp beam coverings and the installation of a gutter system. However, despite these minor problems, the installation of the shelter was considered an overall success, providing protection from violent winter rains which lead to plaster runoff and mortar cracking, as well as providing additional unforeseen benefits such as the slight flapping of the roofing material which discouraged birds from depositing nesting detritus and guano on the site (Goodburn-Brown et al. 2012).

The construction of a shelter at Jinsha in the People's Republic of China, on the other hand, resulted in a multitude of preservation problems resulting in the need for an intervention. Bai and Zhou (2012) note that an on-site museum shelter was constructed over the semi-excavated remains. The shelter was erected with a transparent glass wall and roof to prevent the penetration of ultraviolet rays and the excavated plots were left partially excavated. However, the design of the shelter caused the on-site environment to remain unstable and problematic (Bai and Zhou 2012). The glass wall and roof were constructed with controllable glass panels, allowing both ventilation and the penetration of natural sunlight. Unfortunately, the glass panels also allowed birds and rain to enter the shelter. The ineffective air conditioning as well as the penetration of sunlight onto partially excavated remains has caused dramatic temperature and moisture fluctuations controlled the outside climate (Bai and Zhou 2012). As a result, exposed artifacts are subject to increased rates of decay, large cracks have formed on the soil, and mosses and invertebrates flourish (Bai and Zhou 2012). Due to the improper methodology and construction of the shelter, the site is not being properly preserved; instead, the site has required costly and time-consuming conservation intervention measures.

Following Agnew's (2001) guidelines to site sheltering should prove as effective in the boreal forest as it did in the United Arab Emirates. While the approach to building the shelter would differ due to the vastly different climatic conditions, once Agnew's (2001) assessments have been made, preservation projects in the boreal forest boreal could show equal success. As Agnew (2001) recommended, a number of interviewees likewise suggested that preservation measures in the boreal forest should remain harmonious with nature and the site context.

The preservation of boreal sites could also benefit from the lessons learned from the failed preservation attempts at Jinsha. Properly planning and implementing preservation regimes could prevent damages to the archaeological site caused by the extreme seasonal temperature, moisture, and sunlight variations in the boreal forest.

B1.2.3) Fences and barriers

While not physically applied to the archaeological remains themselves, barriers and fences are common methods of preventing damages to in-situ archaeological sites. Though some archaeologists have argued that the erection of signage, no-entry signs, and barriers should not be necessary on archaeological sites and that they "detract from the vernacular ambience and mystique" (Egloff 1998:174) of the site, damages caused by tourists have often necessitated their inclusion. Not often explicitly mentioned in the literature as in-situ preservation techniques, the construction of barriers are also used to prevent damages from development, animals, and erosion.

One of the most important sites in Tanzania, the Stone Age site of Isimila, has involved the use of fences in order to preserve the archaeological remains (Tillya 1996). In 1958, the site was first declared a protected area and a number of fences were erected to preserve the cultural

heritage remains. Two wire-mesh fences were constructed to enclose areas of high artifact concentrations (Tillya 1996). However, Tillya (1996) noted that the fence only protected the site from the physical intrusion of humans and animals; seasonal water flows were still able to disturb the archaeological remains and undermine and collapse the fence.

Finally, Miller and Bluemel's (1999) preservation efforts of the Midas Tumulus at Gordion, Turkey were heavily dependent on the construction of a fence. Due to the lack of vegetative cover, Midas Tumulus, the presumed location of the burial of King Midas, was subject to heavy erosion from wind and rain. Grazing animals, children riding bicycles and motorcycles, and tourists climbing the mound to experience a scenic view contributed to the sporadic plant cover on the mound (Miller and Bluemel 1999). In 1996, a fence was built around the mound and by 1997, "it was clear that the fence was having an effect; grasses and other plants were beginning to spread, especially on the lower slopes of the north side of the mound [and] trails beaten by passing flocks of grazing animals were shrinking as well," (Miller and Bluemel 1999:226). Miller and Bluemel (1999) states that the construction of the fence commenced a return to a natural pasture environment, cutting damages caused by anthropogenic and natural erosion and successfully preserving the Midas Tumulus in-situ.

Currently, fences and barriers protect many archaeological sites in the boreal forest. Especially in areas where access to sites cannot be strictly controlled, fences are often erected under the impression that they will prevent access and damage to sites. As outlined in Chapter 5, interviewees felt that fences and barriers could be effective in-situ preservation strategies, despite some disagreement on the magnitude of their benefit. Additionally, eight interviewees independently suggested another type of barrier: buffer zones. Buffer zones and no-work zones

are currently used in Ontario to designate site boundaries and protect the site in-situ from development pressures.

B1.2.4) Reburial

Archaeological sites are non-renewable resources; their excavation results in the destruction of the archaeological record and a loss of context unless properly recorded. However, some development projects and previous archaeological excavations may require reburial in order to preserve the site in-situ (Canti and Davis 1999). According to Canti and Davis, this will typically "involve the preparation of a covering which allows the prior land-use to continue after burial and may provide additional support for some forms of construction, whilst encouraging the continued survival of the archaeological remains," (1999:775). The reburial of archaeological sites involves the use of a sterile fill which prevents chemical and mineral seepage into the archaeological strata (Canti and Davis 1999). For example, excavations at Parliament Street in the United Kingdom revealed that a concrete slab located above the archaeological site caused the leeching of calcium-rich water into sulfide-rich strata, triggering the buildup of white crystalline deposits (Kenward and Hall 2000). Therefore, it is necessary to find a suitable sterile material to prevent chemical damages to the archaeological environment such as high-silica quartz sands with low levels of chlorides, carbonates, and iron compounds (Canti and Davis 1999).

Additionally, geosynthetic materials can also be used in the reburial process. Geosynthetic materials are planar, manufactured materials such as geotextiles, geomembranes, geocells, geogrids, and drainage cores and commonly used in engineering applications (Kavazanjian 2004). Hopkins and Shillam (2005) suggest that the use of geotextiles in site

reburial is warranted if they are used to protect archaeological materials during reburial, provide a soil-fill barrier, or if they are used to ease cleaning and preservation procedures. Kavazanjian (2004) suggests a multitude of uses for geosynthetic materials in in-situ site management including separation, reinforcement, stabilization, filtration, drainage, infiltration prevention, and protection.

At a replica of the reburied Laetoli trackway in Tanzania, Agnew and Demas (2004) analyzed the effectiveness of the reburial process initiated in 1995. The fragile site of the Laetoli footprints, a set of 3.6 million year old hominid tracks, was recreated in 1995 and reburied in the same manner in order to monitor the preservation conditions of the original trackway. The replica was preserved using multiple layers of geotextiles for moisture permeation, root inhibition, and erosion control (Agnew and Demas 2004). A variety of fine and coarse sands were added; local fill was sieved to remove seeds, obtain a proper granular size, and mounded over the composite; a cap of boulders was added; and grasses were allowed to grow. These conservation measures were undertaken to protect the buried trackway from vandalism, animals, erosion, and root damage while allowing water to drain from the site unimpeded (Agnew and Demas 2004). The results from Agnew and Dumas' (2004) analysis of the effectiveness of the preservation methods proved the Laetoli trackway reburial programme was successful. The effective application of Biobarrier geotextile prevented the penetration of roots past the geosynthetics despite the presence of surface vegetation. The protective geotextiles also prevented the deformation of the footprints due to the overburden load whilst remaining completely unaffected by degradation while decay indicator materials decomposed (Agnew and Dumas 2004). The successful reburial project will be occasionally monitored and reassessed.

In Turkmenistan at the ancient oasis-city of Merv, a decision was made to rebury archaeological trenches in the earthworks to protect them from erosion (Cooke 2007). A century of excavations and improper site management has led to the erosion of exposed archaeological trenches, leading to the destruction of the context of the archaeological remains. Capping the site would lead to drainage difficulties and mineral seepage; the installation of hundreds of shelters would prove too costly; and the interpretation, display, and public perception of the site would suffer from an altered landscape (Cooke 2007). As such, a quick, compatible, and reversible reburial method was deemed best suited to the preservation goals at Merv. Fill materials were chosen which mimicked the soils of the earthen architecture, deposited over a geotextile separator, and dampened to allow compaction to a similar density as the in-situ earthworks. The soil was compacted by hand to avoid damage to the surrounding unexcavated strata from heavy machinery and mud-straw plaster was applied to the vertical boundary of the excavated and unexcavated archaeology to avoid moisture movements (Cooke 2007). Completely backfilling the trench was judged impossible and therefore a stable drainage slope was created to allow the free flow of water off-site. Finally, a thin layer of compacted earth functioned as an erosional layer on the completed backfill and mud-straw plaster.

A regular monitoring programme was established to understand the long-term effects of reburial. Unfortunately, though not without extensive planning and research, the preservation efforts encountered many problems: the moist soils encouraged insect colonization; the trench drainage patterns did not mimic the landscape drainage patterns; the eroded trenches needed to be conserved before reburial to avoid the creation of voids; the mud-straw plaster and erosional layer required constant maintenance; the difficulty to obtain geosynthetic materials in Turkmenistan; and the lack of understanding of the long-term effects of geosynthetic materials as

a result of the limited communication between archaeologists, conservators, and engineers (Cooke 2007). Despite the problems encountered during the reburial phase, the subsequent monitoring phase confirmed the methods were successful at preventing further erosion of the archaeological materials (Cooke 2007). Though the methods were time-consuming and labour-intensive, the acquirement of a local separator material greatly reduced the cost of the backfilling operations and, as a result, a backfilling team was created to rebury countless more trenches. According to Cooke (2007), the reburial method is successful due in large part to its reversibility and the potential to apply future conservation techniques should funds become available.

In the boreal forest, site reburial is a commonly used preservation strategy. Since a Stage IV complete excavation will often occur a number of months or years after a Stage III limited excavation, the Stage III excavation units will often necessitate backfilling to prevent damage. After the Stage III excavation at the Mattagami Lake dam in 2007, wooden boards and a geotextile were deposited over the excavated units and features and subsequently backfilled, functioning as a soil-fill barrier as well as a root inhibitor. Over the next three years, the geotextile proved effective in its purpose and allowed the on-site activities to occur unimpeded. Once removed, the geotextiles revealed nicely preserved semi-excavated features (personal communication with J. Pollock, October 2013).

B1.2.5) Intervention methods

A large number of archaeological sites are already damaged and require methods of intervention in order to properly preserve them in-situ. While shelters, barriers, and reburial are commonly used to protect a site from further destruction, interventions are focused on repairing damages so that a site can be properly preserved. Intervention as the main focus of preservation

projects are especially prevalent in countries with a history of built heritage, in areas with weak in-situ preservation legislation, or in areas where insufficient conservation measures have been undertaken. Due to the lack of traditional conservation research in China, for example, the majority of in-situ preservation projects focus on interventions as opposed to preventative conservation (Bai and Zhou 2012). As well, Pakistan has a history of built heritage as well as weakly enforced preservation legislation and, as a result, has an increased need for intervention measures for its built cultural heritage (Mughal 1998). A number of intervention measures will be described including soil stabilization, plaster and mortar stabilization, vegetation and invertebrate removal, and micropiling to name a few.

i) Soil stabilization

In many cases, the soil at an archaeological site has been damaged due to erosion or moisture cracking. At Jinsha in China, the exposure of the soils to light and the dry conditions on-site have caused large cracks to appear in the soil (Bai and Zhou 2012). Though the cracks stabilized and did not further damage the site, Bai and Zhou (2012) claim the aesthetic values of the site were tarnished and needed to be repaired if the site was to be added to the World Heritage list. As such, the cracks were filled with fine sand and coloured in order to blend in with the site and return the soil to its natural aesthetic value.

In the United Arab Emirates, Goodburn-Brown et al. (2012) noted that erosion was a major factor affecting the decay of the site. High winds caused windblown sand particles to erode archaeological remains while torrential winter rains contributed to the erosion of the surface materials and the exposure of previously-buried remains. While the majority of trees were removed due to the negative effects of root growth on the archaeological structures,

Goodburn-Brown et al. (2012) did not remove low-lying shrubs and vegetation in unexcavated areas in order for the root systems to stabilize the sand from erosion. Similarly, Agnew and Demas (2004) note that the reburial mound covering the Laetoli trackway in Tanzania was stabilized against erosion using grasses and boulders. Though not possible at every archaeological site, naturally stabilizing the ground with vegetation is a simple, effective, and cost-effective method of in-situ preservation.

Finally, Kavazanjian suggests the use of "geogrids, geocells, and erosion control materials … to reinforce and mechanically stabilize soil," (2004:385) especially in areas where soft subgrade soils are present. Kavazanjian (2004) claims that the use of erosion control materials is warranted at in-situ archaeological preservation projects as an effective and inexpensive means of stabilizing soils from erosive forces.

As most archaeological sites in the boreal forest are found along lake and river shores, erosion is a large concern. At the New Post HBC post on the Abitibi River, for example, erosion is contributing to the loss of approximately 3m of shoreline every ten years (Pollock 1976). As a result of the erosional forces acting on boreal archaeological sites, soil stabilization methods such as the geosynthetic materials suggested by Kavazanjian (2004) and the vegetation stabilization methods employed by Goodburn-Brown et al. (2012) and Agnew and Demas (2004) could be employed to protect shoreline sites.

ii) Plaster and mortar stabilization

In many areas, archaeological sites contain standing cultural heritage remains which require conservation efforts to be effectively preserved in-situ. Often, the construction of these structures involved the use of binding materials such as mortar and the application of plaster or

stucco. At archaeological sites which have been subject to unfavourable environmental conditions and have fallen into a state of abandonment, neglect, or disrepair, the conservation of such materials is often essential to preserve the archaeological values.

In Belize, for example, at the Late Terminal Classic Maya site of Xunantunich, the conservation of a stucco façade has occurred over the course of over 50 years (Hansen and Castellanos 2004). Since the late 1950s, a variety of conservation techniques were employed to restore the east and west façades, including using Portland cement, a cement-lime mixture, a lime-soil mixture, powdered stone, sifted sand, limestone slabs, and a water channelization system to direct water away from the restored surfaces. (Hansen and Castellanos 2004).

In the United Arab Emirates, similar problems were noted by Goodburn-Brown et al. (2012). The plaster walls and floor of a pre-Islamic Christian monastery church had been subject to cracking, loosening, and undercutting due to exposure, erosion, and root damage. As such, the walls' cracks, loose areas, and undercuts were stabilized using aesthetically similar putty which had a high workability, quick setting time, and which future researchers could easily differentiate from the original materials (Goodburn-Brown et al. 2012). Finally, in order to further protect the plaster from damage from torrential rains, the walls were capped with sand, stone, and geotextile (Goodburn-Brown et al. 2012).

At Tel Qasile in Israel, the construction of a simple tin roof over a set of Iron Age adobe walls in the 1950s failed to prevent their destruction (Mazar 1999). In order to preserve the walls from further crumbling, researchers coated them with a form of modern plaster which replicated the original plaster. After being left in the sun for many years and suffering minor cracking and disintegration, the combination of local sand, putty, bonding agent, and annual

maintenance was successful at preserving the adobe buildings in-situ while retaining the original "authentic" look (Mazar 1999).

The previously outlined methods offer examples where archaeologists have used aesthetically similar yet modern conservation materials to successfully preserve archaeological remains. In the boreal forest, standing cultural heritage remains can occasionally be found, such as early mining and logging camps, and if the need to preserve them arises, archaeologists can draw from a range of modern materials to properly protect the site.

iii) Vegetation and invertebrate removal

Biological factors often prove to be persistent agents of archaeological destruction. The presence of invertebrates and vegetation on archaeological sites can often have a multitude of negative impacts and a small number of positive ones. While vegetation may function to stabilize soils and prevent erosion, it can also cause mechanical damages to archaeological remains, changes in soil type and chemistry, decreases in on-site temperatures, and damages from animal activities (Crow 2004). Invertebrates, fungi, and other vegetation are often linked to mechanical damage and decomposition, such as Cooke's (2007) worries of the aeration and loosening of the reburial soil at the site of Merv due to an increased insect presence.

In Italy, tree roots have been a major cause of damage to buried archaeological sites such as the Domus Aurea, Nero's Imperial residence in Rome (Caneva et al. 2006). Now covered by a modern park, the Domus Aurea is subject to structural damages from trees with root systems which extend several metres vertically below ground. Roots have penetrated the vaults of the buried Domus Aurea resulting in severe structural damage and the development of preferential water pathways into the remains (Caneva et al. 2006). In order to preserve the site, Caneva et al.

(2006) analyzed the species present in the park, inspected the underground vaults of the Domus Aurea for damages and collected root samples, identified the root samples in the laboratory, compared the data to data collected in the 1980s in order to determine the progression of the damages, determined the changes in vegetation in the park over time, and finally developed a map of the most critical preservation areas. As a result, park developers will be able to use the data to properly plan the species composition and locations of trees within the park to minimize damages due to root intrusions (Caneva et al. 2006). Caneva et al. (2009) performed a similar root damage management project for the Jewish Catacombs of Villa Torlonia.

On Sir Bani Yas Island in the UAE, Goodburn-Brown et al. (2012) detailed a vast increase in the number of trees on the previously barren island. Trees, shrubs, and other vegetation have not only become established on the site but on the archaeological remains themselves, causing the growth of fine root systems within the architecture, the spalling of stone and plaster from the walls, and the "complete disruption of isolated areas," (Goodburn-Brown et al. 2012:252). In order to combat the damages from root growth, irrigation systems were removed from the site, eliminating the water supply for nearby vegetation. Additionally, large trees were removed from the vicinity of the site and all vegetation except for soil-stabilizing shrubs was removed from the archaeological structures (Goodburn-Brown et al. 2012). With regular maintenance, root damage has been eliminated.

Bai and Zhou (2012) developed a very effective method of dealing with the growth of mosses and invertebrates at Jinsha in China. A variety of biocides were tested with certain criteria in mind: the biocide should be harmless to the visitors, artifacts, and environment; highly efficient towards a wide array of organisms; soluble in water to ease the distribution process; and cost-efficient (Bai and Zhou 2012). It was determined that Germall was the most effective and

the entire site was sprayed with a 5% concentrated solution of Germall and water, leading to the complete death of all mosses on-site. The only disadvantages Bai and Zhou (2012) had with Germall was the fact that it had to be applied monthly and its unknown risk of damage to organic archaeological remains.

Therefore, using species identification, analysis, and planning; regular vegetation maintenance; and efficient, cost-effective, and safe biocides, archaeologists working in any area of the world including Canada's boreal forest can successfully monitor and mitigate the negative effects to archaeological sites caused by the presence of harmful vegetation.

iv) Micropiling

Micropiles are a type of geotechnology which can be used to reinforce and preserve historic structures and protect them from nearby excavation and development. They involve the use of a drill to create small diameter grouted borings through the foundation and the insertion of reinforcement bars to support the structure (Kavazanjian, 2004). In Finland, engineers familiar with the use of micropiles commonly agreed that micropiling was an efficient solution to the preservation of historic buildings, especially if the building foundations were to reach modern engineering standards (Marchisio et al, n.d.).

While most settlement in the boreal regions of Canada has occurred within the past 150 years and the region does not contain many examples of standing cultural heritage remains, micropiles and other forms of geotechnology can still be effective methods of bringing historic buildings in need of preservation up to modern engineering standards.

B1.3) Mon-physical methods of preservation

Although physical methods of preservation are often effective at preserving archaeological sites in-situ, other non-physical preservation methods are also used around the world. Non-physical preservation methods refer to indirect approaches to cultural heritage preservation, often including the use of legislation and the inclusion and education of local stakeholders. This Section gives a brief legislative background of global heritage preservation as well as an outline of Ontario's heritage preservation legislation.

B1.3.1) Legislation Background

National governments have long attempted to preserve archaeological sites and other cultural heritage values with the help of legislation. The first legislation protecting archaeological sites and artifacts arose in Sweden in 1666. This legislation imposed strict controls on all forms of archaeological heritage, both portable and non-portable, and stated that all remains were property of the Swedish Crown and thus were protected (Cleere 2012). By the beginning of the First World War, nearly every European country and most major non-European countries had some form of legislation to protect and preserve cultural resources (Cleere 2012). Currently, the majority of countries have legislation designed to preserve and protect archaeological sites and cultural heritage remains, despite occasional enforcement failures.

The 20th century brought with it globalization and the effort to create global heritage legislation. "This led to a new cultural heritage bureaucracy at the international level, the development of new sets of 'universal' standards, and a new set of places deemed to be of world heritage significance," (Logan 2001:51). One prominent example of the attempted creation of "universal" preservation standards was the introduction of the Venice Charter in 1966 (Brooks

1992; Logan 2001). The Venice Charter attempted to continually raise preservation quality and standards by bringing together a multitude of experts from around the world with the creation of legislation which could be adopted by all countries (Brooks 1992). However, Brooks (1992) claims it was soon discovered that the Venice Charter, a charter written in (and arguably for-) Europe, was heavily Eurocentric and focused on the European concepts of preservation such as "monuments" and built heritage.

Especially in areas with a recent colonial past such as Australia and Canada, no "important historical sites could rate against a terminology that is more suited to the Parthenon or Chartres Cathedral" (Brooks 1992:84). As a result, such countries have opted for the creation of preservation charters which reflect their own cultural and societal values such as Australia's Burra Charter, Canada's Appleton Charter, and the Nara document on authenticity (Logan 2001).

Norway, a signatory of the Valletta treaty which demands the in-situ preservation of archaeological sites and heritage, has created the Norwegian *Cultural Heritage Act* which protects listed monuments and requires preservation and protection projects to be funded by developers (Martens et al. 2012). Since Norway places a large focus on the in-situ preservation of sites, the Norwegian Directorate of Cultural Heritage has created two publications, the Monitoring Manual and the Norwegian Standard, to help archaeologists and conservators assess archaeological sites' states of preservation and continued preservation conditions. These laws and manuals have produced positive results, allowing archaeologists to properly monitor archaeological sites and assess and maintain their continued preservation conditions (De Beer et al. 2012; Martens et al. 2012).

While Norway's legislation has proven very effective at preserving archaeological sites in-situ, legislation in other areas around the world has been less effective. For example, in Turkey, ambiguities in the national heritage legislation have led to the unnecessary removal and destruction of floor mosaics (Kokten 2012). Though Turkish law nominally requires in-situ preservation, the legislation is unclear and neglects to specify guidelines or techniques, leaving preservation decisions to inexperienced archaeological field directors. As such, Kokten (2012) suggests the creation of a site management code by a variety of experienced preservation professionals and its integration into national law. Likewise, despite having generally effective heritage laws, Pakistan has encountered troubles enforcing the *Antiquities Act 1975* (Mughal 1998). As a result of poor enforcement, Mughal (1998) claims archaeological sites are at risk of modern encroachment, illegal and unregulated excavations, and smuggling, especially in Gandhara region. Additionally, Israel has exploited the vagueness in The Hague Convention's laws on the protection and preservation of archaeological sites, specifically its definition of "salvage excavation", to carry out illegal settlement construction, road building, and archaeological site destruction in its occupied territories (Rjoob 2009).

Furthermore, while not contributing to the destruction of archaeological sites, Japan's national preservation legislation provides an example of confusing and conflicting claims of preservation authority of archaeological sites. Due to opposing views of the preservation legislation, Japan's Imperial Household Agency (IHA), the government agency in charge of the affairs of the Imperial family, and the Cultural Affairs Agency (CAA) have made conflicting claims as to who has authority over a number of Imperial "tombs" (Edwards 2000). While the IHA claims the "tombs" are private places of spiritual importance and should be privately

preserved by themselves, the CAA claims they are public property and should be subject to scientific research and conservation (Edwards 2000).

Finally, McIntosh (1993) argues that Africa's efforts on in-situ archaeological preservation are severely hampered by a lack of funds, personnel, equipment, and by the lack of knowledge of sites. As of 1993, many countries in West Africa alone had no more than 50 registered archaeological sites within their boundaries, a problem further exacerbated by their destruction due to looting and development. Though the majority of African countries have enacted legislation to preserve these archaeological sites in-situ, they simply lack to funds and personnel to properly enforce them (McIntosh 1993).

B1.3.2) Inclusion and education of local stakeholders

Finally, with the use of local stakeholders, we can more effectively preserve cultural heritage sites. By including stakeholders in the preservation process and by educating them about the benefits of archaeological sites, they can aid archaeologists in preserving a greater number of sites in-situ.

In Turkey, Eres and Yalman (2013) describe the pioneering preservation efforts of excavation director Halet Çambel in the 1960s. "Çambel believed that an archaeological site could only be preserved when the local people became stakeholders, and she spent many years educating and modernizing living standards of the villagers of Karatepe" (Eres and Yalman 2013:36) and revitalized traditional crafts in order to boost the local economy. Through her efforts, not only did Karatepe establish a primary school, post office, and health care centre, but also managed to preserve local archaeological sites from hydroelectric flooding and have the region registered as a national park (Eres and Yalman 2013). Additionally, Miller and Bluemel

(1999) claim that educating the local people about the importance of the preservation project can help garner local support.

In the United States, Levine et al. (2005) examined the inclusion of local stakeholders (businesses) to bring profitability to heritage preservation. In order to increase tourist revenue in the heritage district of Annapolis, Maryland, local businesses proposed widening sidewalks in order to create outdoor seating for cafés and restaurants. Though this initiated debates regarding the authenticity versus the profitability of the heritage areas, it was deemed appropriate to expand the sidewalks and led to increased tourist revenue (Levine et al. 2005).

In Africa, in order to cope with the lack of local inclusion from stakeholders in the preservation of their cultural heritage, McIntosh (1993) recommended the creation of an intensive two-year training program in African Heritage Management. McIntosh (1993) suggests that such a program could alleviate difficulties caused by the lack of funding, lack of education, and lack of experience in archaeological site management and preservation. Additionally, Ndlovu posits that sites can be effectively preserved by genuinely including local communities and granting them access to their own cultural heritage sites for "ritual performances" (2011:127). Such Africanist spiritual approaches to preservation can help counter the Eurocentric physical approaches and bring richness to the preservation discourse (Ndlovu, 2011).

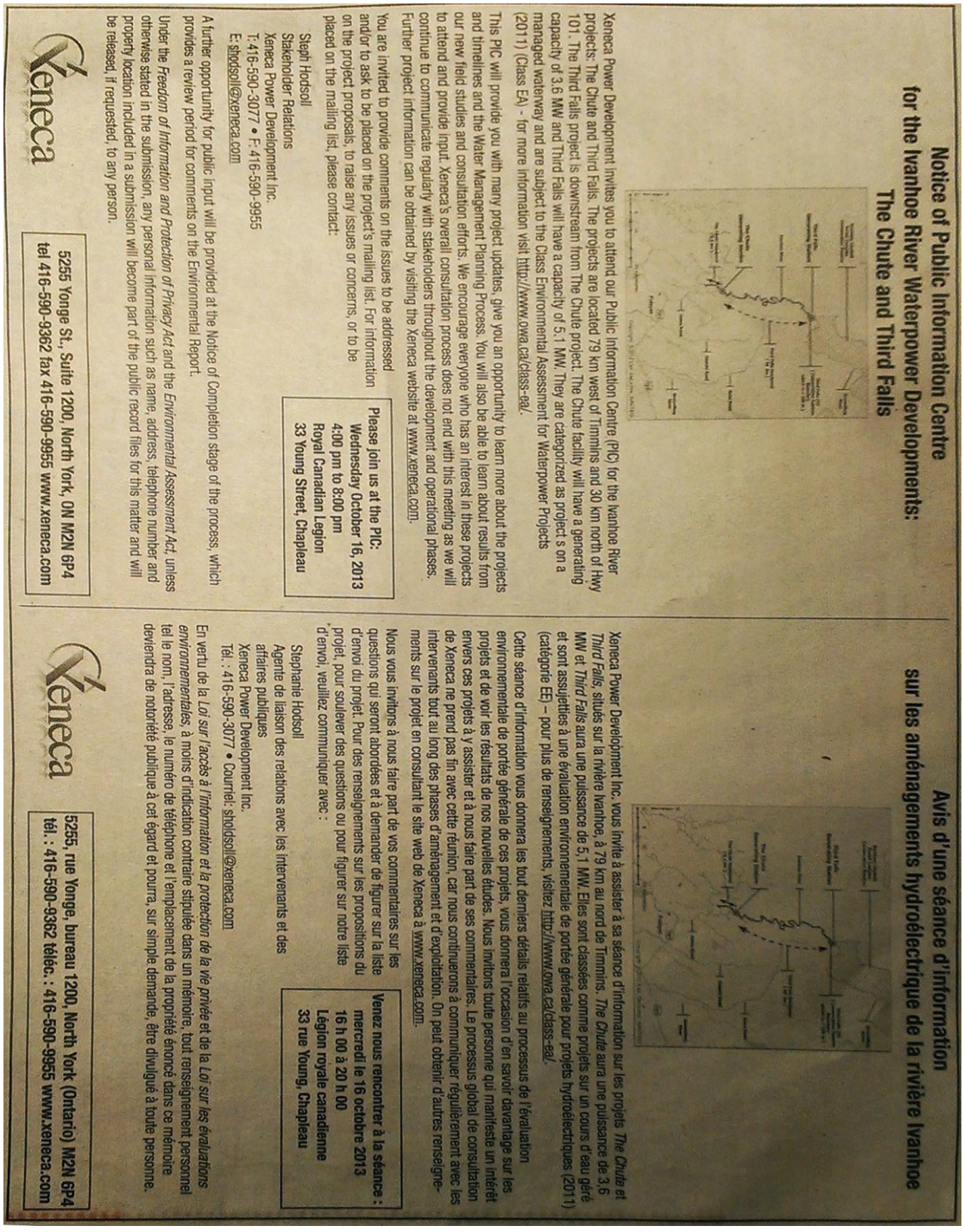
These points are particularly pertinent in Canada where local people are often separated from the archaeological process. Especially in impoverished communities such as First Nations reserves, the education and genuine inclusion of local stakeholders could (and has) helped preserve archaeological sites. Additionally, by including local businesses and developers in the preservation discourse, we could create sustainable preservation projects which can lead to

increased tourism revenue. Finally, as in Africa, the inclusion of local indigenous communities in the archaeological and preservation discourse would help First Nations people achieve Yellowhorn's (2006) goal of counteracting the hegemony of Western-based archaeology. Educating Aboriginal people about archaeology and including them in the preservation process would also help them reclaim their cultural values, decolonialize themselves, and help preserve indigenous culture, as Nicholas (2006) and Ganiatsis (2011) claim.

APPENDIX C

Notice of Public Information Centre

(From Section A6 of the Timmins Daily Press, October 10, 2013)



Notice of Public Information Centre
for the Ivanhoe River Waterpower Developments:
The Chute and Third Falls

Xeneca Power Development invites you to attend our Public Information Centre (PIC) for the Ivanhoe River projects: The Chute and Third Falls. The projects are located 79 km west of Timmins and 30 km north of Hwy 101. The Third Falls project is downstream from The Chute project. The Chute facility will have a generating capacity of 3.6 MW and Third Falls will have a capacity of 5.1 MW. They are categorized as project s on a managed waterway and are subject to the Class Environmental Assessment for Waterpower Projects (2011) (Class EA) - for more information visit http://www.owa.ca/class-ea/.

This PIC will provide you with many project updates, give you an opportunity to learn more about the projects and timelines and the Water Management Planning Process. You will also be able to learn about results from our new field studies and consultation efforts. We encourage everyone who has an interest in these projects to attend and provide input. Xeneca's overall consultation process does not end with this meeting as we will continue to communicate regularly with stakeholders throughout the development and operational phases. Further project information can be obtained by visiting the Xeneca website at www.xeneca.com.

You are invited to provide comments on the issues to be addressed and/or to ask to be placed on the project's mailing list. For information on the project proposals, to raise any issues or concerns, or to be placed on the mailing list, please contact:

Steph Hodsoll
Stakeholder Relations
Xeneca Power Development Inc.
T: 416-590-3077 • F: 416-590-9955
E: shodsoll@xeneca.com

Please join us at the PIC:
Wednesday October 16, 2013
4:00 pm to 8:00 pm
Royal Canadian Legion
33 Young Street, Chapleau

A further opportunity for public input will be provided at the Notice of Completion stage of the process, which provides a review period for comments on the Environmental Report.

Under the *Freedom of Information and Protection of Privacy Act* and the *Environmental Assessment Act*, unless otherwise stated in the submission, any personal information such as name, address, telephone number and property location included in a submission will become part of the public record files for this matter and will be released, if requested, to any person.

Xeneca

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Avis d'une séance d'information
sur les aménagements hydroélectrique de la rivière Ivanhoe

Xeneca Power Development Inc. vous invite à assister à sa séance d'information sur les projets *The Chute* et *Third Falls*, situés sur la rivière Ivanhoe, à 79 km au nord de Timmins. *The Chute* aura une puissance de 3,6 MW et *Third Falls* aura une puissance de 5,1 MW. Elles sont classées comme projets sur un cours d'eau géré et sont assujetties à une évaluation environnementale de portée générale pour projets hydroélectriques (2011) (catégorie EE) – pour plus de renseignements, visitez http://www.owa.ca/class-ea/.

Cette séance d'information vous donnera les tout derniers détails relatifs au processus de l'évaluation environnementale de portée générale de ces projets, vous donnera l'occasion d'en savoir davantage sur les projets et de voir les résultats de nos nouvelles études. Nous invitons toute personne qui manifeste un intérêt envers ces projets à y assister et à nous faire part de ses commentaires. Le processus global de consultation de Xeneca ne prend pas fin avec cette réunion, car nous continuerons à communiquer régulièrement avec les intervenants tout au long des phases d'aménagement et d'exploitation. On peut obtenir d'autres renseignements sur le projet en consultant le site web de Xeneca à www.xeneca.com.

Nous vous invitons à nous faire part de vos commentaires sur les questions qui seront abordées et à demander de figurer sur la liste d'envoi du projet. Pour des renseignements sur les propositions du projet, pour soulever des questions ou pour figurer sur notre liste d'envoi, veuillez communiquer avec :

Stephanie Hodsoll
Agente de liaison des relations avec les intervenants et des affaires publiques
Xeneca Power Development Inc.
Tél. : 416-590-3077 • Courriel: shodsoll@xeneca.com

Venez nous rencontrer à la séance :
mercredi le 16 octobre 2013
16 h 00 à 20 h 00
Légion royale canadienne
33 rue Young, Chapleau

En vertu de la *Loi sur l'accès à l'information et la protection de la vie privée* et de la *Loi sur les évaluations environnementales*, à moins d'indication contraire stipulée dans un mémoire, tout renseignement personnel tel le nom, l'adresse, le numéro de téléphone et l'emplacement de la propriété énoncé dans ce mémoire deviendra de notoriété publique à cet égard et pourra, sur simple demande, être divulgué à toute personne.

Xeneca

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