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Visualizing the Historic Landscape of Montserrat: Social Justice Through Community Mapping in a Post-Colonial Environment

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Visualizing the Historic Landscape of Montserrat: Social Justice Through Community Mapping in a Post-Colonial Environment

A Thesis Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Kevin Patrick Russell
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DEDICATION

To my family and my wife

I dedicate my work to you.

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ABSTRACT

Scholars across the disciplines of geography, archaeology, and history argue for need to reconceptualize representations of history in post-colonial environments and to actively orient scholarly research towards the inclusion of local knowledge along with 'expert' academic knowledge through participative methods. This thesis will show that the landscape surrounding the Little Bay Plantation contains cultural associations vital to a "socially just" interpretation of Montserrat culture that is not captured by existing archaeological research centered on ruins of the plantation infrastructure and European historical discourse. Through a participatory research methodology this thesis shows that there are many memories inscribed within and upon the landscape of Little Bay; the story of the Cpt. Wm. Carr, for whom the site is named, is but one of them.

To provide an alternative narrative this study incorporates qualitative and participatory methods to focus on geographic issues related to the non-elite community, their associative landscapes, and how the drama of human activity has been recorded in the landscape. The results of the study provide an example of how GIScience and geographic theory can be employed to include the knowledge and associations of local people intimately familiar with the landscape, thereby creating a richer, more nuanced representation of Montserrat cultural heritage at the Little Bay Plantation.

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Introduction

On July 18, 1995, the long-dormant Soufriere Hills volcano rumbled awake with an eruption that forever changed the Caribbean island of Montserrat. Eventually, the eruption would destroy Montserrat's capital city and force a mass migration of its people after rendering more than 60 percent of the island uninhabitable (Miles, Munby et al. 1997, Pulsipher and Goodwin 2001). Also destroyed was much of Montserrat's cultural heritage—a rich tapestry woven into the landscape over the course of nearly 400 years by colonial planters and traders, Irish indentures and enslaved African laborers and their modern descendants (Pulsipher 1986). Construction of a new capital city in the northern

Figure 1. Northern Montserrat (www.travel2thecaribbean.com)

region (see figure 1) is occurring at a rapid pace as the local government scrambles to meet the infrastructure and housing needs of the public (Miles, Munby et al. 1997).

Concurrent with reconstruction efforts are oral history and heritage reclamation projects dedicated to recording, protecting, interpreting, and communicating the precious remaining heritage resources to Montserratians and visitors.   The Little Bay plantation site, founded in the 17th century and used into the 20th century, is being developed as a historical heritage centerpiece of the new capital city at Little Bay (Miles, Munby et al. 1997). While the stone ruins of the plantation houses have been transferred to the Montserrat National Trust (Miles, Munby et al. 1997), the surrounding landscape and the memories of the modern day descendants of the slave and indentured community contained within are threatened by the continued development for European tourism interests. Such development is purportedly based on colonial-era interpretations of history.

1.1 Statement of Purpose

This thesis will show how engagement with critical studies in geography and GIS can provide the means to assist the production of alternative narratives to counter the erasure of local histories in post-colonial environments. Scholars across the disciplines of geography, archaeology, and history argue for the need to reconceptualize representations of history in post-colonial environments and to actively orient scholarly research toward increasing the integration of local knowledge with 'expert' academic knowledge through participative methods (Brodnig and Mayer-Schonberger 2000).

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These scholars call for efforts to recapture truncated historical memory and provide new symbolism that permits Caribbean people to experience their islands and local places in different ways. Furthermore, these critical studies of geography have shown that research which relies solely on empirical evidence produced by colonial authorities (official correspondence, statistical digests, maps, laws) fails to provide a complete representation of Caribbean geography in that it largely overlooks the great majority of the population in favor of the few who were administrators, traders, planters or managers or those who were defendants in court cases (Sued-Badillo 1992, Schmidt and Patterson 1995, Delle 1998, Given 2004, Cateau and Pemberton 2006, Rambaldi, Tuivanuavou et al. 2006). Within the larger population existed those who found ways to resist colonial domination either through non-participation, such as evading taxes, census surveys, and so forth, or through active resistance through methods such as clandestine agriculture, praedial larceny, smuggling, or living secretly on marginal lands (Pulsipher 1986, 1990, 1991, Sued-Badillo 1992, Given 2004).

Recovery of the cultural landscape, such as that at the Carr site (see figure 2), is important because the landscape serves as a repository of heritage and provides cultural meaning for individuals and their community who derive from them a basis for identity and a sense of belonging to a place (Scazzosi 2004, Waterton 2005, Taylor 2009). Research of this particular landscape is of special interest for it contains the original context for the Little Bay Plantation site yet it is heavily impacted by construction of the new capital city threatening the ongoing research and future interpretation of the site for the public and other valuable resources related to the plantation history have been

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obliterated by the 1995 eruption of the Soufriere Hills volcano. Knowing more about the use of the land by ordinary people is crucial to designing an accurate interpretation for Montserratians and their visitors. The critical need to restore Montserrat to a socially and economically viable country has been acknowledged by the international community and supported by efforts from the British Government, the United Nations Development Programme, and other international organizations (Ahmed and Greenaway 2002).

I argue that the landscape surrounding the Carr Plantation contains cultural associations vital to a socially just interpretation of Montserrat culture that is not captured by existing archaeological research centered on ruins of this plantation infrastructure. Previous work by Pulsipher at the Galways Estate built a solid methodological foundation of including indigenous knowledge with geographic research in the south of Montserrat but the volcanic eruption has destroyed the all traces of that landscape. My thesis builds upon Pulsipher's research with modern geographic information science to demonstrate that there are many memories inscribed within and upon the landscape of Little Bay; the Cpt. Wm. Carr story is but one of them. To provide an alternative narrative this study has focused on the indigenous geographies that are related to the non-elite community, their associative landscapes, and how the drama of human activity has been recorded in the landscape. The results of the study provide an example of how GIScience and geographic theory can be employed to include the knowledge and associations of local people intimately familiar with the landscape, thereby creating a richer, more nuanced representation of Montserrat cultural heritage at the Little Bay Plantation.

To address my research focus first, I will describe the general history of Montserrat and the Caribbean region. Then I will explore the role cartography as a precursor to GIScience has played in creating and supporting dominant narratives. Next, I will examine how new attitudes towards a shifting post-modern epistemology in cartography and GIS is providing new opportunities to produce counter-narratives that empower local communities to create 'usable pasts' through which alternative definitions of cultural identity can be produced. Following this review of literature I will describe my research methodology of Grounded Visualization that combines qualitative inquiry within a GIS to produce a digital map that will act as an alternative narrative to the discourse produced by interpretations of heritage focused only on the ruins of the plantation estate. Then I will explore the results of my analysis and the challenges presented by the Grounded Visualization methodology.

Figure 2. Map of Montserrat by the author.

CHAPTER 2
LITERATURE REVIEW

2.1 A Brief History of Montserrat

The general history of Montserrat is similar to what occurred on other European settlements in the Caribbean. English and Irish colonist s from the nearby island of St. Kitts first settled Montserrat in 1632 and employed Irish and Scottish indentured laborers to work plantations fields of indigo, cotton, and tobacco (Pulsipher 1986). The quality of the tobacco produced was inferior to competing Virginia tobacco and a decline in profits
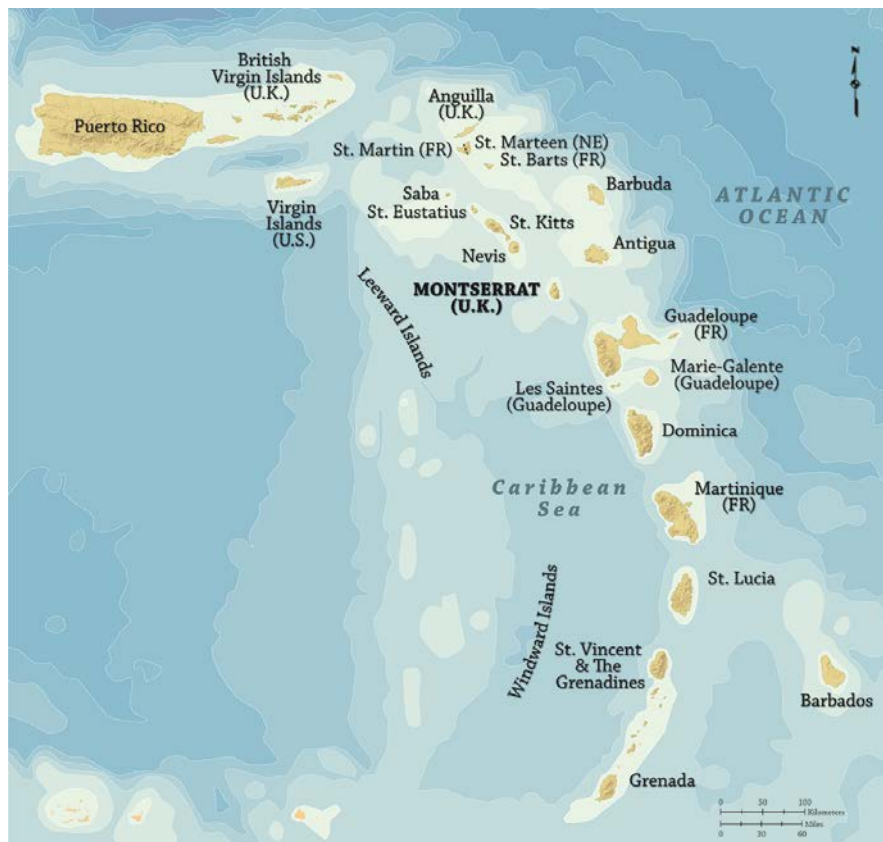
Figure 3. Map of the Caribbean region by the author.

resulted. This led to the search and discovery of a new cash crop in sugarcane (Pulsipher 1986). Sugar made big profits for colonial investors and by 1700 the sugar economy dominated the Montserrat and the Caribbean economy (Pulsipher 1986, Sued-Badillo 1992, Cateau and Pemberton 2006). The new economy spurred investment and created a labor gap that could no longer be filled by indentured servants from Ireland and Scotland. Instead, thousands of enslaved Africans were brought to Montserrat to work new sugar plantations (Pulsipher 1986). The push for profits in larger sugar fields led to the construction of new plantations on marginal lands. Combined with poor agricultural practices these factors resulted in severe environmental effects such as heavy deforestation, settlement of the island interior, inflated land prices, the displacement of smaller farmers, and introduced exotic and invasive animal and plant species (Pulsipher 1986). The colonial investors operating the plantations had a singular desire to extract as much revenue from the land and laborers as quickly as possible, no matter the environmental or human costs.

Sugar continued to dominate the Caribbean economy and way of life throughout the 18th century. Sugar fields were cultivated on almost all the arable land and Montserrat's population grew dramatically. At the beginning of the 18th century the ratio of blacks to whites was 5:1, by the end of the 18th century that ratio had grown to nearly 10:1 (Pulsipher 1986, Pulsipher and Goodwin 2001). The 1830's brought emancipation of the enslaved but an unequal political and socio-economic environment remained in the

19th century. In reaction to a global decline in the sugar economy, a system of sharecropping was established on Montserrat and nearby islands like Barbados (Pulsipher 1986, Reid 2008). Under sharecropping formerly enslaved workers were bound to specific plantations not with chains or fences but by the workers' ties to the land itself. Only those workers who agreed to work at low wages and under continued social restrictions for their home plantation were allowed to retain their houses and subsistence gardens(Pulsipher and Goodwin 2001, Given 2004). By the middle of the 20th century only a few sugar estates were still in operation on Montserrat. Earthquakes and hurricanes hastened the decline of the remainders and the last sugar estate stopped production in 1965 (Pulsipher and Goodwin 2001).

2.2 The Caribbean Legacy of European Colonialism

The Caribbean has the unfortunate distinction of being both the first and last colonized space in the Americas. Consequently, the Caribbean people have had the least amount of time to recover from the effects colonialism has had on their economies and societies (Sued-Badillo 1992). The economic exploitation of labor and resources combined with disinformation spread by colonial administrations had a direct effect on the local production of knowledge in colonized communities, thereby limiting their capacity to refute colonial and Western misrepresentations of Caribbean culture (Sued-Badillo 1992, Schmidt and Patterson 1995, Given 2004, Cateau and Pemberton 2006). The manipulation of historical interpretations allowed colonial administrations to confound, sustain, and reproduce the existing power relations granting colonial

administrations greater power to influence the Caribbean cultural identity by filtering what values and cultural meanings were socially permissible (Waterton 2005). Colonial administrations manipulated the production of histories by encouraging certain forms of history and discouraging or silencing others (Schmidt and Patterson 1995). For example, in the colonial era Africans were labeled are technologically inferior to the West and therefore a more primitive society, not equal to, nor deserving the basic human rights assumed by Europeans. Sued-Badillo and Stuart Hall argue that these suppressions of economic, political, and cultural values during the colonial period has resulted in a regional 'historical unconsciousness' and associated crisis of identity which has led the Caribbean people today towards equal efforts to extricate themselves from layers of colonial misrepresentations that "have devalued their human worth as well as that of their lands...while searching anxiously to extol symbols of identity" (Hall 1989, Sued-Badillo 1992). To provide alternative narratives these authors argue that new symbols generated from within local communities can provide a challenge to historical representations between Caribbean communities and the misrepresentations generated during the colonial era.

2.3 Cartography & Geography in the Colonial Era

The disciplines of geography, cartography, archaeology, and anthropology share a common origin with the emergence of European nationalism, the rise of the nation-state as system of governance and social organization during the eighteenth and nineteenth centuries, and notions of modernity (Lane 2011). This close relationship between

geography and Western empire-building efforts has had lasting impact on geographic theory and research. Paul Lane argues that in archaeology [geography & cartography] while much of the formal structures of European colonialism have been removed, many intellectual, political, and economic consequences remain within Western science's colonial roots and that Western academics as a whole remains largely Eurocentric and privileges Western perspectives in their discourses (2011). He argues that the "imbalances of power inherent in colonialism created marginalized groups and persons whose voices could not be heard within the hegemonic discourse of that setting, and in this sense they became (or remained) sub-altern" (quoting Spivak, Lane 2011). Drawing from other postcolonial scholars, Lane adds that, "colonial encounters did not produce impoverished versions of earlier, pre-colonial social formations, but instead generated new, hybrid or creolized forms of culture" (quoting Bhabha, Lane 2011) to marginalize indigenous culture.

The delineation of these marginal groups was largely based on race. Dwyer and Jones argue that geographers and cartographers were complicit in the construction of race by assisting in the production of an ethos that spatially segmented society in a manner that provided "discursive resources for the cohesion and maintenance of white identities" (2000). In addition, other scholars of critical geography have shown that "throughout its development, Western geography has been involved in the construction of 'races' and genders. Since its earliest involvement in exploration and scientific classification of the world, it has had a racist role, in that it has (first and foremost) supported the

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establishment of Eurocentric/Western domination both politically and intellectually"
(Kobayashi and Peake 1994).

The complicity of Eurocentric geography and cartography allowed European white identity to be constructed as the normative measure against which other racial identities were judged while removing the topic of white identity from discourse and further examination. The social construction of whiteness relies on an essentialist view of identity wherein certain general properties of a social group are considered universal yet maintain no relational interaction with the process of racial formation (Dwyer and Jones 2000). This means that an essentialist framework of whiteness is considered the norm of society and all other racial identities are judged by their degree of separation from whiteness. This has allowed whites to define themselves as a social group while removing whiteness from the wider discourse of racial diversity. Some cultural groups, such as the Irish and Italian immigrants who came to America, have overcome this white socio-spatial epistemology and rewrote aspects of the white narrative. For other social groups including Afro-Caribbeans and Hispanics, acceptance has been marginal.

Maps produced by Western practitioners of cartography in the employ of colony building nation states played a large role in defining and demarcating cultural boundaries according to colonial era ideologies of race I just described. The information and knowledge within maps contains inherent power that has the capacity to enrich and enlighten and/or the capacity to delude and deceive map-readers. Harley argues that the inclusion and exclusion of information contained in maps by cartographers is regulated at multiple levels by external (the nation state) and internal (the cartographers own bias)

powers whose goals have historically been biased towards Eurocentric narratives and

legitimized by outdated ideologies of objective science (Harley 2008) and that what is *not*

included in the map is just as important as what *is* delineated (see figure 4).   First,

external power influences from state patrons and elite institutions controlled what was

included in maps. Government and professional institutions defined the technical

production of maps through published writings to create standards of practice. Standards

including projection systems, representative symbols, symbol inclusivity, and required

descriptive text were normalized to promote Western methods above others. Based on

Western standards, maps created by non-Western cultures were not 'true maps' and did

not exist in the same category, thereby reducing their authority and limiting the

production of alternative forms of knowledge and interpretation. The second level,
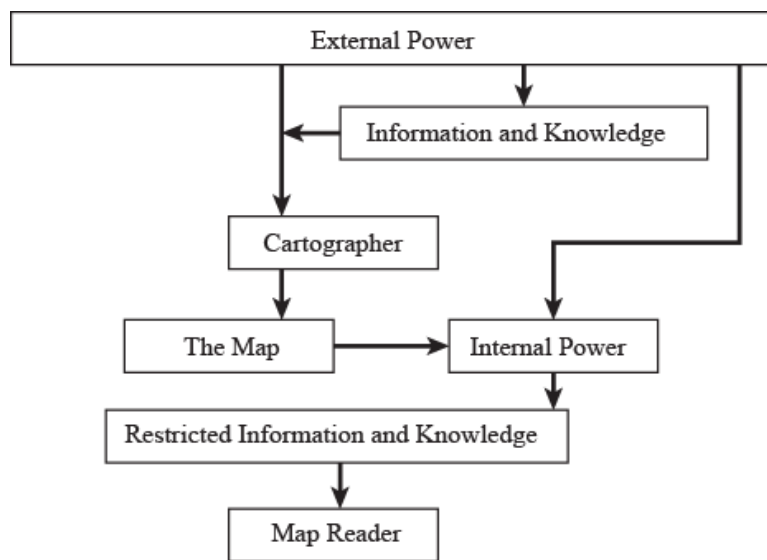
Figure 4. A map designed in the modernist fashion illustrating Harley's description of the
foundational constraints limiting both the scope and function of cartography as well as
the map reader's access to knowledge (adapted from (Paulston, Liebman et al. 1996).

Harley argues, originates from an internal power "embedded in the map" created by the inclusion and exclusion of information in the map as determined by the will of the previously mentioned external powers. This methodology created what Foucault describes as a 'spatial panopticon' where the internal power limits map readers to only the knowledge included by the external powers (Paulston, Liebman et al. 1996). The danger lies in the fact that map readers have no clue as to what has been left out of the map and why the knowledge has been excluded. Those individuals and/or groups who have not had access to the power structure are removed from the essentialist metanarratives created during the process of modernist cartography and geography (Paulston, Liebman et al. 1996). Within this atmosphere of positivist notions of scientific objectivity standards of cartography became established that further legitimized Eurocentric and racist metanarratives.

By their very nature maps are able to communicate information both graphically and textually allowing colonial narratives to bridge language and cultural barriers. This ability, combined with the notion that maps were presented by cartographers as 'true representations' of a geographic space (Harley 2008) served to legitimize colonial metanarratives. Geographic space was understood to consist of "discrete and bounded objects and spatiotemporal units that can be delineated, known, and assigned attributes" (Dwyer 2000). Presented as 'true representations' of 'known and assigned attributes' maps helped to affirm the existence and location of its subjects in reality by proclaiming with an authoritive voice that, "[t]his is there, the map affirms, again and again and again"

(Dodge, Kitchin et al. 2009). During the age of colonial expansion these practices of cartography became standardized into a normative form that removed from the discourse representations and forms of knowledge different from the lens of Western positivist science that assisted the colonial discourse.

Dwyer and Jones outline two conceptions of space used by geographers and cartographers to (un)consciously privilege European interests during this period. First, they argue that cartographers and the maps they produced limit perceptions by representing space and the people and objects in that space with respect to a single point in a method known as Cartesian perpectivalism (Dwyer and Jones 2000). Critical scholars today argue that this method spatial interpretation fails to represent the complexity of cultural geographic processes and relationships (Bodenhamer, Corrigan et al. 2010). Second, critical scholars argue that historically cartography has suffered from its dependence on occularcentrism where maps are presented from an elevated vantage point from which the world can be surveyed in its entirety (Dwyer and Jones 2000). This 'God's eye view' has been criticized for creating a false perception of objective reality whereby the removal of the observer hides the social process inherent in creating cartography (Dodge, Kitchin et al. 2009). Barney Warf echoes this sentiment in his description of Descartes definition of the occularcentrist model as a "disembodied, rational mind without distinct social or spatial roots or location (but implicitly male and white)" resulting in a model of knowledge "devoid of social origins and consequences (Warf and Arias 2009).

The delineation by geographers and cartographers of social space within these artificially discrete objects and spatiotemporal units relied on ideologies and methods that privileged Western interests. J.B. Harley, one of the few cartographers who has called for increased engagement with postmodern theory, argues that mapmakers were compelled to design maps and create knowledge limited by what was considered scientific and objective standards in order to define themselves and the practice of cartography as scientific and therefore relevant and equal to other academic disciplines (1989). In doing so, cartographers neglected to examine the discourse of what constitutes objective knowledge, how established social, political, and economic powers influenced the definition of objective knowledge, the role of the cartographer themselves in the inclusion/exclusion of mapped information, and subsequent interpretation of maps by map readers. Harley argues that the role of the cartographer as author and the decisions made in labeling geographical features reflects the current standards of their time and the dominant social and political milieu present (2008).

2.4 Towards a Post-Colonial Cartography

But all is not lost. Mitchell shows that while the discipline's historical "complicity with imperial, commercial, and military powers" along with the associated geopolitical and geoeconomic processes that have created "a violent world order" and an "age of extremes", Mitchell argues geography is well suited to resist continued complicity and in fact has "significantly (if not completely) reoriented the discipline to…the center of radical social justice theorizing" in academics (Mitchell 2004).

Mitchell's 'blueprint for a geography of justice' calls for greater attention among the discipline to made to geography's contribution of critical theory for it has become the "key to the development of a socially just world". He argues that "social justice is impossible…without the production of a socially just landscape" that is formulated through geographic theory and interdisciplinary collaboration. If scholars answer Harley's call for inclusion of postmodern/colonial theory in cartographic research and practice then cartographers are uniquely suited to being on the leading edge of progress towards such a socially just world.

To apply postmodern theory to the practice of cartography one may begin by examining how the same external and internal powers that influenced cartography have simultaneously influenced our society. For example, in the United States portions of the population have been excluded from the greater society in the manner non-standard information has been limited in maps. Schein's work in examining the racialized practices of belonging in the social landscape provides a starting point. His work examines the how people who have been written out of 'belonging' through land and landscape. Instead of examining the ideological framework of landscape, Schein explores how the same landscape can provide opportunities for "oppositional politics of belonging" where the land and landscape can serve as "the practical stage upon and through which citizenship and community can be practiced" (2009). Schein argues that the landscape provides a basis for examining "belonging-as-social-justice", where oppositional responses to dominant social, political, economic, and cultural practices can make small advances through the simple activities of daily life (2009). A postmodern cartography

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that details maps with mini-narratives related to inclusion into the greater landscape can provide the alternative oppositional discourse Schein calls for.

Including local people in the research process is critical to ensuring that alternatives to dominant representations are heard. Participatory Research Mapping (PRM) is a methodology that has been increasingly used in marginalized communities to produce research aimed at social justice (Rambaldi, Tuivanuavou et al. 2006). The success of PRM in helping disadvantaged communities reclaim their heritage landscapes is based on the inclusion of local people in the mapping process. Local knowledge is now acknowledged by the scientific research community and international policy-makers as a legitimate source of information and guidance in the sustainable management of environmental and cultural resources (Brodnig and Mayer-Schonberger 2000). The method relies on the assumption that local populations have an intimate knowledge of their landscape and, together the researcher and participant fuse this environmental and cultural knowledge with technical expertise and modern cartography (Herlihy and Knapp 2003) in an constructivist effort to represent the spatial realities from local contexts. Practitioners of PRM echo Delle's (1998)and Given's (2004) findings that historically cartography has been used by the elite and powerful to demarcate and maintain control of landscapes and the people who inhabit them (Chapin, Lamb et al. 2005). However, PRM practitioners note that cartography today, when combined with inclusive PRM methodologies in a constructivist interpretive framework, has the potential to reverse this trend and offer local communities the opportunity to have a voice in the representation

and subsequent management of their landscapes (Corbett and Rambaldi , Nietschmann 1995, Herlihy and Knapp 2003, Chapin, Lamb et al. 2005).

In this fashion cartography and geography can be positioned as a potential force for anti-colonial practice and for a different understanding of the past, independent of the history produced by European observers. The development of local knowledge through cartography based on investigations of the past through oral traditions and histories of indigenous communities is now seen as the way best to challenge older claims (Nietschmann 1995, Brodnig and Mayer-Schonberger 2000, Herlihy and Knapp 2003, Cateau and Pemberton 2006, Lane 2011). To challenge the narratives and interpretations produced during the colonial era, cartographers can offer alternatives that emphasize local processes and agents as the driver of change and innovation, rather than outside factors that reflect modernist ideologies and misconceptions. Such cartography can be used to create 'usable pasts' that produce knowledge that answers questions about the how and why of past history, but also addresses some of the problems and challenges that face the community in the present day (Lane 2011).

But what does a usable past look like? Scholars such as Paul Gilroy and Bassey Andah call for a reconstruction of "the primal history of modernity from the slave's point of view" that questions the dominant ideology of Western historiography of history as progress through the inclusion of slave narratives (Cateau and Pemberton 2006). Gilroy argues that when the lives and experiences of slaves and their descendants are considered within the scope of history, we as a society and as academics must rethink our understanding of "progress" and the concept of Western modernity itself (Gilroy 1993).

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Can we as a society and as academics truly call our temporal journey through history as advancement in light of the oppressive and genocidal facts of the Black Atlantic experience? As an answer, the Black Atlantic seeks to "transcend both the structures of the nation state and the constraints of ethnicity and national particularity" to understand Black culture from around the Atlantic in a transnational sense and not as marginal or subsets of dominant national cultures (African-Americans for example) (Hall 1989).

In regards to conceptualizing and mapping culture in general, Stuart Hall argues that cultural identity should be conceptualized as a 'production' that is constantly in the process of creation, generating representations of identity from within. In addition, cultural identity is not found by connections to a 'true' past but examining the "different ways we are positioned by, and position ourselves within, the narratives of the past" (1990). The construction of culture is a dynamic process influenced by the countless interactions present in daily life. Cultural identity should be considered more as "unstable points of identification, which are made, within the discourses of history and culture. Not an essence but a positioning" (Hall 1990). The Caribbean region offers a good example of how cultural identity is constructed in this manner. In the Caribbean cultural identity is defined by both regional similarities and differences that form two axis framing Caribbean identity: the axis of similarity and continuity; and the axis of difference and rupture. Within this framework Hall argues that Caribbean cultural identity is formulated in relation to three general 'presences': Presence Africaine, Presence Europeenne, Presence Americain. These byproducts of the colonial era have influenced the formation of cultural identity but Hall argues that more factors must be

considered to understand cultural identity. Quoting Fanon, Hall states that, "we must not therefore be content with delving into the past of a people in order to find coherent elements which will counteract colonialism's attempts to falsify and harm…A national culture is not a folk-lore, nor an abstract populism that believes it can discover a people's true nature. A national culture is the whole body of efforts made by a people in the sphere of thought to describe, justify and praise the action through which that people has created itself and keeps itself in existence" (1990).

Working within this concept of usable pasts, Schein examines the racialized practices of belonging and "people who have been written out of 'belonging', precisely through land and landscape". Instead of examining the ideological framework of landscape, Schein explores how the same landscape can provide opportunities for "oppositional politics of belonging" where the land and landscape can serve as "the practical stage upon and through which citizenship and community can be practiced". Schein argues that the landscape provides a basis for examining "belonging-as-social-justice", where oppositional responses to dominant social, political, economic, and cultural practices can make small advances through the simple activities of daily life (Schein 2009).

The challenge put forth by the Black Atlantic and scholars like Hall and Schein aligns with the goals of postmodern cartography. Geographical features have been labeled by cartographers according to the current standards of their time and reflect the dominant social and political milieu the maps were created in. In the United States today there still exist features labeled on maps with discriminatory names such as Nigger Hill,

Squaw Tit, and cities such as Victory, WI named for the successful removal of a previously established Native American settlement (Harley 2008). To provide alternatives in areas of contested history and representation multiple place names can be included to highlight the intersection of indigenous landscapes with colonial landscapes, restore place names to features erased by colonial administrations, towards an effort to more fully contextualize the multiple realities of mapped space. At the 2011 North American Cartographic Information Society (NACIS) conference Dr. Margaret Pierce with the University of Kansas presented an excellent example of such postmodern and inclusive cartography. Her work with Native Americans in the state of Maine leverages local tribe knowledge to recreate maps to visualize locations and interconnections of geographic features with symbols based on tribal history, interpretation, and language. After multiple revisions the finished maps contain no English language place names, an approach that attempts to remove outside assessment of the mapped culture.

To produce critical cartography new theoretical methodologies that focus on empowerment, that reach out to the hard to reach, and have the capacity to include multiple viewpoints and perspectives must be considered. The following chapter describes my research methodology to produce a post-modern cartography that provides a counter-narrative to the ongoing colonial discourse around the Little Bay Plantation.

CHAPTER 3
METHODOLOGY

3.1 Theoretical Framework

This study provides a rich and nuanced representation of local geographic knowledge and explores the social construction of space around the Little Bay Plantation in Montserrat. I used in-depth interviews and observation of research participants as my primary means of collecting data. I supplemented the evidence from participant interviews with research of archival materials (historic maps and literature), extensive global positioning survey (GPS) of the Little Bay Plantation, and walks through the adjacent hinterland. During the data collection process these data were combined in a geographic information science (GIS) geodatabase. From this GIS database I produced an interactive digital map application to visualize my results for analysis.

In order to explore local knowledge and discover alternative narratives related to the heritage landscape of the Little Bay Plantation, I decided that my research methodology must have the capacity to include multiple viewpoints and perspectives while providing strategies to leverage the capabilities of GIS as an instrument of critical geographic theory. After an extensive review of critical geographic and GIS literature I determined Grounded Visualization (GV) to be the best methodology for my study. Grounded Visualization is an analysis strategy that draws on feminist and critical GIS arguments and grounded theory to promote a "mindful yet open-minded progression through the research process" by leveraging shared characteristics between qualitative

methods and GIS (Knigge and Cope 2006). The strength of the GV method lies in several commonalities between the grounded theory and GIS visualization methodologies. The following sections provide a brief overview of these areas of commonality between the two approaches.

3.2 Grounded Theory

"Grounded theory demands critical inquiry: it starts from the premise that the world is in a constant state of flux, and that individuals are not all equally placed; it seeks not only to uncover conditions that are relevant to the research question, but also to build in process and change by exploring how individuals respond to changing conditions and to the consequences of their actions" (Knigge citing Bailey 2006). The characteristics of grounded theory, its flexible design and focus on issues related to subjectivity, difference, partial and situated knowledge, power, and discourse combined with its inclusivity to geographical concerns of scale, context, and place, make it a powerful tool for critical research (Knigge and Cope 2006).

Grounded theory attempts to build theories from data about social issues so that the theories are 'grounded' within the context of people's everyday experiences. Scholars who use grounded theory in their research are generally interested in the subjective experiences of people's everyday lives as they are influenced by the larger geographical and historical contexts in which they take place (Knigge and Cope 2006, Denzin and Lincoln 2008, Creswell 2009). As a consequence grounded theory allows researchers to

examine both small-scale and large-scale geographic phenomena while exploring insights into both specific instances and broader trends (Knigge and Cope 2006).

Grounded theory is formed around the concept of emergent design. Unlike quantitative methods which normally proceed through a sequential series of research and analysis stages, grounded theory operates in a non-linear fashion. Where linear design strategies demand a one-way progression through a series of predefined stages, the design of grounded theory allows for both data collection and interpretation procedures to evolve over the course of a study in response to information created at a different phase of the study (Lewis-Beck, Bryman et al. 2004, Creswell 2009). In grounded theory the qualitative data from field observations, interviews, notes, archives, and multimedia are continuously analyzed during multiple stages of data collection, coding, and categorization (Denzin and Lincoln 2008, Creswell 2009). During my study I reflected upon literature I reviewed, participant interviews I conducted, and the landscapes I explored to discover connections between the data from which I developed categories and codes. From further reflection and analysis of these codes and categories I generated themes I used in my final analysis and discussion.

To verify the accuracy of data acquired during qualitative research, grounded theory uses multiple sources to confirm the integrity of the research in a process known as "triangulation" (Denzin and Lincoln 2008, Creswell 2009). Triangulation is a method of cross-examination that studies research data from more than one perspective. More confident results are produced if data derived from multiple sources and/or methods lead to the same conclusion. When triangulation of research data produces conflicting

answers the method informs the investigator that a reframing of research questions or methods should be considered (Denzin and Lincoln 2008). Researchers will also make repeated observations at an area of interest to remove outlier observations and confirm previous data. The review of data and analysis with participants and peers is another common technique of triangulation that helps ensure the results of research remain valid(Denzin and Lincoln 2008).

The results of qualitative research based on grounded theory are often presented in a format known as "thick description". The thick description is a method common to social scientists, and a growing number of geographers, to provide the fullest context available when considering a problem (Scott-Jones and Watt 2010). The researcher uses every means available to immerse themselves and their audience within the same realm occupied by the subject of research. When crafted well, a thick description provides a deep and textured understanding of the subject through scientific analysis and knowledge within a social and emotional human context (Scott-Jones and Watt 2010). In my study the thick description technique is applied to a cartographic representation which scholars of qualitative GIScience describe as 'deep maps' (Bodenhamer, Corrigan et al. 2010). Deep maps incorporate imagery, audio, video, and narrative text in an interactive map document to produce a fully contextualized and immersive description of the research subject.

As a whole, grounded theory is similar to GIS in that it enables researchers to examine the particular and the general, a zooming in and zooming out process that can uncover hidden relationships and patterns. For example, the coding process separates and

groups information into larger themes for analysis. These coded themes generate a new 'image' of information at a larger scale. In the same manner, raster data in a GIS are often reclassified based on specific attributes and exported as new images for geovisualization and spatial analysis.

3.3 Geovisualization

The term geovisualization relates to the process, tools, and techniques of sustaining geospatial data analysis through interactive visualization in a GIS (Gregory and Ell 2007). MacEachren defines visualization in modern cartography as an activity that facilitates exploring 'unknowns' in a highly interactive environment, as opposed to traditional maps that communicate 'knowns' to a public audience (MacEachren and Taylor 1994). Furthermore, new advancements in computing and technology allow for the exploration and manipulation of data, use of multiple viewports of the same data, and the mixing of multi-media with maps and hence, are "not only a technological difference in tools for representation, but fundamental difference in the nature of how analysts interact with those representations" (MacEachren and Taylor 1994).

Knigge and Cope continue this argument, stating that geovisualization is more than an end product of combining data (2006). They argue that visualization's exploratory spatial data analysis (ESDA) processes of examining data at varying scales 'on the fly' and selective viewing of specific attributes for analysis compliment the "purposeful recursive data exploration" approach of grounded theory. ESDA facilitate

the identification of themes and processes enabling researchers to raise new questions while building new theories (2006).

3.4 Grounded visualization

There are four main areas of commonality between grounded theory and visualization. First, both grounded theory and visualization are exploratory methods. Both methods allow researchers to analyze data from multiple perspectives, facilitating the query of possible relationships, connections, or inconsistencies, and allow examination of alternative explanations for phenomena under study (Knigge and Cope 2006). The exploratory nature of GV allowed my study to develop over an extended period of time through several rounds of data collection and interpretation. I began with mapping and talking to people about the Little Bay Plantation but ended with mapping the Little Bay and Silver Hills region and talking to people about the village of Rendezvous. As themes emerged, I followed them and these multiple perspectives provided opportunities to compare and contrast, as well as, confirm other theories and data. The notion of multiple perspectives within GV also relates to the inclusion of multiple types of data I collected from ethnographic interviews and observation, GPS tracking, photography, and historic maps.

Second, both grounded theory and visualization are iterative and recursive processes that require multiple rounds of data collection, display, and analysis (Knigge and Cope 2006). Within each stage of analysis, practitioners of both methods rely on critical reflection of the ongoing analysis. The combination of iteration with critical

reflection strengthens the results and enables researchers "to be freed from the dictates of 'hypothesis testing' by allowing for more robust inductive research" (Knigge and Cope 2006). As I developed maps and digital models I often asked myself; for whom is this map feature intended? Who finds it important? To who's narrative does it belong?

The third shared characteristic between the two methods relate to the ability to simultaneously examine both the particular and the general. The ability to explore phenomena at large and small scales simultaneously enables both methods to highlight the connections between the dualisms of large/small scale or the particular/general through their "basis in real-world phenomena or human experiences of the everyday and their attention to broader processes" (Knigge and Cope 2006). Current archaeology interpretations present the Little Bay Plantation as a singular entity in space and time removed from any connections to wider cultural landscape. The narrative only allows for one story to emerge. Conversely, GV allows simultaneous interpretation of the Little Bay Plantation site within the larger context of the cultural landscape provided by participant interviews and observation. The site can be examined through specific individuals and their particular experiences or explored at a larger resolution through consistent references to topics that outline the collective experience of the local community.

Finally, Knigge and Cope argue that the fourth commonality between grounded theory and visualization is the way both methods can accommodate and represent multiple interpretations of the world and diverse views of reality (2006). Sometimes the multiple interpretations presented are complementary with the different perspectives

acting as mortar between gaps left by other data. Contrarily, sometimes multiple

interpretations are both "simultaneously contradictory and yet both 'true' - the

discrepancies themselves represent new areas for explorations" (Knigge and Cope 2006).

This is possible because both grounded theory and visualization are comfortable with the

notion of partial knowledge. Partial knowledge is the understanding that one set of data,

whether qualitative or quantitative, will describe one particular story whose strengths and

weaknesses derive from the data-collection methods, the position of the researcher, and

the way research questions were formed (Knigge and Cope 2006).

This understanding of partial knowledge allows both methods to incorporate the

concept of 'situated knowledge'; that is, the historical, geographical, and cultural context,

combined with recognition of the role of the researcher and the researched in the

construction of knowledge, all of this takes place "embedded in particular political,

social, and historical moments" (Knigge and Cope 2006). The authors warn it is not

sufficient for a method to be merely open to these techniques or to the possibility of using

them for progressive ends. Instead, they argue, "[t]he recognition of methodological

approaches as socially and politically laden means that they can be used in diverse ways,

ranging from the (un)consciously oppressive to critically engaged and potentially

empowering" (Knigge and Cope 2006). To be fully aware of my personal situated

knowledge I repeatedly reflected on my own social, cultural, and historic background as a

white American male while performing my research and analysis. By examining my

perceptions and partial knowledge I minimized the risk of (un)consciously skewing my

analysis. The act of 'staying out of my own way' allowed the multiple perspectives of

partial data I gathered to combine over time into a cohesive analysis that remained true to my goals of critically engaging and empowering local knowledge.

3.5 Interview Framework

I used in-depth interviews and observation as the primary means to collect research data. I interviewed a series of eight participants who either self-identified or were identified by other participants as knowledgeable of the historic landscape around the Little Bay Plantation. The people I spoke with were from the surrounding communities of Davy Hill, Drummonds, St. James, and the interviews were conducted in the Silver Hills, Rendezvous village, and at the Montserrat National Trust. These qualitative interviews helped me to capture the nuances of Montserratians' memories and associations with the landscape around the Little Bay Plantation, enabling my study to gain a better understanding of the heritage landscape creation process from a Montserratian perspective.   In the study the interviews are presented as an alternative narrative to the current Eurocentric interpretation presented by Western academics and developers.

Shortly after my arrival to the island, an interview with a local radio host was arranged by the leaders of the Little Bay Plantation archaeology team to discuss the operations at the Little Bay plantation with the general public participants I participated in a local radio interview with other visiting researchers associated with the Little Bay Plantation. The local radio provides a vital communication resource for Montserratians where it is used for local and regional news, neighborhood and family announcements,

and entertainment. Programs are generally replayed multiple times a day or during the week. I used the opportunity to briefly explain my study and to solicit knowledgeable participants for interviews. While no research participants were directly contacted through the program, the radio provided an excellent opportunity to disseminate my research intentions to members of the local community. Other public functions such as an open-house exhibition of the current archaeology research at the Montserrat National Trust were used to solicit participants. Participants also came from contacts with participants in previous ethnographic research performed by Pulsipher.

In addition, participants were located by simply reaching out to community members in the manner that Cinderby argues for in his essay on how to reach 'hard to reach' segments of a community. In order to represent portions of the population who are left out of traditional survey methods such as government census, Cinderby argues that a researcher must directly seek out and engage with potential interview participants from marginal communities (2010). I found this technique very successful and developed relationships with key participants by simply travelling through the neighborhoods surrounding the Carr plantation and engaging the residents in conversation. Other participants derived from contacts with participants from previous research on Montserrat performed by Dr. Pulsipher. Research participants had different socio-economic backgrounds. The majority were male, although I did formally interview one female participant. The age range of participants (from the mid-thirties to the late-sixties) was fairly evenly distributed.

Additional qualitative data was obtained through participant observation based on the "knowledgeable tourist" approach outlined by Scott-Jones and Watt (2010). They argue that a researcher needs commitment and a demonstrated willingness to participate in the social worlds of their research participants and immerse themselves within the cultural setting, in order to learn how to "walk and talk" like a native (Scott-Jones and Watt 2010). To increase my knowledge of everyday life in Montserrat and around the Carr Plantation I rented a house in a local neighborhood, participated in local recreation events, ate dinner with local families, and gave local community members rides to and from the town center near the Carr Plantation with my rental vehicle.

During interviews I used both unstructured and semi-structured question formats (see Appendix B). The interview style and question format was designed to allow each participant to discuss in as much detail as they desired (McCracken and McCracken 1988). I developed a set of potential questions before beginning field-work. I expected that new unforeseen issues or knowledge would be discovered during my investigation and that my interview format would need to adapt as well. Initial questions were structured and focused on participant's personal history, their memories of the landscape and on themes concerning significant places, place names, significant people associated with the landscape, trail networks, water access, and agriculture, while follow-up questions were asked to clarify the participants' response. During our conversations I sought to explore how Montserratians interpret the landscape in their daily lives. Beginning with the participants self-reported history, I sought to understand which elements in the landscape they mentioned, and which places or features elicit memories

for them. Interviews were documented by hand-written notes and audio recordings, while simultaneously tracking and recording the geospatial location of specific features and interview route with GPS (see figure 5). To protect the rights of participants IRB protocols that require the clear explanation of the research intentions and associated risks were followed and consent to record interviews were signed by each participant.

Figure 5. Map of interview GPS tracks by the author.

3.6 Development of the GIS Interactive Map Application

I began creation of a GIS database by first examining the geographic projection systems used in the UK DOS 1960 map of Montserrat and the Little Bay region and comparing it to available projections in ESRI ArcGIS software. I determined the most appropriate projection to be the 1958 Montserrat British West Indies projection in meters. At this stage I created a geodatabase to share and archive the data created during the study. Data is structured in one of two formats in a GIS geodatabase: the raster data model or the vector data model. The vector data model is composed of points, lines, and polygons. A point is the fundamental unit in the vector model and is stored as a pair of (x,y) coordinates in the GIS (Gregory and Ell 2007). A line is composed of two or more points creating a system of nodes (junction points) and segments or arcs (connecting lines). An arc is curved line segment whose smoothness is determined by the number of points used to describe its geometry. A complex line such as a western border of the continental US would require many points. In theory, a line can be measured but it has no width, the illusion of width is created with graphic software. Polygons are data features that describe areas and have both length and width. Polygons and lines have spatial relationships that are described as topology in a GIS.

The raster data model converts an image into discrete pixels that contain a value which is represented by a specific color. The pixel size is related the amount of dots per inch (dpi) on paper. The higher the number of pixels or dpi the higher the resolution of

data (Gregory 2003). The raster model is used to describe continuous features, display imagery, perform geospatial analysis, and 3D visualization.

Little publicly available spatial data exists for Montserrat and what is available is of small of scale and lacks detail or is focused on the volcanology on the southern end of the island. In regards to terrain and satellite imagery the highest level of detail available exists only at resolutions of 90 meters and higher. This resolution would allow cartographic representation and spatial analysis of the area at an island-wide scale but does not allow examination of the landscape at larger scales. The lack of available data required the creation of new spatial data for my study of the local geography.

To generate a GIS for the placement of data captured through interviews with participants a series of 1960's UK D.O.S. topographic maps were used as a base map to digitize topographic contours. First, the paper maps must be scanned to a digital format. I used a large format flat-bed scanner that allowed documents as large as 42 inches wide to be scanned. The cartographic documents were scanned at a resolution of 200 DPI (dots per inch). The resulting scans were saved to individual TIFF (Tagged Image File Format) files, a digital file format that allows data to be stored with minimal compression and high fidelity. After the scanning process Adobe Photoshop was used to crop the images borders to remove extraneous white space. Next, adjustments to contrast, brightness, and color levels were performed with Adobe Photoshop to increase the overall visual clarity of the documents for data capture through digitization.

The process of converting and locating raster data such as scanned map within a projection system is called georeferencing. Georeferencing is performed within a GIS

and involves setting up the projection system in the GIS and manipulating the image/data to fit the desired projection through a series of common control points shared by the projection system and the image/data to be georeferenced. In order to correctly place the scanned and optimized maps in the digital spatial workspace of Geographic Information Systems (GIS) the data must be in the same geographic projection (Gregory 2003). Different geographic areas use different projection grids to compensate for distortions caused by transferring three-dimensional data from the Earth's surface to the two-dimensional surface of paper media or digital screens.

Digitizing the topography of Montserrat from scanned maps required drawing by hand each individual contour line and proved to a very time intensive process and was further limited by the traditional mouse-to-PC interface. The basic workflow is describe in figure 6 below. Research into alternative techniques led me discover the Wacom Cintiq. The difference in the Wacom Cintiq drawing tablet versus traditional tablet or mouse-to-PC interface is that the tablet is actually a digital display on which the image to be digitized is displayed. This difference removes the separation between hand and eye functions when digitizing. Because the user is actively looking at the source data and new digitized data simultaneously the overall accuracy and speed of digitization is greatly increased. In addition, because the digitization process is manual versus automated the time required to proof check the new data is drastically reduced. Errors in digitization can be quickly discovered or eliminated altogether because the user is full control of the process and has immediate access to the source data. In addition, the Wacom Cintiq uses

a pen-type device to interface with the screen that provides a much more natural

drawing/digitizing experience when compared to the traditional mouse interface.
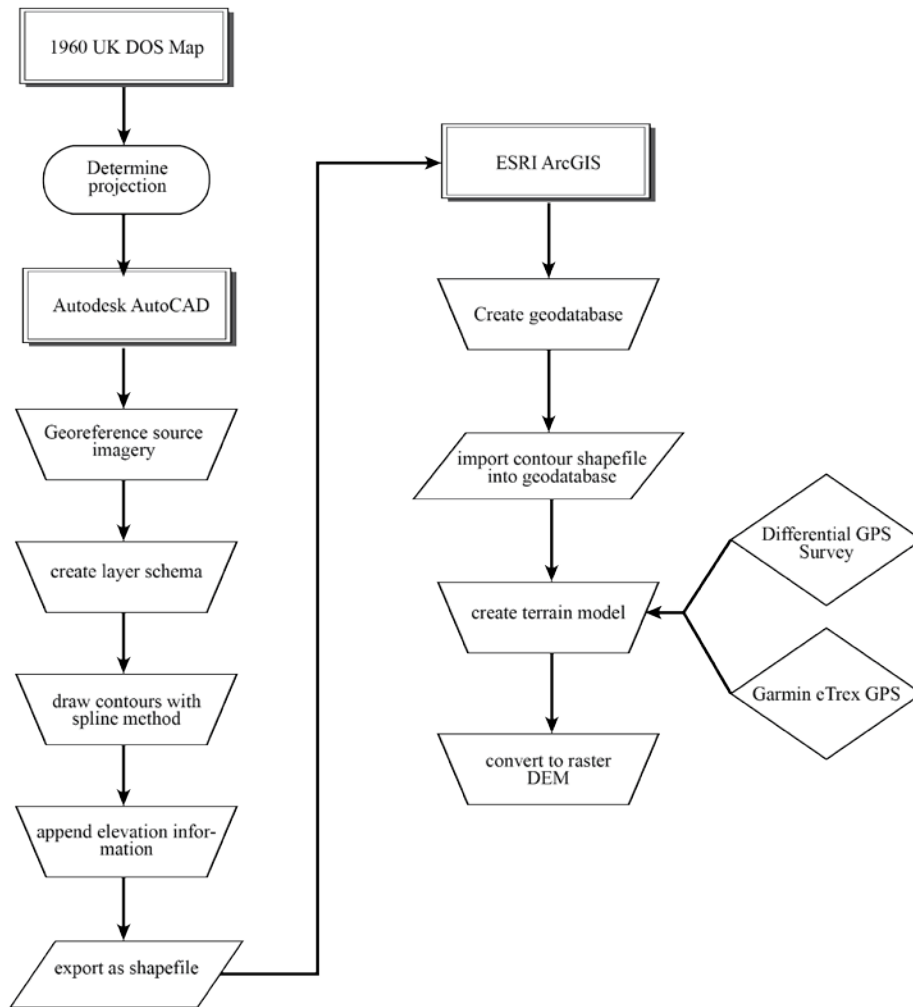
Figure 6. Diagram of GIS base map development.

Digitizing in AutoCAD Map 3D with the Wacom Cintiq proceeded by first

creating the drawing layer structure or schema (see figure 7). The UK DOS 1960's

survey map delineated contours in 50-foot intervals in a vertical direction, while

horizontal distances were delineated in units of meters, with an overall map scale of

1:25,000. Since the GIS environment only allows one unit of measurement for both

horizontal and vertical distance, conversion of foot to meter units was required for the

vertical data digitized. Layers were set up to contain two contour lines per layer, for

example the 100' and 150' contours were located in layer "cont100", and contours at the

200' and 250' height were located in the layer "cont200". The 0' or sea level contour

was located on a separate "island" layer and the first contour at 50' was placed in a
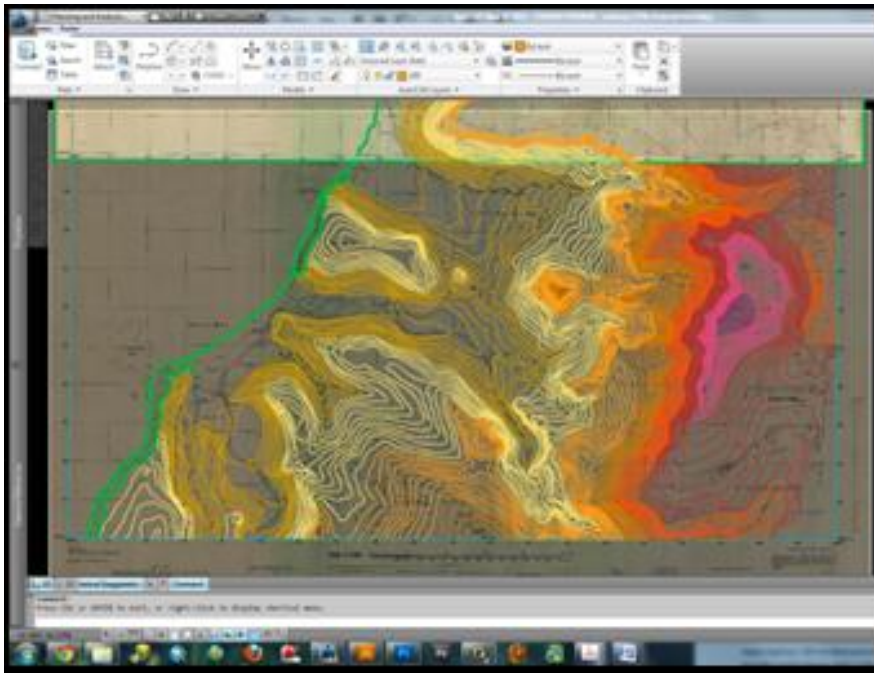
Figure 7. Screen capture of digitization of historic map with AutoCAD Map 3D.

"cont50" layer. Each layer was assigned a unique color symbology beginning with green, transitioning to yellow, oranges, red, magentas, pinks, and purples for the highest elevation contours. This symbology schema allowed for more efficient proofing of the completed digitization.

The contours were drawn with a spline operation that allows a user to place control points along the desired line and the software then draws a smooth line between the control points. The benefit is a much more naturally curving line that duplicates the original contour lines more accurately than other methods involving direct line and arc segments. The drawback to the spline method is that the features are not capable of containing elevation data in their properties. To add the elevation data, the spline contours were converted to AutoCAD polylines, which do allow the assignment of elevation values required for 3D visualization. The foot measurement units were converted to meter units before individual contour lines were assigned. Montserrat is a volcanic island and contains many cliff features at the coastline that were delineated by graphical hatchure on the historic 1960's map. These areas proved to be the most difficult to digitize due to the amount of interpolation and manipulation of drawing objects.

Once digitization was completed I brought the contour data into ArcMap for the creation of digital elevation models (DEM) in a terrain feature class. I chose to use a terrain feature class because the terrain model dynamically renders elevation models from 3D points and lines, supports break-lines that limit elevation interpolation, and is easily

modified with new data. From the terrain model I exported a final DEM and shaded relief images. Over these images I then placed the GPS tracks I gathered during walks through landscape and created points and descriptive text labels derived from my qualitative interviews. I then exported the final maps and terrain images to Adobe Illustrator and Photoshop to refine the colors, symbols, and text into a more visually appealing final rendering.

To create the interactive map application I chose to use Flex code. Flex is a coding language that at the time of my application development was the supported language of Google Maps and provided easy integration with the Adobe suite of design software. Using Flex with Google Maps and Adobe software Illustrator, Catalyst, and Flex Builder allowed me to minimize the amount of manually written code while creating the interactive elements required for map and page navigation. I developed the application layout in Adobe Illustrator where I worked through several iterations to balance the size of the main map view window, navigation, images, and supporting text. From Illustrator I exported the layout template to Adobe Catalyst. Catalyst is a software that bridges the artistic design of Illustrator with code development software such as Adobe Flex Builder. In Catalyst I added interactive methods such as page transitions for navigation, scrolling text windows, buttons, and image slideshows, without having to write the complicated code instructions manually.

After completing the interactive elements of the application in Catalyst I exported the code Catalyst generated to Adobe Flex Builder. In Flex Builder I added the code to incorporate the Google Earth application programming interface (API). With the Google

Earth API I then over-laid the georeferenced maps I created with ArcMap. Once the

integration of my base maps, interactive methods, and Google Earth was completed I

focused on fine-tuning the code and debugging the application. After debugging the

application is ready for deployment to the web. I used my university web-server to host

the application and Adobe Dreamweaver to manage and upload the html files required for

public viewing.

CHAPTER 4
ANALYSIS

In my thesis I argue that the landscape surrounding the Carr Plantation contains cultural associations vital to a socially just interpretation of Montserrat history and geography that are not captured by existing archaeological research. There are many memories inscribed within and upon the landscape of Little Bay; the Cpt. Wm. Carr story is but one of them. The following analysis demonstrates how the integration of local knowledge from local Afro-Caribbean people intimately familiar with the landscape creates a richer, more nuanced representation of the historical landscape around Little Bay that can serve as an alternative narrative to representations based upon colonial era structures and ideologies.

In order to address my overarching research questions I interviewed a series of participants who were knowledgeable about the historic landscape around the Little Bay Plantation. During our open-ended interviews we explored how Montserratians interpret the landscape in their daily lives and how social science understandings of identity and heritage landscapes can assist in the production of alternative narratives to counteract the erasure of local history. Beginning with the participants self-reported geography, I explored which elements in the landscape they mentioned and which places or features elicit memories for them.   From these interactions I examined how these perceptions differ from the discourse presented by the archaeology and urban development centered on the Little Bay Plantation. It is my contention that these narratives counter

manifestations of erasures of history resulting from failures to include local knowledge of the historic landscape.

4.1 The Montserrat Tourism Development Plan

During my field work in Montserrat a majority of my time was spent assisting a team of archaeologists excavating the Little Bay plantation site with differential GPS mapping of the topography. My time at the site allowed for repeated periods of reflection on how the site is presented within the larger environment of rapid urban development focused on the tourism industry. The new development around the plantation site at Little Bay is based on creating a product the local government can use to drive economic development to produce revenue from the tourism industry. Drafted through communication with international tour operators and marketing representatives the *2012 Montserrat Tourism Development Plan* (MTDP) seeks to redevelop the island's northern region to become "an exclusive private hideaway - a place where time stands still, the way the Caribbean used to be" (CHL-Consulting 2012). To meet these goals, the development plans calls for the creation of new luxury villas, golf courses, and resort/lodges at Little Bay to provide 'refined relaxation' amenities for international tourists (see figure 8). Over the five year time period the plan has forecasted over $30,000,000 EC dollars to provide these amenities to elite tourists despite the fact that the hotel/restaurant sub-sector of the Montserrat economy provides less than 1.5% of the total GDP in 2011 and the combined direct contribution to Montserrat's GDP from stay-over tourism was

Figure 8. Site plan of proposed development, the yellow square marks the Little Bay Plantation archaeology site. (http://www.environmentalassociates.net/Montserrat.htm)

between 3.5% and 5% in 2011. Very little of these projected funds are designated to improve the quality of life of local Montserratians directly – instead local residents are expected to benefit indirectly from job creation and "fiscal stabilization through increased tax revenues" (CHL-Consulting 2012). Under the MTDP cultural heritage management framework only "sites of prehistoric and colonial heritage interest…which may have the potential of being restored as tourist attractions" are included. The only mention of sites from the recent past worthy of inclusion into the plan are the George Martin AIR Studios,

made famous for being the recording site of the English music legend The Beatles (CHL-Consulting 2012).

The MTDP approach to cultural heritage management is problematic because it relies on an interpretation of Montserrat identity and heritage as "a place where time stands still, the way the Caribbean used to be". This focus connects with legacies of colonialism that replicates historic silences around the everyday geographies of local Montserratians and ignores broader interpretation of heritage and identity derived from the associations of local people engaged in the act of living upon the landscape. Due to the economic hardship created by environmental disasters such as the eruption of the Soufriere volcano and devastating seasonal hurricanes the economic struggles the MTDP seeks to solve are real. Tourism can provide a source of much needed revenue but the process of development needs to be based on methods and ideology that up-lift local culture and identity and not diminish it through a selective narrative, a white-washed representation, appealing primarily to outside visitors and their conceptions of Caribbean identity.

By presenting an interpretation of Montserrat heritage and history based on colonial interpretation and only offering locals a service-orientated role in the economy, the MTDP creates a situation where "dependence on tourism serves to reinforce the historically implanted identity, based on the artifacts of colonial occupation, rather than the contemporary achievements of the people themselves" (Palmer 1994). Furthermore, the MTDP ignores local stakeholders, those who have shaped the landscape in the near past and present, from inclusion into the discourse presented to would-be tourists.

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Instead of presenting a narrative of Montserrat culture from a Caribbean perspective, the MTDP bases the discourse of Montserratian heritage upon Western foundations and topics that cater to European interests and their conceptions of Caribbean identity and reinforce geographies of oppression. By ignoring the role of local history in creating cultural identity the MTDP further reinforces geographies of oppression by reaffirming misrepresentations of identity and heritage by presenting and promoting a narrative that describes local Afro-Caribbeans as dependent on Europeans for both their heritage and economic well-being. To combat these manifestations of geographies of oppression sustainable tourism methods must be considered.

Scholars of sustainable tourism argue that development should work to strengthen the resources of local people *and* the economy (Brosnan 2000). State resources should be positioned to engage these human resources as equal stakeholders in the cultural landscape and economy and work towards improving local people directly – not as tertiary subjects dependent on indirect benefits – but as primary actors with avenues for representation and methods for a self-defined cultural identity. "Natural history, strong culture, and unspoiled habitats are the mainstays of ecotourism; Montserrat still has these in abundance. The human resources of Montserrat are…unique. Many Montserratians have a wealth of knowledge of natural resources and their uses. Some [are] guides and historians, thus preserving traditions. Often overlooked, this 'human capital' is vital to economic well-being, and cannot be replaced once lost" (Brosnan 2000). "With careful planning these conflicts can be avoided and sustainable development that maintains the character of Montserrat can proceed rapidly. Development does not need to be at the

expense of the islands natural resource capital, or its ability to become economically viable. True sustainable development ensures the long-term economic viability of a community while maintaining the natural resources on which it depends. It does not compromise future opportunities. On a small island with limited resources, it is essential that development be implemented carefully, and with local participation" (Brosnan 2000).

If the MTDP plans move forward and when construction is completed the Little Bay plantation site will be surrounded on all sides by new development. In this form the Little Bay plantation is presented as a point in space, disconnected from the wider landscape. This disconnection warps interpretation of the site by describing the history through a narrative from one perspective; a colonial story based upon European plantation industry. Critical geography scholars argue that a 'white-washing' of the historical narrative occurs at many colonial monuments and memorials by selectively presenting a specific narrative, a one-side story that works to remove issues such as race, gender, and economic inequities from the representation of history presented, thereby changing public discourse on these issues by controlling how knowledge is produced (Inwood and Martin 2008). Evidence of this white-washing phenomenon is found when one considers the destruction of the remains of the slave village that coexisted with the Carr Plantation. Only a brief archaeological survey of the site was performed before it was blasted away during the first phase of development leaving no trace of the site or the valuable knowledge it contained (Miles, Munby et al. 1997). Nearby, the new Montserrat Cultural Center was built, a fact that would be ironic if it were not such a terrible loss.

Since the location does not appear on historic maps or current maps used for tourism, the knowledge could soon fade from memory, eliminating an important Afro-Caribbean perspective from visitors and the communal memory of Montserratians. This is clear evidence of 'the erasures of history' and the creation of 'absences of knowledge' as a result of "international capitalism from colonial and neocolonial manifestations" that "manipulate the production of histories by encouraging certain forms of history and discourage/silence others" (Sued-Badillo 1992, Schmidt and Patterson 1995).

The removal of the remains of the slave village prevents discourse of race, identity, and equality from the interpretation of the Little Bay landscape. The restriction of discourse limits the production of knowledge key to refuting the conceptions of Caribbean culture that reinforce geographies of oppression. The omission of the slave village from discourse in-turn reinforces misrepresentations of Afro-Caribbean life under colonial rule by enabling visitors to imagine an idyllic view of plantation life that hides the harsh realities of slave labor. Furthermore, the erasure eliminates any evidence of the pro-active daily living and resource management by slave on their own behalf. This encourages a barren interpretation of slaves as simply victims and conceals any evidence of the initiative they applied daily in supporting their own subsistence and community life. The main focus of interpretation becomes the architectural descriptions of structures such the great house and possessions of Europeans who dwelt there allowing Western visitors to engage with this comfortably familiar history while distancing themselves from the harsh realities of Afro-Caribbean slave labor. The presentation of a historical narrative of landscape that is devoid of Afro-Caribbean presence and ignorant of their

continuous contributions to the geography of the heritage landscape allows the new

development to covertly create and reinforce the conception of segregated social space.

This conception of segregated space reinforces geographies of oppression by presenting a

narrative where Afro-Caribbean people never had a meaningful presence there and

therefore do not belong there.

This reality connects the development at Little Bay to ongoing developments that

center on a colonial era plantation and cater to a European tourism industry. These

modern-day actions are striking in how they mirror the practices of the colonial era where

"[c]olonisation [was] not satisfied merely with holding a people in its grip and emptying

the native's brain of all form and content. By a kind of perverted logic, it turns to the past

of oppressed people, and distorts, disfigures and destroys it" (Hall 1990). To counter

these manifestations local histories based critical study and interpretation of oral histories

and ethnographic observations must be developed (Sued-Badillo 1992, Schmidt and

Patterson 1995, Scazzosi 2004). Hall argues that resistance to these colonial practices

lies in "not the rediscovery but the *production* of identity" where cultural identity is a

"matter of 'becoming' as well as of 'being'" and is a process that is shaped by the future as

much as it is shaped by the past (Hall 1990). The connections between the realities of

Montserrat colonial history, it's people, and it's landscape must be visible in order to

create a 'usable past' formulated around the "expression of the experiences accumulated

by the popular classes" to provide context for a socially-just interpretation of the historic

landscape at Little Bay (Sued-Badillo 1992, Schmidt and Patterson 1995). The previous

work charting local Afro-Caribbean history at the Galways Estate in southern Montserrat

through field geography, mapping of local landscapes and detailed ethnography by

Pulsipher and Goodwin has proven how local Montserratian knowledge can be developed

into a socially-just narrative (Pulsipher 1990, 1991, 2001). In the following analysis I

show how the inclusion of local knowledge from participants who live in the surrounding

areas of Little Bay and the village of Rendezvous can serve as an example of a 'usable

past' to act as an alternative narrative to the manifestations present on Montserrat by

providing a rich source of local context to the history embedded in the landscape that is

missing in the Eurocentric discourse centered around the Little Bay Plantation and

development plans catering to the elite tourism industry.

4.2 Connections In and Through the Geography of Little Bay

To perform a critical analysis of the historical landscape Scazzosi maintains that

the historical landscape should be understood as a system of interconnections. The

historical landscape is "not just a set of points, lines and areas, but rather a system of

interconnections, among these being visual, spatial and symbolic relations, as well as

functional and environmental relations [and] these systems should be understood,

planned, and managed as wholes" (Scazzosi 2004). Through my conversations with

participants and reflection upon their memories and associations of the landscape I

discovered that they all described their experiences of Little Bay through connections to

adjacent spaces such as Davy Hill, the Silver Hills, and the village of Rendezvous. I

found that these spaces serve as nodes within the system of landscape from which

memories of family history and relationships act as connecting segments. For example, one participant recalled,

> "I walk all those mountains, all those hills, I walk there as a child. My father used to walk that area, in the 60's ...I could remember clearly from '66... We lived at Davy Hill. My parents lived at Davy Hill. So we walked down the hill...and we used to call that area 'Old House Piece'".
> "...but Montserrat Company used own the whole of the estate, so my father used to lease that area from them. So daily we would go there because we had animals, a lot of animals, and we used to plant cotton, and we used to have vines, and corn, and peas, everything!" I asked what kind of livestock and she continued, "Cattle mostly, sheep, goat...We used to carry them up into the hill during the day, bring them down in the night. To this side, [points at map] there where you have some stream, we used to carry them there for water".

This participant also connected her memories of Little Bay to the village of Rendezvous, located in the hills north of Little Bay.

> "We have land up at Rendezvous, we used to go from Old House Piece to Rendezvous because my father own a piece at Rendezvous. A lot of people used to live there you know, people lived there before. We used to go there daily, because we had the same cattle there. My father used to work it and that was his own land. Like Little Bay now we used to lease there, *but Rendezvous belonged to us*". She continued, "It's a beautiful

view...my father's property has such a spectacular view...over...like you

are in command of the whole ocean".

Such commentary reveals that local Afro-Caribbean Montserratians do not associate the

landscape of Little Bay with the colonial era. The name she recalled for the plantation

site, Old House Piece, does not tie into the colonial narrative and removes European

cultural associations from the daily landscape. The ruins of the Carr Plantation did not

evoke any special feeling for her as a child; the stone ruins were a place of play while her

parents worked. For this participant it was the land that her family owned in Rendezvous

and the ties to family history that evoked strong memories and a sense of place with

which she identified. The relationship of owning land and the geographic setting of

Rendezvous village in the hills above the ocean combined in her memory to provide

positive associations of cultural identity central to her memorialization of the historical

landscape.

4.3 Identity and Heritage

The relationship between a sense of place and identity is immutable. This

'identity of place' is composed of three interrelated components - the physical features,

observable activities, and personal associations and meanings (Taylor 2012). In this way

the tangible physical elements - the participant's description of the majestic ocean view

and the geographic location of Rendezvous high in the hills, and intangible associative

characteristics - the participant's family and community ties for example, of cultural

identity are interwoven into the landscape. This concept of identity refutes the modernist

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notion of identity as an 'already accomplished fact' that serves to support colonial-based

misrepresentations of culture and identity and instead embraces the idea that identity is a

"production, which is never complete, always in process, and always constituted within,

not outside, representation" (Hall 1990). The following analysis provides more examples

I discovered while listening to locals self-reported history for how this process works

within the landscape of Montserrat.

On an early Saturday morning I drove my rented Toyota 4x4 truck to the base of

the Silver Hills where the pavement ends with the intention of driving to the top. I have

some off-road driving experience and felt relatively confident in my ability to reach the

summit. At the first turn in the road, not even past the last house on the street, I was

forced to turn around and park my 4x4 vehicle because the ruts in the road were so large

that I feared getting stuck or severely damaging the truck. The road at this point is

impassable to most vehicles on Montserrat and anyone who wishes to travel into the hills

must walk the steep grade. As I began my walk up the hill I met a participant who was

talking with another local man at a house at the base of the hill. After I explained my

intention to walk the Silver Hill road up to Rendezvous and my desire to learn more

about the people who lived there, the gentleman agreed to join me.

As we walked the rough and rutted road (see figure 9) he kept a steady pace and

lively conversation despite his salt-and-pepper hair, the steep incline, or the four steel

fence posts he carried across his shoulders and balanced by his machete. Our

conversation fluctuated between description of where family members of the participant

held land in the past and how lack of government support in maintaining the road and
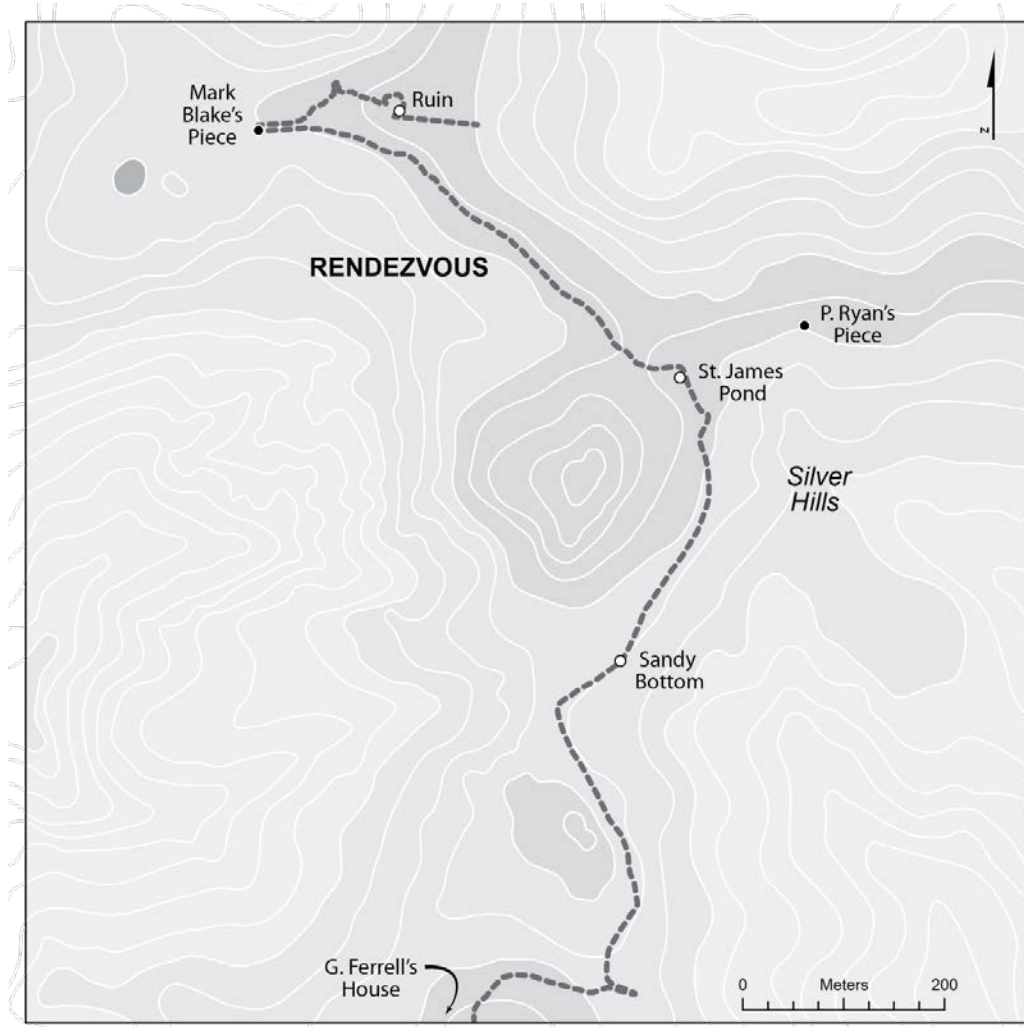
Figure 9. Map of Silver Hills highlighting the path and road to Rendezvous.

water transport infrastructure contributed to the decline of life in the Silver Hills. He

explained that he was in the process of building a home on land long held by his family in

the Silver Hills and the steel poles were for a fence line to contain his livestock of

Montserrat goats. He told me the goats were recently shipped from Boston, USA and

then had to be flown in a charted plane from Antigua to Montserrat at additional expense. He can afford to do this because he operates a successful construction and maintenance business on a seasonal basis in Boston, USA. He can afford a comfortable life in the USA but prefers to travel back to Montserrat and considers Montserrat his home. The participant is working hard to build his home and maintain a connection to his family's historic landscape despite the challenges presented by the non-action of local government to maintain the existing infrastructure.

This participant's testimony is a powerful example of how the everyday ways of living that describe the sequence or rhythm of life over time is significant in the process of forming the heritage landscape and defining cultural identity. The landscape the participant is conserving is vital to telling the story of Montserrat's people, events and places through time from an Afro-Caribbean perspective. His hard work in rehabilitating his family piece offers a sense of continuity, and a sense of the stream of time missing in the plantation narrative, and provides a cultural context setting for the unique cultural heritage of Afro-Caribbean Montserratians (Taylor 2012). The actions described within this participants testimony can serve as an example how the actions of everyday living can act as opposition to forces such as those by the MTDP and local government that have worked, intentionally or not, to write Afro-Caribbeans out of the heritage landscape narrative.

The deterioration of the road through the Silver Hills symbolizes how access to resources relating to local history has literally and figuratively been removed from most Montserratians. The road serves as a metaphor that describes the difficulty local people

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encounter when self-defining heritage. At the summit the road has been paved to allow government vehicles easier access to a radio tower installation but the lower and middle sections are unimproved and remain a barrier to local people. Upon reflection I found that this situation mirrors the development at Little Bay where heritage has been 'paved over' through a selective narrative to provide an easier and simplified version of Montserrat culture and identity comfortable to European tourism. In order to access the resources contained in the Silver Hills local people must expend a greater amount of personal effort to engage with their own geography and draw value from the unique cultural resources it contains.

After a visit to the top of the Silver Hills I made my way back down and stopped at a turn in the road where I noticed a sign marking the area as a hiking trail, one included in the tourist literature I acquired upon arrival. The literature makes no mention of the community that once thrived here. Instead, the literature produces a narrative that describes the area in terms of nature hike and access to the beach beyond as a site for snorkeling and sun-bathing for tourists. The trail winds along the side of the ridge, carpeted with grass interspersed with stones [thousands of artifacts (potsherds) from earlier ears – many from the 18th century] and framed by encroaching vegetation at each side. I was surprised then when I learned from another participant that this path was actually a road, the stones I had been tripping over where in fact the cultural remains of an 'abandoned' road through the village of Rendezvous. At multiple locations stone terraces and ornamental vegetation demarcating house plots were visible and as we walked the trail/road one respondent began to search his memory for the names of the

families who lived here when he was a boy. When I asked what were the names of some of the families who lived at Rendezvous, one participant replied, "the Kernons, you have the Blakes, you have the Ryans, Locker, Wade, Ferrell". Members of these families can still be found in the adjacent neighborhoods below the Silver Hills. They live close by, but are unable to maintain life in Rendezvous due to restricted access from deterioration by neglect of the only road leading there. The failure to include the local history of this landscape, despite the physical evidence of abandoned home sites and the activities of present-day Montserratians, silences another local perspective from the discourse embodied by the landscape. This failure reinforces a discourse that elevates tourist needs and a Euro-centric perspective of the landscape above the local Montserratian understanding of the space as a community with history and personal associations that shape local culture and identity.

During my time on Montserrat I was able to speak with a member of each family the participant mentioned. All expressed fond memories and associations with the Rendezvous area, while consistently lamenting the road conditions that prevents access into the Silver Hills and Rendezvous. I asked one respondent about how she used to travel to Rendezvous,

> "Well, we used to ride donkey to go up there. But, as a child, because we
> used to go up from Little Bay...there was a track to go up, to walk up.
> But, I think it's not the same now since they put the port there but there
> was a track that you walk, a short-cut that you walk and go up. Maybe
> half an hour. Because you, you walking at your own pace...you're not at

any speed and your picking this and looking for lizards and looking for

butterfly as children...picking apples and, it was fun, it was fun. When I

reflect on those days it was fun".

The new development at Little Bay limits access to the track described in the interview

by removing a physical connection and the associated context to understanding the

relationship between Little Bay and the historical landscape. This situation exacerbates

the loss of local knowledge resulting in the erasure of local historical keys that would

counter misrepresentations of cultural identity. Instead, understanding of the landscape is

reduced to that produced through a discourse centered on colonial era infrastructure of

the plantation. This interview testimony further illustrates the interconnections between

Little Bay and the surrounding landscape of the Silver Hills and Rendezvous and

provides examples of how the local knowledge shared by respondents creates context for

understanding how these relationships shape the historical landscape. It is the act of

living upon the landscape that shapes the historical landscape known in the present and

the context generated by local knowledge provides a socially just lens from which to

understand it. I spoke with three other participants while exploring the Silver Hills and

Rendezvous area whose daily activities embody this idea.

At what I thought was the end of the trail (if you push through some vegetation it

continues on) I came upon another participant's piece. This participant is a man of Irish-

Caribbean descent who keeps a nice home with a modern car at the base of the Silver

Hills in Drummonds but chooses to make the long hike each day to spend his daytime

hours as the sole remaining occupant of Rendezvous. Situated at the end of a ridge the

views from the site of the ocean and the wider landscape of Little Bay are awesome to

behold. The land has been carefully organized (see figure 10) with a section for cattle

pasture, a stepped garden, pond, shelter, and a stone oven. The participant told me that

the oven dates back to his great-great-great grandmother's time, a time period that places

this piece close to the period of occupation at the Carr Plantation. Weeds and vegetation

are controlled by livestock, machete, and fire and the pond was redug by hand, a fact that
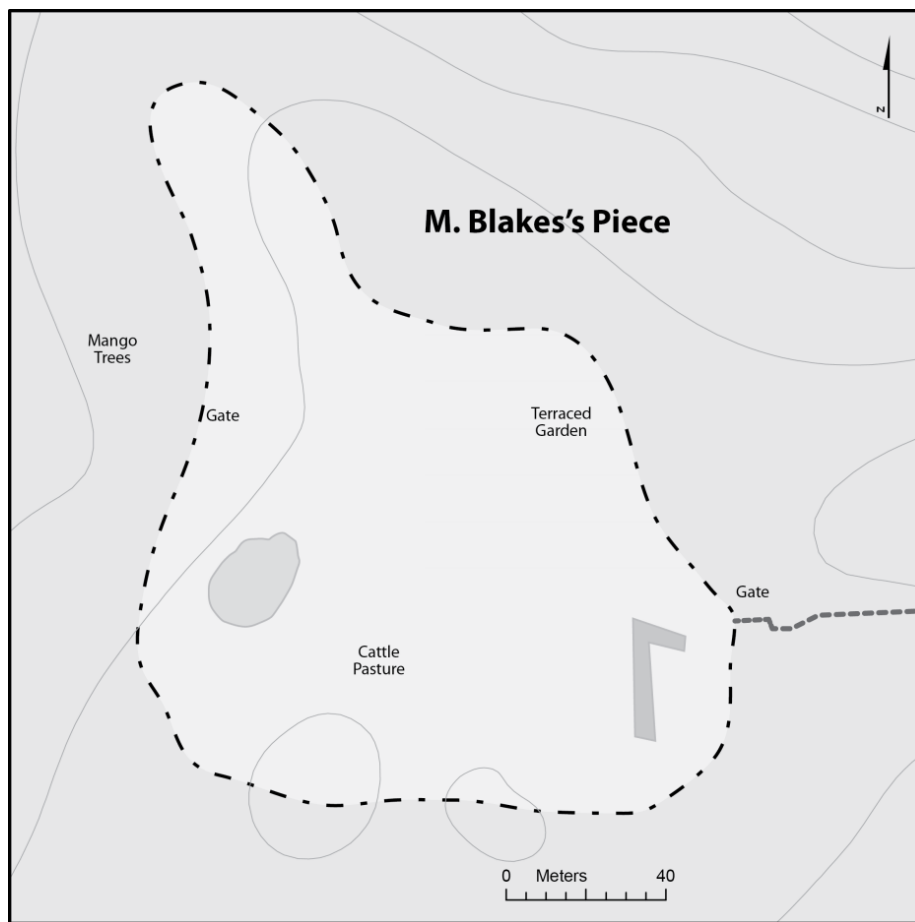
Figure 10. Map of Blake's piece in Rendezvous.

impressed two other participants who accompanied me on my first visit for the amount of labor required. The management style made me think of walking in someone else footprints. This participant had not developed this plan from scratch but had recreated what previously existed, following a land management system developed over generations of habitation and use. However, attempts to clarify my perceptions were hindered by his soft voice and Irish-Caribbean accent. Since conversation was difficult I chose to simply work by his side and learn what I could by personal experience and observation. With machete in hand, I helped clear encroaching vegetation, gathered mangoes from a nearby grove which we fed to the livestock while enjoying some ourselves, and sought refuge from the intermittent rain showers in the small shelter. While working we walked the perimeter of his fence line where the participant showed me the remains of an old mill just outside his fence. He had no interest in seeing the ruins himself and the area was heavily overgrown compared to the well managed vegetation in other areas that led me to suspect that he does not value the ruins of the mill much at all. Through my observations I could see that what the participant cared about was maintaining the ways of life he has inherited through this plot of family land. His piece is a wonderful example of traditional Afro-Caribbean sustainable land management practices that provides a window to view the convergence of historical, physical, and intangible elements contained by landscape that shapes identity and heritage. While walking down the long road back to my car at the end of the day I reflected on how many similar opportunities for preserving, recognizing, and producing local identity and heritage are embedded in the landscape of the Silver Hills. This landscape holds many

valuable resources for local Montserratians that need to be available for understanding

and generating conceptions of identity and heritage.

Critical scholars of landscape argue that the "landscapes we have inherited,

particularly rural landscapes, are complex constructions realized by minute steps of

construction and maintenance, carried out by many single individuals and dispersed

through lengthy periods of time [and] it is necessary to achieve awareness...of every

single terrace, boundary hedge, planting, and other element" to understand the culture

embedded in the landscape (Scazzosi 2004). This participant's narrative is an example of

how these features provide context for understanding the relationships between

interconnected geographic spaces, environmental elements, and cultural heritage within

the landscape. When I discussed these features with participants I received consistent

affirmations that these features, built by Afro-Caribbean Montserratians, were important

in describing the historical landscape. Two participants, one a stone mason who lives at

the base of the Silver Hill road, the other a landscape technician who ranges livestock in

the Silver Hills area, were adamant in their insistence that these constructions by Afro-

Caribbean Montserratians and the practices of cultivating and managing the native flora

and fauna should be acknowledged and memorialized with the same respect granted the

ruins of the plantation at Little Bay. The testimony of these participants highlights the

current MTDP failure to acknowledge the reality of the wider heritage landscape of

Montserrat where the past mixes with the present over time. The heritage landscape has

never been static nor will it ever be complete and therefore it cannot be represented as

belonging solely to one particular past. Instead, the "landscape should be understood to

exist as a living, social process with the ability to generate values through a community's knowledge of the past" (Schmidt and Patterson 1995), and that the community defining these values should be composed of local stakeholders, not an outside community focused on creating revenue. My conversations with participants highlight the importance of acknowledging local communities who are an integral part of the cultural process with the powerful ability to interact with both the past and the present. Including and supporting these efforts can be a powerful force to more accurately represent Montserrat as it is today, a cultural landscape shaped by the actions of local people, and not a static misrepresentation of Caribbean life, 'the way it used to be'.

These interconnections and their effect upon cultural heritage can also be witnessed through participant descriptions of community gatherings. Many participants described Rendezvous as having a strong community spirit, where locals owned the land they tilled and neighbors came together in 'maroons' when difficult work was required. One participant described their memories of maroons fondly,

"Yes...I, what I used to look forward to, when we were picking cotton the neighbors will come to help us. My mother would put three stones and the pot, and the food used to...that they go in the ground and they dig the potato or they pick the corn, you know whatever, then they cook it right there. That used to be fun to me. I used to look forward to that". She continued, "They come, you make sure you have the drinks, which will be, you go on the same farm and you pick the lime and make the swank, the drink, it's just lemonade drink, you call it swank. You put in

sugar and your water and then you go and you pick your lime, would be in

the field, you just squeeze it in it and that's a drink. So everybody would

have their drink and, that is...you help me today and tomorrow I go help

another family. So that's how we used to, how my parents used to do it".

These comments are an example of how the landscape holds physical resources key to

activities that shape the memories and associations of participants. Food and drink were

harvested directly from the landscape and shared within a local community brought

together in a joint venture to improve and maintain living conditions. When I spoke to

participants about these cohesive characteristics of maroons there was a collective

undertone of regret and longing for those days. The separation of communities like

Rendezvous from neighboring areas made continuing life in the Silver Hills difficult – so

difficult that land, once cherished for its ties to family, community, and a sense of

freedom was abandoned. Losing these links limited the social and environmental

resources available for the production of Afro-Caribbean culture and identity.

These links to everyday places, traditions, and actions of ordinary people create a

'tapestry of life' through the values people associate with their everyday places. It is this

process of everyday living upon a landscape composed of interconnected spaces,

symbols, and meanings that creates a 'sense of place' and identity that is critical in

developing a sense of belonging, in terms of heritage and socio-economic landscapes (see

figure 11). Family and community ties are the framework to which Montserratians

construct their understanding of the historic landscape of Montserrat and form the basis

for their sense of belonging. The communities surrounding Little Bay acted as nodes in
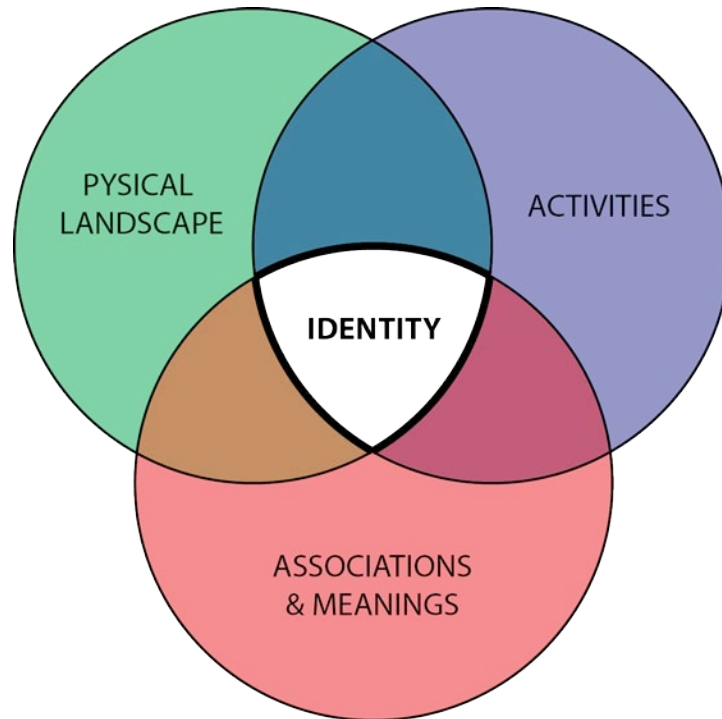
Figure 11. Elements of Identity adapted from Taylor (2009).

an interconnected system of individual and group activities that over many years shaped

the landscape, inscribing the hills with stone walls and home sites, donkey trails and

agriculture plots. The deterioration of access to the Rendezvous and Silver Hills area led

to the subsequent abandonment by many residents, save for a dedicated few. However,

many of these inscriptions remain intact and can serve as evidence within a local

narrative of the historical landscape. It is important that current and future development

plans recognize the "place of landscape as central to belonging, as crucial to creating a

(next) generation of (often) previously marginalized [people] who realize that, in fact,

'they' have been as much a part of the [land] as anyone else, are entitled to the same rights, and are burdened with the same responsibilities of citizenship as everyone in this segregated [landscape]" (Schein 2009).

Furthermore, Schein argues that "[i]f the landscape is conceivable as discourse materialized it is critical not to forget that, even as discourse produces sensibilities, they are also points of intervention, moments or places where we might seize the opportunity to enact a (slightly) different vision of the world" (2009). I argue that recognition of the near past and present activities of the local people I interviewed can serve as a counter-narrative to the Euro-centric colonial based representation of the Montserratian historic landscape. "The 'crack in the mortar' of landscape is that we have the ability, if even in small incremental ways, to effect change in and through the landscape, to challenge and alter its physical fabric and symbolic meanings" (Schein 2009). My analysis shows that the process of 'white-washing' occurring at the development around plantation site is also washing away the memories and knowledge of Afro-Caribbean heritage in the wider landscape. Direct actions, such as the removal of sites such as the slave village and indirect actions, such as the lack of acknowledgement of Afro-Caribbean history in the landscape of Montserrat have eroded the connections between Afro-Caribbean Montserratians and their country. These actions work to remove locals from the discourse that shapes cultural identity formation thereby limiting their sense of belonging to the landscape of their country. The disconnection of local people from the discourse allow a Euro-centric narrative of Caribbean identity that caters to the tourism industry. This narrative works like ivy taking root in the cracks of a stone wall and slowly growing

over the original structure , disguising what lies beneath, and if allowed to flourish unchecked, can destroy the structure of what lies beneath – the true nature of Montserratian identity as defined by its local people and their everyday landscapes. Nonetheless, my analysis has also shown that the foundation of cultural identity remains strong and is carried in the memories of local Montserratians. Given equal representation and support these memories and the present actions and personalities of those who currently live upon and shape the landscape can serve to fill in the 'cracks in the mortar' and work to bind the existing and emerging elements of Afro-Caribbean identity within the geography of Montserrat.

My creation of a GIS based upon Grounded Visualization methodology serves as an example of how these elements of local identity can be used to produce an alternative narrative. The GIS can be served through the web and through desktop portals at interpretation sites such as the Little Bay plantation to allow interaction with the existing knowledge and opportunities to create new knowledge through public participation with the data. This collaboration between the public and research scientists will strengthen local knowledge by granting more access to the unique memories and associations of Montserratians and their historical landscape. Furthermore, embedding these data within a map grounds the knowledge with a sense of permanence and authority by asserting 'this' happened 'here'. The knowledge of local people is no longer abstract and separated from the landscape but becomes part of it through the map. Mapping can assist the process the 'writing' local culture back into the landscape in the same manner it was used to historically write Afro-Caribbeans out of it. The value of local history upon the

heritage landscape can no longer be ignored and the continuous presence of local identity

cannot be refuted. The landscape around the Little Bay plantation has long been a part of

Montserratian identity and must not be segregated from its people through development

for elite tourism.

CHAPTER 5
CONCLUSION

My research into the representation of the Montserrat heritage landscape at the Little Bay Plantation answers the call of international scholars to produce alternative narratives to assist efforts to recapture the truncated history of post-colonial landscapes through the inclusion of local knowledge. My study assists current Montserratian efforts to provide their own alternative narratives by leveraging the voice of local people to produce a more socially relevant discourse of the historical landscape at Little Bay. To do so, my study provides insight into relationships between local Montserratians and their landscape and the how their historical landscape is viewed today. This local knowledge enriches and informs the interpretation of the historical landscape and contributes to the overall cultural and landscape geography of Montserrat.

My thesis is orientated towards social change by challenging the existing colonial plantation narrative presented to visitors of Little Bay with an alternative narrative that allows local people to share their understanding of the landscape and have those narratives make a difference. To produce a socially-just narrative of the heritage landscape I explored the question of 'who's truth' is represented in the plantation landscape and I sought to identify the missing and silenced voices from the discourse and to leverage the local knowledge of people who through their actions and experience of living within the landscape are experts on their own heritage and landscape.

My research contributes to the discipline of geography by demonstrating how Montserrat landscapes, and by extension the Montserratian people, can be understood as more than a backdrop for colonial and neo-colonial economic activities. Culture and landscapes are both generated over long periods of accumulation and transformation and contain distinctive elements vital to communities that cannot be discovered, analyzed, or communicated in one dimension, nor can they be separated from one another in analysis without a loss of fidelity. My research demonstrates how critical post-colonial methodologies such as grounded visualization can incorporate qualitative data from participant interviews within a GIS to analyze and display heritage landscapes with as much content and context as possible, from multiple scales and from multiple viewpoints, to provide a locally based representation of Caribbean heritage on Montserrat.

In response to the arguments I have made in this thesis regarding the multiplicity of memory and experience within the landscape, heritage managers and archaeologists with Montserrat National Trust have renamed the plantation site from the Cpt. Wm. Carr Plantation to the Little Bay Plantation. The renaming is important for it simultaneously removes colonial-era branding of the heritage contained by the site while including the actions and presence of past, present, and future Montserratians in the narrative of history and discourse of heritage contained by the landscape.

In addition, my cartographic research of digitized historic maps of the northern Montserrat region combined with the sub-meter GPS survey and digital elevation models of the Little Bay Plantation has enabled archaeological research to learn more about subtle characteristics of the landscape by unveiling terrace and building foundation

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features difficult to discern with the naked eye. The data from my GIS analysis and maps give researchers and the public a better understanding of the interconnections within the site by visualizing the spatial relationships of structural and landscape features. These spatial relationships help researchers and the public to better conceptualize the cultural and social relationships contained by the plantation landscape. Furthermore, the visualization assists in connecting the site to the wider landscape by describing how the site is situated in relation to nearby spaces and communities such as the village of Davy Hill and Rendezvous. The final renderings of my cartography have been included as a main feature of the interpretive panels displayed at the site.

Finally, my research has assisted the inclusion of local voices in the interpretation discourse presented to the public. The interpretative panels now included anonymous excerpts from my qualitative interviews with local Montserratians familiar with the heritage landscape. The inclusion of their memories and experiences bring a more balanced and nuanced narrative to the discourse. This local knowledge works to refute misconceptions of Caribbean geography formulated around colonial ideologies that historically have worked to remove and erase the contributions of local Afro-Caribbean people from discourse. The inclusion of this local knowledge assists in creating the sense of belonging to the landscape and these narratives help to write local people back into the narrative of the heritage landscape of Little Bay.

LIST OF REFERENCES

Ahmed, I. and F. Greenaway (2002). GIS Application for Land Planning and
 Management in Montserrat, West Indies, Citeseer.

Bodenhamer, D. J., J. Corrigan and T. M. Harris (2010). The Spatial Humanities : GIS
 and the Future of Humanities Scholarship. Bloomington, Indiana University
 Press.

Brodnig, G. and V. Mayer-Schonberger (2000). "Bridging the Gap: The Role of Spatial
 Information Technologies in the Integration of Traditional Environmental
 Knowledge and Western Science." The Electronic Journal of Information Systems
 in Developing Countries 1(0).

Brosnan, D. M. (2000). "The Montserrat Volcano - Sustainable Development In
 Montserrat."   Retrieved Feb 8, 2013, from
 http://www.sei.org/sustainable_development.html.

Cateau, H. and R. Pemberton (2006). Beyond tradition: Reinterpreting the Caribbean
 Historical Experience, Ian Randle Publishers.

Chapin, M., Z. Lamb and B. Threlkeld (2005). "Mapping Indigenous Lands." Annual
 review of anthropology 34: 619-638.

CHL-Consulting. (2012, July 6 2012). "Montserrat Tourism Development Plan 2012-
 2022 (incorporating TDP3 and 5-Year Business Plan)." from
 http://www.gov.ms/wp-content/uploads/2012/06/Draft-Final-Report-6-July-
 2012.pdf.

Cinderby, S. (2010). "How to each the 'hard-to-reach': The development of Participatory
 Geographic Information Systems (P-GIS) for inclusive urban design in UK
 cities." Area Area 42(2): 239-251.

Corbett, J. and G. Rambaldi "Qualitative GIS: Mixed Methods in Practice and Theory."

Creswell, J. W. (2009). Research Design : Qualitative, Quantitative, and Mixed Methods
 Approaches. Los Angeles, Sage.

Delle, J. A. (1998). An Archaeology of Social Space: Analyzing Coffee Plantations in
 Jamaica's Blue Mountains, Plenum Publishing Corporation.

Denzin, N. K. and Y. S. Lincoln (2008). Strategies of Qualitative Inquiry. London,
 SAGE.

Dodge, M., R. Kitchin and C. R. Perkins (2009). Rethinking Maps : New Frontiers in
 Cartographic Theory. London; New York, Routledge.

Dwyer, O. and J. P. Jones (2000). "White Socio-Spatial Epistemology." Social & Cultural
 Geography 1(2): 209-222.

Given, M. (2004). The Archaeology of the Colonized, Psychology Press.

Gregory, I. and P. S. Ell (2007). Historical GIS : Technologies, Methodologies, and
 Scholarship. Cambridge; New York, Cambridge University Press.

Gregory, I. N. (2003). A Place in History : A Guide to Using GIS in Historical Research.
 Oxford, Oxbow.

Hall, S. (1990). "Cultural Identity and Diaspora." Colonial discourse and post-colonial
 theory : a reader Identity : community, culture, difference.

Harley, J. B. (2008). "Maps, Knowledge and Power." Geographic Thought: A Praxis
 Perspective: 129.

Herlihy, P. H. and G. Knapp (2003). "Maps of, by, and for the Peoples of Latin
 America." Human Organization 62(4): 303-314.

Inwood, J. F. J. and D. G. Martin (2008). "Whitewash: White Privilege and Racialized Landscapes at the University of Georgia." Soc. Cult. Geogr. Social and Cultural Geography 9(4): 373-395.

Knigge, L. and M. Cope (2006). "Grounded Visualization: Integrating the Analysis of Qualitative and Quantitative Data Through Grounded Theory and Visualization." Environment and Planning A 38(11): 2021.

Kobayashi, A. and L. Peake (1994). Unnatural Discourse. 'Race' and Gender in Geography.

Lane, P. (2011). "Possibilities for a Postcolonial Archaeology in Sub-Saharan Africa : Indigenous and Usable pasts." World archaeology 43(1): 7-25.

Lewis-Beck, M. S., A. Bryman and T. F. Liao (2004). The Sage Encyclopedia of Social Science Research Methods. Thousand Oaks, Calif., Sage.

MacEachren, A. M. and D. R. F. Taylor (1994). Visualization in Modern Cartography. Oxford, U.K.; New York, Pergamon.

McCracken, G. and G. D. McCracken (1988). The Long Interview, SAGE publications, Inc.

Miles, D., J. Munby and C. f. B. Archaeology (1997). Archaeology Under the Volcano, published for the York Archaeological Trust by the Council for British Archaeology.

Nietschmann, B. (1995). "Defending the Miskito Reefs With Maps and GPS: Mapping With Sail, Scuba, and Satellite." Cultural Survival Quarterly 18(4): 34-37.

Omi, M. and H. Winant (1986). Racial Formation in the United States : from the 1960s to the 1980s. New York, Routledge & Kegan Paul.

Palmer, C. A. (1994). "Tourism and Colonialism : the Experience of the Bahamas." Annals of tourism research : a social sciences journal.

Paulston, R. G., M. Liebman and J. Nicholson-Goodman (1996). Mapping Multiple Perspectives : research reports of the University of Pittsburgh Social Cartography Project, 1993-1996. Pittsburgh, PA, Dept. of Administrative and Policy Studies, University of Pittsburgh.

Pulsipher, L. M. (1986). Seventeenth Century Montserrat. Norwich, England, Geo Books.

Pulsipher, L. M. (1990). They Have Saturdays and Sundays to Feed Themselves. Expedition Magazine, University of Pennsylvania Museum. 32.

Pulsipher, L. M. (1991). Galways Plantation. Seeds of Change. Washington, D.C., Smithsonian Institution Press.

Pulsipher, L. M. and C. M. Goodwin (2001). "Getting the Essence of It': Galways Plantation, Montserrat, West Indies." Island lives: historical archaeologies of the Caribbean. University of Alabama Press, Tuscaloosa: 165–203.

Rambaldi, G., S. Tuivanuavou and P. Namata (2006). "Resource Use, Development Planning, and Safeguarding Intangible Cultural Heritage: Lessons From Fiji Islands." participatorylearningandaction Mapping for change: practice, technologies and communication: 28.

Reid, B. A. (2008). Archaeology and geoinformatics: case studies from the Caribbean, University Alabama Press.

Scazzosi, L. (2004). "Reading and Assessing the Landscape as Cultural and Historical Heritage." LANDSCAPE RESEARCH 29: 335-356.

Schein, R. H. (2009). "Belonging Through Land/scape." Environ. Plann. A Environment and Planning A 41(4): 811-826.

Schmidt, P. R. and T. C. Patterson (1995). Making Alternative Histories : The Practice of Archaeology and History in non-Western Settings. Santa Fe, N.M.; [Seattle], School of American Research Press ; Distributed by the University of Washington Press.

Scott-Jones, J. and S. Watt (2010). Ethnography in Social Science Practice, Routledge.

Sued-Badillo, J. (1992). "Facing up to Caribbean history." American antiquity 57(4): 599-607.

Taylor, K. L. J. (2012). Managing Cultural Landscapes. London; New York, Routledge.

Taylor, T. (2009). "Negotiating the Past in the Past: Identity, Memory, and Landscape in Archaeological Research." Journal of Archaeological Science 36(11): 2532-2533.

Warf, B. and S. Arias (2009). The Spatial Turn : Interdisciplinary Perspectives. London; New York, Routledge.

Waterton, E. (2005). "Whose Sense of Place? Reconciling Archaeological Perspectives with Community Values: Cultural Landscapes in England." International Journal of Heritage Studies 11(4): 309-325.

APPENDICES

Appendix A – Informed Consent

INFORMED CONSENT
Visualizing the Historical Landscape of Montserrat: Social Justice through Community Mapping in a Post-Colonial Environment

You are invited to participate in a research study that seeks to reconstruct with Montserratians the historic landscape of the region around the Carr site at Little Bay. This study aims to provide new perspectives on the relationships between Montserratians and the land they occupied during the colonial and post-slavery periods. This data will be used in a geographic landscape study to examine how human activity has been recorded in the landscape at the Captain William Carr archaeological site.

What will be involved if you participate? If you decide to participate in the study, you will be asked to participate in an open-ended interview. Your total time commitment will not exceed 2 hours. The interviews will be recorded and may be used in future public museum interpretations and presentations. If you prefer not to allow future use of the audio recording, you may opt out and the recordings will be destroyed after the research project is completed in December of 2012. Some questions will be planned or prompted, while others may arise spontaneously based upon your response. The interview will be designed to allow you to reveal as much as you wish to reveal on topics such as land use, significant places and/or natural features, and their place names.

Are there any risks or discomforts? There are minimal risks. You are free to end this interview at any time or to refrain from answering any question you choose not to. Second, given the small sample size of the research respondents and the expected publically available results it may be possible for someone to match identifying information in any subsequent research presentations (e.g. publications, teaching, seminars, presentations, etc.) regardless of attempts to protect your confidentiality. In addition, subsequent research presentations may use direct quotes from your interview. We may contact you at a later date to clarify statements, provide additional information, or ask you to proofread a transcript of the interview for accuracy.

In addition, should you decide to withdraw from this research at any point, your interview data will be destroyed, including interview transcripts, and you will be excluded from this study and anything that you provide in this research process will not be used in any subsequent research presentations. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with the University of Tennessee.

Are there any benefits to yourself or others? Your participation will contribute to the ongoing interpretation of the Carr site and efforts by the Montserrat National Trust to

provide detailed knowledge about the cultural history of Montserrat for the education of Montserratians and visitors alike.

Are there any costs? There are no costs. If you decide to participate, you will be asked to donate up to 2 hours of your time.

_____ Participant's initials

Every reasonable attempt will be made to protect your privacy. Any information obtained in this study will remain confidential. Information obtained through your participation may be used in scholarly pursuits including grant applications, published in a professional journal, or presented at a professional meeting. Your name will not be used in any publication or presentation unless you request to be identified. In addition, you are free to contact me to request interview transcripts (contact information below). However, given the amount of time it takes to transcribe an interview, it may take several weeks to respond with a full transcript. At that time you will be able to clarify any points that you feel do not adequately represent your thoughts or feelings during the interview.

Audio Release. During your participation in this research study, I will request to digitally record the interview. The recordings may be used in future museum interpretations and presentations. If you agree, your signature at the end of this form gives me permission to do so. The recordings will be retained until the project is completed December 2012 at which time they will be erased and destroyed. Recordings are requested to ensure that the interview is accurately transcribed. However, you may refuse to be recorded or may ask to stop being recorded at any time.

If you have questions about this study, please ask them now or contact Kevin Russell at 1-863-207-1348 or at krusse10@utk.edu, or at the Department of Geography, University of Tennessee; Knoxville, TN 37996. A copy of this document will be given to you to keep.

If you have questions about your rights as a research participant, you may contact the University of Tennessee Institutional Review Board at:
Blount Hall
Knoxville, TN 37996
Phone (865) 974-7697
Email: blawson@utk.edu

CONSENT

I have read the above information. I have received a copy of this form. I agree to participate in this study.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

I agree to be digitally recorded.

Participant's signature _____Date_____

I agree to allow use of the audio recording for future interpretations and/or presentations.

Participant's signature _____Date_____

Appendix B – Interview Questions

Interview Questions

Interviews will take place in the field while observing the landscape or off-site with the assistance of a topographic map.

1. What can you tell me about the past land use here?

2. What was this place named? Do you know why it was named that?

3. How did you learn about this area?

4. Who may have used this land?

5. Did people come to this area often?

6. Has land use in this area changed during your lifetime or has it remained

    consistent?

7. How do you think people viewed this area on an emotional level? Was this a

    place people avoided or sought out?

Appendix C - Map Application Programming Code

```xml
<?xml version="1.0" encoding="utf-8"?>
<s:Application xmlns:fx="http://ns.adobe.com/mxml/2009"
                xmlns:s="library://ns.adobe.com/flex/spark"
                xmlns:mx="library://ns.adobe.com/flex/mx"

                xmlns:ATE="http://ns.adobe.com/ate/2009"
                xmlns:ai="http://ns.adobe.com/ai/2009"
                xmlns:flm="http://ns.adobe.com/flame/2008"
                xmlns:lib="assets.graphics.*"
                minWidth="800" minHeight="600"
currentState="Page1" viewSourceURL="srcview/index.html">
      <fx:Declarations>
            <!-- Place non-visual elements (e.g., services, value
objects) here -->
      </fx:Declarations>

      <fx:Script>
            <![CDATA[
                import com.google.maps.LatLng;
                import com.google.maps.LatLngBounds;
                import com.google.maps.Map3D;
                import com.google.maps.MapEvent;
                import com.google.maps.MapOptions;
                import com.google.maps.MapType;
                import com.google.maps.View;
                import com.google.maps.controls.MapTypeControl;
                import com.google.maps.controls.NavigationControl;
                import com.google.maps.controls.ZoomControl;
                import com.google.maps.geom.Attitude;
                import com.google.maps.overlays.GroundOverlay;
                import com.google.maps.overlays.GroundOverlayOptions;

                import mx.effects.easing.Bounce;

                private function
onMapPreinitializeRegion(event:MapEvent):void
                {
                    var mygmapRegionOptions:MapOptions = new
MapOptions();
                    mygmapRegionOptions.zoom=7.4;
                    mygmapRegionOptions.center = new LatLng(16.0, -
63.2);
                    mygmapRegionOptions.mapType =
MapType.HYBRID_MAP_TYPE;
                    mygmapRegionOptions.viewMode =
View.VIEWMODE_PERSPECTIVE;
                    mygmapRegionOptions.attitude = new
Attitude(0,0,0);
                    gmapRegion.setInitOptions(mygmapRegionOptions);
                }
```

```
                        private function
onMapReadyRegion(event:MapEvent):void
                {
//                      gmapRegion.addControl(new MapTypeControl());
                        gmapRegion.addControl(new NavigationControl());
                        gmapRegion.enableScrollWheelZoom();

                        var testLoader:Loader = new Loader();
                        var urlRequest:URLRequest = new
URLRequest("http://web.utk.edu/~russel01/public_html/MontserratFlexAppl
ication/bin-release/assets/images/Caribbean.png");

        testLoader.contentLoaderInfo.addEventListener(Event.COMPLETE,
function(event:Event):void
                {
                            var groundOverlayRegion:GroundOverlay =
new GroundOverlay(
                                    testLoader,
                                    new LatLngBounds(new
LatLng(11.63074495634886,-67.43617887925483,0), new
LatLng(19.32652845461927,-58.8717745774201,0)));

        gmapRegion.addOverlay(groundOverlayRegion);

                        });
                        testLoader.load(urlRequest);
                }

                        private function
onMapPreinitializeIsland(event:MapEvent):void
                {
                        var mygmapIslandOptions:MapOptions = new
MapOptions();
                        mygmapIslandOptions.zoom=12.7;
                        mygmapIslandOptions.center = new LatLng(16.75,
-62.2);
                        mygmapIslandOptions.mapType =
MapType.HYBRID_MAP_TYPE;
                        mygmapIslandOptions.viewMode =
View.VIEWMODE_PERSPECTIVE;
                        mygmapIslandOptions.attitude = new
Attitude(0,0,0);
                        gmapIsland.setInitOptions(mygmapIslandOptions);
                }

                        private function
onMapReadyIsland(event:MapEvent):void
                {
//                      gmapIsland.addControl(new MapTypeControl());
                        gmapIsland.addControl(new NavigationControl());
                        gmapIsland.enableScrollWheelZoom();

                        var testLoader:Loader = new Loader();
```

```actionscript
                                        var urlRequest:URLRequest = new
URLRequest("http://web.utk.edu/~russel01/public_html/MontserratFlexAppl
ication/bin-release/assets/images/Island.png");

        testLoader.contentLoaderInfo.addEventListener(Event.COMPLETE,
function(event:Event):void
                                {
                                        var groundOverlayIsland:GroundOverlay =
new GroundOverlay(
                                                testLoader,
                                                new LatLngBounds(new
LatLng(16.65668465037348,-62.25735192379187,0), new
LatLng(16.84375342541764,-62.12377467998625,0)));

        gmapIsland.addOverlay(groundOverlayIsland);

                                });
                                testLoader.load(urlRequest);
                        }

                    private function
onMapPreinitializeLittleBay(event:MapEvent):void
                        {
                                var mygmapLittleBayOptions:MapOptions = new
MapOptions();
                                mygmapLittleBayOptions.zoom=15;
                                mygmapLittleBayOptions.center = new
LatLng(16.81, -62.192);
                                mygmapLittleBayOptions.mapType =
MapType.HYBRID_MAP_TYPE;
                                mygmapLittleBayOptions.viewMode =
View.VIEWMODE_PERSPECTIVE;
                                mygmapLittleBayOptions.attitude = new
Attitude(0,0,0);

        gmapLittleBay.setInitOptions(mygmapLittleBayOptions);
                        }

                    private function
onMapReadyLittleBay(event:MapEvent):void
                        {
//                        gmapLittleBay.addControl(new MapTypeControl());
                                gmapLittleBay.addControl(new
NavigationControl());
                                gmapLittleBay.enableScrollWheelZoom();

                                var testLoader:Loader = new Loader();
                                var urlRequest:URLRequest = new
URLRequest("http://web.utk.edu/~russel01/public_html/MontserratFlexAppl
ication/bin-release/assets/images/LittleBay.png");

        testLoader.contentLoaderInfo.addEventListener(Event.COMPLETE,
function(event:Event):void
                                {
```

```actionscript
                                        var groundOverlayLittleBay:GroundOverlay
= new GroundOverlay(
                                                testLoader,
                                                new LatLngBounds(new
LatLng(16.78830617509334,-62.21386436442927,0), new
LatLng(16.8286219679458,-62.17101516205591,0)));

        gmapLittleBay.addOverlay(groundOverlayLittleBay);
                        });
                        testLoader.load(urlRequest);

                }

                private function
onMapPreinitializeCarrsEstate(event:MapEvent):void
                {
                        var mygmapCarrsEstateOptions:MapOptions = new
MapOptions();
                        mygmapCarrsEstateOptions.zoom=19.15;
                        mygmapCarrsEstateOptions.center = new
LatLng(16.7995, -62.202);
                        mygmapCarrsEstateOptions.mapType =
MapType.HYBRID_MAP_TYPE;
                        mygmapCarrsEstateOptions.viewMode =
View.VIEWMODE_PERSPECTIVE;
                        mygmapCarrsEstateOptions.attitude = new
Attitude(0,0,0);

        gmapCarrsEstate.setInitOptions(mygmapCarrsEstateOptions);
                }

                private function
onMapReadyCarrsEstate(event:MapEvent):void
                {
//                      gmapCarrsEstate.addControl(new
MapTypeControl());
                        gmapCarrsEstate.addControl(new
NavigationControl());
                        gmapCarrsEstate.enableScrollWheelZoom();


                        var testLoader:Loader = new Loader();
                        var urlRequest:URLRequest = new
URLRequest("http://web.utk.edu/~russel01/public_html/MontserratFlexAppl
ication/bin-release/assets/images/Carr_Site.png");

        testLoader.contentLoaderInfo.addEventListener(Event.COMPLETE,
function(event:Event):void
                        {
                                var
groundOverlayCarrsEstate:GroundOverlay = new GroundOverlay(
                                        testLoader,
```

```
                                    new LatLngBounds(new
LatLng(16.79843002503428,-62.20320014963976,0), new
LatLng(16.80060618140783,-62.20084914607492,0))));
                            var
groundOverlayOptions:GroundOverlayOptions= new GroundOverlayOptions();

                            /* groundOverlayOptions.rotation = -
20.50942736988395; */

      gmapCarrsEstate.addOverlay(groundOverlayCarrsEstate);

                            });
                            testLoader.load(urlRequest);

                    }

                    private function
onMapPreinitializeBlathwayt(event:MapEvent):void
                    {
                            var mygmapBlathwaytOptions:MapOptions = new
MapOptions();
                            mygmapBlathwaytOptions.zoom=12.75;
                            mygmapBlathwaytOptions.center = new
LatLng(16.75, -62.2);
                            mygmapBlathwaytOptions.mapType =
MapType.HYBRID_MAP_TYPE;
                            mygmapBlathwaytOptions.viewMode =
View.VIEWMODE_PERSPECTIVE;
                            mygmapBlathwaytOptions.attitude = new
Attitude(0,0,0);

      gmapBlathwayt.setInitOptions(mygmapBlathwaytOptions);
                    }

                    private function
onMapReadyBlathwayt(event:MapEvent):void
                    {
//                      gmapBlathwayt.addControl(new MapTypeControl());
                            gmapBlathwayt.addControl(new
NavigationControl());
                            gmapBlathwayt.enableScrollWheelZoom();


                            var testLoader:Loader = new Loader();
                            var urlRequest:URLRequest = new
URLRequest("http://web.utk.edu/~russel01/public_html/MontserratFlexAppl
ication/bin-release/assets/images/Blathwayt.png");

      testLoader.contentLoaderInfo.addEventListener(Event.COMPLETE,
function(event:Event):void
                            {
                                    var groundOverlayBlathwayt:GroundOverlay
= new GroundOverlay(
                                            testLoader,
```

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```
                                    new LatLngBounds(new
LatLng(16.66449566714374,-62.25504603289258,0), new
LatLng(16.83001517962098,-62.11331817310001,0)));
                            var
groundOverlayOptions:GroundOverlayOptions= new GroundOverlayOptions();


        gmapBlathwayt.addOverlay(groundOverlayBlathwayt);

                        });
                        testLoader.load(urlRequest);

                }



            ]]>
        </fx:Script>


        <fx:Script><![CDATA[
            protected function button_clickHandler():void
            {
                currentState='Region';
            }

            protected function button_clickHandler_1():void
            {
                currentState='Montserrat';


            }


            protected function button_clickHandler_2():void
            {
                currentState='LittleBay';
            }


            protected function button_clickHandler_3():void
            {
                currentState='CarrsEstate';
            }


            protected function button_clickHandler_4():void
            {
                currentState='About';
            }


            protected function button_clickHandler_5():void
            {
                currentState='Region';
```

```
            }

            protected function button_clickHandler_6():void
            {
                    currentState='Blathwayt';
            }

            protected function button_clickHandler_7():void
            {
                    currentState='Blathwayt';
            }

]]></fx:Script>

<s:states>
        <s:State  name="Region"/>
        <s:State  name="Montserrat"/>
        <s:State  name="LittleBay"/>
        <s:State  name="CarrsEstate"/>
        <s:State  name="About"/>
        <s:State name="Page1"/>
        <s:State name="Blathwayt"/>

</s:states>


<s:transitions>
        <s:Transition>
                <s:Fade targets="{[InfoBarTop, titleGroup,
imageBlathwaytAnalysis, accordion, gmapRegion, gmapBlathwayt,
gmapLittleBay, gmapCarrsEstate, imageVolcano, imageIsland, gmapIsland,
imageSite, videoLittleBay,]} " duration="1000"/>
        </s:Transition>

        <s:Transition autoReverse="true" fromState="Page1"
toState="Blathwayt, Region">
                <s:Parallel>
                        <s:Parallel target="{imageTracing}">
                                <s:Fade duration="1000"/>
                        </s:Parallel>
                        <s:Parallel target="{page1_titleA}">
                                <s:Fade duration="1000"/>
                        </s:Parallel>
                        <s:Parallel target="{page1_titleB}">
                                <s:Fade duration="1000"/>
                        </s:Parallel>
                        <s:Parallel target="{btnPage1}">
                                <s:Fade duration="1000"/>
                        </s:Parallel>
                </s:Parallel>
        </s:Transition>

        <!--<s:Transition fromState="Page1" autoReverse="false">
```

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```xml
                        <s:Wipe direction="left" duration="900"
targets="{titleGroup}"/>
                    </s:Transition>-->
            </s:transitions>

        <fx:DesignLayer id="Background">

                    <s:Rect height="100%" width="100%" id="rect11"
includeIn="About,CarrsEstate,Blathwayt,LittleBay,Montserrat,Region">
                        <s:fill>
                            <s:LinearGradient rotation="270"
scaleX="20"  x="512"  y="20">
                                <s:GradientEntry color="#020203"
ratio="0"/>
                                <s:GradientEntry color="#333333"
ratio="1"/>
                            </s:LinearGradient>
                        </s:fill>
                    </s:Rect>

            <fx:DesignLayer id="TitleText" visible.Page1="false">
                    <s:HGroup top="0" left="0" paddingLeft="5"
paddingTop="5">


                        <s:RichText color="#DCCE9C" columnCount="1"
fontFamily="Arno Pro Display" fontSize="24" fontStyle="italic"

     includeIn="About,CarrsEstate,Blathwayt,LittleBay,Montserrat,Regio
n" kerning="on" tabStops="S0 S50 S100 S150 S200 S250 S300 S350 S400"
                            text="Visualizing the Historic
Landscape of" whiteSpaceCollapse="preserve" x="57" y="9"/>
                        <s:RichText color="#DCCE9C" columnCount="1"
fontFamily="Arno Pro Display" fontSize="64"

     includeIn="About,CarrsEstate,Blathwayt,LittleBay,Montserrat,Regio
n" kerning="on" tabStops="S0 S50 S100 S150 S200 S250 S300 S350"
                            text="Montserrat"
whiteSpaceCollapse="preserve" x="504" y="-1" id="richtext12"/>
                    </s:HGroup>
            </fx:DesignLayer>

        </fx:DesignLayer>

        <fx:DesignLayer id="InfoBarBottom">
            <s:Rect height="20" width="100%" id="rect8" bottom="0"
includeIn="About,CarrsEstate,Blathwayt,LittleBay,Montserrat,Region">
                    <s:fill>
                        <s:LinearGradient rotation="270" scaleX="20"
x="512"  y="20">
                            <s:GradientEntry color="#020203"
ratio="0"/>
                            <s:GradientEntry color="#333333"
ratio="1"/>
```

```
                                    </s:LinearGradient>
                        </s:fill>
                        <s:stroke>
                                <s:SolidColorStroke alpha="0.3" caps="none"
joints="miter" miterLimit="10" weight="1"/>
                        </s:stroke>
                        <!--<s:label>
                                text="Lesser Antilles, West Caribbean"
horizontalCenter="0"
                        </s:label>-->
                </s:Rect>
                <s:Label id="textCopyright" text="Cartography and
Application by Kevin Patrick Russell 2011" fontFamily="Myriad Pro"
                                excludeFrom="Page1" bottom="5"
horizontalCenter="0" color="#939393" />
        </fx:DesignLayer>


        <fx:DesignLayer id="InfoBarTop">
                <s:Rect height="20" width="100%" id="rect10" top="55"
includeIn="About,CarrsEstate,Blathwayt,LittleBay,Montserrat,Region">
                        <s:fill>
                                <s:LinearGradient rotation="270" scaleX="20"
x="512"  y="20">
                                        <s:GradientEntry color="#020203"
ratio="0"/>
                                        <s:GradientEntry color="#333333"
ratio="1"/>
                                </s:LinearGradient>
                        </s:fill>
                        <s:stroke>
                                <s:SolidColorStroke alpha="0.3" caps="none"
joints="miter" miterLimit="10" weight="1"/>
                        </s:stroke>
                </s:Rect>
                <s:Label id="infoTextTop"  fontFamily="Myriad Pro"
excludeFrom="Page1" top="60" horizontalCenter="0" color="#939393"
                                text.Region="Region:  Caribean, Lesser
Antilles, Leeward Islands"
                                text.Montserrat="Montserrat: The Emerald Isle
of the Caribbean"
                                text.LittleBay="Montserrat: Northern Region"
                                text.CarrsEstate="Carr's Estate at Little Bay"
                                text.Blathwayt="The 1673 Blathwayt Map of
Montserrat"/>
        </fx:DesignLayer>




        <mx:HDividedBox height="100%" width="100%" id="hdBox" y="100"
bottom="20" top="75"
includeIn="About,CarrsEstate,Blathwayt,LittleBay,Montserrat,Region">
                <s:VGroup id="vBoxNavbar" paddingLeft="20">
                        <s:Group>
```

```
                              <s:Button id="buttonBlathwayt"
label="Blathwayt" skinClass="components.ButtonBlathwayt"
                                        click="button_clickHandler_7()"/>

                              <s:Group id="iconGlowBlathwayt"
includeIn="Blathwayt" horizontalCenter="-2" y="22.4">
                              <s:filters>
                                   <s:GlowFilter blurX="6.0"
blurY="6.0" inner="false" color="#A4C206" strength="3" alpha="1.0"
quality="2" knockout="false"/>
                              </s:filters>
                              <s:Path data="M 0 0.258 C 0.291 -0.086
1.996 -0.086 2.288 0.258 C 1.525 0.258 0.763 0.258 0 0.258 Z"
x="19.801" y="25.448">
                                   <s:fill>
                                        <s:SolidColor
color="#858585"/>
                                   </s:fill>
                              </s:Path>
                              <s:Path data="M 0 8.946 C 1.54 5.838 3.16
2.813 4.994 0 C 4.167 1.772 3.856 3.587 3.121 5.201 C 3.313 4.78 2.361
4.885 2.497 5.409 C 2.569 5.689 3.348 5.824 2.289 5.825 C 2.763 7.016
5.109 6.334 5.825 7.282 C 3.754 6.593 0.373 6.541 0.417 9.154 C 0.347
9.154 0.277 9.154 0.209 9.154 C 0.139 9.154 0.07 9.154 0 9.154 C 0
9.084 0 9.016 0 8.946 Z" x="0.868" y="12.392">
                                   <s:fill>
                                        <s:SolidColor
color="#B7B7B7"/>
                                   </s:fill>
                              </s:Path>
                              <s:Path data="M 16.228 0 C 16.228 3.675
16.228 7.351 16.228 11.026 C 16.091 11.088 15.912 10.521 16.02 10.402 C
14.68 11.897 16.577 18.513 15.811 21.012 C 16.433 19.622 15.606 16.785
16.228 15.395 C 16.228 17.614 16.228 19.833 16.228 22.052 C 16.158
22.052 16.089 22.052 16.02 22.052 C 16.02 21.844 16.02 21.636 16.02
21.428 C 15.131 24.596 11.077 25.592 7.281 25.173 C 6.772 24.851 5.928
24.862 5.201 24.757 C 5.132 24.757 5.063 24.757 4.993 24.757 C 4.88
24.46 3.352 23.618 3.329 24.133 C 2.68 23.585 2.962 21.531 2.289 21.636
C 2.279 21.105 2.443 21.382 2.704 21.428 C 2.927 20.651 2.188 20.835
2.289 20.18 C 2.354 19.731 2.64 20.395 2.497 20.596 C 2.937 19.979
2.498 18.636 2.497 18.515 C 2.464 15.863 2.728 11.987 2.289 9.362 C
3.17 8.55 1.864 8.179 2.704 7.281 C 2.601 7.432 2.227 7.503 2.289 7.281
C 2.672 5.916 2.694 3.818 2.289 2.08 C 2.253 1.629 3.026 1.986 3.329
1.872 C 2.822 1.313 1.668 1.863 1.04 1.872 C 0.585 1.667 1.904 1.507
2.289 1.456 C 1.997 0.846 0.291 1.65 0 1.04 C 6.298 0.822 12.964 5.929
16.228 0 Z" x="28.746" y="4.071">
                                   <s:fill>
                                        <s:SolidColor
color="#858585"/>
                                   </s:fill>
                              </s:Path>
                              <s:Path data="M 5.409 18.724 C 7.091
19.588 10.095 21.579 8.322 23.925 C 5.535 24.106 3.059 23.001 3.537
20.596 C 5.329 20.469 6.632 20.829 6.865 22.261 C 6.624 22.436 6.308
```

```
22.535 5.825 22.469 C 5.851 22.928 6.708 22.557 7.073 22.677 C 7.468
20.403 4.206 19.427 2.913 20.804 C 2.36 24.277 8.846 25.849 9.362
22.885 C 9.712 20.867 7.469 20.327 7.489 18.932 C 7.322 19.043 7.152
19.149 6.865 19.14 C 7.375 18.315 7.272 18.712 6.45 18.932 C 7.543
16.336 9.079 13.762 9.57 11.858 C 9.612 11.697 9.165 11.623 9.154 11.65
C 9.583 10.495 10.283 9.972 10.403 9.154 C 10.435 8.922 10.112 8.571
10.194 8.322 C 10.166 8.406 10.476 7.636 10.819 6.866 C 11.696 4.893
12.785 2.673 13.522 0 C 13.8 0 14.078 0 14.355 0 C 17.72 0.612 18.157
3.968 16.435 6.657 C 15.847 9.377 13.7 11.481 13.939 14.355 C 12.856
13.244 13.875 15.726 13.314 16.436 C 12.732 16.103 13.607 15.499 13.314
14.772 C 12.372 15.664 12.802 16.61 12.899 17.268 C 12.505 17.245
12.754 16.58 12.275 16.644 C 13.029 17.603 13.45 18.994 12.899 20.804 C
12.665 20.623 12.912 20.108 12.483 20.804 C 13.521 21.565 12.258 21.118
12.691 22.261 C 13.161 22.145 12.438 21.937 12.899 21.636 C 13.371
21.858 12.978 22.944 13.107 23.509 C 12.834 23.259 12.78 23.428 12.483
23.509 C 12.356 24.006 12.744 25.019 12.275 25.173 C 12.26 25.531
13.343 24.947 13.314 25.797 C 12.978 25.856 12.957 25.601 12.691 25.589
C 9.091 29.063 0.516 25.592 0 20.596 C −0.043 17.983 3.337 18.035 5.409
18.724 Z M 12.899 18.308 C 12.632 18.296 12.611 18.042 12.275 18.1 C
12.145 18.82 12.87 20.549 12.691 19.972 C 13.059 18.983 12.354 18.832
12.691 18.308 C 12.69 18.423 12.859 18.544 12.899 18.308 Z" x="1.285"
y="0.95">
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color="#4B4B4B"/>
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                                </s:Path>
                                <s:Path data="M 12.482 0.416 C 12.205
0.416 11.928 0.416 11.649 0.416 C 10.912 3.089 9.823 5.309 8.946 7.282
C 8.604 8.052 8.294 8.822 8.321 8.738 C 8.239 8.987 8.563 9.338 8.53
9.57 C 8.41 10.388 7.711 10.911 7.281 12.066 C 7.292 12.039 7.739
12.113 7.697 12.274 C 7.206 14.178 5.671 16.752 4.577 19.348 C 5.399
19.128 5.502 18.731 4.992 19.556 C 5.279 19.565 5.449 19.459 5.616
19.348 C 5.597 20.743 7.84 21.283 7.489 23.301 C 6.974 26.265 0.487
24.693 1.04 21.22 C 2.333 19.843 5.596 20.819 5.2 23.093 C 4.835 22.973
3.979 23.344 3.952 22.885 C 4.436 22.951 4.751 22.852 4.992 22.677 C
4.76 21.245 3.456 20.885 1.664 21.012 C 1.187 23.417 3.662 24.522 6.449
24.341 C 8.223 21.995 5.219 20.004 3.536 19.14 C 2.82 18.193 0.474
18.874 0 17.684 C 1.059 17.682 0.28 17.548 0.208 17.268 C 0.072 16.744
1.024 16.639 0.832 17.06 C 1.567 15.446 1.878 13.63 2.705 11.858 C
3.563 10.021 4.838 8.006 6.241 5.617 C 7.348 3.732 8.469 0.432 10.61 0
C 10.887 0 11.165 0 11.441 0 C 11.349 0.579 12.576 −0.163 12.482 0.416
Z" x="3.157" y="0.534">
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color="#858585"/>
                                    </s:fill>
                                </s:Path>
                                <s:Path data="M 0.208 16.447 C 0.724
21.443 9.299 24.913 12.898 21.44 C 13.164 21.452 13.186 21.707 13.522
21.648 C 13.551 20.798 12.468 21.382 12.482 21.024 C 12.951 20.87
12.564 19.857 12.69 19.36 C 12.987 19.279 13.042 19.11 13.315 19.36 C
13.186 18.795 13.578 17.709 13.106 17.487 C 12.646 17.788 13.368 17.996
12.898 18.112 C 12.466 16.969 13.729 17.415 12.69 16.655 C 13.119
```

```
15.959 12.872 16.474 13.106 16.655 C 13.657 14.845 13.236 13.454 12.482
12.495 C 12.962 12.431 12.713 13.096 13.106 13.119 C 13.01 12.461
12.579 11.515 13.522 10.622 C 13.815 11.35 12.94 11.954 13.522 12.287 C
14.082 11.577 13.064 9.095 14.147 10.206 C 13.907 7.332 16.055 5.228
16.643 2.508 C 21.471 2.829 22.954 -0.196 27.669 0.012 C 27.96 0.622
29.666 -0.182 29.958 0.428 C 29.573 0.479 28.254 0.639 28.709 0.844 C
29.337 0.835 30.491 0.285 30.998 0.844 C 30.695 0.958 29.922 0.601
29.958 1.052 C 30.363 2.79 30.341 4.888 29.958 6.253 C 29.896 6.475
30.27 6.404 30.373 6.253 C 29.533 7.151 30.839 7.522 29.958 8.334 C
30.397 10.959 30.133 14.835 30.166 17.487 C 30.167 17.608 30.606 18.951
30.166 19.568 C 30.309 19.367 30.023 18.704 29.958 19.152 C 29.856
19.807 30.596 19.623 30.373 20.4 C 30.112 20.354 29.948 20.077 29.958
20.608 C 30.631 20.503 30.349 22.557 30.998 23.105 C 31.021 22.59
32.549 23.432 32.662 23.729 C 31.91 23.912 31.274 22.916 30.79 23.52 C
30.548 23.555 30.42 23.475 30.373 23.313 C 31.299 23.129 28.534 22.17
28.293 22.48 C 26.051 21.672 23.797 20.873 21.012 20.608 C 20.72 20.264
19.015 20.264 18.724 20.608 C 15.263 20.647 12.356 23.454 8.529 23.313
C 4.424 23.162 0.809 20.684 0 16.447 C 0.068 16.447 0.138 16.447 0.208
16.447 Z" x="1.077" y="5.099">
                                    <s:fill>
                                        <s:SolidColor
color="#858585"/>
                                    </s:fill>
                                </s:Path>
                                <s:Path data="M 0 0 C 0.727 0.105 1.571
0.094 2.08 0.416 C 1.22 0.445 0.474 0.359 0 0 Z" x="33.947" y="28.828">
                                    <s:fill>
                                        <s:SolidColor
color="#858585"/>
                                    </s:fill>
                                </s:Path>
                                <s:Path data="M 2.08 0.898 C 1.426 0.582
0.76 0.278 0 0.066 C 0.241 -0.244 3.006 0.715 2.08 0.898 Z" x="29.37"
y="27.514">
                                    <s:fill>
                                        <s:SolidColor
color="#4B4B4B"/>
                                    </s:fill>
                                </s:Path>
                                <s:Path data="M 0.434 0.217 C 0.097 0.742
0.802 0.893 0.434 1.882 C 0.613 2.458 -0.112 0.73 0.018 0.01 C 0.354 -
0.049 0.375 0.206 0.642 0.217 C 0.602 0.453 0.433 0.333 0.434 0.217 Z"
x="13.542" y="19.04">
                                    <s:fill>
                                        <s:SolidColor
color="#858585"/>
                                    </s:fill>
                                </s:Path>
                                <s:Path data="M 0 3.121 C 0.484 2.517
1.12 3.512 1.872 3.329 C 1.941 3.329 2.011 3.329 2.08 3.329 C 2.554
3.688 3.3 3.774 4.16 3.745 C 7.956 4.165 12.01 3.168 12.898 0 C 12.898
0.208 12.898 0.417 12.898 0.625 C 11.808 4.881 3.931 4.731 0 3.121 Z"
x="31.867" y="25.499">
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                                                          <s:SolidColor
color="#4B4B4B"/>
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                                <s:Path data="M 0.698 4.993 C 0.077 6.383
0.903 9.22 0.281 10.61 C 1.048 8.111 -0.849 1.495 0.49 0 C 0.383 0.119
0.562 0.687 0.698 0.624 C 0.698 2.08 0.698 3.537 0.698 4.993 Z"
x="44.275" y="14.473">
                                            <s:fill>
                                                <s:SolidColor
color="#858585"/>
                                            </s:fill>
                                </s:Path>
                        </s:Group>
                </s:Group>

                <s:Group>
                        <s:Button id="buttonRegion"
skinClass="components.Region_UPButton"

                                    click="button_clickHandler() "
toolTip="Click to view regional map" />

                        <s:Path data="M 27.83 22.29 C 28.841 20.48
29.45 18.41 29.561 16.22 L 23.681 16.22 C 23.631 18.31 23.32 20.35
22.79 22.29 L 27.83 22.29 Z M 6.98 14.79 C 7.04 12.69 7.351 10.64 7.881
8.7 L 3.181 8.7 C 2.171 10.52 1.551 12.59 1.44 14.79 L 6.98 14.79 Z M
7.881 22.29 C 7.351 20.35 7.04 18.31 6.98 16.22 L 1.44 16.22 C 1.551
18.41 2.171 20.48 3.181 22.29 L 7.881 22.29 Z M 8.311 7.32 C 8.931 5.51
9.761 3.8 10.78 2.24 C 8.051 3.22 5.711 5.01 4.061 7.32 L 8.311 7.32 Z
M 10.78 28.77 C 9.75 27.21 8.921 25.49 8.301 23.67 L 4.04 23.67 C 5.7
25.99 8.051 27.79 10.78 28.77 Z M 14.79 7.32 L 14.79 1.44 C 14.15 1.48
13.511 1.55 12.891 1.67 C 11.57 3.34 10.53 5.25 9.771 7.32 L 14.79 7.32
Z M 14.79 14.79 L 14.79 8.7 L 9.311 8.7 C 8.75 10.63 8.421 12.68 8.36
14.79 L 14.79 14.79 Z M 14.79 22.29 L 14.79 16.22 L 8.36 16.22 C 8.421
18.32 8.74 20.37 9.311 22.29 L 14.79 22.29 Z M 14.79 29.57 L 14.79
23.67 L 9.761 23.67 C 10.521 25.75 11.57 27.66 12.891 29.34 C 13.511
29.45 14.15 29.53 14.79 29.57 Z M 20.9 7.32 C 20.131 5.23 19.061 3.29
17.721 1.6 C 17.231 1.52 16.721 1.47 16.211 1.45 L 16.211 7.32 L 20.9
7.32 Z M 17.721 29.41 C 19.07 27.72 20.141 25.78 20.9 23.67 L 16.211
23.67 L 16.211 29.56 C 16.721 29.54 17.231 29.49 17.721 29.41 Z M
22.311 14.79 C 22.25 12.68 21.921 10.63 21.351 8.7 L 16.211 8.7 L
16.211 14.79 L 22.311 14.79 Z M 15.5 0 C 24.051 0 31 6.96 31 15.5 C 31
24.05 24.051 31.01 15.5 31.01 C 6.961 31.01 0 24.05 0 15.5 C 0 6.96
6.961 0 15.5 0 Z M 21.36 22.29 C 21.921 20.37 22.25 18.32 22.311 16.22
L 16.211 16.22 L 16.211 22.29 L 21.36 22.29 Z M 22.78 8.7 C 23.32 10.64
23.631 12.69 23.681 14.79 L 29.561 14.79 C 29.45 12.59 28.83 10.52
27.82 8.7 L 22.78 8.7 Z M 26.95 7.32 C 25.211 4.89 22.7 3.03 19.78 2.09
C 20.86 3.69 21.721 5.45 22.36 7.32 L 26.95 7.32 Z M 26.961 23.67 L
22.36 23.67 C 21.721 25.55 20.86 27.32 19.78 28.92 C 22.711 27.98
25.221 26.12 26.961 23.67 Z"
                                    id="glowIconRegion"
includeIn="Region" horizontalCenter="0" winding="nonZero" y="22.4" >
                        <s:fill>
```

```
                                           <s:SolidColor color="#939393"/>
                                   </s:fill>
                                   <s:filters>
                                           <s:GlowFilter alpha="1.0"
blurX="6.0" blurY="6.0" color="#A4C206" inner="false" knockout="false"
quality="2" strength="3"/>
                                   </s:filters>
                           </s:Path>
                   </s:Group>

                   <!--<s:Line id="line1" includeIn="Region"  x="39.5"
xTo="39" y="261.5">
                           <s:stroke>
                                   <s:SolidColorStroke caps="none"
color="#939393" joints="miter" miterLimit="10" weight="1"/>
                           </s:stroke>
                   </s:Line>-->


                   <s:Group>
                           <s:Button id="buttonMontserrat"
skinClass="components.Montserrat_UPButton"

                                           click="button_clickHandler_1()"
toolTip="Click to view map of Montserrat"/>
                           <s:Path alpha="1" data="M 18.433 21.246 C 17.87
20.275 19.696 23.361 20.874 24.463 C 24.297 27.666 26.69 23.992 25.615
20.227 C 32.713 16.571 28.304 13.487 28.304 13.487 C 26.829 13.26
23.478 12.997 20.933 13.02 C 22.1 12.375 23.567 11.494 25.148 10.375 C
28.974 7.666 25.858 4.583 21.954 4.878 C 19.8 -2.811 14.886 1.948
14.886 1.948 C 14.129 3.987 13.503 8.851 13.638 10.732 C 12.954 9.559
11.657 7.493 9.791 5.202 C 6.83 1.567 3.964 4.885 4.522 8.76 C -3.005
11.427 2.291 15.413 2.291 15.413 C 4.123 15.955 7.65 16.633 10.074
16.694 C 8.922 17.486 7.057 18.867 5.028 20.762 C 1.601 23.961 5.106
26.597 8.934 25.778 C 12.102 33.108 15.899 27.719 15.899 27.719 C
16.108 26.787 16.496 25.329 16.818 23.802 C 16.979 23.038 17.125 22.257
17.222 21.516 C 17.926 23.52 19.084 25.981 16.478 31.483 L 20.532
28.442 C 20.532 28.442 20.387 24.619 18.433 21.246 Z"
                                           id="glowIconMontserrat"
includeIn="Montserrat" y="22.55" x="16.39963" >
                                   <s:fill>
                                           <s:SolidColor color="#a4c206"
alpha=".8"/>
                                   </s:fill>
                                   <s:filters>
                                           <s:DropShadowFilter alpha="0.75"
angle="90" blurX="5" blurY="5" color="0x000000" distance="5"

      hideObject="false" inner="false" knockout="false" quality="2"
strength="1"/>
                                           <s:GlowFilter alpha="1.0"
blurX="6.0" blurY="6.0" color="#A4C206" inner="false" knockout="false"
quality="3" strength="3"/>
                                   </s:filters>
```

```
                                        <s:stroke>
                                                <s:SolidColorStroke caps="none"
color="0x939393" joints="miter" miterLimit="4" weight="1"/>
                                        </s:stroke>
                                </s:Path>
                        </s:Group>


                        <!--<s:Line id="line2" includeIn="Montserrat"
x="29.5" xTo="59" y="360.5">
                                <s:stroke>
                                        <s:SolidColorStroke caps="none"

    color="#939393" joints="miter" miterLimit="10" weight="1"/>
                                </s:stroke>
                        </s:Line>-->


                        <s:Group>
                                <s:Button id="buttonLittleBay"
skinClass="components.LittleBay_UPButton"

                                        click="button_clickHandler_2()"
toolTip="Click to view map of LIttle Bay" />
                                <s:Path data="M 33.243 7.188 C 29.759 9.801
26.786 9.801 23.301 7.188 C 21.028 5.484 19.089 5.484 16.816 7.188 C
13.364 9.776 10.549 9.776 7.098 7.188 C 4.8 5.464 3.247 5.464 0.948
7.188 L 0 5.924 C 2.794 3.829 5.142 3.744 8.046 5.924 C 10.784 7.977
12.805 8.221 15.869 5.924 C 18.773 3.744 21.474 3.842 24.249 5.924 C
27.099 8.061 29.334 8.145 32.295 5.924 C 35.201 3.744 37.102 3.744
40.006 5.924 L 39.058 7.188 C 36.722 5.436 35.58 5.436 33.243 7.188 Z M
33.243 2.899 C 29.759 5.512 26.786 5.512 23.301 2.899 C 21.028 1.194
19.089 1.194 16.816 2.899 C 13.364 5.487 10.549 5.487 7.098 2.899 C 4.8
1.175 3.247 1.175 0.948 2.899 L 0 1.635 C 2.794 -0.461 5.142 -0.545
8.046 1.635 C 10.784 3.688 12.805 3.932 15.869 1.635 C 18.773 -0.545
21.474 -0.447 24.249 1.635 C 27.099 3.772 29.334 3.855 32.295 1.635 C
35.201 -0.545 37.102 -0.545 40.006 1.635 L 39.058 2.899 C 36.722 1.146
35.58 1.146 33.243 2.899 Z M 8.046 10.213 C 10.784 12.267 12.805 12.51
15.869 10.213 C 18.773 8.033 21.474 8.131 24.249 10.213 C 27.099 12.351
29.334 12.435 32.295 10.213 C 35.201 8.033 37.102 8.033 40.006 10.213 L
39.058 11.477 C 36.722 9.726 35.58 9.726 33.243 11.477 C 29.759 14.09
26.786 14.092 23.301 11.477 C 21.028 9.773 19.089 9.773 16.816 11.477 C
13.364 14.066 10.549 14.066 7.098 11.477 C 4.8 9.753 3.247 9.753 0.948
11.477 L 0 10.213 C 2.794 8.118 5.142 8.033 8.046 10.213 Z"
                                        id="glowIconLittleBay"
includeIn="LittleBay" y="30" horizontalCenter="1">
                                        <s:fill>
                                                <s:SolidColor color="#939393"/>
                                        </s:fill>
                                        <s:filters>
                                                <s:DropShadowFilter alpha="0.75"
angle="90" blurX="5" blurY="5" color="0x000000" distance="5"
hideObject="false" inner="false" knockout="false" quality="2"
strength="1"/>
```

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```
                                            <s:GlowFilter alpha="1.0"
blurX="6.0" blurY="6.0" color="#A4C206" inner="false" knockout="false"
quality="2" strength="3"/>
                                    </s:filters>
                                    <s:stroke>
                                            <s:SolidColorStroke caps="none"
color="#939393" joints="miter" miterLimit="4" weight="1"/>
                                    </s:stroke>
                            </s:Path>
                    </s:Group>

                    <!--<s:Line id="line3" includeIn="LittleBay" x="34.5"
xTo="48" y="450.5">
                            <s:stroke>
                                    <s:SolidColorStroke caps="none"
color="#939393" joints="miter" miterLimit="10" weight="1"/>
                            </s:stroke>
                    </s:Line>-->


                    <s:Group>
                            <s:Button id="buttonCarrsEstate"
skinClass="components.CarrsEstate_UPButton"

                                            click="button_clickHandler_3()"
toolTip="Click to view map of Carr's Estate" />
                            <s:Group id="glowIconCarrEstate"
includeIn="CarrsEstate" horizontalCenter="-1" y="24.6">
                                    <s:filters>
                                            <s:DropShadowFilter alpha="0.75"
angle="90" blurX="5" blurY="5" color="0x000000" distance="5"

    hideObject="false" inner="false" knockout="false" quality="2"
strength="1"/>
                                            <s:GlowFilter alpha="1.0"
blurX="6.0" blurY="6.0" color="#A4C206" inner="false" knockout="false"
quality="2" strength="3"/>
                                    </s:filters>

                                    <s:Rect height="3" width="3" x="9"
y="14">
                                            <s:fill>
                                                    <s:SolidColor
color="#1D1D1D"/>
                                            </s:fill>
                                    </s:Rect>

                                    <s:Rect height="3" width="3" x="22"
y="14">
                                            <s:fill>
                                                    <s:SolidColor
color="#1D1D1D"/>
                                            </s:fill>
                                    </s:Rect>
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```
                                        <s:Path data="M 28.311 8.88 L 0 8.88 L
14.16 0.74 L 16.82 2.27 L 16.82 0 L 20.55 0 L 20.55 4.41 L 28.311 8.88
Z" winding="nonZero" x="2.5" y="0.5">
                                            <s:fill>
                                                <s:SolidColor
color="#939393"/>
                                            </s:fill>
                                            <s:stroke>
                                                <s:SolidColorStroke
caps="none" color="#939393" joints="miter" miterLimit="4" weight="1"/>
                                            </s:stroke>
                                        </s:Path>

                                        <s:Path data="M 18.78 3.22 L 15.78 3.22 L
15.78 6.22 L 18.78 6.22 L 18.78 3.22 Z M 2.78 3.22 L 2.78 6.22 L 5.78
6.22 L 5.78 3.22 L 2.78 3.22 Z M 21.42 0 L 21.42 14.25 L 12.62 14.25 L
12.62 8.53 L 11.59 8.52 L 8.79 8.53 L 8.79 14.25 L 0 14.25 L 0 0 L
21.42 0 Z" winding="nonZero" x="5.5" y="10.5">
                                            <s:fill>
                                                <s:SolidColor
color="#939393"/>
                                            </s:fill>
                                            <s:stroke>
                                                <s:SolidColorStroke
caps="none" color="#939393" joints="miter" miterLimit="4" weight="1"/>
                                            </s:stroke>
                                        </s:Path>
                                    </s:Group>
                                </s:Group>


                                <!--<s:Line id="line4" includeIn="CarrsEstate"
x="25.5" xTo="65" y="543.5">
                                    <s:stroke>
                                        <s:SolidColorStroke caps="none"
color="#939393" joints="miter" miterLimit="10" weight="1"/>
                                    </s:stroke>
                                </s:Line>-->


                                <s:Group>
                                    <s:Button id="buttonAbout"
skinClass="components.About_UPButton"

                                                click="button_clickHandler_4()"
toolTip="Click for more information about the project" />
                                    <s:Group id="iconGlowAbout" includeIn="About"
horizontalCenter="0" y="26">
                                        <s:filters>
                                            <s:DropShadowFilter alpha="0.75"
angle="90" blurX="5" blurY="5" color="0x000000" distance="5"
```

```
        hideObject="false" inner="false" knockout="false" quality="2"
strength="1"/>
                                </s:filters>

                                <s:Path data="M 0.14 18.96 C 1.05 18.96
2.22 18.44 2.22 17.36 C 2.22 16.29 1.14 15.68 0.229 15.68 L 0.159 14.31
C 1.05 14.31 1.069 13.66 1.069 12.96 C 1.069 12.23 1.09 11.81 1.79
11.51 C 2.88 11.01 3.81 10.64 4.699 9.81 C 5.569 9.01 6.119 7.81 6.119
6.62 C 6.119 5.25 5.5 3.99 4.399 3.18 C 3.489 2.52 2.319 2.25 1.199
2.19 L 1.239 0 C 6.77 0.26 11.199 4.84 11.199 10.44 C 11.199 16.19 6.51
20.88 0.75 20.88 C 0.5 20.88 0.25 20.87 0 20.85 L 0.14 18.96 Z"
                                    winding="nonZero" x="10.94"
y="0.6">
                                    <s:fill>
                                        <s:SolidColor
color="#1D1D1D"/>
                                    </s:fill>
                                </s:Path>

                                <s:Path data="M 0 10.45 C 0 4.69 4.68 0
10.44 0 C 10.6 0 10.77 0 10.93 0.01 L 10.89 2.2 C 10.731 2.19 10.58
2.19 10.42 2.19 C 8.6 2.19 5.63 3.06 5.63 5.39 C 5.63 6.24 6.33 6.69
7.1 6.69 C 7.54 6.69 8.03 6.56 8.35 6.24 C 8.71 5.87 8.66 5.58 8.66
5.11 C 8.64 4.65 8.85 4.09 9.21 3.76 C 9.51 3.5 11.4 3.44 11.87 3.56 C
13.02 3.85 13.76 4.85 13.76 6.11 C 13.76 6.93 13.59 7.74 13.1 8.43 C
12.61 9.13 12.12 9.41 11.4 9.82 C 10.43 10.37 8.77 10.39 8.75 11.54 L
8.75 12.54 C 8.75 13.52 8.62 14.32 9.85 14.32 L 9.92 15.69 C 8.96 15.69
7.88 16.24 7.88 17.34 C 7.88 18.37 8.92 18.97 9.83 18.97 L 9.69 20.86 C
4.28 20.48 0 15.95 0 10.45 Z"
                                    winding="nonZero" x="1.25"
y="0.59">
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color="#1D1D1D"/>
                                    </s:fill>
                                </s:Path>

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4.03 1.68 C 4.03 2.76 2.86 3.28 1.95 3.28 C 1.04 3.28 0 2.68 0 1.65 C 0
0.55 1.08 0 2.04 0 Z" winding="nonZero" x="9" y="16">
                                    <s:fill>
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color="#939393"/>
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                                    <!--<s:filters>
                                        <s:GlowFilter alpha="1.0"
blurX="6.0" blurY="6.0" color="#A4C206" inner="false" knockout="false"
quality="2" strength="3"/>
                                    </s:filters>-->
                                </s:Path>

                                <s:Path data="M 5.851 9.33 C 5.15 9.63
5.13 10.05 5.13 10.78 C 5.13 11.48 5.11 12.13 4.22 12.13 C 2.99 12.13
```

```
3.12 11.33 3.12 10.35 L 3.12 9.35 C 3.14 8.2 4.8 8.18 5.771 7.63 C 6.49
7.22 6.98 6.94 7.47 6.24 C 7.96 5.55 8.13 4.74 8.13 3.92 C 8.13 2.66
7.39 1.66 6.24 1.37 C 5.771 1.25 3.88 1.31 3.58 1.57 C 3.22 1.9 3.01
2.46 3.03 2.92 C 3.03 3.39 3.08 3.68 2.72 4.05 C 2.4 4.37 1.91 4.5 1.47
4.5 C 0.7 4.5 0 4.05 0 3.2 C 0 0.87 2.97 0 4.79 0 C 4.95 0 5.101 0 5.26
0.01 C 6.38 0.07 7.55 0.34 8.46 1 C 9.561 1.81 10.18 3.07 10.18 4.44 C
10.18 5.63 9.63 6.83 8.76 7.63 C 7.87 8.46 6.94 8.83 5.851 9.33 Z"
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y="3">
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                                            <s:SolidColor
color="#939393"/>
                                        </s:fill>
                                        <!--<s:filters>
                                            <s:GlowFilter alpha="1.0"
blurX="6.0" blurY="6.0" color="#A4C206" inner="false" knockout="false"
quality="2" strength="3"/>
                                        </s:filters>-->
                                </s:Path>

                                <s:Path data="M 11.5 1.05 C 5.739 1.05
1.06 5.74 1.06 11.5 C 1.06 17 5.34 21.53 10.75 21.91 C 11 21.93 11.25
21.94 11.5 21.94 C 17.26 21.94 21.949 17.25 21.949 11.5 C 21.949 5.9
17.52 1.32 11.989 1.06 C 11.829 1.05 11.659 1.05 11.5 1.05 Z M 23 11.5
C 23 17.84 17.84 23 11.5 23 C 5.159 23 0 17.84 0 11.5 C 0 5.15 5.159 0
11.5 0 C 17.84 0 23 5.15 23 11.5 Z" winding="nonZero" x="0" y="0">
                                        <s:fill>
                                            <s:SolidColor
color="#939393"/>
                                        </s:fill>
                                        <s:filters>
                                            <s:GlowFilter alpha="1.0"
blurX="6.0" blurY="6.0" color="#A4C206" inner="false" knockout="false"
quality="2" strength="3"/>
                                        </s:filters>
                                </s:Path>
                        </s:Group>
                    </s:Group>



            </s:VGroup>

        <s:Group id="groupMapContainer" height="100%" width="100%">

            <mx:Canvas id="mapWindow" height="100%" width="100%"
horizontalScrollPolicy="off" verticalScrollPolicy="off">
```

```xml
                <maps:Map3D xmlns:maps="com.google.maps.*"
id="gmapRegion"

      mapevent_mappreinitialize="onMapPreinitializeRegion(event)"

      mapevent_mapready="onMapReadyRegion(event)"
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LRRYOVGQGLilyQ-O4gFj2oGr3aYbKBTo-MJImhdK519bRNlhpXYuW9jNxg"
                                    includeIn="Region" sensor="false"/>

                <maps:Map3D xmlns:maps="com.google.maps.*"
id="gmapIsland"

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      mapevent_mapready="onMapReadyIsland(event)"
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                                    key="ABQIAAAAyNVZMw4FkPOUoMdUmmK-
LRRYOVGQGLilyQ-O4gFj2oGr3aYbKBTo-MJImhdK519bRNlhpXYuW9jNxg"
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sensor="false"/>

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id="gmapLittleBay"

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                                    includeIn="LittleBay"
sensor="false"/>

                <maps:Map3D xmlns:maps="com.google.maps.*"
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      mapevent_mapready="onMapReadyCarrsEstate(event)"
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sensor="false"/>

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```
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                                                includeIn="Blathwayt"
sensor="false"/>
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height="80%" width="80%" x="50" y="50"
                                                contentBackgroundColor="#1d1d1d"
fontFamily="Myriad Pro" fontSize="16" color="#4BACE0">
                            <s:content>
                                    <s:p>
                                        Topographic and Interview data
gathered during July 2011
                                    </s:p><s:p></s:p>
                                    <s:p>
                                        Cpt. Wm. Carr Estate project co-
directed by Dr. Lydia Pulsipher, Department of Geography, University of
Tennessee
                                    </s:p><s:p>
                                        and Dr. Mary Beaudry, Department of
Archaeology, University of Boston
                                    </s:p><s:p></s:p>
                                    <s:p>
                                        Assisted by Ph.D. Candidate Jessica
Striebel-MacLean, Department of Archaeology, Boston University
                                    </s:p><s:p></s:p>
                                    <s:p>
                                        Research funded through the
McCroskey Memorial Scholarship and the Center for International
Education McClure Scholarship
                                    </s:p><s:p></s:p>
                                    <s:p>
                                        Geospatial data was collected with
a Topcon HiPERLite differential GPS and Garmin eTrex GPS
                                    </s:p><s:p></s:p>
                                    <s:p>
                                        Software: Autodesk Map3D, ESRI
ArcGIS, Global Mapper, Adobe Illustrator, Photoshop, Flash Catalyst,
Flash Builder, and Google Map API
                                    </s:p>
                            </s:content>
                        </s:TextArea>

            </mx:Canvas>

    </s:Group>

    <mx:VDividedBox height="100%" width="50%" width.LittleBay="75%" >
            <s:BorderContainer height="100%" width="100%"
id="dataContainer" height.Blathwayt="50%">
                    <mx:Accordion id="accordion" width="100%"
height="100%" resizeToContent="true"

openEasingFunction="{Bounce.easeOut}" openDuration="1000"
                                        creationPolicy="all">
```

```
                               <!-- Define each panel using a VBox container.
-->

                             <mx:VBox label="Cartography"
includeIn="Blathwayt"
                                   height="100%" width="100%">
                           <s:TextArea heightInLines="(Omi and
Winant)" height="100%" width="100%" contentBackgroundColor="#1D1D1D"
color="#4BACE0"
                                           horizontalCenter="0"
verticalCenter="0"
                                           fontFamily="Myriad Pro"
fontSize="15">
                                   <s:content>
                                       <s:p>The identity of the
cartographer who produced the map of Montserrat is not known for
certain, but there are a number of clues.
                                   The fact that the map
is unsigned and unconventional  in form indicates that it was not drawn
by any of the professional cartographers
                                   known to be in the
Caribbean at the time. The great care with which the cultural detail is
rendered suggests, however, that the cartographer
                                   also was intimately
acquainted with the island.
                                   </s:p><s:p></s:p>
                                   <s:p>Only one who had spent
considerable time there would have known just how one mountain was
located in relation
                                   to another from several
different  perspectives or, as is indicated in the cartouche, that from
the top of St. George Hill (shown on the Plymouth profile),
                                   one could see the
plantation of "The Capt. General" (Stapleton) shown on the Briskets Bay
profile. The many landmarks identified by inhabitants' names also
indicate
                                   a high degree of
familiarity with the cultural features of the island.  The ships are
artfully drawn as lying off the leeward coast and appear to be
                                   acting out the French
invasion of Montserrat in 1667 which devastated the island.
                                   </s:p><s:p></s:p>
                                   <s:p>
                                   The map portrays
Montserrat at the beginning of the sugar era (c.  1650-1850) ) when the
processes that were to transform Caribbean
                                   landscapes so
drastically had been in operation for only a few decades. As such, this
early map has the potential to provide a unique
                                   visual image of
lifeways and land use during a formative period of New World history.
                                   </s:p><s:p></s:p>
                                   <s:p>
```

The map consists of
seven coastal profiles as viewed from a series of positions on an
offshore circumference of the island. The profiles
are linked together to
form an approximate outline of the island; hence for some purposes, the
map could serve as a quasi-planimetric map. The
map combines some
characteristics of planimetric, scenographic , and coastal profile
maps. The planimetric map, which showed the land as though
it were seen from
directly above. Prominent topographic features such as mountains,
valleys, and rivers were often depicted in a stylized
manner. The
scenographic (or bird's-eye view) map, which showed a rather realistic
view of a portion of the landscape. The perspective was
again from aloft, but
the land was viewed at about a 450 angle rather than from directly
above.

`</s:p><s:p></s:p>`
`<s:p>`

It is likely that the
cartographer was a William Stapleton, who in 1673 was governor and
captain general of the
Leewards and who had a
long association with Montserrat. He was the chief official there in
the late 1660s and had
acquired a large
plantation prior to that time (the one referred to as "The Capt.
General's" on the Briskets Bay profile of the 1673 map).
Stapleton also had some
experience drawing maps and was an experienced mariner who would have
been familiar with drawing coastal profiles.

`</s:p>`
`</s:content>`
`</s:TextArea>`
`</mx:VBox>`

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Winant)"` height=`"100%"` width=`"100%"` contentBackgroundColor=`"#1D1D1D"`
color=`"#4BACE0"`
horizontalCenter=`"0"`
verticalCenter=`"0"`
fontFamily=`"Myriad Pro"`
fontSize=`"15">`
`<s:content>`
`<s:p>`
On July 18, 1995, the
long-dormant Soufriere Hills volcano rumbled awake with an eruption
that forever

changed the Caribbean island of Montserrat. Eventually, the eruption would destroy Montserrat's capital city and force a mass migration of its people after rendering more than 60 percent of the island uninhabitable. Also destroyed was much of Montserrat's cultural heritage—a rich tapestry woven into the landscape over the course of nearly 400 years by colonial planters and traders, Irish indentures and enslaved African laborers and their modern descendents.

</s:p>
<s:p>

</s:p>
<s:p>
Construction of a new capital city in the northern region is occurring at a rapid pace as the local government scrambles to meet the infrastructure and housing needs of the public. Concurrent with reconstruction efforts are oral history and heritage reclamation projects dedicated to recording, protecting, and interpreting the precious remaining heritage resources to Montserratians and visitors.

</s:p>
<s:p>

</s:p>

<s:p>
The Captain William Carr plantation site, founded in the 17th century and used into the 20th century, is being developed as a historical heritage centerpiece of the new capital city at Little Bay. The stone ruins of the plantation houses have been transferred to the Montserrat National Trust but the surrounding landscape and the memories of the slave and indentured community contained within are threatened by continued development (Miles, Munby et al. 1997). This research aims to assist current Montserratian efforts to reclaim these important aspects of their heritage.

</s:p>
<s:p>

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```
                                                    </s:p>
                                            </s:content>
                                    </s:TextArea>
                            </mx:VBox>

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source="assets/images/timeline.png"
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width="100%"/>
                                    </s:Group>




                            </mx:VBox>

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fontFamily="Myriad Pro">
                                    <s:TextArea heightInLines="(Omi and
Winant)" height="100%" width="100%" contentBackgroundColor="#1D1D1D"
color="#4BACE0"
                                                            horizontalCenter="0"
verticalCenter="0"
                                                            fontFamily="Myriad Pro"
fontSize="15">
                                            <s:content>
                                                    <s:p>
                                                            References:
                                                    </s:p><s:p></s:p>
                                                    <s:p>
                                                            Pulsipher, L. M.
(1987). "Assessing the Usefulness of a Cartographic Curiosity: The 1673
Map of a Sugar Island."
                                                            Annals of the
Association of American Geographers 77(3): 408-422.
                                                    </s:p><s:p></s:p>
                                                    <s:p>
                                                            Photo Credits:
                                                    </s:p><s:p></s:p>
                                                    <s:p>
                                                            Observatory, M. V.
(2008). "Soufriere Hills Digital Image." Montserrat Volcano
Observatory, from http://www.mvo.ms/.
                                                    </s:p>

                                            </s:content>
```

```
                                    </s:TextArea>
                            </mx:VBox>

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id="legendLittleBay" fontFamily="Myriad Pro"
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width="246" x="10.5" y="10.5">
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color="#151515"/>
                                        </s:fill>
                                        <s:stroke>

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weight="1"/>
                                        </s:stroke>
                                    </s:Rect>
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y="31.5">
                                        <s:stroke>

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                                    </s:Line>
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y="67.5">
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    <s:SolidColorStroke color="#A3143E" miterLimit="10" weight="3"/>
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                                    </s:Line>
                                    <s:Line x="31.5" xTo="32"
y="103.5">
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                                        </s:stroke>
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```

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```
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10.08 6.63 8.25 6.63 4.935 C 6.63 1.83 5.445 0 3.405 0 Z M 3.315 1.02 C
4.695 1.02 5.295 2.595 5.295 4.995 C 5.295 7.485 4.65 9.06 3.315 9.06 C
2.115 9.06 1.335 7.62 1.335 5.085 C 1.335 2.43 2.175 1.02 3.315 1.02 Z
M 10.785 5.385 L 10.785 6.345 L 14.49 6.345 L 14.49 5.385 Z M 19.56
10.065 C 19.875 10.08 20.295 10.065 20.775 9.99 C 21.825 9.87 22.86
9.42 23.61 8.685 C 24.57 7.755 25.289 6.255 25.289 4.125 C 25.289 1.605
24.06 0 22.065 0 C 20.07 0 18.735 1.62 18.735 3.465 C 18.735 5.13 19.86
6.45 21.6 6.45 C 22.59 6.45 23.37 6.075 23.91 5.415 L 23.955 5.415 C
23.775 6.555 23.31 7.41 22.665 7.995 C 22.11 8.535 21.39 8.835 20.625
8.94 C 20.175 8.985 19.845 9.015 19.56 8.985 Z M 21.945 1.005 C 23.34
1.005 23.955 2.28 23.955 3.945 C 23.955 4.17 23.91 4.305 23.835 4.44 C
23.49 5.025 22.8 5.46 21.915 5.46 C 20.775 5.46 20.04 4.605 20.04 3.39
C 20.04 1.995 20.835 1.005 21.945 1.005 Z M 27.255 10.065 C 27.57 10.08
27.99 10.065 28.47 9.99 C 29.52 9.87 30.555 9.42 31.304 8.685 C 32.264
7.755 32.984 6.255 32.984 4.125 C 32.984 1.605 31.754 0 29.76 0 C
27.765 0 26.43 1.62 26.43 3.465 C 26.43 5.13 27.555 6.45 29.295 6.45 C
30.285 6.45 31.064 6.075 31.604 5.415 L 31.649 5.415 C 31.469 6.555
31.004 7.41 30.36 7.995 C 29.805 8.535 29.085 8.835 28.32 8.94 C 27.87
8.985 27.54 9.015 27.255 8.985 Z M 29.64 1.005 C 31.034 1.005 31.649
2.28 31.649 3.945 C 31.649 4.17 31.604 4.305 31.529 4.44 C 31.184 5.025
30.495 5.46 29.61 5.46 C 28.47 5.46 27.735 4.605 27.735 3.39 C 27.735
1.995 28.53 1.005 29.64 1.005 Z"
                                                        winding="nonZero"
x="80"  y="290">
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width="40" x="31.5" y="255">
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color="#E1EBAE"/>
                                                    </s:fill>
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                                                    </s:stroke>
                                                </s:Rect>
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3.255 9.915 L 3.255 0.165 L 2.13 0.165 L 0 1.305 L 0.255 2.31 L 1.95
1.395 L 1.98 1.395 Z M 10.08 0 C 8.1 0 6.675 1.785 6.675 5.07 C 6.705
8.295 8.01 10.08 9.915 10.08 C 12.06 10.08 13.305 8.25 13.305 4.935 C
13.305 1.83 12.12 0 10.08 0 Z M 9.99 1.02 C 11.37 1.02 11.97 2.595
11.97 4.995 C 11.97 7.485 11.325 9.06 9.99 9.06 C 8.79 9.06 8.01 7.62
8.01 5.085 C 8.01 2.43 8.85 1.02 9.99 1.02 Z M 17.775 0 C 15.795 0
14.37 1.785 14.37 5.07 C 14.4 8.295 15.705 10.08 17.61 10.08 C 19.755
10.08 21 8.25 21 4.935 C 21 1.83 19.815 0 17.775 0 Z M 17.685 1.02 C
19.065 1.02 19.665 2.595 19.665 4.995 C 19.665 7.485 19.02 9.06 17.685
9.06 C 16.485 9.06 15.705 7.62 15.705 5.085 C 15.705 2.43 16.545 1.02
17.685 1.02 Z M 25.155 5.385 L 25.155 6.345 L 28.86 6.345 L 28.86 5.385
```

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```
Z M 39.389 9.915 L 39.389 8.82 L 35.025 8.82 L 35.025 8.79 L 35.79 8.07
C 37.844 6.09 39.149 4.635 39.149 2.835 C 39.149 1.44 38.264 0 36.164 0
C 35.055 0 34.08 0.435 33.42 0.99 L 33.84 1.92 C 34.29 1.545 35.025
1.095 35.91 1.095 C 37.364 1.095 37.829 2.01 37.829 3 C 37.829 4.47
36.689 5.73 34.2 8.1 L 33.165 9.105 L 33.165 9.915 Z M 41.625 10.065 C
41.94 10.08 42.359 10.065 42.839 9.99 C 43.889 9.87 44.924 9.42 45.674
8.685 C 46.634 7.755 47.354 6.255 47.354 4.125 C 47.354 1.605 46.124 0
44.129 0 C 42.134 0 40.8 1.62 40.8 3.465 C 40.8 5.13 41.925 6.45 43.664
6.45 C 44.654 6.45 45.434 6.075 45.974 5.415 L 46.019 5.415 C 45.839
6.555 45.374 7.41 44.729 7.995 C 44.174 8.535 43.454 8.835 42.689 8.94
C 42.239 8.985 41.91 9.015 41.625 8.985 Z M 44.009 1.005 C 45.404 1.005
46.019 2.28 46.019 3.945 C 46.019 4.17 45.974 4.305 45.899 4.44 C
45.554 5.025 44.864 5.46 43.979 5.46 C 42.839 5.46 42.104 4.605 42.104
3.39 C 42.104 1.995 42.899 1.005 44.009 1.005 Z M 49.319 10.065 C
49.634 10.08 50.054 10.065 50.534 9.99 C 51.584 9.87 52.619 9.42 53.369
8.685 C 54.329 7.755 55.049 6.255 55.049 4.125 C 55.049 1.605 53.819 0
51.824 0 C 49.829 0 48.494 1.62 48.494 3.465 C 48.494 5.13 49.619 6.45
51.359 6.45 C 52.349 6.45 53.129 6.075 53.669 5.415 L 53.714 5.415 C
53.534 6.555 53.069 7.41 52.424 7.995 C 51.869 8.535 51.149 8.835
50.384 8.94 C 49.934 8.985 49.604 9.015 49.319 8.985 Z M 51.704 1.005 C
53.099 1.005 53.714 2.28 53.714 3.945 C 53.714 4.17 53.669 4.305 53.594
4.44 C 53.249 5.025 52.559 5.46 51.674 5.46 C 50.534 5.46 49.799 4.605
49.799 3.39 C 49.799 1.995 50.594 1.005 51.704 1.005 Z"
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34.785 8.715 34.38 8.475 L 34.05 9.48 C 34.53 9.78 35.415 10.08 36.48
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46.949 5.415 C 46.769 6.555 46.304 7.41 45.659 7.995 C 45.104 8.535
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17.535 9.06 16.755 7.62 16.755 5.085 C 16.755 2.43 17.595 1.02 18.735
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capital city in the northern region is occurring at a rapid pace as the
local government scrambles to meet the
                                        infrastructure and
housing needs of the public. Concurrent with reconstruction efforts are
oral history and heritage reclamation projects
                                        dedicated to recording,
protecting, and interpreting the precious remaining heritage resources
to Montserratians and visitors.
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                                       <s:p>The Carr Plantation
Site, believed to have been founded sometime after 1640 by Captain Wm
Carr an Irishman or Anglo-Irishman,
                                       was one of the first sugar
plantations on Montserrat. The site, now reduced to just the plantation
yard by the construction of the
                                       new town at Little Bay,
existed already in the 1600s and is shown on the 1673 Blathwayt Map of
Montserrat.
                                       </s:p><s:p></s:p>
                                       <s:p>
                                           The site consists of
the overseer's house on a promontory (with a good view of the yard, and
a panoramic view of Little Bay and the ocean beyond),
                                           an adjacent building of
as yet unknown age and use, a cattlemill, a sugar boilinghouse, and
another later structure, probably used in cotton
                                           and/or lime juice
production in the 19th and 20th centuries.  Other plantation structures
may be still covered with dirt and will be
                                           eventually excavated.
The industrial part of the site suggests that this was not a rich
plantation.
                                           </s:p><s:p></s:p>
                                       <s:p>
                                           The cattlemill and
boilinghouse are of an early sugar processing technology, and while
they are substantial buildings for that era, there is no indication of
a windmill
                                           or of other
technological upgrades.  The Little Bay region is subject to drought
and has rather little flat cultivable land suitable for
                                           sugar; yet on the
domestic part of the site there is indication of considerable wealth,
at least during the 18th century. Hence we
                                           suspect that for part
of its history sugar profits at the Carr Estate were supplemented with
some other source of income, perhaps
```

illegal trade with passing ships and other islands under colonial control by the British, French and Dutch.

```
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The founder of the site, William Carr, was probably an Anglo-Irish man who may have come to Montserrat from St. Kitts. The documentary records show that Carr was a captain in the local militia and active in Montserrat public affairs from the mid- to late 1600s but it is as yet unknown who owned or occupied the plantation up through to the 20th century.

```
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The Workers's Village: In 2005 and 2007, Drs. Beaudry, Pulsipher and Goodwin were able to briefly assess the archaeology and geographic setting of the worker's village at the Carr site before it was destroyed by the removal of the hill on which it sat to build the ring road. The Geographers on the project are currently assessing the resources likely used by these workers (Irish indentured servants and enslaved African people) by doing GPS/GIS landscape reconnaissance of the plantation hinterland, archival research and oral histories with living Montserratians.

```
                                        </s:p><s:p></s:p>
                                        <s:p>Current Use of the Site:
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The Carr Site at Little Bay is owned and administered by the Montserrat National Trust. The Carr Plantation Heritage Project researchers study, excavate, document, and interpret the site and its hinterland. The aim of this multi-disciplinary research project is to produce an attractive and fully interpreted educational heritage destination.

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114

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                                          A Topcon HiPERlite
Differential GPS is used to perform topographic survey of areas visited
during participant interviews. The DGPS records
                                          hundreds of points an
hour with centimeter accuracy of both natural and physical features.
These data points are transferred to a ArcGIS
                                          database and converted
to digital terrain models.  Historic maps and photographs are digitized
with Autodesk Map3D and incorporated with
                                          the terrain in ArcGIS.
The socio-environmental information recorded during interviews is
transcribed and used to update the model features
                                          and attribute tables.
The model is then exported for 3D modeling with ArcScene and Sketch Up
and 2D images are finalized in Adobe Illustrator
                                          and Photoshop.
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scaleContent="true"/>

                        <mx:Image id="imageVolcano"
source="assets/images/Soufriere_Hills.jpg"
                                        includeIn="Montserrat"
scaleContent="true"/>
                </mx:Canvas>

        </mx:VDividedBox>

        </mx:HDividedBox>

        <mx:Canvas id="startPage" height="100%" width="100%"
includeIn="Page1"  backgroundColor="#DBCD9B">


                        <mx:Image horizontalAlign="center"
id="imageTracing" source="assets/images/Intro_landscape_bkgrnd-01.jpg"
                                        includeIn="Page1"
scaleContent="true" height="100%" width="100%"/>


                        <mx:ProgressBar horizontalCenter="0"
bottom="20" source="imageTracing"
                                                includeIn="Page1"
id="progressBarTitle" fontFamily="Myriad Pro" labelPlacement="right"/>
```

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                        <s:HGroup id="titleGroup" horizontalCenter="-
130" includeIn="Page1" verticalAlign="middle"
                                    bottom="75">


                        <s:HGroup horizontalAlign="center"
verticalAlign="top" includeIn="Page1">
                                <s:RichText color="#000000"
columnCount="1" fontFamily="Arno Pro Display" fontSize="28"
fontStyle="italic" fontWeight="bold"
                                                kerning="on"
tabStops="S36 S72 S108 S144 S180 S216 S252 S288 S324 S360 S396"
                                                text="Visualizing
the Historic Landscape of" whiteSpaceCollapse="preserve"
                                                includeIn="Page1"
id="page1_titleA"/>
                                <s:RichText   horizontalCenter="0"
verticalCenter="0" color="#000000" columnCount="1" fontFamily="Arno Pro
Display" fontSize="95" fontWeight="bold"
                                                kerning="on"
tabStops="S36 S72 S108 S144 S180 S216 S252 S288 S324 S360 S396"

text="Montserrat" whiteSpaceCollapse="preserve"

includeIn="Page1" id="page1_titleB"/>
                        </s:HGroup>


                        <s:HGroup paddingLeft="20">
                                <s:Button
skinClass="components.Button1" id="btnPage1"

click="button_clickHandler_6()" includeIn="Page1"/>
                        </s:HGroup>


                </s:HGroup>


        </mx:Canvas>


</s:Application>
```

VITA

Kevin Russell grew up in San Diego, California where he began his collegiate career studying architecture at Mesa College. Employment opportunities led him to Tennessee where he worked as an architectural project assistant for a number of years before returning to academics at the University of Tennessee Knoxville. As an undergraduate he discovered the discipline of geography and a love for the art of cartography. He graduated with a B.A. in Geography in 2010.

Russell began the Master's program in Geography at the University of Tennessee Knoxville in 2010, studying with Dr. Inwood and Dr. Pulsipher. His major coursework focused on cartography and social theory. In his first year of study, Russell was awarded the W.K. McClure Scholarship for the Study of World Affairs from the Center for International Education and a McCroskey Memorial Fund Scholarship from the UTK Geography Department to study community mapping on the Caribbean island of Montserrat, West Indies during the summer of 2011.

Russell was the Graduate Teaching Assistant for Geography 310 - Introduction to Cartography for two years in which he earned two awards for service: the Special Award for Extraordinary Service to Geography in 2012, and an Outstanding Teaching Assistant Award in 2011. During 2012 Russell also was awarded internships at National Geographic, Oak Ridge National Laboratory, and served as a Student Assistant at the ESRI User Conference. He is currently a Cartographic Specialist with the Indiana Geological Survey at Indiana University Bloomington.