Assessing Wyoming’s Public Perceptions and General Attitudes towards Archaeology, And Statewide Trends in Looting

Kayla M. Bradshaw
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ASSESSING WYOMING’S PUBLIC PERCEPTIONS AND GENERAL ATTITUDES TOWARDS ARCHAEOLOGY, AND STATEWIDE TRENDS IN LOOTING

By

Kayla M. Bradshaw

B.A., University of Wyoming

A Thesis

Submitted to the Graduate Faculty of

St. Cloud State University

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for the Degree

Master of Science

in Cultural Resources Management Archaeology

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Thesis Committee:

Mark Muñiz, Chairperson
Rob Mann
Sandrine Zerbib
This research was conducted with the purpose of gathering and analyzing qualitative and quantitative data related to archaeological looting and public opinion regarding archaeology and cultural heritage preservation legislation in Wyoming. Areas of the state in which impacts of looting are most prevalent and the trends in these activities, as well as statewide trends, were identified. Randomly selected residents (n = 2,040) in these areas were then targeted by an anonymous survey, which was implemented with the purpose of assessing public knowledge pertaining to cultural resource legislation and archaeology. The anonymous survey was also distributed to Wyoming Archaeological Society and Wyoming Association of Professional Archaeologists members to serve as a comparison, as knowledge regarding archaeology and cultural resource legislation was expected to be higher amongst these groups.

Despite current and prior preservation efforts, archaeological looting and vandalism remains a prevalent issue within the state of Wyoming. Varying perspectives exist as to why these activities occur; whether or not the public knows of cultural heritage preservation laws; methods that should be employed to reduce looting/vandalism; types of sites that are most impacted by these activities, and general trends over the past 20 years. However, prior to now, no known state-specific research into such trends in these activities and the public’s perceptions and attitudes towards archaeology and cultural resources has been conducted. The research conducted for this thesis provides qualitative and quantitative insight into these activities and public perceptions and can serve as a basis for future research.

The findings indicate a general lack of knowledge pertaining to cultural resource legislation and archaeology amongst the public respondents, which is likely associated with the increased looting activities within the areas in which they reside. However, the majority of the public is generally interested in archaeology and cultural resources and feels that archaeology makes important contributions, which include preserving the past for future generations, providing data for research on past cultures, and educating modern society about other cultures. Concepts of private property rights are directly evident in the results and overall, level of education and age play an important role in respondent knowledge. The most significant outcome of this research is that the knowledge it has provided regarding the public’s attitudes and perceptions related to archaeology and cultural resources can be utilized to key in on specific issues or areas, which can be targeted to influence positive change.
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“So we beat on, boats against the current, borne back ceaselessly into the past.”
F. Scott Fitzgerald, *The Great Gatsby*
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5.1 Published Papers Focusing on Research into Collection Practices by Corresponding Decade (Adapted from Brodie 2016)
Chapter I

INTRODUCTION

The main purpose of this research project was to assess public knowledge about cultural resource laws and people’s perceptions about the role of archaeology in modern society. This research included a random and anonymous survey of Wyoming residents’ knowledge of cultural resource legislation and attitudes about archaeology. The project identified specific areas where looting and vandalism frequently occur and determined gaps in public knowledge about protective legislation. Results of this research are intended to enable the heritage preservation community to more effectively direct public outreach and education at specific segments of the population in order to combat looting/vandalism of cultural resources and increase public knowledge regarding the importance of their preservation. This project also relates to ethics as it sought to identify attitudes about, and practices of, collecting artifacts, human remains and associated grave goods on different types of property (e.g., private, federal). The conclusions, based on these results, allowed for more informed suggestions of additional methods, which, if implemented with current methods defined in the Wyoming State Historic Preservation Plan, would aid in the future preservation of Wyoming's cultural heritage. The summation of this information hopes to provide important insight into the looting/vandal community and serve as a basis for future, more intensive investigations.

Cultural resources are non-renewable links to the past that should be preserved for the enjoyment of present and future generations. Through scientific study of the archaeological record, archaeological research provides insight into the lives of past human populations that would otherwise remain unknown. Cultural resources are thus considered cultural heritage.
Disturbance or destruction of archaeological sites causes irreparable damage not only to the resources themselves, but to the archaeological record; thus destroying the potential for systematic study and important information regarding our past that might have been gained (Figure 1.1). According to Lipe (2009:57), looting activities “compromise archaeological research values and damage heritage, educational and economic values as well.”

![Image of illegally excavated artifacts](image-url)

**Figure 1.1**

Illegally Excavated Prehistoric Artifacts Seized Under the Archaeological Resources Protection Act (ARPA) by U.S. Fish and Wildlife Service in Illinois (Photo Courtesy of U.S. Fish and Wildlife Service)

The looting and vandalism of archaeological sites is an ongoing and seemingly never-ending issue that inflicts devastating damage and destruction to cultural heritage on a global
scale. Based on the results of a survey of archaeologists worldwide, looting activity occurred in 87% of the 103 countries listed as primary locations of archaeological fieldwork. The vast majority of the respondents (97.9%) reported looting activities as having occurred in the area where they worked, and 78.5% reported having personal on-site experience with looting at some point in their careers (Proulx 2013:188-119). As indicated by these results, there is an impressive need for the preservation community to focus intensely on putting an end to looting and the illicit artifact trade.

Over the last four decades, archaeological literature has focused on proposing methods to combat these activities and preserve the archaeological record for future generations (see Brodie 2016; Brodie and Contreras 2012; Davis 1971; Desio 2004; Early 2012; Elia 2009; Longenecker 2002; Herscher 1987; Mallouf 1996; Miller 1982). According to Merriam Webster (2015), the simple definition of looting is stealing something or taking it by force and vandalism refers to the “willful or malicious destruction or defacement of public or private property.” Multiple internet, index, and glossary searches were performed with the purpose of locating a more formal definition for these terms as they apply to archaeology, though these efforts proved unsuccessful. Perhaps the lack of official archaeological definitions stems from the extensive history of the problem. However, it also indicates a shortage of readily available information made accessible to the public on these terms and the important issues related to them.

In an archaeological context, looting and vandalism have been demarcated in different ways. Bundy (2008:12) considers these “conflicting definitions [to be] the heart of the looting and vandalism problem”. They encompass a wide range of destructive activities including low scale mostly surface-based artifact collecting for private pleasure to large scale, artifact trade-fueled site destruction employing the use of high-tech earth-moving and other equipment and in
some cases, armed laborers. Looting and vandalism are typically defined based on three perspectives (legal, ethical and moral). For example, while some archaeologists define looting as the unauthorized collection of cultural heritage resulting from the antiquities trade (Brodie 2010), and vandalism as a separate entity, others use the terms interchangeably to encompass a wide range of site damaging activities that include those not directly driven by the antiquities market and even those that are legal in the U.S. According to the Wyoming BLM, looting is “the act of collecting from the surface or digging through archaeological sites looking for historical and cultural objects…Looters selfishly collect and keep the artifacts for themselves or sell the objects for profit. This robs their communities and the public of the opportunity to discover sites and learn from the artifacts” (BLM 2014). From a Native American perspective, even modern-day archaeology has been considered looting. In an even more all-encompassing approach, Bundy (2008:1) and others (King 1991) use the terms looting, pothunting, vandalism, and “destruction of cultural heritage” to “refer to activities that damage sites whether or not those activities are prohibited under any federal, state, or local law.” These particular types of definitions are based more on moral or ethical views rather than legal standpoints. For the purpose of this study, the terms looting and vandalism are used to encompass any intentional, illegal, site damaging activity. This is partially due to the way in which the survey questionnaire (Appendix A) was constructed, as these activities are all considered to contribute to the problem.

The fact that these activities affect cultural resources in Wyoming (Figure 1.2) is common knowledge amongst archaeologists, Native Americans, and some amateur archaeologists or members of the public interested in site preservation. However while knowledge of these activities exists, it is anecdotal at best. This is directly related to the
unfortunate lack of research pertaining to their effects and extensiveness. Prior to now, it does not appear that any research has been conducted to further investigate the problem.

Previous nationwide and regional scale surveys have been conducted pertaining to the public’s knowledge and perceptions of archaeology (Pokotylo and Mason 1991; Ramos and Duganne 2000), attitudes of archaeologists and the public, perceptions of archaeology in general (Kinnear 2008), and attitudes and practices of archaeologists themselves (Watkins 2000; Zeder 1997). However, the survey conducted for this thesis was the first to focus specifically on the cultural resource legislation and archaeological knowledge of Wyoming residents specifically. Additionally, the overall research project, of which the survey is only a part, included other non-survey components that were also analyzed to determine Wyoming residents’ attitudes about cultural preservation and knowledge of laws protecting cultural resources. The survey and additional analyses have helped identify geographical areas and segments of the population that could be targeted through outreach and public education efforts to combat looting and vandalism and increase public awareness and appreciation of the state’s cultural resources. The results of this project have the potential to be used to make a significant contribution to the future preservation of Wyoming's cultural resources and can serve as a basis for further, more intensive projects.
There was a definite need for this project. The issue addressed is the continued looting and vandalism of cultural resources throughout Wyoming, and the potential relationship between these activities and a lack of public knowledge pertaining to archaeology and cultural resource legislation. This project addresses these issues and provides suggestions for decreasing these activities and increasing the public’s awareness of the importance of cultural resource preservation. Because looting/vandalism of Wyoming’s cultural resources continues to be a major problem despite current and prior efforts of deterring these activities, this project is integral to the future preservation of our cultural resources. The public will directly benefit from
the results of this research as it will aid in the preservation of the archaeological record, which can be enjoyed by all of the state’s residents, and thus the project results benefit future generations as well.

There have been no previous means of investigating and analyzing the extent and nature of the effects of archaeological looting and vandalism in Wyoming. In an attempt to rectify this data gap, this study set out gather and analyze data on looting and vandalism in Wyoming, conduct a literature review of existing suggestions and methods of combating these activities, and create, implement, and analyze the results of a survey designed to gather information on public knowledge pertaining to archaeology and cultural heritage legislation. And finally, based on these combined data, to identify and make informed recommendations on future preservation efforts most likely to succeed.

The following chapters discuss ‘the looting problem’, state context, and previous investigations (Chapter II); methods associated with this project (Chapter III); the results and of the survey and non-survey component research (Chapter IV); analysis of this research (Chapter V); and discussion, conclusions, and future recommendations resulting from this research (Chapter VI).
Chapter II

BACKGROUND AND LITERATURE REVIEW

Collectors, Looters, and Professional Archaeologists

According to Neusius and Gross, “archaeologists are deeply interested in past societies and their cultures, but so are many others for different reasons. These reasons can be destructive or benign” (Neusius and Gross 2014:332). Although archaeologists have been concerned with looting for decades, little effort has been made with regard to understanding the underlying psychological motives or looter ethos (McAllister 1991). According to Lipe (2009:58), although a few ethnographic studies have been undertaken in order to better understand the “motivations, demographics and modus operandi” of looters, much remains to be done. Pitblado and Schott (2015) concur and discuss the importance of such investigations as part of future Society for American Archaeology-related endeavors focusing on collaboration between archaeologists and collectors.

Various reasons for looting exist (Bundy 2008). Aside from the obvious monetary factor associated with the antiquities market, individuals (including natives) in socio-economically depressed situations sometimes take part in “subsistence digging;” in which these activities are directly related to their survival. Other reasons include collecting for personal pleasure, the possession of objects of antiquity, because it is a generational hobby, and the desire of displaying “their” newly acquired works of art. In order to provide a more in-depth understanding of the issue, it is first important to provide an explanation of the evolution from collecting to hard-core looting and illicit trafficking and to clarify the distinction between collectors, looters, and professional archaeologists.
Mallouf (1996:199) explains the typical evolution of a looter, beginning with a universal concept. Almost everyone has experienced a feeling of fondness or liking of a certain environmentally pleasing place – occasionally it may be a place where their first arrowhead was found. According to Mallouf, “this is the place where critical development of a person’s attitudes towards archaeological and other resources commonly takes place” (Mallouf 1996:199). Although others may be content with only visiting that place, collectors, or hobbyists, begin collecting artifacts from it as a result of their feeling of connectedness. According to Mallouf (1996:199), initially, collections at such places are made over many years or a lifetime and on rare occasions, if they come to understand the importance of site preservation, collectors may feel concern for “their” site and become “self-appointed” guardians. The next step occurs when the collector or hobbyist becomes more concerned with the act of collecting than their initial curiosity and concern for the site. This leads to collection of artifacts from other sites and areas. Their “growing obsession with artifacts then leads to interaction with other collectors with similar interests,” (Mallouf 1996:199) which results in communal rather than individual collection. With the addition of more sites and areas, the original feeling of connectedness becomes “obscure.” Increased interaction with and promotion of the activity by other collectors often leads to the next step; “pothunting” or looting. Mallouf emphasizes that this step is often irreversible in that it is difficult for collectors to revert to surface collection after they become involved in digging archaeological sites. This is an important distinguishing characteristic between collectors and pothunters or looters.

Pothunting associates or individual discoveries are frequently responsible for leading the hobbyist to excavate. As they become more involved in looting, their “sphere of associates may expand once again to include “hard-core” pothunters and even commercial looters” (Mallouf
Although this is usually when they reach out to archaeologists to confirm authenticity of artifacts - thus increasing their monetary value - once this "advanced stage" is reached, it becomes very unlikely that educational and preservation efforts will have an effect on their mentality. They then ultimately become involved in the buying and selling of artifacts; illicit trafficking.

Clarke (1988) groups collectors and looters into three main categories. The first category includes opportunists – those who come across an artifact on public land and take it as a keepsake, often unaware that such activity is illegal. The second category includes collector/hobbyists who are aware of the illegality of their actions, but are overcome by their "eagerness to own a piece of history" that they employ methods such as metal detecting and sometimes digging. The third category includes hard-core looters. These looters are fully aware of the illegality of their activities, but remain un-phased. They are spurred by the lucrativeness of the market for illicit artifacts. Hard-core looters range from those who loot to support other illegal forms of income, locals with generation upon generation of digging history who justify looting as part of their birthright, and professionals who employ methods of high-tech surveillance equipment and heavy machinery (Clarke 1998:28).

A collective perspective of looters established from the GE Mound case, the looter worldview is based on the belief that it is "they, not archaeologists, who appreciate and preserve prehistoric Indian cultures for the public, while archaeologists hide collections from public view in storerooms" (Munson et al. 1995:139). Archaeological research is based upon scientific methods and contextual information that allows for the gathering of culturally significant insight into past civilizations. As mentioned above, although archaeologists share a deep interest in the past with collectors and looters, they do so for vastly different reasons. It is the ethical and moral
responsibilities involved in carrying out archaeology that sets apart archaeologists from collectors and looters (Chase et al. 1988:56). Whereas archaeologists are concerned with collecting “context,” and other data from the archaeological record, collectors and looters are only concerned with the objects themselves (Chase et al. 1988:56). According to looters, “their focus on ‘saving’ whole, beautiful objects from perceived destruction either by nature or man is their justification for ignoring archaeological context” (Munson et al. 1995:139).

Collection activities of small-time collectors is the result of "the joy of collecting 'art', 'antiquities' or 'treasure'" (Sawaged 1999:82). Owning and admiring an aesthetically pleasing object created by peoples of the past is often what encourages collection of such items (Sawaged 1999:82). Collection may also take place to satisfy nostalgic sentiments or continue patterns of collecting passed on from generation to generation. According to statements made regarding collector mentality, collecting as a hobby serves to "take his [her] mind off of the trials and tribulations of everyday life," and thus has a therapeutic effect" (Sawaged 1999:82).

According to Luke and Kersel (2005:193) collecting and looting result from “the thrill of the chase, the lure of the ‘art’ object, and an uninformed love of antiquity.” Clarke attributes an overzealous love for history, ignorance, or just plain greed as reasons for looting and collecting (Clarke 1998:28). King (1991) reiterates the importance of the psychological dimension associated with looting and states that “on the whole, as the GAO succinctly comments, “much of the public…condones the looting of archaeological sites…both as a means of supplementing personal income and as a personal hobby.” It is the professional responsibility of archaeologists to research and gain understanding of the collecting ethos (Luke and Kersel 2005:194). In addition, we need to understand “the secretive world of moving illicit antiquities and local
attitudes towards the destruction of the archaeological landscape” as “failure to do so will undoubtedly result in the continued irreplaceable loss of context” (Luke and Kersel 2005:197).

Legislation

The need for effective legislation for protecting cultural heritage has been recognized since the late 1880’s. Though it required 25 years of diligent work, the passage of the Antiquities Act of 1906 (16 U.S.C. 431-433) marked the beginning of such legislation. This law prohibits the unauthorized excavation, removal, or defacement of objects of antiquity on public lands.

“The Antiquities Act is important for many reasons, both specific and general. Specifically, it asserted wide and general public interest in and control over archeological resources on federal and Indian lands. This assertion of public interest and concern continues to the present and is the basis for the federal government's efforts to protect archeological sites from looting and vandalism. The act also permitted the protection and preservation of specific areas important for their archeological, historical, and scientific resources. The act also stands as an important achievement in the progress of conservation and preservation efforts in the United States.

Although the Antiquities Act proved to be a means of overseeing and coordinating educational and scientific archeological investigations on federal and Indian lands, it did not effectively prevent or deter deliberate, criminal looting of archeological sites on those lands. Problematic for many years, this situation became critical in the 1970s when several attempts by federal land managing agencies and prosecutors in the southwest to convict looters using the Antiquities Act resulted in disastrous court decisions. In two cases judges ruled that the terms of the act were unconstitutionally vague and therefore unenforceable (Collins and Michel 1985). This situation led to a concerted effort by archeologists and preservationists, their allies in the law enforcement community and several essential supporters in Congress to strengthen the legal protection of archeological resources. The eventual outcome was a new statute, the Archaeological Resources Protection Act of 1979, rather than an amendment of the Antiquities Act” [NPS 2016a].

Significantly, the Historic Sites Act of 1935 improved upon the Antiquities Act of 1906 and began to set the stage for the National Historic Preservation Act. The Historic Sites Act declared it a national policy to preserve for public use historic sites, buildings, and objects on national significance for the inspiration and benefit of the people of the United States (54 U.S.C. 320101-320106). Under this Act, any person that appropriates, excavates, injures, or destroys any historic or prehistoric ruin or monument or any other object of antiquity that is situated on land owned or controlled by the Federal Government without the permission of the head of the
Federal agency having jurisdiction over the land on which the object is situated, shall be
imprisoned not more than 90 days, punished by a fine of not more than $500, or both.

Also in 1935, Wyoming legislature enacted the Wyoming Antiquities Act to further
protect and manage its archaeological sites. Title 36, Chapter 1, Article 1 pertains to provisions
on State Lands. While it is more lenient for cultural and paleontological resource violations for
personal gain, for its time, it imposed substantial penalties for such crimes in which monetary
gain, commercial or other reasons were the main intent.

36-1-114. Protection of prehistoric ruins; permits to excavate, regulations and violations:
Before any excavation on any prehistoric ruins, pictographs, hieroglyphics, or any other ancient markings,
or writing or archaeological and paleontological deposits in the state of Wyoming on any state or federal lands, shall
be undertaken, a permit shall first be obtained from the state board of land commissioners. The state board of land
commissioners is hereby authorized to promulgate and enforce such regulations as it may deem needful to protect
from vandalism or injury the prehistoric ruins, relics, archaeological and paleontological deposits of the state, as
well as all natural bridges and natural scenic features and formations. Any violation of such regulations shall be a
misdemeanor.

36-1-115. Protection of prehistoric ruins; consent to removal from state:
No person shall remove from the state of Wyoming any part of any such ruins or deposit except with the
consent of the state board of land commissioners. Said board may require, as a condition to such consent, that such
portion of such relics, materials, or deposit as said board shall require, shall forever remain the property of the state
of Wyoming.

36-1-116. Protection of prehistoric ruins; penalty:
(a) Except as provided by subsection (d) of this section, any person violating any of the provisions of this
act shall be guilty of a misdemeanor and shall be fined not less than twenty-five dollars ($25.00) or more than one
hundred dollars ($100.00), or imprisoned in the county jail not more than six (6) months, or by both fine and
imprisonment, and shall forfeit to the state all articles and materials discovered by or through his efforts.
(b) Persons holding permits or leases on state lands may not sublease or subcontract archeological or
paleontological removal without prior written approval of the board.
(c) All state leases are subject to inspection by state or county law enforcement agencies or their designees
for violation of W.S. 36-1-114 and 36-1-115.
(d) Any person who, for monetary gain or for commercial or any other purpose, removes any archeological
or paleontological artifacts in violation of W.S. 36-1-114 or 36-1-115 with a cumulative value in excess of five
hundred ($500.00), shall be guilty of a felony and upon conviction shall be fined up to ten thousand dollars
($10,000.00), imprisoned for up to ten (10) years, or both.

The National Historic Preservation Act (NHPA) (Public Law 89-665 and amendments;
16 U.S.C. 470 et seq.) was enacted in 1966 with the purpose of providing further means of
support for historic preservation and its associated activities and programs. Among other
important aspects, it established the National Register of Historic Places, and under Section 106
of the statute, made it national policy that historic preservation (including public archeology and archeological preservation) be an activity considered in modern development and economic activities and that occurs at all levels of government and also involves private organizations and individuals (36 CFR 800) (NPS 2016a). Although it does not provide any form of penalization related to looting and vandalism, it emphasizes the growing realization of the importance of preservation legislation.

By the mid 1970’s it became apparent that archaeological resources were becoming increasingly threatened as a result of the growing commercial value of artifacts associated with the antiquities market. In 1979, in an effort to provide the legislative “teeth” absent in the Antiquities Act, the Archaeological Resources Protection Act (ARPA) was passed into law (16 U.S.C. 470aa-470mm; Public Law 96-95 and amendments). As mentioned above, this law was established to provide more effective law enforcement to protect archaeological sites on public lands. By comprehensively defining “Archaeological resource” to “include archaeological sites, structural remains, artifacts, bones, debris – everything…provided that it’s at least 100 years old” (King 2013:390), it expanded upon the “vagueness” of the Antiquities Act. It also provided more detailed descriptions of prohibited activities as well as increased financial and incarceration penalties for those convicted of these activities (NPS 2016a).

“Section 6 of the statute describes the range of prohibited actions, including damage or defacement in addition to unpermitted excavation or removal. Also prohibited are selling, purchasing, and other trafficking activities whether within the United States or internationally. Section 6(c) prohibits interstate or international sale, purchase, or transport of any archeological resource excavated or removed in violation of a State or local law, ordinance, or regulation.

ARPA also substantially increased the penalties that can be levied against convicted violators. For a felony offense, first time offenders can be fined up to $20,000 and imprisoned for up to one year. Second time felony offenders can be fined up to $100,000 and imprisoned for up to 5 years. These criminal penalties were substantial increases from those set in the Antiquities Act of $500 and 90 days imprisonment. In addition, Section 7 of ARPA enables Federal or Indian authorities to prosecute violators using civil fines, either in conjunction with or independent of any criminal prosecution. Section 8(b) of the statute allows the court or civil authority to use forfeiture of vehicles and equipment used in the violation of the statute as another means of punishment against convicted violators.” [NPS 2016a]
Confusion stemming from the wording in Section 6(g) of ARPA has led some to believe that collecting arrowheads from the surface on federal lands is allowed. This issue is commonly referred to as the “Carter clause” (Childs 2010; Mast 2016), as President Jimmy Carter was in office in 1979 during the passing of ARPA, and was a known arrowhead collector. Also, at this time, Boy Scouts could earn a merit badge for collecting arrowheads. According to retired Bureau of Indian Affairs criminal investigator, John Fryar, “that’s why surface finds were exempt from the stiff penalties…We didn’t want to make the sitting president of the United States a convicted felon…and nobody wants to make Boy Scouts criminals” (Mast 2016). One of the bill’s sponsors, Congressman Udall, stated:

“Certainly, no sponsor of this legislation and probably no reasonable person would want some overzealous bureaucrat to arrest a Boy Scout who finds an arrowhead along a trail or a purple bottle out in the desert … The thrust of this act is not to harass the casual visitor who happens to find some exposed artefact, but to stop the needless, careless, and intentional destruction of archaeological sites and organized and intentional theft of the valuable remains of previous civilizations (125 Cong. Rec. H17391, 17394 (Jul. 9, 1979)” (Gerstenblith 2013).

However, “Carter’s clause does not legalize arrowhead-hunting on public lands, but merely says that one cannot be penalized for it under the Archaeological Resources Protection Act of 1979 (Gerstenblith 2013). One can be penalized under other laws; however, meaning it is still illegal” (Childs 2010:20).

Title 43 Code of Federal Regulations 8365.1-5(a)(1), states that on all public lands, unless otherwise authorized, no person shall willfully deface, disturb, remove, or destroy any personal property, or structures, or any scientific, cultural, archaeological or historic resource, natural object or area. Collecting artifacts, including arrowheads, from federal public lands or Indian tribal lands is a violation of Title 43 [8365.1(a)(1)], as well as of the Antiquities Act of 1906, Wyoming Antiquities Act of 1935, and Title 18 of the United States criminal code (BLM 2013), which pertains to historic, archeologic, or prehistoric items and antiquities.
The Native American Graves Protection and Repatriation Act (NAGPRA) (Public Law 101-601; 25 U.S.C. 3001-3013) was enacted in 1991. According to the NPS (2016) one of the main purposes of the statute is to “provide greater protection for Native American burial sites and more careful control over the removal of Native American human remains, funerary objects, sacred objects, and items of cultural patrimony on Federal and tribal lands.” Under 18 U.S.C. § 1170, 4(a), illegal trafficking in these items is subject to criminal penalties, with increasingly harsher consequences for second or subsequent violations.

The New Cultural Heritage Crimes Sentencing Guideline

In Crimes and Punishment: Developing Sentencing Guidelines for Cultural Heritage Resource Crimes, Desio (2004) provides an overview of the legal background and implementation of the new and separate guideline for sentencing cultural heritage resource offenses enacted by the U.S. Sentencing Commission in 2002. This guideline was created in response to the need for a structured approach to provide “a clear statement of how the punishment for ARPA and cultural heritage resource crimes is to be determined under federal law” (Desio 2004:61). The formation of the guideline included the advice and guidance of all interested parties, (including the public and law enforcement experts). This is an important aspect to consider and relates to the current project’s focus on public opinion.

Sentencing guidelines have been in place since 1987 and are continuously reviewed and revised when necessary. They are based off a point system that takes into account the seriousness of the offense conduct and the offender’s prior criminal history. The offense level is calculated and is “then increased or decreased, based upon the presence of aggravating or mitigating specified characteristics of the offender’s conduct,” and their location on the sentencing table is plotted, indicating the range of punishment they are to be sentenced to (Desio 2004:63).
In 2000, District of Utah United States Attorney, Paul Warner, wrote to the Sentencing Commission urging “particularized guideline treatment for criminal violations under ARPA and other cultural heritage resource protection laws” (Desio 2004:64). Warner directed their “attention to the sentencing ‘gap’ for ARPA, NAGPRA, and similar cultural heritage resource crimes,” resulting from previous structure and operation of the guidelines which led to confusion and inadequate sentencing for these crimes as well as to the perception amongst offenders of their enforcement as “a mere annoyance” (Desio 2004:64; 65).

In recognizing “that cultural heritage resource crimes transcend the more monetary-based considerations…. [distinguishing] such crimes from predominantly economic crimes,” and in an effort to respond to tribal concerns, cultural heritage offenses were issued their own “stand-alone” guideline that “addresses the theft, damage to, or destruction of cultural heritage resources” (Desio 2004:66). Integration of the concept of assigning “archaeological value” to all cultural resources (including those less than 100 years old) is a central part of this guideline, as “it measures the degree of harm associated with the cultural heritage offense” (Desio 2004:67). Ultimately, the result was increases in the statutory maximum penalties, in which the base level for cultural heritage resource offenses is approximately 25 percent greater than general property crimes.

The new cultural heritage crimes sentencing guideline illustrates the government’s full-fledged acknowledgment that “harm [is] caused to both the nation and its inhabitants when its history is degraded through destruction of [cultural heritage] resources” and takes these crimes seriously (Desio 2004:68). Its broad scope allows it to:

“identify the full range of federal crimes under which cultural heritage resource offenses can be prosecuted. These crimes consist of very general criminal statutes, such as theft of federal property, interstate transportation of stolen property, and smuggling, as well as more specifically tailored statutes like ARPA, NAGPRA, and theft from museums. Because a particular conduct may
comprise the elements of more than one offense, a prosecutor will select the statutes that best fit
the facts of each instance of misconduct. Multiple counts of the same statute may be charged
depending on the frequency of separate offenses, and more than one statute may be charged
covering the same course of conduct as long as the different elements of each statute are proven”
(Desio 2004:69).

Increased punishment for cultural heritage resource crimes was readily included as these
“are more serious because they involve essentially irreplaceable resources and cause intangible
harm to society” (Desio 2004:70). Aggravating factors were defined, which serve as the basis for
additional increases in sentencing (Desio 2004:70):

1. The value of the cultural heritage resource;
2. Location of the cultural heritage resource in a place set aside for preservation;
3. The nature of the cultural heritage resource as an item specially protected by law;
4. Commission of the offense for pecuniary gain or commercial purpose;
5. A pattern of misconduct by the defendant; and,
6. Threatening the use of, or brandishing, a dangerous weapon during the course of the offense.

The Sentencing Commission advised Congress to increase the statutory maxima
for three statutes under which these crimes are frequently prosecuted (ARPA, NAGPRA,
and 18 U.S.C. § 1163 [covering “Theft of Tribal Property”]. This increase corresponds
with the 10-year statutory maxima of other federal crime statutes such as “Theft of
Government Property” and “Interstate Transportation of Stolen Property” (Desio 2004).

“Currently, ARPA has either a one- or two-year statutory maximum term of imprisonment for the
first offense, depending on whether the value exceeds $500; and NAGPRA has a statutory
maximum term of imprisonment of one year for the first offense, irrespective of value. All three of
these statutes have five-year statutory maximum terms of imprisonment for second and subsequent
offenses. Consequently, the statutory ceiling may limit the full range of proportionate guideline
sentencing, as the Sentencing Commission informed Congress. It therefore recommended
elimination of the twelve- and twenty-four-month ceilings for first offenses under NAGPRA and
ARPA, respectively, and an increase to a ten-year statutory maximum from the current five for all
three statutes” (Desio 2004:74).

Because antiquities and art theft ranks fourth overall on the all-time crimes list, the new
guideline focuses on archaeological value, commercial value, and cost of restoration and repair
and includes institutions fulfilling the specified criteria of a museum within and outside of the
United States. The purpose of the increase in punishment for such crimes is to deter their
occurrence and reflect the importance of preservation of resources of national heritage.
The Looting Problem

In the United States, archaeological sites have been the subject of looting and vandalism for over a century. According to Davis (1998), “people have been digging into prehistoric sites in the U.S. since Europeans arrived.” These activities occur on both public and private lands and range from “recreational” digging and collection by residents and tourists as well as for-profit, organized digging and artifact trafficking operations. It is believed that the majority of the thefts are the result of increasing pressure from the international art market (Van Allen 1995). Although other factors such as erosion or development pose threats to cultural heritage, in the United States, looters of archaeological sites are responsible for the majority of damage that ensues.

In nearby Montana, these activities have been documented as ranging from casual collection to organized and methodological targeting of sites (Sakariassen 2016). Due to their proximity and similar types of cultural resources, it is likely that these activities correlate with those in Wyoming. According to Mallouf (1996:198), looters selective targeting of sites of past human populations in search of highly valued, archaeological “treasure,” results in the destruction of the most well-preserved, archaeologically important sites. In North America, Native American sites and artifacts are most targeted by looting and trafficking activities, although looting also takes place at sites associated with Euro-American and African American cultures (Early 2012:130; SAFE 2016).

According to Saving Antiquities for Everyone (SAFE 2016), “over 90 percent of known American Indian archeological sites have already been destroyed or negatively affected by looters, and this process is ongoing.” With the majority of Wyoming’s known resources being comprised of prehistoric sites, the implications of these activities are significant.
Early (2012:129) contends that “We cannot separate looting and site destruction from the subject of antiquities trafficking, and numerous books, articles, watchdog columns in journals, and other outlets have made the connection clear in the last several decades.” In fact, looting and illicit trafficking of cultural resources is such a prevalent and destructive process, that it has been compared with illegal drug trafficking (Desio 2004:73; Thomas and Kelly 2006) and is considered to have strong ties to organized crime, narcotics (Bruhns 2001:223), and the gun trade (Patel 2009). According to the Department of Justice (Desio 2004:73), antiquities and art theft ranks fourth overall on the all-time crimes list: “the annual dollar value of art and cultural property theft is exceeded only by trafficking in illicit narcotics, money laundering, and arms trafficking.”

In the case of the GE Mound, one of the defendants, Randall R. Hansen, reportedly offered to trade drugs in addition to guns and other items of monetary value for artifacts (Munson et al. 1995:136). McAllister stated that, “the trade in antiquities was valued as a $7 billion industry according to the International Criminal Police Organization” (French 2016).

For these reasons, such activities are attractive to many individuals and even larger groups; perhaps most recent and notorious, the terrorist group ISIS. According to an article titled *ISIS’ Looting of the Middle East is ‘the Largest-Scale Mass Destruction of Cultural Heritage Since’ WWII*, Engel (2016) discusses the group’s looting of museums and cultural sites in cities it seizes to obtain artifacts that it can sell on the black market. “This not only provides a source of income for the terrorist group, but it also represents a systematic destruction of the region’s cultural heritage” (Engel 2016). According to Engel (2016), “the group has looted up to $300 million worth of antiquities, which it routes to the black market”…and there has been an increase in black market antiquities from Iraq and Syria as well as a result of ISIS’ influence. Pertaining
to the global nature and severity of these crimes, Boston University archaeologist and advisor of the U.S. State Department on smuggled antiquities, Michael Danti, was quoted as stating that “what started as opportunistic theft by some has turned into an organized transnational business that is helping fund terror…It’s the gravest cultural emergency I’ve seen” (Engel 2016).

Issues

Although it had been a growing issue for decades, realization of the effects of the looting problem first began to take place during the 1970s. Sites were heavily targeted as a result of a spike in market demand for artifacts that was directly related to the public’s growing interest in American Indians (Van Allen 1995). While legislation has been enacted with the goal of putting an end to these activities, it is often considered ineffective or not stringent enough to accomplish this difficult task. One of the overarching reasons for this is directly related to the ratio of land managers to acreage of land being managed. According to Van Allen (1995:2), “the greatest problem inherent to all of these agencies is the lack of staff and resources to adequately implement the measures delineated by ARPA.” “Federal lands are too vast to be closely monitored by the limited number of government officials…therefore, the government’s successful prosecution of looters and prohibition of the black market is very challenging” (Davis 1998; SAFE 2016). “The Park Service has about one commissioned officer for about one million acres” (Clarke 1988:29). NPS special agent Susan Morton was quoted as stating that “we [NPS] don’t really have the resources to deal with the problem properly” (Clarke 1988:28).

Successful prosecution has proven difficult for a variety of reasons. Unless there is some type of evidence, it is often difficult and sometimes impossible to prove whether or not an allegedly looted artifact came from Federal land or private land without landowner permission (Clarke 1988; McAllister 1991). Many view this as the main issue with ARPA (Clarke 1988; Desio 2004, Gerstenblith 2013; Van Allen 1995).
Although the intent of the law is good, it, like many other laws, ARPA has its limitations. These include its effectiveness on cultural resource protection as pertaining only to federal or tribal land; court case rulings in which it has failed and which serve as the basis for other cases; and the problems related to the detection of such activities as deemed illegal by the law (Desio 2004). The somewhat recent GE Mound case however, illustrates the effective implementation of ARPA pertaining to the looting and illicit trafficking of cultural resources on private land, thus making important strides in the world of cultural resource preservation (Munson et al. 1995:132).

As attorney Liv Fetterman put it, "We've got tons of environmentalists working to save the environment, but we just don't have enough people working to stop the desecration of cultural resources" (Sakariassen 2016). Like many others, Fetterman attributes the continuation of these activities to the disparity of education for the public resulting in a lack of cultural resource awareness (Sakariassen 2016).

Recent News
Looting has been a popular topic in recent news. Articles appearing on MSN, in internet journals and news-related websites, and on other social media pages have served as a method of making the public aware of the fact that these activities affect cultural resources on local as well as global scale (Boone 2016; Engel 2016; French 2016; Moore 2016; Sakariassen 2016). Such activities are often tied to other serious crimes such as illegal arms sales and trafficking of methamphetamine and marijuana (Sakariassen 2016).

According to Archaeological Damage Investigation and Assessment (ADIA) founder Martin McAllister,

"The problem with such widespread ignorance is that looting has clear connections to crime local law enforcement officials already make a priority. Meth traffickers, for instance, have been known to use high-end artifacts to help fund their operations. In Oregon, a joint effort among federal, state and tribal agencies known as "Operation Bring 'em Back" turned up six looters suspected of drug trafficking in 2006. In the course of the investigation, one of the largest of its kind, agents discovered four meth labs linked to the case, seized 57 illegal firearms and recovered more than 100,000 stolen artifacts. The problem's so prevalent in the Southwest that officials refer to the
connection between drugs and antiquities theft as "twigging," a nickname based on the looters' habit of tweaking while digging up artifacts" [Sakariassen 2016].

Oregon State Archaeologist, Dennis Griffin stated that "[looting is] a huge problem in Oregon, especially in the southeast portion of the state...More often than not, when [looters] are caught, it's connected to drug running or seeking quick money on eBay." (Boone 2016). In fact, an article published this February (Moore 2016) focuses on archaeological heritage crimes linked with drug related charges in Oregon. In this particular case, police discovered "methamphetamine, scales, packaging materials and other drug paraphernalia" and "recovered numerous archaeological objects including [Native American] funerary and sacred items" from one of the resident's homes (Moore 2016). The homeowner was charged with two accounts of abuse of Indian graves, consisting of 20 days in jail, two years' probation, 20 hours of community service, and $1,020 in fines. The other resident faced methamphetamine charges and was sentenced to 30 days in jail, 2 years’ probation, and $2,000 in fines (Moore 2016).

According to McAllister (French 2016; McAllister, personal communication 2016), "users of methamphetamine have become a big concern on federal lands since the drug gives them energy to dig for long periods, they like to be alone, and the money received for artifacts [or the artifacts themselves] can purchase [or be traded for] more meth. [The drug] makes them ideally suited to artifact theft;” propagating a vicious cycle. This new “subcategory” of looters has exacerbated the problem over the last 10 to 20 years to the point where it is “worse now than it’s ever been” (McAllister, personal communication 2016).

It has also been suggested that a lack of ARPA and other cultural resource heritage convictions may be related to a lack of cultural resource knowledge amongst law enforcement agents and other members of the federal government (Longenecker and Pelt 2002). If they are unfamiliar with cultural resource legislation and have no formal training, they do not know what
they are looking for (Sakariassen 2016). According to McAllister (Sakariassen 2016), Montana Narcotics Bureau chief, Mark Long, says he has yet to witness this phenomenon [twigging] in the state, but concedes that drug task force officials are not really looking for it. “To my knowledge, that’s nonexistent…I’m not aware of any of it, narcotics related…But we could have encountered this and not even known it.”

Some suggestions have focused on training and educating officials “from park rangers to prosecutors how to identify, investigate, and prosecute theft of resources” and enlist the public’s help (Clarke 1988:28). The NPS, Federal Law Enforcement Training Center, and various nongovernmental sources offer ARPA enforcement training (King 2013). According to King (2013:276), “there’s been quite a bit of ARPA prosecution since the law was enacted, and there are now law enforcement officers and prosecutors who specialize in it.” However, this does not dismiss the importance of promoting such training and education (Bundy 2008). For example, during a court case that dealt with the federal government’s decision to relocate a freeway through Phoenix and the impacts it would have on the rich archaeological resources in its path, lawyer Terry Goddard became aware of the surprisingly overwhelming lack of knowledge pertaining to cultural resource preservation issues on the part of the overseeing judge. During expert witness testimony, the judge questioned “we’re talking about some pots, are we not?...I just want to understand what the fuss is about…Are these the same pots that, when I was a boy, we used to put on the canal banks and use for target practice?” (Goddard 2002:210).

In another case exemplifying the lack of cultural resource legislation knowledge amongst law enforcement officers, French (2016) discusses the blatant lack of prosecution for three men who were caught trespassing and illegally digging for artifacts at historic Fort Ellis located on state land in Montana in 2015. Upon request of the site caretaker and as they were very
apologetic and cooperative and there was no sign or fence designating the property as state land, the responding officer issued the diggers a warning and let them go (French 2016). While the offense was not subject to federal laws such as ARPA, the offenders could have faced misdemeanor charges including fines up to $1,000, and six months in the county jail or both under the Montana Antiquities Act, which applies to state and public land (French 2016). This lack of prosecution has some, such as local archaeologist Larry Lahren, questioning the way in which the incident was handled (French 2016). Lahren called for “a more concerted response including an assessment of the damage, development of a mitigation plan and the issuance of a report” and apparently “also accused MSU officials of covering up the incident” (French 2016). According to French (2016), “unfortunately for archaeologists…state agencies are reluctant to press charges even when violators are caught.”

Recognizing the importance of training for law enforcement officers, archaeologists, and prosecuting attorneys, ADIA founder, Martin McAllister and his staff offer archaeological violation investigation classes throughout the United States. These three-day trainings consist of all aspects of the investigation and prosecution of archaeological crimes and topics include: an overview of archaeological resource crime; the looting, collecting and trafficking network; ARPA and other federal statutes; archaeological crime scene investigation; archaeological damage assessment; archaeological crime factors; archaeological crime investigative and damage assessment methods; and archaeological violation case studies (ADIA 2016).

Such training has proven successes. Discussing the results of a course he taught in 2015 in California, McAllister stated that “everyone who took the class came to realize the importance of dealing with archaeological crimes, and some of the officers wondered if they had been seeing such items throughout their careers but not recognizing them” (Larson 2015). Pointedly, just two
days after completing this particular course, a local deputy arresting a man for possession of marijuana and methamphetamines used the knowledge he gained from the class to identify that the man was also in the possession of looted prehistoric artifacts. As a direct result of the training, the deputy was able to recognize artifacts that were located in the man’s vehicle and make the connection that these were historically significant and likely associated with a burial, and that their removal from public land and potentially from a Native American grave were also illegal crimes.

While McAllister is convinced that these activities are occurring frequently in Wyoming, due to the lack of knowledge regarding the problem, shortages in staff, and precedence placed on other priorities, they are going undetected (McAllister, personal communication, 2016). He stated that in the past, ADIA conducted trainings for the Wyoming BLM; however, the most recent classes took place at least 12 years ago. According to McAllister, “the more people we can make aware of this problem, whether it's law enforcement people or the general public, the more eyes and ears we have” (Sakariassen 2016).

**Effects of Looting**

The effects of looting are most palpable to archaeologists, who comprehend the significance of the loss of information, and Native Americans, who suffer cultural and aesthetic loss beyond belief (Mallouf 1996:201). One illustrious claim made by looters is that their actions do not “hurt” anybody (Munson et al. 1995:145). This is far from being the case (Desio 2004). The effects of looting in the U.S. are far reaching, but are perhaps most deeply experienced by Native Americans. According to Longenecker and Pelt (2002:29), “when law enforcement officers, prosecutors, and judges understand that these acts of desecration cause real harm to the Indian people, they gain a greater appreciation for the damage done by this ‘victimless crime.’”
Because their cultural heritage is of great importance, Native Americans are often invaluable sources for the detection of looting.

According to Longenecker and Pelt (2002:29), a main problem when it comes to successful convictions under cultural protection laws results from a lack of knowledge pertaining to cultural resources laws on the part of law enforcement community. This problem was recognized by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and archaeologists, which led various organizations to sponsor classes on the Archaeological Resources Protection Act (ARPA). Ultimately, a training program was created and implemented which in addition to archaeological concerns, addresses the impacts that looting has on Native Americans. The class focuses on catching, prosecuting, and convicting archaeological looters and has proven successful in aiding law enforcement and local authorities.

In one successful case, CTUIR was asked to aid in searching of a house belonging to two men who were accused of looting Indian artifacts from Plymouth Island, an important prehistoric village site. These men were originally approached in their car by local law enforcement as being suspected of poaching, upon which they discovered digging equipment, artifacts, and drugs. The search of their house resulted in the seizure of 11,000 artifacts, which were identified and inventoried by CTUIR. CTUIR was able to use this opportunity to educate the officers and prosecutor about the cultural significance of these looted items and they in turn were able to experience the damage first-hand (Longenecker and Pelt 2002:30). This case emphasizes the impacts looting has on living people. Looting results not just in the loss of potential knowledge of archaeological context; it is a loss of cultural heritage that can never be returned. The positive effects of CTUIR’s program is evidenced in the words of the local judge, who saw the Plymouth Island case as an eye-opener: “We gave the victims a chance to speak and they spoke about the
cultural significance of the site in question. [The looting] was more than just an intrusion; for the victim it was a burglary.”

Ownership
Van Allen (1995) and others (Henry et al. 1993) suggest that one of the major factors in the looting problem in the U.S. stems from the concept of and legal rights pertaining to ownership. In most other countries, antiquities are nationalized, and therefore owned by the national government. While looting does still occur in these countries, it is believed that the concept of and feelings associated with public ownership helps prevent the majority of non-international trade-related looting and lust for individual possession of these shared resources. In the U.S., the landowner owns cultural resources contained on or in their land. Some argue that the U.S. should implement similar legislation (Colorado Historic Society 1996; Henry et al. 1993), but others contend that this is not the solution for numerous reasons. One of the main reasons cited for why this type of strategy would not work in the U.S. is the fact that today’s Native Americans are living descendants of the past people whose remnants of lifeways are being destroyed by looting and illicit trafficking. While many Americans may share a vested interest in the Native American past, for us to impose such legislation would cause a major strain in our current relationship, and would likely be viewed as an attempt to gain further authoritative control over what isn’t rightfully ours.

Early (2012:130) points out that:
“those situations where the endangered sites and cultures can be considered the contemporary nation’s cultural patrimony are likely to evoke public and political support for preservation efforts more effectively than circumstances [such as in North America] where the archaeological remains represent someone else, people and cultures supplanted by new people now in political control of the landscape, even if those new people embrace symbolically the sites marking the unfamiliar past and use many as prominent tourist attractions.”
State Context

Wyoming is generally a politically conservative state and one of its primary concerns is the rights of private property owners. The majority of the residents (especially ranchers) often have a strong mistrust of, or lack of respect for, the federal government. The state is comprised of 42.3 percent U.S. Federal Land (WCCA 2015:6), with the remaining 57.7 percent being privately held. Figure 2.1 illustrates the distribution of landownership throughout the state. The Wyoming Bureau of Land Management (BLM) employs only six law enforcement rangers for the nearly 18 million acres of land they manage. As a result, the BLM relies heavily on their employees and members of the public to report incidences observed on their lands (Bohrer 2013).

While others suggest that all sites in Wyoming are affected by looting activities, former BLM State Office Senior Archaeologist and Deputy Preservation Officer, Tim Nowak, stated “caves and rockshelters are popular targets for vandals and looters, despite their often remote or dangerous locations” (Bohrer 2013). With over 175 combined years of experience, the following veteran Wyoming archaeologists were contacted regarding looting and vandalism. Their perspectives are discussed below in no particular order.

Bonni Bruce, Supervisory Archaeologist in the BLM Rawlins Field Office states, “As a 5th generation Wyomingite myself, I know that arrowhead hunting in southern Wyoming is a hobby, much like hunting and fishing. It is one of the reasons that I got into the field of archaeology. While I am not condoning its practice, I do realize that it is part of the culture here” (Bonni Bruce, personal communication 2015).
Figure 2.1

Distribution of Landownership throughout the State
Based on his experiences, Big Horn Basin native, retired Professor of Archaeology, and Northwestern Wyoming researcher, Dr. Larry Todd remains skeptical whether education is the answer in the battle against looting. In a similar vein, BLM spokesperson, Cindy Wertz stated that while the BLM relies heavily on education, “publicizing certain areas…can be a double edged sword” (Bohrer 2013). While Todd believes that educational outreach “may be of use in limiting casual artifact collection,…[it] may just encourage the serious ‘problem collectors’” (personal communication 2016). He provided an example in which he explained that even after a decade of many (three to 10 per year) local presentations to residents focusing on the archaeology of the area and the importance of stewardship, he “still [has] people coming up to [him] afterwards wanting to know about the artifacts they’ve collected/stolen” (Todd, personal communication 2016). According to Todd, “many still think they are ‘protecting’ artifacts by collecting them…[and] don’t see the Feds as having any right to tell them what they can and can’t do on public lands” (personal communication 2016). He believes that “most know, but few care, that there are laws against damaging archaeological sites” (Todd, personal communication 2016).

While Todd advocates “much stronger enforcement of the laws,” he cites the fact that there are very few Federal Land Enforcement Officers amongst the agencies as the primary issue with enforcement. In addition, Todd states that “there is a general perception that collecting a few artifacts is ‘no big deal anyway’ that in effect, there really [are] NO legal repercussions for damaging sites unless you go at it big time” (Larry Todd, personal communication 2016).

According to retired WY BLM Worland Field Office Archaeologist, Mike Bies (personal communication 2016);

“The BLM launched an intense effort in the early 80's to reach students, mainly 4th grade, in Wyoming. We did school presentations, field trips, and public demonstrations including archaeology days. This ultimately led to Project Archaeology, which brought in professional
educators at the national level and broadened the reach. Many BLM staff archaeologists became active with their local WAS chapters to help raise their awareness of the legal and scientific issues relating to looting.”

Although he “doesn’t think you can find anyone in Wyoming today that thinks looting or vandalism are legal…it [public education efforts] did not reduce looting or vandalism, but [instead created] smarter looters” (personal communication 2016). Bies stated that in an effort to reduce their detection, “they now backfill and totally vacuum surface sites rather than leave looter piles…When I started, it was immediately obvious when sites were looted, [and] by the mid 90's it had become much more difficult to detect.” He shared that in other incidences in which the evidence of these activities were left in plain sight, it became obvious that “the looters were sending a message” (personal communication 2016). Bies cited the recent (2003) looting of BA Cave in the Black Mountain Archaeological District as a case in point. “They defaced the site datum in addition to digging a major hole in the shelter” adding that “This is a shelter where BLM was conducting long term research in response to an earlier looting incident” (personal communication 2016). In an article in the Casper Star Tribune focusing on these looting activities, Bies brought up one of the main points of contention with non-professional excavation: “they moved as much dirt in one event as we [the BLM] moved in 10 years” (Bohrer 2013). The BLM estimated these damages at $7 million, “based on the continued use of University of Wyoming techniques” that were employed in the BLM’s prior excavations at the site (Bies, personal communication 2016). In hopes of attracting potential witnesses and likely to raise awareness of the seriousness of the loss of information resulting from looting, the BLM went as far as to offer a reward in the amount of $20,000 for information leading to the criminals’ arrest and conviction (Bohrer 2013). No suspects have been identified or charged for these cultural resource heritage crimes. Additionally, Bies cited examples of looting related to known historic and potential Native American burial locations throughout the state. One
particular “incident involved [a well-known historic mining related] cemetery, where a number of graves were partially opened” (Figure 2.2) (Bies, personal communication 2016). Other incidences include the digging of large cairns by those suspecting they held burials. In one such case, the looter reportedly turned himself in out of guilt (Bies, personal communication 2016).

Figure 2.2

Investigation of Looting of Historic-Era Graves at Gebo Cemetery, Wyoming

( Photo Courtesy of the Bureau of Land Management )

As a result of these experiences, Bies stated that he thinks “the laws and education efforts are adequate, [but] the emphasis on detection and enforcement is not…There is no organized effort to detect looting or deter vandalism” (personal communication 2016). While he acknowledged, “That is probably the next frontier,” Bies stated that he is unsure of how such an
effort could be effectively encouraged. However, he believes that it comes down to the lack of agency funding associated with the detection of these activities as well as the current way in which such cases are treated and handled (personal communication 2016);

“Budgets within agencies provide no incentive for detection and performance measures for LEOs are tied to cases opened [rather than] prosecutions or convictions. Something simple like a link between detection efforts and funding would provide results fairly quickly. LEOs need to be rewarded for completing investigations instead of just starting them. Rangers at the local levels are often discouraged by the Special Agents from pursuing leads beyond the initial opening of the cases. [While] these changes did not respond to my efforts from inside the BLM, perhaps outside pressure would make a difference but it will be a major culture shift.”

In a contrasting view, retired Office of the Wyoming State Archaeologist (OWSA) Archaeological Survey Manager, Paul Sanders stated that “Overall, I don't think the public has much knowledge of cultural resource laws” (personal communication 2016). He attributes this lack in knowledge to the vast differences in land status between the eastern and western U.S. and current resident’s geographic origins. “Federal lands…are most common in the West…[so] When people from these parts of the country come out west, they haven't been exposed to the laws. [However], they would have been exposed to the fact that people can't go out lawfully and collect artifacts on private land without the landowners permission, so you would think there might be some apprehension about going out on public lands and collect” (Sanders, personal communication 2016). While he states “most of the people I have encountered about collecting on public lands say that they don't know that it was illegal,” he also recognizes that “that may have been a lie, too. [However,] they are usually surprised to know that the legislation requiring a permit to collect has been in effect since 1906” (Sanders, personal communication 2016).

Sanders believes that “some collect because some of the artifacts are valuable and can be sold, while others just like them because they are old or just pretty” (personal communication 2016). He cited an example in which a collector was fully aware of the illegality of his actions, but continued them anyway without regard for the law;
“When working along the Missouri River with LTA, we came across a collector that was raking the sand for artifacts at an earthlodge village site that had been inundated by Lake Oahe, but was now exposed due to low lake levels. When we told him that what he was doing was illegal, he was indignant and said that the artifacts would just wash away, so there was no harm” (Sanders, personal communication 2016).

Collectors often justify their actions with the statement that if they don't collect it, it will just erode away and be lost, or likely collected by someone else. Sanders feels that it is “the information content of the artifact and site that has to be taught to people to have any effect on illegal collecting/looting” (personal communication 2016). While he believes that an effort to do this has been undertaken when possible (at small public outreach opportunities), he does not feel that it has been effectively publicized on a more wide-reaching scale. For example, he states, “You don't see much of it showing up very often on TV programs, or if so, just a quick statement at the beginning or ending of a program” (Sanders, personal communication 2016). While he and other archaeologists have participated in public outreach opportunities focusing on preservation issues starting with young grade-school students, he feels that more organized efforts would be most effective. Sanders considers the BLM’s Project Archaeology program that trains teachers in archaeological methods and promotes a preservation ethic to be “the best platform for educating the public” (personal communication 2016). Sanders said that he was unsure as to which site types in Wyoming are most impacted by looting, but that rockshelters with buried deposits and surface projectile points and other artifacts are often target of such activities.

According to retired Wyoming Assistant State Archaeologist, Dr. Danny Walker, “money and a desire to have stuff hanging on the wall” is the main driver of looting and vandalism (personal communication 2016). He feels that the public has knowledge of cultural resource law prohibiting looting and vandalism, “but often choose to ignore it if they think they can get away
with it…[and] there has been so much in the news about looting [that] the average person should be aware of the laws.” Walker stated that in Wyoming, “all sites are impacted” by these activities and that those with saleable artifacts “have a good chance of being looted” (personal communication 2016). In spite of intensive educational efforts that he along with others have undertaken throughout the state, Walker feels that looting and vandalism activities have been “holding about the same…[and causing] a continual drain on the resource.”

Retired BLM Pinedale Field Office archaeologist and Principal Investigator at Bonneville Archaeology in southwest Wyoming, Dave Vlcek believes that the majority of people in Wyoming who collect artifacts and loot sites are aware that these activities are illegal (personal communication 2016). He cited three separate recent encounters in which he came across people digging for or surface collecting artifacts at well-known prehistoric sites (Figure 2.3). On all three occasions, when asked if they knew that they were on public land and that what they were doing was illegal, they answered “yes.” While Dave reported these incidences and in the one case, the local sheriff was called in, no further investigations, fines, or other form of punishment ensued. As a result of his experiences, Dave questions whether the WY BLM and local law enforcement take illegal artifact collection/arrowhead hunting and unauthorized excavations seriously. While he stated that in other places that is not the case, many Field Offices do not seem to care or consider these offenses very important (Vlcek, personal communication 2016). Vlcek also mentioned the limited amount of federal enforcement officers (LEO’s) employed by the BLM; especially in the Pinedale Field Office, where there is currently no Ranger.
Vlcek stated that he thought there had been a decrease in arrowhead collection over time, but after only a few years in retirement, has been contacted multiple times by people who want to show him their collections. According to him, such an instance occurred as recently as the past week (end of February 2016). Dave attributes these recent actions to his being no longer associated with the system and therefore no longer being considered a threat (personal communication 2016). Overall, while he feels that looting activities are decreasing over time, they are still a big concern in Wyoming, and are exacerbated by popular TV shows such as *Diggers* and other similar shows on the Travel Channel and other venues that glorify “treasure
hunting” (personal communication 2016). In all honesty, Vlcek views these activities as “an ongoing problem [which he] never see[s] ending” (personal communication 2016).

WAS Executive Secretary/Treasurer, Carolyn Buff also feels that most of the public is aware that there are cultural resource laws prohibiting looting, “but refuse to think it applies to them…[viewing it as] just another stupid law put forth by the feds” (Buff, personal communication 2016). Buff attributes this view to the prevalent concept of many residents that “we live in Wyoming…[and therefore] it’s our right” She thinks that these activities stem from societal norms and perceptions and cites four main reasons why they continue. The first reason is that “their parents did it, so they believe it’s okay.” Secondly, “our society has led people to believe any way to get thrills is okay.” Buff’s third reason involves the lack of supervision of youth, and the fourth is the perception that “if the ancients did it, it must be okay for moderns to do it” (Buff, personal communication 2016). Buff states that she “continue[s] to be amazed at the ignorance (supposed) of the public and the cavalier attitude of many,” and feels that “the “Sagebrush Revolution” is alive and well in the archaeological milieu - with a general attitude of defy the Feds at all costs; it’s on public land so it belongs to me; [and] catch-me-if-you-can attitude” (personal communication 2016).

According to Buff, these activities affect most sites of which the public is aware, and both prehistoric and historic sites are targeted for “the goodies” they contain (personal communication 2016). She feels that a combination of measures are needed to more successfully combat these activities. These include increasing the amount of on-site caretakers or superintendents; increased site monitoring; increased presence of law enforcement officials; and getting more of the public involved with stewardship (Buff, personal communication 2016).
**Wyoming Specific (Current) Methods Against Looting**


The 2007-2015 Wyoming State Historic Preservation Plan advocates the incorporation of the "Wyoming Site Stewardship Program" as a method for combating looting at known archaeological sites throughout the state. The SHPO suggests "sustaining a regular presence" at cultural resources deters such activities and that Site Stewards aid in the reporting of incidences. "Information on vandalism and looting, reported promptly, can greatly increase the effectiveness of investigation" (SHPO 2007:65; 67).

Goal 1 of the Site Stewardship Goals and Strategies is to protect and preserve prehistoric and historic cultural resources for the purposes of conservation, scientific study, interpretation, and public enjoyment. Strategies listed include (SHPO 2007: 67):

- Identify specific preservation needs of both prehistoric and historic sites around the state.
- Expand the sites stewardship network to include new partners.

Goal 2 is to increase public awareness of the significance and value of cultural resources. Strategies listed include (SHPO 2007:67-68):

- Visiting locations across the state and offering site stewardship workshops.
- Making archaeological ethics brochures and other pertinent educational literature easily available.
- Posting the stewardship link and explanatory information on the SHPO and BLM Web pages.

Decreasing site vandalism and looting is presented as Goal 3 of the Wyoming Site Stewardship Goals and Strategies. Strategies listed include the following actions (SHPO 2007:68):
• Regularly communicating with the site monitors about the site condition.
• Identifying needs for endangered sites, i.e., signage, fencing, etc., to assist in managing the resource.
• Thoroughly recording sites targeted by the stewardship program to include site boundaries and any existing features, rock art panels, looting pits, vandalism, etc.
• Regularly updating the site maps and taking photographs of any recent looting or vandalism activities and notifying the proper authorities.

Goal 4 is to increase cooperation between the SHPO, BLM, and other agencies interested in participating in the program. Strategies include the following (SHPO 2007:68):

• Establish a communication and coordination network between state and federal agencies to ensure site stewardship is used as a vehicle for preserving Wyoming’s cultural resources.
• Provide training for every agency interested in the program, combining the interests and concerns of all parties involved.

The Wyoming BLM has recognized correlation between sites looted and presence of transient oil and gas workers in certain areas and has responded by significantly limiting the amount of site information provided to clients (Richard Currit, personal communication 2015). As mentioned previously, the SHPO has incorporated a Site Stewardship Program in coordination with the BLM and plans to increase coordination with the USFS, with the purpose of deterring looting and vandalism at sites based on an increased archaeological presence at these locations (Daniele, personal communication 2016; SHPO 2007; 2016a).

Public Education and Outreach
According to Van Allen (1995:2), “most Americans are uneducated about the effects of artifact looting and the precise definitions contained in the ARPA.” This statement apparently is
meant to refer to not only the general public, but also law enforcement agents and judicial figures as well. While American archaeologists are “aware that looting and antiquities trafficking takes place in their domain…the degree of popular awareness, range of constituencies concerned with the issue, and the decibel level of alarm about the situation all appear less” (Early 2012:130). Many are under the impression that increasing public awareness of the impacts of looting and the artifact trade is an integral part in the battle against looting. However, as stated by Todd (personal communication 2016) and others (Bohrer 2013), this may not be the case.

While former USFS and Bureau of Indian Affairs (BIA) Special Agent John Fryar admits that “public education and publicity have resulted in a dramatic drop in looting by ‘mom and pop’ weekend treasure-hunting,” he also states “serious problems remain because of professional looters who research and target Native American burial sites so that they can search for, and then sell, grave goods and human remains” (Desio 2004:67). According to Fryar, professional looters are proud of their ‘work’ and want to provide context for their illegal goods, often snapping photos of their illegal excavations and keeping detailed records of the sites. Others are so intent on the recovery of artifacts that they bulldoze entire areas using backhoes and heavy equipment” (Desio 2004:67).

Although they may claim to have no knowledge of the laws protecting cultural resources, site looters are often quite aware of such legislation (Bies, personal communication 2016; Todd, personal communication 2016). Justifications are contrived of which serve to displace the blame of such illegalities (Sanders, personal communication 2016; Walker, personal communication 2016). Some of these justifications for illicit trade deem it exercising “free enterprise” (Mallouf 1996:201), while others claim that it would be collected by someone else or be lost to other factors such as natural erosion processes (Sanders, personal communication 2016).
Many professional archaeologists and organizations blame popular media and TV shows such as the National Geographic Channel program *Diggers*, for the encouragement of looting that results from promoting metal detection, digging, and grave robbing under the guise of archaeology. The Society for American Archaeology was a main proponent of voicing the concerns of professional archaeologists over the airing of such shows for their insufficient discussion of legality and conservation issues, and the unethical messages, and basic “finders-keepers” and “treasure trove” mentality that they promote.

Recent (2013) looting activities along Oregon Trail Ruts in Idaho have been attributed to the airing of the *Diggers* program. One of the episodes reportedly focused on the nearby early Mormon town site of Chesterfield and subsequently, similar activities (in the form of metal detecting and looters pits) were discovered both there and along the Trail (Pengilly 2013:6). Additionally, Dave Vlcek, has attributed looting activities along the Oregon Trail in Southwest Wyoming to the National Geographic program as well (personal communication 2016). It is likely that these activities could have been easily prevented had the show not aired, and since it had, if it included a discussion of the legislation protecting archaeological sites and promoted a conservation ethic.

While it is more often the case than not, not all archaeological-related shows promote looting. The Public Broadcasting System (PBS) released a video on looting in August 2014 in response to the recognition of the ever-growing need for public education (PBS 2016). While this video focuses on these issues within California, it is applicable to the entire nation.

*Site Stewards*

Along with others (Bundy 2008; Daniele, personal communication 2016; King 2013; SAFE 2016), Lipe (2009) addresses the utility and benefits associated with employing site stewardship programs as a means of protecting sites from vandalism and looting. According to
him, volunteers not only gain personal satisfaction from their involvement in preservation, but also are often able to “influence attitudes in their communities in favor of protecting sites from looting and vandalism” (Lipe 2009:47).

Organizations Involved in the Battle Against Looting
There are numerous organizations involved in the battle against looting. The Archaeological Institute of America (AIA) has been an important proponent in the fight against looting. AIA has “implemented a Site Preservation Program focusing on grant giving, recognition, and public outreach [and has] been involved in shaping a better understanding of archaeological ethics among the public by, for example, speaking out against treasure hunting TV shows that might promote looting and destruction of archaeological sites” (SAFE 2016). The Society for American Archaeology has also been involved in the battle against looting. Their ethics statements and firm stance against treasure hunting TV shows such as National Geographic Channel Diggers has been an integral part of their contribution. Recently, the organization also published a issues focusing on collaboration between professional archaeologists and the metal-detecting community, as well as collectors.

Along with SAA and local archaeological society chapters, the Archaeological Conservancy provides interested members of the public with the most recent archaeological news and information - mostly in the form of online articles. The articles are mostly educationally- based and focus on preservation and conservation issues. Their Facebook page has also served as a major source of information for the recent news included in this thesis.

SAFE is a major promoter of preservation and their website is very public-oriented and user friendly. It provides a multitude of information on looting and vandalism on a global as well as more localized scale and focuses on explaining the effects and issues related to these
activities. It also contains resources for those wishing to become more involved in combating
looting and vandalism and sharing the preservation message.

In 1991, the USFS implemented their “Passport in Time” (PIT) program in which
volunteers of all ages are enlisted to participate in archaeological site excavations and restoration
projects and learn the importance of the preservation of our nation’s heritage. PIT has
experienced wide-ranging success and now includes 117 national forests in 36 states (Osborn
2016).

The NPS provides information and education on looting prevention and historic site
Congress on the Federal Archeology Program illustrate the ongoing destruction of America’s
archeological heritage.” While they advocate legal training for archeologists, land managers, law
enforcement personnel, and attorneys, the utilization of site stewards, pooling of resources to
protect sites, and increased public outreach, NPS reports that federal land management “agencies
face an uphill budget battle” (NPS 2016c). They also manage the Listing of Outlaw Treachery
(LOOT) Clearinghouse, which has been in place since 1986 and “consists of information about
completed legal cases concerning the theft, trafficking, destruction, or defacement of
archeological resources on public lands” (Dohner and Mudar 2010; Knoll 1991). Dohner and
Mudar (2010) claim that while “it does not contain information about all archeological resource
law cases that have been prosecuted in the United States…it contains a representative sample
that can be used to assess the impact of changes in laws, regulations, and legal practices over
time.” This data indicates that there is an overwhelming lack of prosecution compared to the
number of reported looting incidents (Knoll 1991; McManamon 1991). The database is available
for 45 states and as of 2007 (Figure 2.4), Wyoming had less than 10 cultural resource violations listed in the Clearinghouse (NPS 2016d).

Figure 2.4

Bar Chart showing the Distribution of Cultural Resource Violations by State

Information pertaining to these violations in Wyoming in the form of limited TRACfed data (TRAC Reports Inc. 2014) were obtained through Senior Archaeologist in the NPS Archeology Program, Karen Mudar (personal communication 2016). A total of 10 adjudicated cases are on file ranging from 1992 to 2003. Seven of these are associated with the BLM while the remaining three are NPS related. Three of these cases associated with the BLM are listed as having been immediately declined; two due to lack of evidence of criminal intent, and one due to civil, administrative, or other disciplinary alternatives. One of the three NPS associated cases
resulted in a guilty plea in which the defendant was sentenced to 24 months’ probation. These were the only cases with available details in which prosecution took place. Other than their involvement with federal agencies, no details were available regarding the remaining six cases.

According to Dohner and Mudar (2010):

> “Consistently high numbers of incidents of damaged sites reported by Federal agencies indicate that the problem of archeological looting of Federal lands has not been eradicated. The wide array of laws and regulations that are used to prosecute looters and vandals suggest that further education in archeological resource laws and regulations may enhance the frequency and success of prosecutions. At the same time, ongoing efforts to educate the public and foster a stewardship ethic will also work to reduce the overall incidence of looting. Agencies are working cooperatively to pool important case information, such as in the LOOT clearinghouse so that there is a ready resource available for appropriate use by all. These data are available to prosecutors, archeologists, researchers, and other parties to help protect our national archeological resources.”

**Lack of Research Specific to Wyoming**

Information and knowledge about looting and vandalism throughout the state has been largely anecdotal until now. The current (2007-2015) and future (2016-2026) State Preservation Plans mention these activities a total of four times combined and as a result, the seriousness of these issues seems somewhat downplayed. Other than the two efforts mentioned in the section above, there does not appear to be any focus on proposing additional efforts with the goal of understanding and putting an end to these activities. This research provides the first means of quantifiable insight into Wyoming resident’s attitudes and perceptions of archaeology and cultural resource heritage legislation, which can be used to generate more informed decisions and efforts to successfully combat these activities within the state.

**Previous Investigations**

Although previous surveys have been conducted pertaining to the public’s knowledge and perceptions of archaeology (Pokotylo and Mason 1991; Ramos and Duganne 2000), attitudes of archaeologists and the public and perceptions of archaeology in general (Kinnear 2008), and those focused specifically on archaeologists themselves (Watkins 2000; Zeder 1997), they have
for the most part been broad in scope. This is the first survey to focus specifically on the cultural resource legislation and archaeological knowledge of Wyoming residents. Additionally, this research includes other non-survey components which when combined with the results of the survey hope to provide insight into the most effective means of combating looting/vandalism within the areas of the state most impacted by these activities and state as a whole. The results also serve as a basis for further, more intensive investigations. The results of previous surveys (Kinnear 2008; Pokotylo and Mason 1991; Ramos and Duganne 2000; Watkins 2000; Zeder 1997) are summarized chronologically in the following paragraphs.

Pokotylo and Mason’s 1985 and 1989 public opinion surveys of nearly 1,000 residents of Alberta, and Ontario, Canada were focused on gaining insight into public attitudes regarding archaeological resources and the management of these resources. Combined, the surveys had an average response rate of 73%. This is likely due to the fact that the surveys were hand delivered and picked up within 2 to 3 days. The results of the Alberta surveys indicated that “96% of the residents sampled were concerned about preservation of the province archaeological and historic heritage” whereas responses of Ontario residents indicated low public support for archaeology there (Pokotylo and Mason 1991:10). They found that level of education is significantly associated with opinions on provincial ownership of artifacts and the finder’s legal rights to them (Pokotylo and Mason 1991:16). Overall, the results “indicate considerable support for legislation to protect cultural resources, public ownership of archaeological resources, and continuing archaeological education and research.” They also indicate that “present means of transmitting information about archaeology and archaeological conservation to the public are inefficient” and suggest ways to increase such knowledge. These include television programming, museums, on-site visits and well-written entertaining archaeological reports or works of fiction (Pokotylo and
Mason 1991:16-17). Pokotylo and Mason’s results suggest that hand delivery and pick up of surveys directly corresponds with increased response rates. Unfortunately, this type of distribution was not possible for the current study. However, this research has stressed the importance of receiving adequate survey response rates.

Pokotylo and Mason’s suggested means of communicating information about archaeology and preservation to the public are related to the current study, as it will assess the ways in which the public learns about archaeology, as well as their preferred means of learning about archaeology. The preferred means will serve as an interesting comparison to the means suggested by Pokotylo and Mason, and will determine the most effective ways of communicating with the public.

On behalf of the SAA, Ramos and Duganne (2000) of Harris Interactive, conducted a telephone survey of the general public to gain insight into their perceptions and attitudes concerning archaeology. This research is most similar to the research proposed in this document. For this reason, survey questions relevant to the current study have been borrowed or adapted for the purpose of comparing this research. Ramos and Duganne’s survey was focused on adults 18 years or older throughout the 48 continental United States. The sample size was 1,016, with intentional even distribution between sexes (47% male; 53% female) as representative of the total population. The margin of error for their sample size was +/- 3% at the 95% confidence level. The following demographic information was collected: age, education, number of children under 18 in immediate household, race, employment in archaeology-related field (Ramos and Duganne 2000:7). The results indicate differences in respondent’s interest in archaeology, the importance they place on archaeology, and level of education. The survey combined both open ended and multiple-choice questions.
Overall trends in Ramos and Duganne’s (2000:11) results show that “in general, the public’s level of knowledge about archaeology and what archaeologists do is fairly broad and moderately accurate”. Public misconceptions regarding dinosaurs as the objects of archaeological study were shown to vary by education level, with less mention of dinosaurs correlating with higher education levels. A high percentage (92%) of the respondents were under the impression that archaeologists study fossils and 85% thought they study dinosaurs (Ramos and Duganne 2000:14). Respondents with high levels of interest in archaeology, or those who had visited an archaeological site were generally more knowledgeable about archaeology and less likely to think that archaeologists study dinosaurs. The conclusions made from these and the results of other questions pertaining to archaeological knowledge were that the public’s knowledge about what archaeologists do is neither solid nor clear (Ramos and Duganne 2000:14). The results of the survey also provide insight into the ways in which people learn and prefer to learn about archaeology. The majority of respondents (56%), listed television as the main source of information for learning about archaeology. Books, encyclopedias, and magazines tied for second place at 33%. Other sources include newspapers (24%), college (23%), secondary school (20%), National Geographic (14%), primary/elementary school (10%) and the Discovery Channel (6%). Participation in a dig or archaeological project, public lectures, local archaeological or historical societies and historical or cultural events account for approximately 5%. The preferred methods for learning about archaeology indicated by respondents include television (50%), magazines and periodicals (22%), books and encyclopedias (21%), and newspapers (11%). Although 7% would prefer to learn in a “hands on” environment and 10% would like to participate in a dig or archaeological project, the responses show a lack of interest in learning about archaeology through local archaeological or historical
societies (1%), historical or cultural events (1%), and preservation or conservation groups (0.1%) (Ramos and Duganne 2000:18).

According to Ramos and Duganne (2000:20) approximately 76% of the population is interested in archaeology, and of those interested, 45% are interested in learning about the human past. Overall, people feel that archaeology is important to today’s society. This was correlated with their level of interest in archaeology; low level of interest results in low rating of importance. “Being interested in the past and seeing the value of archaeology in learning about the past to improve the future are key factors that influence the public’s view about the importance of archaeology” (Ramos and Duganne 2000:23).

In an assessment of public views on cultural resource laws, it was shown that 28% of respondents knew of laws protecting archaeological sites (Ramos and Duganne 2000:28). Approximately 26% of the respondents knew of laws on publicly owned lands and the vast majority (85%) think penalties should be imposed on members of the general public if they take away artifacts from an archaeological site on publicly owned land (Ramos and Duganne 2000:28-29). Of those within this group, (62%) indicated that those performing these activities should be issued a fine, while and (10%) suggested a combination of fines and community work. “Very few respondents felt that the penalty should involve imprisonment” (Ramos and Duganne 2000:29). When the same question was applied to artifacts on private lands, similar responses were found, but a higher percentage (9%) of those who believe penalties should be imposed felt the method of punishment should be a combination of a fine and imprisonment (Ramos and Duganne 2000:29). The overall conclusion regarding cultural resource laws is that although the “majority of the public believes that there are and should be laws to protect archaeological resources regardless of where they are found, the public’s views about the existence of
conservation laws to protect archaeological resources are less certain when it comes to objects or artifacts found in their own or public property” (Ramos and Duganne 2000:32).

The results of Ramos and Duganne’s survey are perhaps the most pertinent and influential to the current study. All 13 of the questions in the current study are related to those in Ramos and Duganne’s study. While they are related, they are somewhat different, as the types of surveys differed in response collection methods. Responses to Ramos and Duganne’s survey questions were gathered through anonymous telephone calls in which questions asked and level of detail was based on a series of 113 possible questions; with four additional demographic based inquiries. The current study was conducted through an anonymous mailing and online survey and in order to retain respondents’ interest and gain more specific insight into some of these related areas, a total of 13 questions were designed with seven different demographic-based inquiries with the added purpose of comparing the results.

Watkins (2000) conducted a survey of archaeologists to determine how archaeologists make decisions about site excavations where human remains are involved. Out of the 1,000 surveys he sent out, 191 were returned (ca. 19% response rate). Basic background information included descriptions of age, highest academic degree, years of experience in the discipline, self-definitions of professional status, and minority status and classification (Watkins 2000:72-73). His results indicated that “the ownership of the land on which a cultural site is located has a greater influence in determining archaeologists’ involvement in a project that impacts human remains than do the wishes of the descendants of the groups involved” (Watkins 2000:89). Watkins’ findings are important to my study because they highlight the fact that ideas of landownership can affect professional archaeologist’s attitudes regarding digging. “If professionals can be biased in such a way, then it stands to reason that the general public who is
much less informed about laws would be biased to an even greater extent regarding what they [feel they] can do on different kinds of land” (Mark Muñiz, personal communication 2016). The study also found that younger archaeologists with lower levels of education (bachelor and master degree holders) are more concerned with landownership than older generations with doctoral degrees (Watkins 2000).

Kinnear (2008) conducted an anonymous survey in which 301 Great Plains professional archaeologists, amateur archaeologists, and artifact collectors participated. The survey served as a means to examine how their varying views on archaeology have affected the archaeological record of the Great Plains. She identified areas of common interest as well as differences in perceptions and attitudes among the three groups (Kinnear 2008:161) and postulated that the role of the relationship between professionals and non-professionals significantly contributes to the fragmented information available within this culture area (Kinnear 2008:162). Survey data resulted in the documentation of group identification, state of residence, basic archaeological interests and motivations, and attitudes towards, and experiences with, members of the other groups (Kinnear 2008:163). The majority of respondents were professional archaeologists, followed by amateur archaeologists and then artifact collectors. According to Kinnear (2008:171):

> “the data suggest that the three groups are motivated towards Plains archaeology for largely the same reasons—gaining knowledge about Plains prehistory. The differences between these groups seem to reside in perceptions and attitudes towards each other. These perceptions and attitudes are largely the result of misperceptions” (Kinnear 2008:171).

The results of the survey indicate an overall similarity in responses between the professional and amateur archaeologists. The artifact collectors seem to be somewhat of an outlier. Nearly 100% of this group agreed that they would like opportunities to work with professional and amateur archaeologists in the future. However, though mostly positive about
working with each other, the responses of both the professional and amateur archaeologists indicate a lesser degree of willingness towards working with artifact collectors (Kinnear 2008:171). Kinnear advocates increased communication between professionals and non-professionals interested in archaeology as a way of filling the data gap in and preserving the archaeological record of the Great Plains. Kinnear’s observations may be useful to the research I am proposing because they provide insight into the relationships and perspectives of archaeologists and amateur collectors and suggest ways in which these relationships can be strengthened. Amateur collectors are an important target audience for the current study, as it is believed that their level of interest in archaeology should allow them to be more easily influenced to change their ways in favor of preservation.

The Battle against Looting: An Integrated Means to an End

For various reasons, looting is difficult to detect (Mallouf 1996). A major hurdle in the preservation battle is the limited numbers of archaeologists, land managers, and consenting landowners in comparison to those involved in looting and illicit trafficking (Mallouf 1996) thus substantially decreasing the odds of detecting such activities. Challenges in effecting legislation are also faced when attempts are made at proving specific materials came from specific sites or public lands in general (Bruhns 2001).

Sawaged (1999) attributes the lack of success in the battle for preservation to a failure of research into looter mentality and lack of attempt at understanding the collecting culture. According to Sawaged (1999:81), "no strategy aimed at dissuading antiquities collecting can be successful without an understanding of the motivations for collecting from the collector's point of view." Sawaged argues that discourse between collectors and archaeologists is necessary in order to change public opinion concerning the collection and looting of archaeological resources.
(1999). There are different types of collecting and different degrees of damage associated with them. A realistic approach must be taken to identify those with the potential for the most damage to the archaeological record and serious attempts must be made in engaging those perpetrators in active discourse if we hope to preserve what is left of our nation's heritage (Sawaged 1999). "Understanding the driving force underlying the collecting mentality is vital to the development of strategies that redirect people's energy for collecting into an energy for conservation and protection" (Sawaged 1999:86).

Numerous suggestions have been made regarding the efforts considered necessary for preservation of the archaeological record. Although some call for more stringent protections and enforcement of existing legislation (Bruhns 2001; Desio 2004), Herscher (1987) among others (Contreras and Brodie 2010; Miller 1982) suggests that laws might not be the answer. In “The Antiquities Market,” Herscher suggests that ethical codes and their influence on “societal norms” rather than law enforcement will ultimately result in the end of the “illicit trafficking of antiquities and looting of archaeological sites” (Herscher 1987:213). Such sentiments are also emanated by Brodie and Contreras (2010; 2012) and Miller (1982).

An overall recurring theme is the necessity for involvement of “the public.” The majority of articles advocate for an increase in public knowledge and involvement regarding cultural resources (Desio 2004; Herscher 1987; King 2013; Lipe 2009; Mallouf 1996; Thomas and Kelly 2006) as a way to deter looting of sites and thus decrease the market for their sale. While archaeology benefits the public, cultural resource management, the future of our discipline, relies on public tax funds and, perhaps more importantly, their assistance (Mallouf 1996). It is therefore imperative that archaeologists seek every possible avenue to promote the importance of preservation when educating and including the public in our discipline.
While others see the need to educate the non-collecting/looting public about the importance of preservation, Chase et al. (1988) advocate for the opposite. They argue that collectors of artifacts should be made more aware of “the invaluable nature of archaeologically collected pieces and of the fact that information gathered about the relationships and meaning of such items may be worth far more than the object itself” (Chase et al. 1988:87). They suggest making efforts to incorporate collectors in archaeological research so that their interest in artifacts can be used in a positive manner while enabling them to experience first-hand the importance of archaeological context in addition to the thrill of discovery, which they normally seek through other means (Chase et al. 1988). According to them, “this experience might prove far more satisfying than mere ownership of a looted pot” (Chase et al. 1988:87).

Agencies throughout the United States have developed programs to aid in preservation. Site-steward programs, for example, are made up public volunteers who monitor and detect site disturbance and damage caused by looting (King 2013; Lipe 2009; SHPO 2007; 2016a). Such programs usually require the volunteers to sign a code of ethics and receive training; specifically promoting cultural resource preservation. Mallouf (1996) proposes that existing programs and avocational networks or planning groups which involve the public in archaeological research and preservation be expanded to encompass a wider audience to which the importance of preservation can be extended.

Brodie et al (2005) and Chase et al. (1988) discuss the role of museums in putting an end to looting and illicit trafficking of cultural heritage. “Non-provenanced material originally derives from illegal excavation and using these objects indirectly legitimizes the artifacts and the looting from which they are derived” (Chase et al. 1988:60). Archaeologists are concerned with provenience because it provides context with which an artifact is associated. If non-provenanced
materialss are accepted into museums and displayed, the illegal activities they are a result of are indirectly supported and this may then increase market value and encourage looting. The States to which looted objects ultimately end up have a large responsibility to curb looting (Chase et al. 1988:87). Chase et al. (1988) cite the fact that customs checks are performed only when entering, but not leaving a country to support this claim.

According to Contreras and Brodie (2010:30), “strategies of ‘social persuasion’ can be more productive than legislative countermeasures.” In order to accomplish this, focus should be placed on educating collectors and museums “that ownership and display of looted objects is shameful” (Bruhns 2001:224). Contreras and Brodie attest to the importance of “engaging” with the collectors who buy illicit antiquities because they are ultimately the ones who can stop the market for such items in addition to policymakers “charged with site protection and/or the movement, sale, and purchase of antiquities” (Contreras and Brodie 2010:30). According to Chase et al. (1988:87), “curbing of looting requires an educated public unwilling to purchase items not rightfully for sale.” Brodie et al. (2005:345) suggest public condemnation of negative actions of museums as a way of holding them accountable to their agreement to refuse such non-provenanced materials. In addition to applying these methods of social persuasion, Bruhns cites what she deems ‘the most practical idea’ of putting an end to looting: “the insight that is only going to be tax reform, the denying of tax benefits (as well as the cultural prestige benefits, which need to be attacked in a different way), that will stop many collectors and force museums to behave” (Bruhns 2001:224).

While funding may be limited, Mallouf (1996:203) argues that although such means are costly, primetime television and print advertisements would be greatly beneficial in allowing for the spread of educational information on preservation. He advocates the development and use of
such programs as a way to reach a vast array of the public and recognizes the necessity of public involvement to effectively put an end to looting. According to Mallouf (1996:207), active participation of the public to include all those concerned - landowners, teachers, Native American and other ethnic groups and avocational archaeologists - is essential to our success. According to Longenecker and Pelt (2002:30), “archaeologists have not often included Native American perspectives in the battle against looting.” Mallouf (1996:208) reiterates the importance of implementing such perspectives, “our potentially most effective weapon in the battle with looters are Native Americans and other victimized ethnic groups, who through activism and/or emotional appeal could accomplish a great deal more than archaeologists.” This concept is integral to the preservation of the archaeological record and cultural heritage and should be further explored. Longenecker and Pelt cite various Native American recommendations that should be employed in the battle against looting. These include “emphasizing to the public and law enforcement that looting harms people, especially Native Americans; using tribal members to convey the message; emphasizing cultural significance in addition to the importance of scientific data; and calling the court’s attention to the fact that stolen artifacts are more than buried debris” (Longenecker and Pelt 2002:31).

The National Park Service (NPS) has recognized the need to educate law enforcement, Park Service rangers, archaeologists, and the public and offers a 40 hour course (the Archaeological Resources Protection Training Program) that teaches how to detect, apprehend, investigate, and prosecute looters (Clarke 1998). NPS has also developed a historic resources curriculum which is offered to law students and has proved its success by raising the percentage of convictions from around 50% to 85% (Clarke 1988). In addition to educating law enforcement and others involved with cultural resources, education on Native American perspectives should be a significant
portion of archaeology curricula (Longenecker and Pelt 2002). According to Longenecker and Pelt (2002:32), “it is up to the archaeological community, Federal land managers, the judicial system, and Native American communities to collaborate to combat looting and vandalism.” Other means of combating looting focus on use of the World Wide Web. Online databases such as Listing of Outlaw Treachery (LOOT) maintained by the NPS can be used to register the damage caused to sites by the illicit antiquities trade (Bruhns 2001; Dohner 2010). LOOT is considered a good start, but more surveys are necessary if we are to gain an accurate assessment of such damage. According to Bruhns (2001:224), the use of online image databases such as that of the U.S. State Department, provide an invaluable source in identification of stolen cultural property which may also “serve to thwart the innocent third party claims of guilty dealers and collectors. Contreras and Brodie (2010) advocate the use of Google Earth as an interactive tool for public outreach in which this technology could be used to make looting damage visible and provide a means for collaboration between archaeologists and the public. In addition to very accurate imagery, this free technology offers an automatically updating spreadsheet to which data may be entered and analyzed.

Contreras and Brodie argue that publishing to the web as well as Google Earth prove useful means of “raising public awareness, soliciting information and collaboration from colleagues, and advocating the implementation of the research equivalent of ‘sunshine laws’ for looting” and that such information will provide a means for “quantifying looting damage and making the consequences for archaeological sites of the international trade in illicit antiquities more apparent to all” (Contreras and Brodie 2010:32).
Chapter III

METHODS

Research Questions

It was the primary goal of the current study to assess the relationship between looting/vandalism and knowledge of heritage preservation laws within heavily looted/vandalized areas in the state of Wyoming. The main questions that were to be addressed are as follows:

1. (a) How many cases of looting/vandalism are reported annually by state and federal agencies?
   (b) What are the trends over the past 20 years?
2. (a) What are current methods of combating looting/vandalism?
   (b) What impact has Wyoming’s 2007-2015 State Preservation Plan had on decreasing looting/vandalism?
3. (a) Is there a relationship between sites looted/vandalized and type of land ownership?
   (b) Is there a significant difference in looting activities based on site type (prehistoric/historic)?
4. (a) Is there a lack in public knowledge of federal cultural resource legislation?
   (b) If so, is it a contributing factor to the looting problem?

Qualitative and Quantitative Methods

In order to address the questions presented in Research Questions, various kinds of data were necessary. These data and the methods for accessing them are discussed below as they pertain to each research question.
Research Question 1:
(a) How many cases of looting/vandalism are reported annually by state and federal agencies?
(b) What are the trends over the past 20 years?

In addition to reviewing the State Preservation Plan, the SHPO and federal agency officials from the Bureau of Land Management (BLM), United States Forest Service (USFS), National Park Service (NPS), and Bureau of Reclamation (BOR) were contacted via email and phone for additional information pertaining to their knowledge of the effects of looting/vandalism throughout the state and regarding information not provided in the State Preservation Plan.

Damage assessment information related to looting and vandalism was also requested from these agencies. In addition to SHPO and federal agency officials, numerous veteran Wyoming archaeologists, and Archaeological Damage Investigation and Assessment founder, Martin McAllister, were contacted via email for their opinions and observations of trends in these activities over time.

Research Question 2:
(a) What are current methods of combating looting/vandalism?
(b) What impact has Wyoming’s 2007-2015 State Preservation Plan had on decreasing looting/vandalism?

In order to answer this research question, it was first necessary to research existing state methods and various sources to identify proposed means as well as those currently being employed to put a halt to these activities. This was done by reviewing the 2007-2015 State Preservation Plan (SHPO 2007), contacting the SHPO and prominent archaeologists within the state, and by conducting a literature review of previous investigations and suggestions for combating these activities. Previous investigations and suggestions for combating these activities and other existing and ongoing actions indicated by veteran archaeologists are discussed, and the
SHPO (2007) methods in the current State Plan are listed, in Chapter II – *State Context*. Their results are discussed below under Chapter IV – *Results*.

**Research Question 3:**
(a) Is there a relationship between sites looted/vandalized and type of land ownership?
(b) Is there a significant difference in looting activities based on site type (prehistoric/historic)?

Wyoming Cultural Records Office (WYCRO) cultural resource personnel were contacted for quantitative information related to sites that have been recorded as having experienced looting/vandalism. This information was received in the form of spatial data from their Wyoming Cultural Records Information System (WYCRIS) database, which is based on site form information from projects that have been successfully submitted. This database is updated periodically and it is therefore likely that the total number of known sites has increased since that time. However, this would not have a significant impact on the types of data discussed in this research, as its main interest focuses on identifying and assessing overall trends related to looted sites throughout the state. The spatial data including site boundaries or site point locations are entered into the WYCRIS database based off of the UTM coordinates or associated GIS shape files, and can be queried by their specific attributes entered as tabular data, and linked from the access database. Under Section 3 of the Wyoming Cultural Properties Form (2016b), National Register Status, Factors Affecting Integrity are listed, and the recorder is directed to “check all that apply” and “indicate specific areas of disturbance and vandalism on a copy of the site map.” The categories listed as tabular data in the WYCRIS Access Database that were utilized for this project include recorded incidences of vandalism, collection, defacement, and/or manual excavation (Figure 3.1). For the purpose of this project, looting has been, and will be referred to, as encompassing all four of these categories.
According to Ross Hilman of WYCro (personal communication 2015), misinterpretation of the disturbance or vandalism factors on the Wyoming Cultural Properties Form has resulted in sites being incorrectly recorded as having or not having experienced looting. For example, it appears that certain consultants have incorrectly recorded sites as having been manually or mechanically excavated if permitted testing or excavation occurred, when these fields are actually meant to indicate whether or not the site exhibits evidence of unauthorized manual or mechanical excavation. The field ‘collected’ also presents a similar issue of misinterpretation. Some consultants have recorded sites as having been collected if the previous investigators or they themselves collected artifacts during the recording or site update; when in reality, the field refers to unauthorized collection of cultural material. While it is vital that these discrepancies are clarified for future recordings, data management, and research, it
appears that the majority of entries have been made in the correct manner, and therefore do not negatively impact the current study.

Data pertaining to looted sites were accessed by importing this spatial data into ArcGIS and performing queries based on these four looting-related categories. Since the spatial data are linked to the tabular data from site forms, after querying for these four factors, the tabular site data were exported into a Microsoft Excel spreadsheet and analyzed.

In addressing this research question, statistical analyses of WYCRIS data in the form of chi-square tests were performed to determine if there is a significant difference between looted sites and type of landownership (e.g., Federal, State, private, U.S. Forest Service, etc.) and looted sites and site type (prehistoric, historic, multicomponent, and unknown). If significant \( p \leq 0.5 \), these results can be analyzed with the purpose of identifying certain types of landownership and site types more affected by looting activities than random chance would allow. The minimum value for cell counts for these types of statistical tests is five. To account for cells associated with values less than 5, totals for landownership and site type data were grouped into two categories: sites that had experienced looting and were recorded between 1930 and 1995, and sites that had experienced looting and were recorded over the past 20 years (1996 and 2014).

Additionally, due to this unanticipated level of accessibility of the information, WYCRIS spatial and tabular data were investigated in a non-statistical manner to make observations regarding overall trends in looting activities throughout the state. This includes data pertaining to the “highly impacted areas” of the state that are discussed in the following section (Chapter III – Research Question 4). These data were analyzed with the purpose of gaining further insight into looting activities within these “highly impacted areas” and the state as a whole. This information was considered to be very likely correlated with the actions of residents within these areas,
whose perceptions and attitudes pertaining to such activities were the main focus of the study, and as a result, these added insights were sought out as they were considered an important sub-component of the overall study. Statistical results and qualitative or anecdotal information are described as appropriate in Chapter IV. It is important to note that these results represent the WYCRIS database spatial and tabular data that were available as of February 2015.

Research Question 4:
(a) Is there a lack in public knowledge of federal cultural resource legislation?

(b) If so, is it a contributing factor to the looting problem?

In order to address Research Question 4, an anonymous survey of Wyoming residents, oil and gas workers employed throughout the state, and members of the Wyoming Archaeological Society and Wyoming Association of Professional Archaeologists was designed with the overall goal of assessing the relationship between looting and knowledge of heritage preservation laws within the state. The survey questions were also intended to be similar to those included in previous survey research conducted by Pokotylo and Mason (1991), Pokotylo and Guppy (1999), and Ramos and Duganne (2000), so that these results could also be compared to nationwide results.

The survey questionnaire, accompanying one-page informational letter explaining its overall intent and acknowledging proper age requirements and consent, and associated short at-cost newspaper advertisement containing this information as well as the link to the online version of the survey were submitted for St. Cloud State Institutional Review Board (IRB) approval. Upon revisions that focused on eliminating any potential for personal identification of respondents, the IRB stated their approval and survey-related research was permitted to begin. These survey documents and their letter of approval are provided as Appendices A through D.
The online version of the survey was created in conjunction with thesis advisor and Committee Chair, Dr. Mark Muñiz, utilizing his SCSU Qualtrics survey software account (Qualtrics LLC 2016).

Survey questions included a combination of 13 yes-no and multiple choice questions relating to cultural resource legislation and archaeology in general. Since the respondents were to remain anonymous, they were asked to identify only basic demographic information including their sex, age, length of residence in Wyoming, highest level of education, residential status (rural, urban), level of income, and occupation. Unfortunately, it was not realized until analyses were ongoing that the online survey did not include the question of respondent age. It is important to note that therefore, all age-related data are derived from the general public who responded to the mailed survey. The ages of WAS and WAPA respondents do not play an integral role in the current study. While experience differs with age, the basic concepts held by these respondents would be expected to be the same regardless of age.

The questions were formulated with the purpose of addressing Question 4 posed in “Research Questions.” In order to do this, answers were analyzed for each target population and then compared. This allowed for determination of whether or not there is a lack of knowledge of cultural resource legislation and archaeology among the target populations, as well as provide insight into their overall level of interest in archaeology and cultural resources and learning about these topics. Additionally, the questions were designed to aid in the understanding of what members of each target population consider to be moral related to “looting” of cultural resources and land ownership. The general similarity of these survey questions to those of Pokotylo and Mason (1991), Pokotylo and Guppy (1999), and Ramos and Duganne (2000) allowed for comparison of results with of these surveys.
Questions 1 through 12 all relate to the public education component of this project, however Questions 1 through 5 pertain more to perceptions of archaeology, the importance of cultural resource preservation, and overall interest in archaeology. These were framed in a way that would allow for a better understanding of the values, interests, and current and preferred means of learning associated with archaeology. The results provide more informed insight into certain avenues of public education and outreach that might best be applied in the battle against looting within the state. Question 6 through 12 were geared at gaining an understanding of respondent’s cultural resource legislation knowledge and perceptions of what is right and wrong when it comes to “looting” of cultural resources. Question 13 served as a means of understanding how respondents view the overall seriousness of cultural resource crimes. Responses were compared to determine whether there is a statistically significant difference in knowledge and perceptions based on education, age, and group (public, WAS, WAPA). Results were intended to be used to discuss overall conclusions regarding general levels of knowledge and potential association with looting and provided a context from which suggestions regarding public education efforts could be made.

The original plan was to select the amount of mailed surveys based on the expectation of a 10 percent response rate, and designed to obtain results considered significant at a 95 percent confidence interval with a 5 percent margin of error. Instead, the mailed survey sample size was determined by the amount of funding the project received and combination of stratified and systematic random sampling techniques were employed. Postage-paid and pre-addressed return envelopes (senders P.O. Box address rather than personal address was used to retain aspect of personal anonymity) were included in the survey envelopes with the intention of increasing the likelihood of potential responses. Funding for the cost of stamps was received from the St. Cloud
State University Student Research Colloquium ($750.00) and SWCA Environmental Consultants ($600.00). Combined with a personal contribution, project funds totaled $2,000.00. At $0.49/stamp, and with two stamps required per survey packet, a total of 2,040 mailed surveys were able to be distributed. Members of the public not selected for the mailing, but wishing to participate, oil and gas workers, and WAS and WAPA members were to be distributed a link to the online version of the survey.

Before implementation of the survey was possible, it was first necessary to determine areas of the state associated with the highest occurrences of looting/vandalism upon which it would focus. WYCRIS spatial and tabular information were used to make inferences regarding counties in which looting/vandalism activities are most prevalent. A query of impacted sites by county was conducted to determine which areas of the state are associated with the highest occurrences of looting/vandalism. These areas were designated the “highly impacted areas” (HIAs) upon which the survey component of the research was based. By filtering the Wyoming Geographic Information Science Center 2000 Census ZIP Code 5-digit Tabulation Area layer to show only zip code tabulation areas in Wyoming (Figure 3.2), a target mailing area was generated and general population information obtained for each zip code tabulation area within the HIAs (Figure 3.3). This WyGISC Zip Code 5-Digit Tabulation Area Attribute Table displays the numerous tabular data categories that can be exported into an excel workbook or utilized as is in ArcMap.
Figure 3.2
WyGISC 5-Year Zip Code Tabulation Areas indicating Population Density by Color Gradation
These data were then compared to the U.S. Federal Census Bureau 2013 5-Year American Community Survey (ACS) data for each zip code within the HIAs by 5-Digit Zip Code Tabulation Area (US Census Bureau 2013), which is considered most accurate. Available funding for the project allowed for 2,040 mailed surveys to be sent to residents within these areas. Using the ACS data and online Ziplocal phone book directories for the HIAs (Ziplocal 2015a; 2015b), proportions were determined for each zip code tabulation area that would allow for an unbiased, even distribution of surveys to randomly selected residents in these areas. The HIAs and proportionate distribution of surveys within them are further discussed in Chapter IV - Results.

The coordinating amount of addresses were randomly selected by copying every 10th address for the corresponding zip code when possible; otherwise every 5th or less, and entering
this information into a Microsoft Excel spreadsheet. The addresses were then sorted by county and zip code/Ziplocal town abbreviation to ensure that it did not contain any duplicates. These addresses and twice the amount for sender/return address entries were then printed on labels for efficiency. The return address labels and stamps were placed on the return envelopes. Residents’ address labels, sender labels, and stamps were placed on the envelopes containing the survey questionnaires and informational letters, and the return envelopes were enclosed with them. The addressed surveys were then distributed to the local post office in Sheridan, Wyoming for delivery.

Tables 3.1 and 3.2 present the results of a combination of Ziplocal information pertaining to zip code and town listings and 2013 ACS population estimates that were utilized to determine population proportions for each zip code area within the HIAs, upon which a proportionate amount of surveys were distributed. The 2013 ACS estimated population for Carbon County was 16,036. Of the 2,040 surveys, a total of 551 were distributed throughout Carbon County. The 2013 ACS estimated population of Sweetwater County is 44,412, and 1,489 surveys were distributed throughout the county.

After these HIAs were determined and surveys were mailed for distribution, print and online classified advertisements (Figure 3.4) were placed in a total of five local newspapers to inform the public of the intent of the survey and provide them with the opportunity to participate should they not receive a mailed questionnaire.

For Carbon County, these included the Saratoga Sun (print and online) and Rawlins Daily Times. Sweetwater County-based classified ads were placed with the Rocket Miner, Green River Star (print, online, and in Sweetwater County Guide), and Wyo4News (on website and Facebook page, where it received 21 likes and 2 shares) (Wyo4News Inc. 2015).
Table 3.1
Survey Distribution for Carbon County

<table>
<thead>
<tr>
<th>ZIP Code</th>
<th>Town</th>
<th>Additional Towns Encompassed</th>
<th>2013 ACS Estimated Population</th>
<th>Proportion County Population</th>
<th>Surveys Distributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>82321</td>
<td>Baggs</td>
<td></td>
<td>790</td>
<td>4.9%</td>
<td>27</td>
</tr>
<tr>
<td>82323</td>
<td>Dixon</td>
<td></td>
<td>175</td>
<td>1.1%</td>
<td>6</td>
</tr>
<tr>
<td>82325</td>
<td>Encampment Riverside*</td>
<td></td>
<td>877</td>
<td>5.5%</td>
<td>30</td>
</tr>
<tr>
<td>82327</td>
<td>Hanna</td>
<td>S.Basin, Elmo, Leo, K. Dam Ft. Steele *</td>
<td>792</td>
<td>4.9%</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elk Mtn (82324)</td>
<td>197</td>
<td>1.2%</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Walcott (82335)</td>
<td>17</td>
<td>0.1%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Medicine Bow</td>
<td></td>
<td>275</td>
<td>1.7%</td>
<td>9</td>
</tr>
<tr>
<td>82301</td>
<td>Rawlins</td>
<td>Muddy Gap, Creston, Riner*</td>
<td>9,465</td>
<td>59.0%</td>
<td>325</td>
</tr>
<tr>
<td>82083</td>
<td>Rock River</td>
<td></td>
<td>380</td>
<td>2.4%</td>
<td>13</td>
</tr>
<tr>
<td>82331</td>
<td>Saratoga</td>
<td>Ryan Park*</td>
<td>2,569</td>
<td>16.0%</td>
<td>88</td>
</tr>
<tr>
<td>82332</td>
<td>Savery</td>
<td></td>
<td>50</td>
<td>0.3%</td>
<td>2</td>
</tr>
<tr>
<td>82334</td>
<td>Sinclair</td>
<td></td>
<td>449</td>
<td>2.8%</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>16,036</strong></td>
<td><strong>100%</strong></td>
<td><strong>551</strong></td>
</tr>
</tbody>
</table>

*Indicates combined under main zip code for WyGISC tabulation area (i.e. not incorporated town)

Table 3.2
Survey Distribution for Sweetwater County

<table>
<thead>
<tr>
<th>ZIP Code</th>
<th>Town</th>
<th>Additional Towns Encompassed</th>
<th>2013 ACS Estimated Population</th>
<th>Proportion County Population</th>
<th>Surveys Distributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>82322</td>
<td>Bairoil</td>
<td>Lamont</td>
<td>140</td>
<td>0.3%</td>
<td>5</td>
</tr>
<tr>
<td>82932</td>
<td>Farson</td>
<td>Eden*</td>
<td>1,032</td>
<td>2.3%</td>
<td>35</td>
</tr>
<tr>
<td>82935</td>
<td>Green River</td>
<td></td>
<td>13,204</td>
<td>29.7%</td>
<td>443</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Granger (82934)</td>
<td>239</td>
<td>0.5%</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Little America (82929)</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>82938</td>
<td>Mc Kinnon</td>
<td></td>
<td>185</td>
<td>0.4%</td>
<td>6</td>
</tr>
<tr>
<td>82901</td>
<td>Rock Springs</td>
<td></td>
<td>28,785</td>
<td>64.8%</td>
<td>965</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reliance (82943)</td>
<td>84</td>
<td>0.2%</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Superior (82945)</td>
<td>268</td>
<td>0.6%</td>
<td>9</td>
</tr>
<tr>
<td>82336</td>
<td>Wamsutter</td>
<td>Red Desert*, Tipton*</td>
<td>475</td>
<td>1.1%</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>44,412</strong></td>
<td><strong>100%</strong></td>
<td><strong>1,489</strong></td>
</tr>
</tbody>
</table>

*Indicates combined under main zip code for WyGISC tabulation area (i.e. not incorporated town)
The link to the online survey was also distributed to Wyoming Archaeological Society (WAS) members with valid email addresses (as an anonymous panel based on membership information obtained from WAS Secretary, Carolyn Buff), and Wyoming Association of Professional Archaeologists (WAPA) listserv members. Based on their active membership, it would be expected that the responses of WAS/WAPA members would indicate a high level of knowledge of cultural resource legislation and archaeology. For this reason, the results of these groups will serve as an interesting comparison with those the general public.

Ten oil and gas companies employing workers in Wyoming were contacted to participate in the study. These included Anadarko Petroleum, BP, Breitburn Energy Partners, Encana Corporation, Escalara Resources Co. Questar-Wexpro, Halliburton, Jonah Energy LLC, Merit Energy Company, and Phillips 66. Participation from this group was sought after, as it is believed that the presence of employees of oil and gas companies directly correlates with increased looting in Wyoming (Boden, personal communication 2015; Currit, personal
communication 2015). Unfortunately, this demographic chose not to participate. Although contacts at four of these companies (Encana, BP, Breitburn, and Halliburton) originally expressed potential interest in participating, and received the informational letter and link to the online survey to distribute to their employees, for whatever reason they did not follow through. Survey results from this demographic would have been able to be compared to those of the other groups to determine whether these workers also have an increased knowledge of archaeology and cultural heritage preservation laws and whether this is associated with looting. Results could have provided a quantitative basis for these relationships and might have served as a basis for creating more informed methods to successfully combat these activities. It is hoped that future studies will experience more success in gaining their participation.

Mailed survey respondents were directed to mail completed responses within 30 days of receipt with the goal of encouraging an increased response rate. Based on personal experiences with questionnaires, it was believed that by offering an extended period of time that was within the current month, that respondents might be more likely to take their time filling out their responses and not feel rushed to do so. Additionally, it was hoped that this extended period would decrease the odds that survey recipients would throw the survey out if they felt they had too little time to respond. However, responses received after that deadline were also accepted, as the online survey was still ongoing and data entry and analysis had not yet begun. The online survey was open to participants for a longer period of time (until June 20, 2015), to allow adequate time for participants from the newspaper ads to respond; time for the WAS panel to respond, and time for WAPA listserv members to respond, with sufficient gaps allowing for differentiation between the three groups. The newspaper ads did not include a response date as it
was assumed that those interested would participate within one to three days of viewing the advertisement and because the online version of the survey was open.

After manually entering responses from 60 questionnaires into a Microsoft Excel spreadsheet for trial and error and a better understanding of coding mechanisms, all mailed survey results were organized into a binder and mailed to the SCSU Statistical Consulting and Research Center for actual data entry and processing. Exported results of the online survey were downloaded in Microsoft Excel Comma-Separated Values File (.CSV) format and sent by email. These data were combined into a separate Microsoft Excel spreadsheet and additional codes for each question were created when necessary in conjunction with Randy Kolb, Director of the Statistical Consulting and Research Center. Due to the different types of information gathered by this survey, coding mechanisms varied by type to allow for organization and analysis.

The data were first coded by group. All mailed responses were assigned to code 1, which was chosen to represent Public. Online survey responses were grouped by the order in which they were received. The first 10 responses were attributed to the local newspaper classified advertisements and were coded as 1. Since WAS members were distributed the link to the online survey through sending a mass email to imported valid email addresses that were on file with the WAS Mailing List, these results came back with the indication that they were a result of the panel mailing. These WAS responses were assigned the code 2. The remaining responses were the result of the mass email to members of the WAPA listserv and were coded as group 3. Sex was coded 1 for male and 2 for female. Length of residence in Wyoming was coded into four groups: group 1 indicated 0-15 years, group 2 indicated 16-30 years, group 3 indicated 31-50 years, and group 4 indicated 51 or more years. A similar format was used for age, however due to the more intense level of analysis associated with this category, age was grouped into seven
categories: 1 = 18-29, 2 = 30-39, 3 = 40-49, 4 = 50-59, 5 = 60-69, 6 = 70-79, and 7 = 80 or older. Respondents indicating rural residency were assigned to code 1 and urban to code 2. Highest education was assigned codes 1 through 4 in which 4 was the highest of the four available categories (graduate degree). Income level was coded in the same fashion, with code 4 assigned to the highest income bracket. Responses for occupation were viewed and analyzed by association and subsequently coded and recoded into a total of nine categories. These include 1 = archaeologists; 2 = scientists/engineers; 3 = retired; 4 = oil and gas; 5 = education; 6 = medical/skilled trade; 7 = government; 8 = stay at home parent/unemployed; and 9 = office work/other/self-employed.

In the case of yes/no questions, responses of yes were coded “true” and responses of no were coded “false.” Multiple-choice questions with more than one answer allowed (Questions 1 through 4) were assigned sub codes. For example, the answer television for Question 1 was coded Q1_1 and the possible next answer (newspaper) was coded Q1_2, and so on. The remaining multiple-choice questions were assigned codes based on the order in which they were presented and amount of choices provided.

The results were organized into three groups: public, WAS, and WAPA and entered into enhanced SPSS software possessed by the Research Center. Crosstabs and frequency outputs for these data were received from Kolb and his graduate assistants assigned to the project between October 2015 and February 2016. These included the results of chi-square statistical tests by question and standardized adjusted residuals. These results allowed for determination of regional variance based on actual vs. expected outcomes. When these values were considered statistically significant (p ≤ 0.05), subsequent analysis of the adjusted standardized residuals was conducted,
to determine which of the associated values were causing the significant difference (Sharpe 2015). Results are presented in Chapter IV.

These results were then used to determine whether the prevalence of looting/vandalism in the HIAs is related to a lack of knowledge pertaining to cultural resource legislation and archaeology, or if there is a relationship between increased levels of knowledge of cultural preservation legislation and archaeology and the prevalence of looting/vandalism. Based on these results, suggestions were made as to which of the previously suggested method(s) might be best employed within the state to reduce these activities as a whole. This information is discussed in Chapter IV.

**Project Related Limitations**

This section pertains to actual and potential limitations that were encountered during this project. Among the most integral were those related to survey responses.

Table 3.3 presents the ethnic distribution of Wyoming residents as compared to the United States as a whole. The extremely low percentages of residents listed as identifying with ethnicities other than white and the survey’s focused nature on residents of certain areas within the state make it virtually impossible to include equal proportions of respondents from each ethnic group represented throughout the state. As a result, this survey was not able to be interpreted as representative of the entire population of Wyoming as a whole.

Additionally, while unintended and unable to be controlled for, survey methods may have introduced certain biases amongst public respondents related to residential status, landownership, age, or level of income in the areas targeted by the survey (e.g., a heavy prevalence of wealthy, white, male, ranchers in rural areas).
Table 3.3

A Summary of Ethnic Distribution within the Population of Wyoming Versus the United States as a Whole (US Census Bureau 2014)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>% of Population (WY)</th>
<th>% of Population (US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>92.7%</td>
<td>77.7%</td>
</tr>
<tr>
<td>African American</td>
<td>1.7%</td>
<td>13.2%</td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>2.6%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Asian</td>
<td>0.9%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
<td>0.1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>9.7%</td>
<td>17.1%</td>
</tr>
</tbody>
</table>

Since no other study has attempted to conduct such research specifically within the state of Wyoming, there was no way of knowing whether or not there would be any interest among respondents. The potential for lack of interest in archaeology was considered the greatest threat. This potential for a low public response rate was counteracted by employing as many surveys as financial constraints allowed.

While it was expected that some address information obtained from Ziplocal directories would be incorrect, due to the likelihood that people had moved since the directory was published, the number of inaccurate or incomplete entries resulted in a greater occurrence of the return of unopened questionnaires to sender than was expected. Fortunately, the amount of survey questionnaires received by intended respondents but not completed was relatively low. Survey response rates are discussed in more detail in Chapter IV – Response Rate.

The lack of participation on behalf of Wyoming based oil and gas companies was also a main limiting factor to the overall intended outcome of the survey. Perhaps if future endeavors include more coordination, announced support from federal agencies, and/or potential incentives, members of this group would be more likely to participate.
As a general rule of thumb, the typical sample size for chi-square test evaluation is between 25 and 250. Because the survey was designed to account for more than 250 respondents, this could result in potential bias related to artificial inflation or deflation of significance, as sample size amplifies the effect of the chi square value. Additionally, another general condition of chi-square statistical tests specifies that observed cell counts must not be less than five. Re-organization and grouping of non-survey related results was planned to account for such instances in order to provide the most accurate results possible.

Although these and potentially numerous other limitations existed, the results of this research are still meaningful in that at least it represents the first attempt at such research within the state.
Chapter IV

RESULTS

This section provides the results of the methods employed in this study with the intention of answering the respective research questions presented in Chapter III – Methods: Research Questions. These combined results will be made publically accessible by email (kayla_bradshaw@hotmail.com), will be presented at upcoming conferences and published in archaeological journals. Additionally, a press release is being considered to reach interested members of the public. These results are organized by associated Research Question and presented below.

Research Question 1:
(a) How many cases of looting/vandalism are reported annually by state and federal agencies?
(b) What are the trends over the past 20 years?

While each USFS forest in Wyoming does keep track of vandalism issues, there seems to be a lack of ARPA convictions on these lands. According to Molly Westby, USFS Rocky Mountain Region Assistant Heritage Program Manager, (personal communication 2015), Medicine Bow-Routt National Forest rarely deals with looting issues. Bighorn National Forest archaeologist, Pat Bower, and Dr. Kolleen Kralick, Medicine Bow – Routt National Forests and Thunder Basin National Grassland archaeologist, suggested that I contact the BLM as they manage the majority of land in the state, and said that these lands aren’t associated with any actual ARPA problems (Bower, personal communication 2015; Kralick, personal communication 2015). According to NPS Intermountain Region Assistant Regional Director for Cultural Resources, Tom Lincoln, NPS has had only one ARPA case to report in the past 9 years in Wyoming (Lincoln, personal communication 2016).
Overall, although quantitative data were not available, general statements from agency officials indicated that the majority of these activities were more likely to take place on BLM lands, as they comprise the majority of federally owned land within the state. With seven out of ten adjudicated cultural resource offense cases for Wyoming being related to BLM lands, this trend was also observed in the TracFed data provided by NPS (TRAC Reports Inc. 2014) (see Chapter II – State Context). Unfortunately, according to Wyoming BLM Historic Preservation Specialist, Kathy Boden (personal communication 2015), for reasons unknown to her, the WY BLM stopped filling out looting forms several years ago. Perhaps this relates to the lack of prosecution for such offenses within the state.

In response to being contacted regarding trends observed over the past 20 years, Boden (personal communication 2015) and WY State Historic Preservation Specialist, Richard Currit (personal communication 2015), both stated that there seems to be an association between the presence of transient populations such as oil and gas industry employees and an increase in site looting in nearby areas. Prominent archaeologist’s opinions and observations of trends in these activities over time for the most part indicate that they believe the public is aware of cultural heritage preservation legislation and that looting activities persist anyway; being treated mostly as a hobby. It seems that all site types are the subject of looting activities; including prehistoric rockshelters, rock art, burials, and surface sites as well as historic cemeteries and sites with intact visible surface artifacts. Detailed opinions are provided in Chapter II – State Context).
Research Question 2:
(a) What are current methods of combating looting/vandalism?

(b) What impact has Wyoming’s 2007-2015 State Preservation Plan had on decreasing looting/vandalism?

Research into existing state methods indicate that the current methods of combating these activities in Wyoming include the Site Stewardship Program. This Program and its methods are outlined in Chapter II – *State Context: Wyoming Specific (Current) Methods Against Looting*. While the original plan was to place special emphasis on the last seven years to assess the effects of the 2007-2015 Wyoming State Historic Preservation Plan, this information is largely anecdotal, and as a result, no statistical analyses were able to be completed. However, Site Stewardship Program Director, Joe Daniele provided statements related to the program and its overall success.

According to Daniele, these strategies are carried out by the SHPO in coordination with the BLM and public (personal communication 2016). The Program plans to partner with the USFS in the near future as well. Daniele believes that it serves a dual purpose. First, he views it as a way to protect sites. Second, the program is based on public outreach, which involves “pulling people in and getting them interested.” Daniele considers this “just as beneficial as getting people to go out and visit the sites” (personal communication 2016). Daniele stated that the Program enlists anyone interested and operates under the motto that “any steward is worthwhile.”

According to Daniele (personal communication 2016), sites chosen for the Site Stewardship Program are those that have experienced vandalism and are considered eligible for inclusion in the National Register of Historic Places. Since 2007, only one of the sites have had any real issues with looting. The majority of the Program’s sites are prehistoric rock art sites, which are targeted due to their increased visibility. Vandalism activities are often detected in two ways:
either the BLM receives reports of looting and vandalism from members of the public, or they note these activities during site visits. The Program currently manages stewardship of 15 sites, however, Daniele stated that this number fluctuates and has had as many as 23 sites and as few as seven at a given time (personal communication 2016).

According to Daniele (personal communication 2016), when people are aware of a steady presence at these sites, they are less likely to loot and vandalize due to the increased risk of being caught. He feels that signage and increased site visits have proven effective deterrents. He has noted decreases in sites being vandalized and stated that while some have continued to be vandalized, overall it hasn’t gotten worse (personal communication 2016). While he recognizes that these are not “bulletproof methods,” he feels that they have been effective and informative for the public.

Two of the main issues the Program faces are the general age and associated health issues of site stewards, and turnover rate of coordinating agency officials as well as stewards. The Program prefers that sites be visited as often as possible. Under the 2007-2015 plan, this translated to every three months or more. Due to participant age and safety conditions in winter months, the 2016-2026 Plan seeks to provide less rigid timelines for site visits while still maintaining a consistent presence (Daniele personal communication 2016). The program has also adapted to fit the abilities of its participants. For example, while it was originally envisioned that there would be one steward for each site, some participants are responsible for multiple sites and sometimes numerous participants will visit the same site (Daniele personal communication 2016). Daniele hopes to recruit new members of the interested public to participate in the program.
Research Question 3:
(a) Is there a relationship between sites looted/vandalized and type of land ownership?
(b) Is there a significant difference in looting activities based on site type
    (prehistoric/historic)?

WYCRIS Spatial and Tabular Data Results

During a basic review of the WYCRIS tabular data for looted sites throughout the state, multiple duplicate site entries (661) were discovered. These appeared to be the result of linear segment updates or site revisits, in which the same looting factors were noted. In order to maintain accuracy of results, a definition query was completed to exclude these duplicate entries from the statewide data prior to analysis. Figure 4.1 shows the resulting distribution of looted sites within Wyoming. It is important to reiterate that these data are incomplete as they only allow for those sites whose projects have been successfully submitted and entered into the database prior to the date of the data request. It is important to note that according to the definition of looting used in this project, sites recorded as having experienced one or more factors of looting that are located on private land do not necessarily represent illegal activities. While such activities taking place on private land are considered undesirable or unethical by most professional archaeologists due to their destructive nature, they are legal with proper landowner permission. Because it is unknown if the incidences discussed below on private land were conducted legally, they are treated as if they were not, and are thus considered looting as it is defined in this project.
Of the total known cultural resource sites in Wyoming, 1,174 were recorded as having experienced one or more of the four factors or incidences of looting. Table 4.1 lists these sites by landownership; indicating that the majority of these offenses occur on BLM (37 %), Private (36%), and USFS (17%) lands.
Table 4.1
Statewide Looted Sites by Landownership

<table>
<thead>
<tr>
<th>Landowner</th>
<th>Number of Sites</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankhead Jones</td>
<td>2</td>
<td>0%</td>
</tr>
<tr>
<td>Bureau of Land Management</td>
<td>429</td>
<td>37%</td>
</tr>
<tr>
<td>Bureau of Reclamation</td>
<td>47</td>
<td>4%</td>
</tr>
<tr>
<td>Department of Defense</td>
<td>28</td>
<td>2%</td>
</tr>
<tr>
<td>Department of Energy</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>U.S. Fish and Wildlife</td>
<td>12</td>
<td>1%</td>
</tr>
<tr>
<td>U.S. Forest Service</td>
<td>196</td>
<td>17%</td>
</tr>
<tr>
<td>National Grasslands</td>
<td>5</td>
<td>0%</td>
</tr>
<tr>
<td>NPS</td>
<td>4</td>
<td>0%</td>
</tr>
<tr>
<td>Private</td>
<td>421</td>
<td>36%</td>
</tr>
<tr>
<td>State</td>
<td>29</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1174</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 4.2 lists the types of looting by occurrence within the HIAs. There are a total of 439 sites in Carbon and Sweetwater counties that have been recorded as having experienced some type of looting/vandalism. Of these activities, it is apparent that the category ‘vandalism’ comprises the majority of entries within these areas. This is also true of the state as a whole, and it would be worthwhile to conduct a sample review of these site narratives to further investigate these entries. Collection is the second most common form of looting among these sites, followed by manual excavation and defacement, which combined, account for only four percent of the total recorded incidences. The remaining three percent of sites have experienced multiple factors or incidences of looting.

Table 4.3 displays information for looted sites by landownership and site type. The majority of sites (56.0 %) within these ‘highly impacted areas’ are prehistoric sites located on BLM land. These sites comprise 21.0 percent of the total impacted sites statewide. Sites on privately owned land have the second highest rate (24.8%) of looting, comprising 9.3% of the
total impacted sites statewide. Therefore, the looted sites within Carbon and Sweetwater Counties directly corresponds with those within the state as a whole.

Table 4.2

Recorded Factors/Incidences Affecting Integrity within the HIAs

<table>
<thead>
<tr>
<th>Recorded Factor/Incidence</th>
<th>Number of Sites</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vandalism</td>
<td>300</td>
<td>68%</td>
</tr>
<tr>
<td>Collection</td>
<td>123</td>
<td>25%</td>
</tr>
<tr>
<td>Manual Excavation</td>
<td>8</td>
<td>2%</td>
</tr>
<tr>
<td>Defacement</td>
<td>8</td>
<td>2%</td>
</tr>
<tr>
<td>Collection and Manual Excavation</td>
<td>11</td>
<td>3%</td>
</tr>
<tr>
<td>Collection and Defacement</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>Collection, Manual Excavation, and Defacement</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>439</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 4.3

Looting by Site Type and Landownership within the HIAs

<table>
<thead>
<tr>
<th>Landownership</th>
<th>Site Type</th>
<th>Prehistoric</th>
<th>Historic</th>
<th>Multi-component</th>
<th>Unknown</th>
<th>Total</th>
<th>Percent</th>
<th>Percent Statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLM</td>
<td></td>
<td>184</td>
<td>25</td>
<td>34</td>
<td>3</td>
<td>246</td>
<td>56%</td>
<td>21%</td>
</tr>
<tr>
<td>Bureau of Reclamation</td>
<td></td>
<td>5</td>
<td>19</td>
<td>2</td>
<td>1</td>
<td>27</td>
<td>6%</td>
<td>2%</td>
</tr>
<tr>
<td>U.S. Fish &amp; Wildlife</td>
<td></td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>USFS</td>
<td></td>
<td>1</td>
<td>37</td>
<td>2</td>
<td>0</td>
<td>40</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td>Private</td>
<td></td>
<td>61</td>
<td>30</td>
<td>18</td>
<td>0</td>
<td>109</td>
<td>25%</td>
<td>9%</td>
</tr>
<tr>
<td>State</td>
<td></td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>255</strong></td>
<td><strong>124</strong></td>
<td><strong>56</strong></td>
<td><strong>4</strong></td>
<td><strong>439</strong></td>
<td><strong>37%</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td></td>
<td>58%</td>
<td>28%</td>
<td>13%</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Percent Statewide</strong></td>
<td></td>
<td>22%</td>
<td>11%</td>
<td>5%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.4 displays statewide looting by NRHP eligibility status and site type. Of the 1,174 sites that have experienced looting/vandalism statewide, 40 percent are eligible. These include those recommended eligible by consultant, eligible with SHPO concurrence, NRHP listed sites and National Historic Landmarks. The remaining 60 percent are comprised of sites recommended not eligible by consultant, not eligible with SHPO concurrence, and those of unknown eligibility. Table 4.5 includes these same categories, but for the HIAs.

### Table 4.4

Statewide Looting by NRHP Eligibility Status and Site Type

<table>
<thead>
<tr>
<th>NRHP Eligibility Status</th>
<th>Site Type</th>
<th>Eligible/NRHP Listed</th>
<th>Not Eligible</th>
<th>Unknown</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prehistoric</td>
<td></td>
<td>195</td>
<td>241</td>
<td>108</td>
<td>544</td>
<td>46%</td>
</tr>
<tr>
<td>Historic</td>
<td></td>
<td>200</td>
<td>232</td>
<td>34</td>
<td>466</td>
<td>40%</td>
</tr>
<tr>
<td>Multicomponent</td>
<td></td>
<td>77</td>
<td>54</td>
<td>27</td>
<td>158</td>
<td>13%</td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>6</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>473</td>
<td>532</td>
<td>169</td>
<td>1174</td>
<td></td>
</tr>
<tr>
<td>Percent</td>
<td></td>
<td>40%</td>
<td>45%</td>
<td>14%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 4.5

Looting by NRHP Eligibility Status and Site Type in High Priority Areas

<table>
<thead>
<tr>
<th>NRHP Eligibility Status</th>
<th>Site Type</th>
<th>Eligible/NRHP Listed</th>
<th>Not Eligible</th>
<th>Unknown</th>
<th>Total</th>
<th>Percent</th>
<th>Percent Statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prehistoric</td>
<td></td>
<td>100</td>
<td>123</td>
<td>32</td>
<td>255</td>
<td>58%</td>
<td>22%</td>
</tr>
<tr>
<td>Historic</td>
<td></td>
<td>65</td>
<td>55</td>
<td>4</td>
<td>124</td>
<td>28%</td>
<td>11%</td>
</tr>
<tr>
<td>Multicomponent</td>
<td></td>
<td>27</td>
<td>16</td>
<td>13</td>
<td>56</td>
<td>13%</td>
<td>5%</td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>192</td>
<td>198</td>
<td>49</td>
<td>439</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent</td>
<td></td>
<td>44%</td>
<td>45%</td>
<td>11%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent Statewide</td>
<td></td>
<td>16%</td>
<td>17%</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on available data, it would appear that looting of particular site types and landownership in the HIAs corresponds with general trends of the statewide results, with looting occurring primarily at prehistoric followed by historic sites, multicomponent, and unknown; not eligible, eligible, then sites of unknown eligibility; on BLM lands followed by sites on private, then on USFS, BOR, USFWS, and State lands. The prevalence of looted sites are typically prehistoric sites on BLM lands, followed closely by those on private land. However, most sites in Wyoming are typically not eligible; therefore, the relatively even distribution indicates that more of our significant cultural resources are at risk.

Table 4.6 shows a comparison of NRHP eligibility and site type among collected sites in the HIAs and how these trends relate to those statewide, and those of other types of looting within the HIAs.

Table 4.6

Collected Sites by Site Type and Eligibility Status within Highly Impacted Areas

<table>
<thead>
<tr>
<th>Site Type</th>
<th>NRHP Eligibility Status</th>
<th>Total</th>
<th>Percent</th>
<th>Percent Statewide Collected Sites</th>
<th>Percent of Total HIA Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eligible/NRHP Listed</td>
<td>Not Eligible/Unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prehistoric</td>
<td>48</td>
<td>36</td>
<td>84</td>
<td>76%</td>
<td>19%</td>
</tr>
<tr>
<td>Historic</td>
<td>6</td>
<td>7</td>
<td>13</td>
<td>12%</td>
<td>3%</td>
</tr>
<tr>
<td>Multicomponent</td>
<td>8</td>
<td>5</td>
<td>13</td>
<td>12%</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>48</td>
<td>110</td>
<td>48%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Based on records listing only collection as the main factor affecting integrity, it appears that in the HIAs, prehistoric NRHP eligible or listed sites are most commonly targeted for
collection. Prehistoric, not eligible sites are the second-most highly targeted. Therefore, not only do these counties contain the highest occurrence of looting throughout the state, according to the collection data, they also appear to be specifically targeted for the artifacts and data that they contain which may have contributed to their eligible status in the first place. This coincides with the conclusion of the previous tables, indicating that these prehistoric, eligible site types are being adversely effected and losing important data that could, in fact, be what made them eligible in the first place.

Figure 4.2 displays statewide looted sites by type of landownership throughout the past 20 years. Quantitative trends throughout the past 20 years for site type are displayed in Figure 4.3. In order to statistically explore trends in these activities over time, chi-square tests were conducted with the intention of analyzing differences for actual versus expected outcomes for reported looting activities in five-year increments by landownership and site type throughout the past 20 years. However, due to the general condition that observed cell counts must not be less than five, and the multiple cells within all landownership types (except for BLM and Private) and site types (“unknown”) that did not meet this criteria, determining chi-square values for each five-year group was not possible. Instead, chi-square tests were run to determine whether or not there are differences in looting activities between 1930-1995 and 1996-2014 based on landownership and site type. Because some cells (Bankhead Jones, National Grasslands, and National Park Service) still did not meet the criteria, in order to obtain the most accurate results, these were removed. Chi-square results indicate that there is a significant difference ($p \leq 0.001$) between observed and expected outcomes based on looting activity and landownership between the two age groups ($p \leq 0.001$). This indicates that certain types of landownership have been more targeted by looting activities than others throughout time. More specifically, these differences between expected and
observed values indicate that more sites than would be expected by chance were looted on BLM, private, and State land over the past 20 years, while more sites on Bureau of Reclamation (BOR), Department of Defense (DOD), and U.S. Forest Service (USFS) lands experienced factors of looting than would be expected by chance in the 1930-1995 group.

While observed and expected values for sites of unknown eligibility in the 1930-1995 group were less than five, these values were included in the chi-square test for differences between observed and expected values by site type. These results were also extremely significant ($p \leq 0.004$); indicating that certain types of sites are being selectively targeted by looters throughout time, and that differences in these activities are not just the result of chance. Between 1930 and 1995, more prehistoric and multicomponent type sites were associated with incidences of looting than would be expected by chance, while the same is true for historic and unknown site types over the past 20 years. Based on the distribution indicated in Figure 4.3, it appears that prehistoric and historic sites are significantly more targeted than sites with both prehistoric and historic components and those classified as unknown. Also, while these activities differ over time, it seems that historic sites have been the subject of most recent increased targeting.
Figure 4.2

Bar Graph Displaying Looted Sites by Landownership Throughout the Past 20 Years
Figure 4.3

Bar Graph Displaying Looted Sites by Site Type Throughout the Past 20 Years
The following tables (4.7-4.14) present the data pertaining to the total amount of sites looted by landownership and by site type and National Register eligibility status over the past 20 years, organized by five-year increments. As observed in Figures 4.2 and 4.3, sites on BLM, Private, and USFS land have the highest incidences of looting, and prehistoric and historic sites are most targeted by these activities. A further look into looting by site type and eligibility status indicates that while these activities appear to impact all sites regardless of eligibility, over the past 20 years, sites considered not eligible for NRHP inclusion have experienced the majority of looting.

Table 4.7
Looted Sites by Landownership Recorded between 1996-2000

<table>
<thead>
<tr>
<th>Landownership</th>
<th>Total</th>
<th>Percent</th>
<th>Percent Statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankhead Jones</td>
<td>1</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Bureau of Land Management</td>
<td>78</td>
<td>36%</td>
<td>7%</td>
</tr>
<tr>
<td>Bureau of Reclamation</td>
<td>6</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Department of Defense</td>
<td>7</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Department of Energy</td>
<td>1</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>U.S. Fish &amp; Wildlife</td>
<td>3</td>
<td>16%</td>
<td>0%</td>
</tr>
<tr>
<td>US Forest Service</td>
<td>35</td>
<td>16%</td>
<td>3%</td>
</tr>
<tr>
<td>National Grasslands</td>
<td>2</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>National Park Service</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Private</td>
<td>71</td>
<td>33%</td>
<td>6%</td>
</tr>
<tr>
<td>State</td>
<td>12</td>
<td>6%</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>216</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
</tr>
</tbody>
</table>
### Table 4.8

**Looted Sites by NRHP Eligibility Status and Site Type Recorded between 1996-2000**

<table>
<thead>
<tr>
<th>1996-2000</th>
<th>NRHP Eligibility Status</th>
<th>Total</th>
<th>Percent</th>
<th>Percent statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eligible</td>
<td>Not Eligible</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>Prehistoric</td>
<td>26</td>
<td>40</td>
<td>33</td>
<td>99</td>
</tr>
<tr>
<td>Historic</td>
<td>37</td>
<td>33</td>
<td>8</td>
<td>78</td>
</tr>
<tr>
<td>Multi-component</td>
<td>22</td>
<td>11</td>
<td>5</td>
<td>38</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>86</td>
<td>84</td>
<td>46</td>
<td>216</td>
</tr>
<tr>
<td><strong>Percent</strong></td>
<td></td>
<td></td>
<td></td>
<td>40%</td>
</tr>
<tr>
<td><strong>Percent statewide</strong></td>
<td></td>
<td></td>
<td></td>
<td>7%</td>
</tr>
</tbody>
</table>

### Table 4.9

**Looted Sites by Landownership Recorded between 2001-2005**

<table>
<thead>
<tr>
<th>Landownership</th>
<th>Total</th>
<th>Percent</th>
<th>Percent Statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bureau of Land Management</td>
<td>70</td>
<td>31%</td>
<td>6%</td>
</tr>
<tr>
<td>Bureau of Reclamation</td>
<td>4</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>US Forest Service</td>
<td>45</td>
<td>20%</td>
<td>4%</td>
</tr>
<tr>
<td>National Park Service</td>
<td>1</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Private</td>
<td>106</td>
<td>46%</td>
<td>9%</td>
</tr>
<tr>
<td>State</td>
<td>3</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>229</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 4.10

Looted Sites by NRHP Eligibility Status and Site Type Recorded between 2001-2005

<table>
<thead>
<tr>
<th>NRHP Eligibility Status</th>
<th>2001-2005</th>
<th>Total</th>
<th>Percent</th>
<th>Percent statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eligible</td>
<td>Not Eligible</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>Prehistoric</td>
<td>27</td>
<td>44</td>
<td>16</td>
<td>87</td>
</tr>
<tr>
<td>Historic</td>
<td>51</td>
<td>62</td>
<td>2</td>
<td>115</td>
</tr>
<tr>
<td>Multi-component</td>
<td>8</td>
<td>14</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>86</td>
<td>121</td>
<td>22</td>
<td>229</td>
</tr>
<tr>
<td>Percent</td>
<td>38%</td>
<td>53%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Percent statewide</td>
<td>7%</td>
<td>10%</td>
<td>2%</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4.11

Looted Sites by Landownership Recorded between 2006-2010

<table>
<thead>
<tr>
<th>Landownership</th>
<th>Total</th>
<th>Percent</th>
<th>Percent Statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bureau of Land Management</td>
<td>107</td>
<td>50%</td>
<td>9%</td>
</tr>
<tr>
<td>Bureau of Reclamation</td>
<td>2</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Department of Defense</td>
<td>3</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>U.S. Fish &amp; Wildlife</td>
<td>1</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>US Forest Service</td>
<td>27</td>
<td>13%</td>
<td>2%</td>
</tr>
<tr>
<td>National Park Service</td>
<td>1</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Private</td>
<td>66</td>
<td>31%</td>
<td>6%</td>
</tr>
<tr>
<td>State</td>
<td>5</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>212</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.12

Looted Sites by NRHP Eligibility Status and Site Type Recorded between 2006-2010

<table>
<thead>
<tr>
<th>NRHP Eligibility Status</th>
<th>2006-2010</th>
<th>Total</th>
<th>Percent</th>
<th>Percent statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eligible</td>
<td>Not Eligible</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>Prehistoric</td>
<td>24</td>
<td>56</td>
<td>18</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Historic</td>
<td>49</td>
<td>38</td>
<td>1</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-component</td>
<td>11</td>
<td>8</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>105</td>
<td>23</td>
<td>212</td>
</tr>
<tr>
<td>Percent</td>
<td>40%</td>
<td>50%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Percent statewide</td>
<td>7%</td>
<td>9%</td>
<td>2%</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.13

Looted Sites by Landownership Recorded between 2011-2014

<table>
<thead>
<tr>
<th>Landownership</th>
<th>Total</th>
<th>Percent</th>
<th>Percent Statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bureau of Land Management</td>
<td>10</td>
<td>38%</td>
<td>1%</td>
</tr>
<tr>
<td>Bureau of Reclamation</td>
<td>1</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>US Forest Service</td>
<td>4</td>
<td>15%</td>
<td>0%</td>
</tr>
<tr>
<td>Private</td>
<td>9</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>State</td>
<td>2</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>238</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.14

Looted Sites by NRHP Eligibility Status and Site Type Recorded between 2011-2014

<table>
<thead>
<tr>
<th>NRHP Eligibility Status</th>
<th>2011-2014</th>
<th>Total</th>
<th>Percent</th>
<th>Percent statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eligible</td>
<td>Not Eligible</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>Prehistoric</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Historic</td>
<td>5</td>
<td>9</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-component</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>15</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>Percent</td>
<td>27%</td>
<td>58%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Percent statewide</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>
Research Question 4:
(a) Is there a lack in public knowledge of federal cultural resource legislation?

(b) If so, is it a contributing factor to the looting problem?

Based on a visual analysis of the spatial distribution of looted sites recorded within the state (see Figure 4.1), of the 23 counties, Carbon and Sweetwater Counties stood out as those appearing to contain the highest concentrations of these sites. A basic analysis of WYCRIS Data indicated Carbon and Sweetwater Counties as ‘Highly Impacted Areas’ based on the proportion or occurrence of looted sites associated with them. This was confirmed by a basic filtering of the tabular data and calculation of overall proportions within each county (Table 4.15). As a result, Carbon and Sweetwater were designated the “highly impacted areas” (HIAs) for this study (Figure 4.4).
Table 4.15

Statewide-Looted Sites by County

<table>
<thead>
<tr>
<th>County</th>
<th>Number of Looted Sites</th>
<th>Percent of Total Looted Sites Statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albany</td>
<td>64</td>
<td>5%</td>
</tr>
<tr>
<td>Big Horn</td>
<td>23</td>
<td>2%</td>
</tr>
<tr>
<td>Campbell</td>
<td>107</td>
<td>9%</td>
</tr>
<tr>
<td>Crook</td>
<td>7</td>
<td>1%</td>
</tr>
<tr>
<td>Converse</td>
<td>38</td>
<td>3%</td>
</tr>
<tr>
<td>Carbon</td>
<td>261</td>
<td>22%</td>
</tr>
<tr>
<td>Fremont</td>
<td>36</td>
<td>3%</td>
</tr>
<tr>
<td>Goshen</td>
<td>4</td>
<td>0%</td>
</tr>
<tr>
<td>Johnson</td>
<td>67</td>
<td>6%</td>
</tr>
<tr>
<td>Laramie</td>
<td>13</td>
<td>1%</td>
</tr>
<tr>
<td>Lincoln</td>
<td>45</td>
<td>4%</td>
</tr>
<tr>
<td>Natrona</td>
<td>116</td>
<td>10%</td>
</tr>
<tr>
<td>Niobrara</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>Park</td>
<td>4</td>
<td>0%</td>
</tr>
<tr>
<td>Platte</td>
<td>17</td>
<td>1%</td>
</tr>
<tr>
<td>Sheridan</td>
<td>43</td>
<td>4%</td>
</tr>
<tr>
<td>Sublette</td>
<td>111</td>
<td>9%</td>
</tr>
<tr>
<td>Sweetwater</td>
<td>178</td>
<td>15%</td>
</tr>
<tr>
<td>Teton</td>
<td>15</td>
<td>1%</td>
</tr>
<tr>
<td>Uinta</td>
<td>15</td>
<td>1%</td>
</tr>
<tr>
<td>Washakie</td>
<td>4</td>
<td>0%</td>
</tr>
<tr>
<td>Weston</td>
<td>3</td>
<td>0%</td>
</tr>
<tr>
<td>Yellowstone</td>
<td>2</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,174</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Figure 4.4

Map Highlighting Carbon and Sweetwater Counties ("Highly Impacted Areas") Showing the Prevalence of Looted Sites
Survey Results

Response Rate

Of the 2,040 mailed questionnaires, 1,679 were received by the intended recipient. A total of 361 of the randomly selected Ziplocal address records were considered insufficient after attempted delivery, and were returned to sender. While 1,258 recipients (75%) failed to return their questionnaires, 421 completed questionnaires were received; allowing for a 25 percent mailed survey response rate. Completed online survey responses totaled 119. Of these, ten are attributed to members of the public in the highly impacted areas who responded to the local online and print advertisements. WAS members account for 77 of the 119 online responses, and WAPA members comprise the remaining 32 responses. This translates to 20 percent of the total responses. Combined, there were a total of 540 completed mailed and online questionnaires.

All 540 respondents answered Questions 1 through 5 and Question 11. Of the remaining seven questions, there were a total of 58 (11%) missing responses. Questions 8, 9, and 12 received the least amount of responses. Obtaining a good sample size directly relates to ability to confidently interpret results. Due to the exceptional degree of participation, it would be possible to interpret survey results at a 95 percent confidence interval, with a ± 5 margin of error. This was not considered necessary for the current degree of analysis, but may prove useful in providing support for recommendations statewide.

Statistical Results

The following section provides the results of chi-square statistical tests for demographic and survey responses. When chi-square values were significant ($p \leq 0.05$), associated adjusted standardized residuals (calculated in SPSS) greater than or equal to two standard errors were
listed, as these represent those data that are causing the significance. According to Sharpe (2015:2), “the larger the residual, the greater the contribution of the cell to the magnitude of the resulting chi-square obtained value.” Positive values indicate that more respondents chose that particular answer than would be expected by chance and negative values indicate that fewer respondents chose the associated answer by chance.

While analyses were focused mostly on significant relationships, lack of statistical significance was also considered for the potential important information it could provide. As a general rule of thumb, the typical sample size for chi-square test evaluation is 250. This study’s sample size (n = 540) exceeds this rule and could result in artificial inflation or deflation of significance, as sample size amplifies the effect of the chi square value. This potential bias was taken into consideration and the tests were run regardless. However, the use of standardized residuals is considered accurate as a post-hoc testing method because these results nullify the importance of sample size.

Demographic Results

Demographic questions were generally well answered. Over 99 percent of respondents (n = 537) indicated their number of years residing in Wyoming. Highest level of education (n = 514) and level of income (n = 516) were both indicated by 95 percent of the responders. Sex was indicated by 85 percent of responders (n = 457), while age was listed by 74 percent (n = 398) and residential status by 72 percent (n = 391).

Sex

Of the respondents who indicated their sex (n = 457), 53 percent were male (n = 244), and 47 percent were female (n = 213); a relatively even distribution. Overall, the majority of respondents from all groups were male [(Public = 52.6%; n = 183); (WAS = 53.2%; n = 41);
(WAPA = 62.5%; n = 20)], with the largest degree of difference observed by WAPA members (62.5% male vs. 37.5% female). Based on the 2013 American Community Survey (ACS) 5-Year estimates for Wyoming (2013 ACS estimates), the percentage of males to females is 51.49 percent. Therefore, while my results are somewhat similar to the state as a whole, they are more representative of the male population. There were fewer male respondents between the ages 18-29, 40-49, and 80 and older than expected, while the opposite was true of males between the ages of 60-79. There were no statistically significant differences between respondent’s level of education and sex.

Age

Ages of public mailed survey respondents ranged from 18 to 92, averaging 61. The majority (62%) were between 51 and 72 years old. Sixty percent (n = 237) were between ages 18-64, and 40 percent (n = 161) were 65 and older. Based on the 2013 ACS estimates, 61 percent of the population was between the ages of 18 and 64, and 12.8 percent were 65 and older. Therefore, survey results are very similar to the proportion of the population between ages 18-64 within the state as a whole, with more participation between those ages 65 and older than expected based on this proportion of the overall population.

Residential Status

Sixty-three percent (n = 246) of the respondents reside in urban settings, while 37 percent indicated rural residential status (n = 145). The majority of the Public and WAPA members reside in urban settings [(Public = 67%; n = 189); (WAPA = 71%; n = 22), respectively], while the opposite was observed for members of WAS (46%; n = 35). Fewer members of the public and more WAS respondents live in a rural setting than would be expected by chance. This information is not collected as part of census records and is therefore not available for
comparative purposes. There were no statistically significant differences between respondent’s residential status and age or level of education.

**Occupation**

As expected, WAPA members comprise the majority of archaeologists. The category retired received the next highest amount of participants, followed by medical/skilled trade, and office work/self-employed/other. Statistical tests were not performed for this demographic and 2013 ACS estimates were not compared.

**Length of Residence**

The average responder has lived 43 years in Wyoming, with responses ranging from zero years to 92 [15 or fewer = 13%; n = 72); (16-30 years = 12%; n = 66); (31-50 years = 36%; n = 191); and (51 years or more = 39%; n = 208)]. This information is not collected as part of census records and is therefore not available for comparative purposes. Fewer public respondents (9%; n = 39) and more WAS/WAPA respondents [(WAS = 22%; 17); (WAPA = 50%; n = 16)] than expected by chance have lived in Wyoming for 15 years or less. Additionally, more public respondents than would be expected by chance indicated that they have lived in the state 31-50 (38%; n = 162) or 51 or more (42%; n = 179) years. The opposite trend was observed for WAPA respondents [(31-50 years = 16%; n = 5), (51 or more years = 16%; n = 5)]. Results of length of residency by respondent age indicate that more respondents between ages 18 and 49 have lived in Wyoming 15 or fewer years (93%; n = 15) than would be expected by chance. Additionally, the same trend was observed for those between the ages 18-29 and 40-49, residing in Wyoming for 16-30 years [(18-29 years old = 70%; n = 7); (40-49 years old = 23%; n = 10)]. More respondents between ages 40-49 (56%; n = 24) than expected by chance indicated that they have lived in the state between 31-50 years. Fewer respondents between ages 60-69 have resided in
Wyoming between 16-30 years than would be expected by chance (5%; n = 6), and the same trend was observed for 70-79 year olds residing in the state between 31-50 years (44%; n = 55). More respondents between ages 70-79 (66%; n = 46) and 80 years or older (66%; n = 21) have lived in the state a total of 51 years or more than would be expected by chance. The majority of WAS and Public respondents have resided in the state for a greater amount of time (31-50 and 51 or more years) [WAS: (31-50 years = 31%; n = 24); (51 years or more = 31%; n = 5); Public (31-50 years = 38%; n = 162); (51 years or more = 42%; n = 179)] as compared to WAPA respondents. Interestingly, half (50%; n = 16) of total WAPA respondents indicated 15 or fewer years.

**Income**

The majority of respondents 62%; n = 319) fell within the $61,500-$86,499 and $86,500-$111,500 income brackets (36%; n = 183; 26%; n = 136) respectively). While this seems somewhat higher than expected, it could be the result of respondents entering their combined household income rather than individual income, as intended. Based on 2013 ACS estimates, the average income for an individual was $63,816, while combined income of husband and wife was $98,943. Therefore, survey results are very similar to income throughout the state as a whole. More public respondents than would be expected by chance indicated that their level of income was $11,500-$36,499 (14%; n = 61), and fewer indicated $61,500-$86,499 (33%; n = 142) than expected by chance. The opposite trend was observed for WAS respondents, where fewer selected $11,500-$36,499 (n = 0) and more selected $61,500-$86,499 (48%; n = 31) than would be expected by chance. More WAPA respondents than would be expected by chance indicated that their income level was $86,500-$111,500 (46%; n = 11).
More respondents between the ages of 18-29 (40%; n = 4), 30-39 (8%; n = 1), 70-79 (23%; n = 16), and 80 and over (42%; n = 14) selected $11,500-$36,499 than would be expected by chance. Similarly, more respondents between ages 30-39 (50%; n = 6), 40-49 (44%; n = 19), and 50-59 (35%; n = 36) selected $86,500-$111,500 than would be expected by chance. Fewer respondents than expected by chance between ages 60-69 indicated that their income level was $11,500-$36,499 (9%; n = 11). The same was observed for respondents between 50-59 years old (17%; n = 18), who selected the next income bracket, $36,500-$61,499. Fewer respondents between ages 70-79 (9%; n = 6) and 80 (n = 0) and above selected an income of $86,500-$111,500 than expected by chance.

More high school graduates have an income of $11,500-$36,499 (29%; n = 2) and fewer selected $86,500-$111,500 than would be expected by chance (29%; n = 2). The direct opposite trend was observed for those with graduate degrees ($11,500-$36,499 = 6%; n = 9) and ($86,500-$111,500 = 40%; n = 53) respectively.

**Education**

Aside from grade school (n = 7) (1%), there is a relatively even level of distribution among those who listed high school diploma (35%; n = 182), undergraduate degree (33%; n = 168), and graduate degree (31%; n = 157) as their highest level of education. These results indicate that there is a moderate to high level of education amongst the respondents that would be expected to be correlated with increased knowledge about archaeology and cultural heritage legislation.

Based on 2013 ACS estimates, 86.3 percent of the population ages 25 and older had graduated high school and 29.3 percent of those 25 years and older held undergraduate or graduate degrees. Therefore, survey results are not similar to the state as a whole, being more representative of the proportion of the population with undergraduate or graduate degrees.
More public respondents indicated their highest level of education as high school (43%; n = 174) and fewer as graduate degree (23%; n = 92) than would be expected by chance. The opposite trend was observed for both WAS and WAPA respondents, where more than expected by chance hold graduate degrees (51%; n = 39 and 81%; n = 26 respectively).

Education trends for WAS and WAPA respondents are similar, indicating that most respondents have either their undergraduate degree [(WAS = 37%; n = 28), (WAPA = 19%; n = 6)] or graduate degree [(WAS = 51%; n = 39), (WAPA = 81%; n = 26)], while the highest level of education possessed by most public respondents was high school diploma (43%; n = 174), followed by undergraduate degree (33%; n = 134) and graduate degree (23%; n = 92). These figures indicate that there is an overall moderate to high level of education amongst survey respondents.

Fewer public respondents between ages 30-39 (8%; n = 1) indicated high school diploma as their highest level of education and more selected undergraduate degree (75%; n = 9) than expected by chance. More respondents between ages 60-69 indicated high school diploma (51%; n = 60), and more respondents ages 80 and older indicated grade school as their highest level of education (7%; n = 2) than would be expected by chance.

The statistical tests were conducted for demographic information by group (Public, WAS, WAPA), as well as for each question, by respondent’s age, group, and highest level of education. At least three bar graphs for each of the 13 survey questions were constructed (Figures 4.5 through 4.37) and are included with the Tables (4.16 through 4.48) containing associated sample sizes below. Chi-square values and adjusted standardized residuals (≥ 2.0 standard errors) are presented in table format in Appendix E (Tables E-1 through E-33).
Survey Questions 1 through 13

Question 1: Where do you typically hear about archaeology?

Age (Figure 4.5; Table 4.16)
The typical information sources for archaeology are television, followed by newspapers, internet, and magazines, while fewer respondents learn about archaeology through archaeologists and school, and very few through brochures. 18-29 year olds hear of archaeology predominately through the internet. 30-39 year olds indicate television as the predominant information source; 40-49 year olds indicated both television and newspaper, followed closely by internet. Most 50-59 and 60-69 year olds selected television; 70-79 year olds chose television followed closely by newspaper, and the majority of those 80 years and older chose television as their typical information source.

Group (Figure 4.6; Table 4.17)
Similar trends in results for information sources were observed in responses of WAS and WAPA, while those of the public differ. More members of the public and less WAS and WAPA members learn through television than expected by chance. The same goes for newspaper with the exclusion of WAPA members. WAPA members were more likely and the public was less likely to hear of archaeology through brochures than by chance. Many fewer members of the public hear of archaeology in school than expected by chance and the same trend applies for internet.

Education (Figure 4.7; Table 4.18)
Significantly more respondents with high school diplomas indicated television as their typical source for archaeology, while fewer respondents with graduate degrees reported this source than would expected by chance. Those with graduate degrees typically hear about
archaeology in school, through the internet, or by other source. Significantly fewer respondents with high school diplomas indicated school or internet as their typical information source than would be expected by chance.

![Bar Graph Displaying Question 1, Public Responses by Age](image)

**Figure 4.5**

Bar Graph Displaying Question 1, Public Responses by Age
Table 4.16

Question 1, Sample Size by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29 years old</td>
<td>10</td>
</tr>
<tr>
<td>30-39 years old</td>
<td>12</td>
</tr>
<tr>
<td>40-49 years old</td>
<td>43</td>
</tr>
<tr>
<td>50-59 years old</td>
<td>104</td>
</tr>
<tr>
<td>60-69 years old</td>
<td>126</td>
</tr>
<tr>
<td>70-79 years old</td>
<td>70</td>
</tr>
<tr>
<td>80+ years old</td>
<td>33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>398</strong></td>
</tr>
</tbody>
</table>

Figure 4.6

Bar Graph Displaying Question 1, Responses by Group
Table 4.17

Question 1, Sample Size by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>431</td>
</tr>
<tr>
<td>WAS</td>
<td>77</td>
</tr>
<tr>
<td>WAPA</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>540</td>
</tr>
</tbody>
</table>

Figure 4.7

Bar Graph Displaying Question 1, Responses by Education
Table 4.18

Question 1, Sample Size by Education

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade School</td>
<td>7</td>
</tr>
<tr>
<td>High School Diploma</td>
<td>182</td>
</tr>
<tr>
<td>Undergraduate Degree</td>
<td>168</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>157</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>514</strong></td>
</tr>
</tbody>
</table>

Question 2: Which of the following do you actively use to seek out information about archaeology and cultural resources?

Results by Age (Figure 4.8; Table 4.19)

Overall, the majority of respondents between ages 18-59 indicated that the internet was their preferred source for seeking out information about archaeology and cultural resources. Those between ages 60-79 typically use television followed by newspaper, then internet and magazines, and those 80 years and older indicate television and magazine as their primary source for seeking out information about archaeology.

Fewer 18-29 year olds and more 79-79 year olds than expected by chance indicated newspaper as their preferred information source. More respondents ages 80 and over use magazines than expected by chance. More respondents ages 30-39 and 50-59 seek out information pertaining to archaeology through school than would be expected by chance. A significantly greater amount of those between the ages of 30-49 years old use internet than would be expected by chance and the direct opposite is true of those 70 years and older.

Results by Group (Figure 4.9; Table 4.20)

More than expected public respondents indicated television as a preferred source, while the opposite is true for WAS/WAPA respondents. The same trend was observed for newspaper, however only by public and WAS respondents. Fewer public respondents indicated magazines as
their typical information source, while more WAPA respondents than expected indicated this information source than would be expected by chance. Significantly fewer public respondents indicated brochures than would be expected by chance, while more WAS and WAPA respondents chose this source than would be expected by chance. The same trend to a much higher degree was observed for those indicating school as a source from which they actively seek information. Fewer members of the public chose internet than would be expected by chance, while the opposite is true for WAS and WAPA respondents. The same trend relates to the category of other.

Results by Level of Education (Figure 4.10; Table 4.21)

More respondents with high school diplomas than would be expected by chance seek out this information through television, while the opposite is true of respondents with graduate degrees. Significantly fewer respondents with high school diplomas indicated school as a source than would be expected by chance and more respondents with graduate degrees indicated this source than expected by chance. Fewer respondents whose highest level was grade school or high school indicated internet as a source than would be expected by chance, while more than expected graduate degree holders use this source than expected by chance.
Figure 4.8

Bar Graph Displaying Question 2, Responses by Age

Table 4.19

Question 2, Sample Size by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29 years old</td>
<td>10</td>
</tr>
<tr>
<td>30-39 years old</td>
<td>12</td>
</tr>
<tr>
<td>40-49 years old</td>
<td>43</td>
</tr>
<tr>
<td>50-59 years old</td>
<td>104</td>
</tr>
<tr>
<td>60-69 years old</td>
<td>126</td>
</tr>
<tr>
<td>70-79 years old</td>
<td>70</td>
</tr>
<tr>
<td>80+ years old</td>
<td>33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>398</strong></td>
</tr>
</tbody>
</table>
Figure 4.9

Bar Graph Displaying Question 2, Responses by Group

Table 4.20

Question 2, Sample Size by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>431</td>
</tr>
<tr>
<td>WAS</td>
<td>77</td>
</tr>
<tr>
<td>WAPA</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>540</td>
</tr>
</tbody>
</table>
Figure 4.10

Bar Graph Displaying Question 2, Responses by Education

Table 4.21

Question 2, Sample Size by Education

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade School</td>
<td>7</td>
</tr>
<tr>
<td>High School Diploma</td>
<td>182</td>
</tr>
<tr>
<td>Undergraduate Degree</td>
<td>168</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>157</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>514</strong></td>
</tr>
</tbody>
</table>
**Question 3: Which of the following things do archaeologists typically do?**

Results by Age (Figure 4.11; Table 4.22)

Overall, regardless of age, the majority of respondents indicated that they think archaeologists study past cultures, and dig for and collect artifacts. After these two categories, respondents ages 40 and above indicated that archaeologists study fossils, followed by dig dinosaurs, and then study living cultures. These responses differed amongst those between the ages of 30 and 39, who indicated that they thought archaeologists study living cultures, followed by study fossils and then dig dinosaurs and the youngest group, ages 18 and 29, who selected study fossils, followed by study living cultures and dig dinosaurs. Fewer 18-29 and 30-39 year olds than expected by chance indicated that thought archaeologists dig dinosaurs, while more 60-69 year olds chose this answer than would be expected by chance.

Results by Group (Figure 4.12; Table 4.23)

More public respondents than expected by chance chose dig for and collect artifacts, while fewer WAS respondents chose this answer than would be expected by chance. Significantly more public respondents answered dig dinosaurs than would be expected by chance, while the opposite is true of WAS/WAPA respondents. The same trend was observed for the answer study fossils. Fewer public respondents than would be expected by chance indicated that they thought archaeologists study past cultures than would be expected by chance, while the opposite is true of both WAS/WAPA respondents.

Results by Level of Education (Figure 4.13; Table 4.24)

A greater amount of respondents than expected by chance whose highest level of education is grade school or high school indicated that archaeologists dig dinosaurs, while the opposite is true of graduate degree holders. The same trend was observed for study fossils. There were fewer
respondents with high school diplomas who selected study past cultures than would be expected by chance, while more than expected graduate degree holders chose this answer.

Figure 4.11

Bar Graph Displaying Question 3, Public Responses by Age
Table 4.22

Question 3, Sample Size by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29 years old</td>
<td>10</td>
</tr>
<tr>
<td>30-39 years old</td>
<td>12</td>
</tr>
<tr>
<td>40-49 years old</td>
<td>43</td>
</tr>
<tr>
<td>50-59 years old</td>
<td>104</td>
</tr>
<tr>
<td>60-69 years old</td>
<td>126</td>
</tr>
<tr>
<td>70-79 years old</td>
<td>70</td>
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<tr>
<td>80+ years old</td>
<td>33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>

Figure 4.12

Bar Graph Displaying Question 3, Responses by Group
Table 4.23

Question 3, Sample Size by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
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<tbody>
<tr>
<td>Public</td>
<td>431</td>
</tr>
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<td>WAS</td>
<td>77</td>
</tr>
<tr>
<td>WAPA</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>540</td>
</tr>
</tbody>
</table>

Figure 4.13

Bar Graph Displaying Question 3, Responses by Education
Table 4.24

Question 3, Sample Size by Education

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade School</td>
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</tr>
<tr>
<td>High School Diploma</td>
<td>182</td>
</tr>
<tr>
<td>Undergraduate Degree</td>
<td>168</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>157</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>514</strong></td>
</tr>
</tbody>
</table>

**Question 4: To which of the following do you feel archaeology makes an important contribution?**

Results by Age (Figure 4.14; Table 4.25)

Though not statistically significant, an interesting observation was that of 18-29 year old respondents, in which 100 percent selected preserving the past for future generations. Supporting the heritage of modern society and providing economic opportunities through heritage tourism received the least amount of overall selection; especially amongst those respondents ages 70 and above. Those ages 40 and older felt that archaeology makes an important contribution to finding artifacts that are skillful works of art.

Results by Group (Figure 4.15; Table 4.26)

Fewer members of the public chose preserving the past for future generations than would be expected by chance, while the opposite is true of WAPA respondents. The same trend goes for providing data for research on past cultures, where fewer public respondents selected this choice than expected by chance, while a greater number of WAS and WAPA members indicated this answer than would be expected by chance. This is true of supporting heritage of modern society; educating modern society about other cultures; and providing economic opportunities through heritage tourism.
Results by Level of Education (Figure 4.16; Table 4.27)

Significantly fewer respondents whose highest level of education is grade school selected providing data for research on past cultures, and providing economic opportunities through heritage tourism than would be expected by chance, while the opposite is true for those holding graduate degrees.

Figure 4.14
Bar Graph Displaying Question 4, Public Responses by Age
Table 4.25

Question 4, Sample Size by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
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<tbody>
<tr>
<td>18-29 years old</td>
<td>10</td>
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<tr>
<td>30-39 years old</td>
<td>12</td>
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<tr>
<td>40-49 years old</td>
<td>43</td>
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<tr>
<td>50-59 years old</td>
<td>104</td>
</tr>
<tr>
<td>60-69 years old</td>
<td>126</td>
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<tr>
<td>70-79 years old</td>
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<td>80+ years old</td>
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<td><strong>Total</strong></td>
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</table>

Figure 4.15

Bar Graph Displaying Question 4, Responses by Group
### Table 4.26

**Question 4, Sample Size by Group**

<table>
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<th>Group</th>
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<tbody>
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<tr>
<td>WAPA</td>
<td>32</td>
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<tr>
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</table>

### Figure 4.16

Bar Graph Displaying Question 4, Responses by Education
Table 4.27

Question 4, Sample Size by Education

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</thead>
<tbody>
<tr>
<td>Grade School</td>
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</tr>
<tr>
<td>High School Diploma</td>
<td>182</td>
</tr>
<tr>
<td>Undergraduate Degree</td>
<td>168</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>157</td>
</tr>
<tr>
<td>Total</td>
<td>514</td>
</tr>
</tbody>
</table>

*Question 5: What is your level of interest in learning about archaeology/cultural resources?*

Results by Age (Figure 4.17; Table 4.28)

Results indicate that the majority of respondents in age groups 30-39, 50-59, and 60 and older are interested in learning about archaeology and cultural resources. Most respondents between 40-49 years of age indicated that they were neutral when it comes to learning, and half of the 18-29 year respondents selected not very interested. Very few selected completely uninterested. A significantly higher amount of 18-29 year olds than would be expected by chance indicated that they are not very interested. More respondents between ages 40-49 selected neutral as their level of interest, while fewer 60-69 year olds selected this category than expected by chance.

Results by Group (Figure 4.18; Table 4.29)

More public respondents than would be expected by chance indicated that they are not very interested in learning about archaeology and cultural resources, while the opposite is true for WAS respondents. A greater amount of public respondents also indicated that they were neutral than would be expected by chance, while fewer WAS and WAPA respondents were neutral than expected. Importantly, a significantly greater amount of public respondents indicated that they were interested than would be expected by chance, while fewer WAS and WAPA selected this category than expected by chance. The opposite trend was observed for respondents who indicated that they are very interested.
Results by Level of Education (Figure 4.19; Table 4.30)

More respondents whose highest level of education selected completely uninterested than would be expected by chance. The same goes for high school graduates who selected neutral. Fewer graduate degree holders selected neutral than would be expected by chance. More high school graduates were also selected interested than would be expected by chance, while the opposite is true for graduate degree holders. Fewer high school graduates than would be expected by chance selected very interested, and more than expected respondents with graduate degrees chose this answer.

![Figure 4.17: Question 5: Public Responses by Age](image)
Bar Graph Displaying Question 5, Public Responses by Age

Table 4.28

Question 5, Sample Size by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
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<tbody>
<tr>
<td>18-29 years old</td>
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<td>30-39 years old</td>
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<tr>
<td>40-49 years old</td>
<td>43</td>
</tr>
<tr>
<td>50-59 years old</td>
<td>104</td>
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<tr>
<td>60-69 years old</td>
<td>126</td>
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<td>70-79 years old</td>
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<td>80+ years old</td>
<td>33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>398</strong></td>
</tr>
</tbody>
</table>

Question 5: Responses by Group

- **Public**
- **WAS**
- **WAPA**

Level of Interest in Learning About Archaeology and Cultural Resources
Figure 4.18

Bar Graph Displaying Question 5, Responses by Group

Table 4.29

Question 5, Sample Size by Group

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<th>Group</th>
<th>Sample Size</th>
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<tr>
<td>Public</td>
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<tr>
<td>WAS</td>
<td>77</td>
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<td>WAPA</td>
<td>32</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>

Figure 4.19

Bar Graph Displaying Question 5, Responses by Education
Table 4.30

Question 5, Sample Size by Education

<table>
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<th>Sample Size</th>
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<td>Grade School</td>
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<td>High School Diploma</td>
<td>182</td>
</tr>
<tr>
<td>Undergraduate Degree</td>
<td>168</td>
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<tr>
<td>Graduate Degree</td>
<td>157</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>514</strong></td>
</tr>
</tbody>
</table>

*Question 6: Do you know of any federal laws related to cultural resources, archaeological sites, burials, or artifacts on public lands?*

Results by Age (Figure 4.20; Table 4.31)

Fewer 18-29 and 40-49 year olds answered yes to Question 6 than would be expected by chance, while the opposite is true regarding 60-69 year olds.

Results by Group (Figure 4.21; Table 4.32)

Fewer public respondents said yes than would be expected by chance, while more WAS/WAPA members than expected by chance indicated yes for both Question 6 and Question 7. This indicates a general lack of knowledge of cultural resource laws pertaining to public lands amongst members of the public.

Results by Level of Education (Figure 4.22; Table 4.33)

Fewer high school graduates and more respondents with graduate degrees than expected by chance answered yes to this question.

*Question 7: Do you know of any federal laws related to cultural resources, archaeological sites, burials, or artifacts on private lands?*

Results by Age (see Figure 4.23; Table 4.31)
Results for Question 7 were not statistically significant. Members from all age groups indicated that they know of laws related to private lands.

Results by Group (see Figure 4.24; Table 4.32)

Results for this question are similar to those from Question 6. Fewer public respondents and more WAS/WAPA respondents than expected by chance indicated that they know of such federal laws on private lands.

Results by Level of Education (see Figure 4.25; Table 4.33)

While the same trend as that of Question 6 was observed in those with high school diplomas to graduate degrees regarding legislation related to laws pertaining to private lands, a greater amount of those with grade school as their highest level of education indicated yes than those with high school diplomas. Fewer respondents with high school diplomas and more graduate degree holders than would be expected by chance answered yes to Question 7.
Figure 4.20
Bar Graph Displaying Questions 6 and 7, Public Responses by Age

Table 4.31
Questions 6 and 7, Sample Size by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>Question 6 Sample Size</th>
<th>Question 7 Sample Size</th>
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<tbody>
<tr>
<td>18-29 years old</td>
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<td>30-39 years old</td>
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<td>40-49 years old</td>
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<tr>
<td>50-59 years old</td>
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<td>60-69 years old</td>
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<td>68</td>
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<tr>
<td>80+ years old</td>
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<td>30</td>
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</table>
Table 4.32

Questions 6 and 7, Sample Size by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Question 6 Sample Size</th>
<th>Question 7 Sample Size</th>
</tr>
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<tbody>
<tr>
<td>Public</td>
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<td>425</td>
</tr>
<tr>
<td>WAS</td>
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<td>77</td>
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<tr>
<td>WAPA</td>
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<td>32</td>
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<tr>
<td>Total</td>
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<td>534</td>
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</tbody>
</table>

Figure 4.21

Bar Graph Displaying Questions 6 and 7, Responses by Group
Figure 4.22

Bar Graph Displaying Questions 6 and 7, Responses by Education

Table 4.33

Questions 6 and 7, Sample Size by Education

<table>
<thead>
<tr>
<th>Group</th>
<th>Question 6 Sample Size</th>
<th>Question 6 Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade School</td>
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<tr>
<td>High School Diploma</td>
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<tr>
<td>Undergraduate Degree</td>
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<td>167</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>157</td>
<td>155</td>
</tr>
<tr>
<td>Total</td>
<td>510</td>
<td>508</td>
</tr>
</tbody>
</table>
**Question 8:** Do you think it should be legal for members of the public to dig and collect prehistoric and historic artifacts on public land?

Results by Age (Figure 4.23; Table 4.34)

Out of all the age groups, more than half of the respondents (66.7%) between ages 30-49 think it should be legal for members of the public to dig and collect artifacts on public land. 47.6 percent of respondents between ages 40-49 agree, 40 percent of respondents ages 18-29 agree, followed by those ages 50-59 (38.4 %); 70-79 (34.3 %); 80+ (33.3%); and 60-69 (32.8%). Results were not statistically significant.

Results by Group (Figure 4.24; Table 4.35)

More public respondents think it should be legal than would be expected by chance, while the opposite is true of WAS and WAPA respondents.

Results by Level of Education (Figure 4.25; Table 4.36)

More than expected high school graduates indicated that they thought these activities should be legal, while less graduate degree holders said yes than would be expected by chance.

---

**Question 9:** Do you think it should be legal for members of the public to dig and collect human remains or grave goods from public land?

Results by Age (see Figure 4.23; Table 4.34)

Results for Question 9 were not statistically significant. However, it appears that more 18-29 year olds (20%) and those ages 80 and over (17.2%) think that it should be legal to dig and collect human remains or grave goods from public land than other age groups. These are
followed by 40-49 year olds (12.2%), 70-79 year olds (10%), 30-39 year olds (8.3%), 50-59 year olds (8%), and finally, 60-69 year olds, of whom only 3.2 percent responded yes.

Results by Group (see Figure 4.24; Table 4.35)

More public respondents indicated that they think these activities should be legal than would be expected by chance. These respondents comprise 8.6 percent of the total public respondents.

Results by Level of Education (see Figure 4.25; Table 4.36)

Results for this question were not statistically significant. Overall, as level of education increases, respondents answering yes decreases.

Question 10: **Do you think it should be legal for members of the public to dig and collect prehistoric and historic artifacts on private land without the landowner’s permission?**

Results by Age (see Figure 4.23; Table 4.34)

Results were not statistically significant for this question by age. However, there is a clear difference in attitudes amongst the youngest and oldest groups when compared with the others, like that of responses from the previous question. 10 percent of respondents ages 18-29 and 9.1 percent of those 80 years or older indicated that they think these activities should be legal regardless of landowner permission. 6.8 percent of respondents between ages 50-59 agreed, while the remaining age groups were less likely to agree and zero respondents between ages 30-39 answered yes.

Results by Group (see Figure 4.24; Table 4.35)

While results for this question by group were not statistically significant, a much higher amount (6.3%) of WAPA respondents indicated that they think these activities should be legal regardless of landowner permission. Additionally, 1.3 percent of WAS members also agreed. A total of 5.1 percent of public respondents answered yes.
Results by Level of Education (see Figure 4.25; Table 4.36)

Results were not statistically significant for this question by education level. While there is a trend of decreasing responses of yes with increasing levels of education, it appears that those respondents with undergraduate degrees were less likely to answer yes than those with graduate degrees.

Figure 4.23
Bar Graph Displaying Questions 8-10, Public Responses by Age

Table 4.34
Questions 8-10, Sample Size by Age
<table>
<thead>
<tr>
<th>Group</th>
<th>Question 8 Sample Size</th>
<th>Question 9 Sample Size</th>
<th>Question 10 Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29 years old</td>
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<td>10</td>
<td>10</td>
</tr>
<tr>
<td>30-39 years old</td>
<td>12</td>
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</tr>
<tr>
<td>40-49 years old</td>
<td>42</td>
<td>41</td>
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<td>50-59 years old</td>
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<td>103</td>
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<tr>
<td>60-69 years old</td>
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<td>80+ years old</td>
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<td><strong>396</strong></td>
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Figure 4.24

Bar Graph Displaying Questions 8-10, Responses by Group

Table 4.35

Questions 8-10, Sample Size by Group
<table>
<thead>
<tr>
<th>Group</th>
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</table>

Figure 4.25

Bar Graph Displaying Questions 8-10, Responses by Education

Table 4.36

Questions 8-10, Sample Size by Education
Question 11: Assuming that you own land, how strongly do you agree or disagree that you should be allowed to dig for and collect prehistoric or historic artifacts on your private land?

Results by Age (Figures 4.26 and 4.32; Tables 4.37 and 4.45)

Results for this question by Age were not statistically significant. However, with the exception of the 30 percent of 70-79 year olds and 18.2 percent of those ages 80 and older, who remained neutral, the majority of all age groups indicated that they agree or strongly agree. The 30-39 year old age group had the highest amount of those who strongly agree (50%) and third highest (41.7%) who agree.

Results by Group (Figures 4.27 and 4.33; Tables 4.38 and 4.46)

Results for this question by group were not statistically significant. While the majority of respondents agree or strongly agree, many also remained neutral. WAPA respondents were among the highest percentage of those who strongly disagree (15.6%), while relatively even amounts of those who disagree were observed amongst the three groups.

Results by Level of Education (Figures 4.28 and 4.34; Tables 4.39 and 4.47)

More respondents whose highest level of education was grade school strongly disagree (42.9%) than would be expected by chance. The remaining respondents of this group either disagree (28.6%) or strongly agree (28.6). The opposite trend is true for high school graduates, and undergraduate and graduate degree holders, of which the majority agree or strongly agree.

<table>
<thead>
<tr>
<th>Level of Education</th>
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<td>Graduate Degree</td>
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</table>
Figure 4.26

Bar Graph Displaying Question 11, Public Responses by Age

Table 4.37

Question 11, Sample Size by Age

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<td>40-49 years old</td>
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<td>50-59 years old</td>
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<td>60-69 years old</td>
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<td>70-79 years old</td>
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<td>80+ years old</td>
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</table>
Figure 4.27
Bar Graph Displaying Question 11, Responses by Group

Table 4.38
Question 11, Sample Size by Group

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<tr>
<td>WAPA</td>
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<tr>
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</tbody>
</table>
Figure 4.28

Bar Graph Displaying Question 11, Responses by Education

Table 4.39

Question 11, Sample Size by Education

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<tr>
<th>Group</th>
<th>Sample Size</th>
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<td>High School Diploma</td>
<td>182</td>
</tr>
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<td>Undergraduate Degree</td>
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</tr>
<tr>
<td>Graduate Degree</td>
<td>157</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>514</strong></td>
</tr>
</tbody>
</table>
Question 12: Assuming that you own land, how strongly do you agree or disagree that you should be allowed to dig for and collect human remains or grave goods on your private land?

Results by Age (Figures 4.29 and 4.32; Tables 4.40 and 4.43)
The results for this question were not statistically significant. However, with the exception of 40 percent of 18-29 year olds, and 25 percent of both 30-39 year olds and those 80 years and older, the majority of respondents disagree or strongly disagree.

Results by Group (Figures 4.30 and 4.33; Tables 4.41 and 4.44)
Fewer public respondents strongly disagree than would be expected by chance, while the opposite is true for WAPA respondents. Similarly, fewer WAPA respondents indicated that they were neutral, and more public respondents strongly agree than would be expected by chance.

Results by Level of Education (Figures 4.31 and 4.34; Tables 4.42 and 4.45)
The results for this question by education level are not statistically significant. Although comprised of the smallest number of respondents, those whose highest level of education was grade school were more likely to answer strongly disagree than those other education levels. The next highest amount of those who strongly disagree belongs to those with graduate degrees, followed by high school graduates and undergraduates who disagree.
Figure 4.29

Bar Graph Displaying Question 12, Public Responses by Age

Table 4.40

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
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<tbody>
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<tr>
<td>30-39 years old</td>
<td>12</td>
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<td>40-49 years old</td>
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<td>50-59 years old</td>
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<td>60-69 years old</td>
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<td>70-79 years old</td>
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<td>80+ years old</td>
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Figure 4.30
Bar Graph Displaying Question 12, Responses by Group

Table 4.41
Question 12, Sample Size by Group

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<tr>
<td>WAS</td>
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<td>WAPA</td>
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Figure 4.31

Bar Graph Displaying Question 12, Responses by Education

Table 4.42

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<td>Graduate Degree</td>
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<td><strong>Total</strong></td>
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</table>
Figure 4.32
Bar Graph Displaying Questions 11 and 12, Public Responses by Age

Table 4.43
Questions 11 and 12, Sample Size by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>Question 11 Sample Size</th>
<th>Question 12 Sample Size</th>
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<tbody>
<tr>
<td>18-29 years old</td>
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<tr>
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<td>40-49 years old</td>
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<td>60-69 years old</td>
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Figure 4.33

Bar Graph Displaying Questions 11 and 12, Responses by Group

Table 4.44

Questions 11 and 12, Sample Size by Group

<table>
<thead>
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<th>Group</th>
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<th>Question 12 Sample Size</th>
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<tbody>
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<td>WAS</td>
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Figure 4.34

Bar Graph Displaying Questions 11 and 12, Responses by Education

Table 4.45

Questions 11 and 12, Sample Size by Education

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<th>Question 12 Sample Size</th>
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<td>Graduate Degree</td>
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<td>151</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>514</strong></td>
<td><strong>503</strong></td>
</tr>
</tbody>
</table>
Question 13: Assuming that digging for and collecting artifacts on public land is illegal, what penalties should those conducting these activities face?

Results by Age (Figure 4.35; Table 4.46)

Responses to this question were not statistically significant by age. With the exception of 30-39 year olds who prefer a fine as a penalty, the majority of respondents of the remaining age groups indicated that individuals conducting these activities should face a fine and community service. Next preferable to respondents was a fine. Interestingly, 25 percent of 30-39 year olds felt that no penalty was necessary. Very few (less than 5% combined selected parole), and imprisonment and community service was the second least preferred punishment.

Results by Group (Figure 4.36; Table 4.47)

More public respondents than expected by chance selected no penalty. Fewer WAPA respondents selected fine and more selected fine and imprisonment, or imprisonment and community service than would be expected by chance. A higher amount of WAS respondents also selected fine and imprisonment than expected by chance. Correspondingly, fewer public respondents selected fine and imprisonment, and imprisonment and community service than expected by chance.

Results by Level of Education (Figure 4.37; Table 4.48)

More respondents with high school diplomas selected no penalty, and fewer respondents with graduate degrees selected this answer than expected by chance. Additionally, fewer graduate degree holders selected fine than expected by chance. Correspondingly, more graduate degree holders and fewer high school graduates selected fine and imprisonment than expected by chance. Surprisingly, more high school graduates selected parole than would be expected by chance.
Question 13: Public Responses by Age

Figure 4.35

Bar Graph Displaying Question 13, Public Responses by Age

Table 4.46

Question 13, Sample Size by Age

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
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<tbody>
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<td>18-29 years old</td>
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<td>30-39 years old</td>
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<td>80+ years old</td>
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<td><strong>Total</strong></td>
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</table>
Figure 4.36

Bar Graph Displaying Question 13, Responses by Group

Table 4.47

Question 13, Sample Size by Group

<table>
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<th>Sample Size</th>
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<tr>
<td>Public</td>
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<td>WAS</td>
<td>77</td>
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<tr>
<td>WAPA</td>
<td>32</td>
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<tr>
<td>Total</td>
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Question 13: Response by Education

![Bar Graph Displaying Question 13, Responses by Education](image)

**Figure 4.37**

**Bar Graph Displaying Question 13, Responses by Education**

**Table 4.48**

**Question 13, Sample Size by Education**

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
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<tbody>
<tr>
<td>Grade School</td>
<td>7</td>
</tr>
<tr>
<td>High School Diploma</td>
<td>179</td>
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<tr>
<td>Undergraduate Degree</td>
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<tr>
<td>Graduate Degree</td>
<td>156</td>
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<td><strong>Total</strong></td>
<td><strong>508</strong></td>
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ANALYSIS

Survey Questions 1 through 13

*Question 1: Where do you typically hear about archaeology?*

Results by age indicate that the public generally hears about archaeology through television, newspapers, internet, and magazines, and less through archaeologists and school, with even fewer through brochures. Those with grade school as their highest level of education typically learn about archaeology through television, followed by the newspaper. High School graduates also tend to learn through television and newspaper, but also through magazines and less through internet. Those with undergraduate degrees indicate television, newspaper, and internet at nearly similar intervals, with magazines following slightly behind. Those with graduate degrees typically learn about archaeology through the internet, followed by the newspaper, television and school, and magazines.

WAS and WAPA members hear about archaeology primarily through the internet, followed by school, other, and less through magazines, newspapers and television, with even fewer through archaeologists and brochures. The public hears of archaeology primarily through television and newspaper, followed closely by magazines and the internet, with fewest indicating learning through brochures.

Results by level of education indicate that those with less education tend to hear about archaeology through television, while those with higher levels of education selected school, internet, or other source.
**Question 2:** Which of the following do you actively use to seek out information about archaeology and cultural resources?

Overall, the majority of respondents between ages 18-59 indicated that the internet was their preferred source for seeking out information about archaeology and cultural resources. Those between ages 60-79 typically use television followed by newspaper, then internet and magazines, and those 80 years and older indicate television and magazine as their primary source for seeking out information about archaeology.

Public respondents indicated that they typically seek out information pertaining to archaeology and cultural resources through the internet, followed by television and then newspaper and magazine. WAS respondents typically seek out information through the internet and school, followed by other source, and then magazines. WAPA respondents use the internet and school, followed by magazine and then other source. These results indicate that the internet, television, are the two most sought out sources for such information by the public, while newspapers and magazines are also used.

Respondents whose highest level of education is grade school typically seek out information pertaining to archaeology through television, newspaper, and other source. High school graduates seek this information through the internet, followed by television, newspaper and magazines. Those with undergraduate degrees indicated internet as their primary source, followed by magazines and then school, newspaper, and television. The majority of respondents with graduate degrees indicated internet as their primary source, followed by school and magazines, and other.
**Question 3: Which of the following things do archaeologists typically do?**

Overall, regardless of age, the majority of respondents indicated that they think archaeologists study past cultures, and dig for and collect artifacts. However, a surprisingly high amount of respondents, regardless of age, believe that archaeologists study fossils or dig dinosaurs.

As would be expected, WAS and WAPA respondent trends are similar. The majority selected study past cultures and dig for and collect artifacts, followed by study living cultures (WAS: 40.3%; WAPA: 34.4%), study fossils (WAS: 22.1%; WAPA: 3.1%), and dig dinosaurs (WAS: 18.2%; WAPA: 0%). Public respondents chose dig for and collect artifacts (83.8%) and study past cultures (83.5%), followed by study fossils (54.3%), dig dinosaurs (42.2%), and study living cultures (30.40). These results indicate a general lack of understanding amongst public respondents of what archaeologists do. Also, while only a minor number of WAS respondents indicated that they think archaeologists study fossils and dig dinosaurs, this shows that there is somewhat of a lack of knowledge amongst this group as well, which was not expected.

Respondents whose highest level of education is grade school indicated that they thought archaeologists dig for and collect artifacts (100%), study past cultures (85.7%), study fossils (85.7%), dig dinosaurs (71.4%), and study living cultures (42.9%). High school graduates indicated that archaeologists dig for and collect artifacts (80.2%), study past cultures (79.7%), study fossils (57.1%), dig dinosaurs (42.9%), and study living cultures (32.4%). Those with undergraduate degrees chose study past cultures (88.7%), dig for and collect artifacts (84.5%), study fossils (44.6%), dig dinosaurs (37.5%), and study living cultures (32.1%). Graduate degree holders indicated study past cultures (93.6%), dig for and collect artifacts (79.6%), study fossils (32.5%), study living cultures (31.8%), and dig dinosaurs (22.9%).
These results indicate that there is a direct association between level of education and lack of knowledge of what archaeologists actually do. While the majority of respondents did indeed select dig for and collect artifacts and study past cultures regardless of education level, the amount of those who selected study fossils and dig dinosaurs reinforces that it is unclear exactly what archaeologists do.

*Question 4: To which of the following do you feel archaeology makes an important contribution?*

Overall, the majority of respondents, regardless of age, indicated that they felt archaeology makes an important contribution to preserving the past for future generations, providing data for research on past cultures, and educating modern society about other cultures. These results indicate that most age groups feel similar towards the important contributions of archaeology and that these contributions are multifaceted.

Responses to this question differ by group. The public indicated that archaeology makes important contributions to preserving the past for future generations (86.1%); providing data for research on past cultures (79.1%); educating modern society about other cultures (61.7%); finding artifacts that are skillful works of art (52%), supporting the heritage of modern society (38.3%), and providing economic opportunities through heritage tourism (32.9%). WAS respondents indicated providing data for research on past cultures (93.5%), preserving the past for future generations (90.9%), educating modern society about other cultures (83.1%); supporting the heritage of modern society (67.5%); finding artifacts that are skillful works of art (58.4%); and providing economic opportunities through heritage tourism (53.2%). WAPA members selected preserving the past for future generations (100.0%); providing data for research on past cultures (96.9%); educating modern society about other cultures (90.6%), supporting the heritage of modern society (81.3%); providing economic opportunities through
heritage tourism (81.3%), and finding artifacts that are skillful works of art (50.0%). These results indicate that public opinion of the important contributions of archaeology differs significantly from that of WAS/WAPA respondents. This points to a lack of understanding of the goals of archaeology amongst members of the general public.

It appears that with the exception of finding artifacts that are skillful works of art, answers are similarly distributed amongst those with high school diplomas, undergraduate degrees, and graduate degrees. These groups generally selected preserving the past for future generations, followed by providing data for research on past cultures, educating modern society about other cultures, supporting the heritage of modern society, and providing economic opportunities through heritage tourism. Finding artifacts that are skillful works of art shows a different trend, in which more respondents with undergraduate degrees than those with graduate degrees selected this answer. Those whose highest level of education is grade school selected preserving the past for future generations (100.0%); providing data for research on past cultures (85.7%), finding artifacts that are skillful works of art (57.1%); educating modern society about other cultures (57.1%), providing economic opportunities through heritage tourism (42.9%); and supporting heritage of modern society (28.6%).

These results indicate that there is a need for increased education in grade school pertaining to archaeology and its importance to the modern society and economy. However, the distribution between all categories also indicates that while perspectives differ between education level, respondents of all levels selected each of the possible contributions; indicating a general perception of archaeology as important.
Question 5: What is your level of interest in learning about archaeology/cultural resources?

Results indicate that the majority of respondents in age groups 30-39 (58.3%), 50-59 (56.7%), and 60 and older (60-69: 68.3%; 70-79: 64.3%; 80+: 54.6%) are interested or very interested in learning about archaeology and cultural resources. Most respondents between 40-49 (48.8%) years of age indicated that they were neutral when it comes to learning, and 50 percent of the 18-29 year respondents selected not very interested. Very few selected completely uninterested. With the exception of the 18-29 year old group, and 40-39 year old respondents who were neutral, these results indicate an overall moderate level of interest in archaeology, regardless of age.

The majority of the public respondents (45.7%) indicated that they are interested in learning about archaeology and cultural resources and 13.7 percent are very interested. Of the remaining respondents, 26 percent selected neutral, 10.9% selected not very interested, and 0.3% selected completely uninterested. The majority of WAS (80.5%) and WAPA (96.9%) members indicated that they are very interested, while 18.2 percent of WAS respondents and 3.1 percent of WAPA selected interested. Additionally, although unexpected, 1.3 percent of WAS respondents selected not very interested. Overall, these results a moderate to high amount of interest in archaeology and cultural resources amongst these groups.

Similar trends in levels of interest were observed amongst high school graduates and those with undergraduate degrees. The majority of both of these groups indicated that they are interested; high school diploma (48.9%) and graduate degree (34.5%). The exact same amount of respondents whose highest level of education is grade school selected not very interested (28.6%) and interested (28.6%), and the majority of graduate degree holders selected very interested (46.5%). These results indicate that the majority of respondents are interested or very
interested, while those who indicated grade school as their highest level of education are
generally either interested or not interested.

Question 6: Do you know of any federal laws related to cultural resources, archaeological sites, burial, or artifacts on public lands?
Regardless of age, respondents were more likely to indicate that they know of laws pertaining to public lands than those indicating that they knew of any such laws related to private lands;
Question 7. These results indicate that knowledge may be correlated by age among the respondents between ages 30-39 and those 50 and over.

While the majority (70%) of public said yes, a significant amount (30%) are unaware of any cultural resource laws pertaining to federal lands. This suggests that the Wyoming archaeologists, who indicated that they felt that the public were breaking the law without knowing it, were right.

Based on the results for level of education, knowledge of cultural resource legislation pertaining to public lands appears to increase with education.

Question 7: Do you know of any federal laws related to cultural resources, archaeological sites, burial, or artifacts on private lands?
While members from all age groups indicated that they know of laws related to private lands, at present, there are none in Wyoming. This indicates a lack of knowledge of cultural legislation.

Results for this question by Group are similar to those of Question 6. However, it appears that in this case, the public is more knowledgeable regarding the lack of cultural resource legislation that pertains to private land than members of WAS/WAPA. Fifty-eight percent of WAS respondents answered yes and an even more alarming amount of WAPA members (85%) indicated that they know of legislation pertaining to private lands. Since the majority of WAPA
members have resided in the state for a lesser amount of time than respondents of the other
groups, it is likely that the states from which they came had such laws and that they are unaware
of the fact that Wyoming has no state burial laws pertaining to private lands.

Results by education indicate that with the exception of those whose highest level of
education was grade school, knowledge would appear to increase with education. However, in
this case the opposite is true, as such legislation does not currently exist. Therefore, the 34.6
percent of respondents with high school diplomas who answered yes to this question appear to
have the most knowledge out of the groups.

*Question 8: Do you think it should be legal for members of the public to dig and collect
prehistoric and historic artifacts on public land?*

With the exception of respondents between ages 30-39 (66.7%), the majority of respondents of
other age groups do not think it should be legal. However, the relatively high percentages of
respondents in all age groups who think it should be legal indicates that there is a significant
portion of the population who feel that these activities should be legal; likely correlating with the
increased amount of looting within the HIAs.

Based on their level of involvement with cultural resources and knowledge of legislation
pertaining to these activities on public land, it was expected that zero WAS and WAPA
respondents would answer yes. Additionally, though the majority of the public respondents do
not think these activities should be legal, the remaining portion (36.9%) do. This is a significant
amount of the population and indicates that there is an overall lack in knowledge of cultural
resource legislation pertaining to public lands amongst members of the public as well as WAS
members than one would have thought.

With the exception of respondents whose highest level of education was grade school,
there seems to be an association between education and increased knowledge of cultural resource
legislation pertaining to public lands. However, the respondents whose highest level of education was grade school seemed to have more knowledge of cultural resource legislation pertaining to public lands than both high school and undergraduate degree holders. The overall relatively even distribution between these groups (only 15%) indicates that while these results specify a statistically significant difference in knowledge based on education, overall, there is a need for increased education regarding cultural resource legislation.

**Question 9: Do you think it should be legal for members of the public to dig and collect human remains or grave goods from public land?**

More 18-29 year olds (20%) and respondents 80 years and older (17%) seem to think these activities should be legal compared to other age groups. However, these percentages are overall significantly decreased for human remains or grave goods compared to artifacts, as seen in the previous question. This indicates that there is a difference in morally-based perspectives and that the public is more likely to be supportive of burial legislation pertaining to private land rather than legislation pertaining to non-burial artifacts on private land.

While zero WAPA respondents answered yes, a surprising 2.6 percent of WAS respondents did. These results indicate that amongst all three groups, only a few to zero respondent’s feel that digging for and collecting human remains or grave goods from public land should be legal.

It appears that there is a relationship between those who answered yes and their level of education, in which respondents with higher levels of education were less likely to think these activities should be legal than those with less education.
**Question 10:** Do you think it should be legal for members of the public to dig and collect prehistoric and historic artifacts on **private** land without the landowner’s permission?

There is a clear difference in attitudes amongst the youngest and oldest groups when compared with the others, like that of responses from the previous question. Ten percent of respondents ages 18-29 and 9.1 percent of those 80 years or older indicated that they think these activities should be legal regardless of landowner permission. Interestingly, zero respondents between ages 30-39 felt these activities should be legal without private landowner consent. These results indicate that the younger and older generations have less respect for landowner rights than the majority of the other age groups, while those between ages 30-39 are very “land-rights oriented.”

It would be expected that affirmative responses of WAS and WAPA members would be zero or at least significantly less than those of the public, as these members are held to professional and ethical standards.

With the exception of undergraduate degree holders, an overall decrease in respondents who answered yes was observed as level of education increased. These results indicate that overall, there is a relatively strong sentiment regarding the rights of private landowners amongst respondents. However, 12.7 percent of respondents indicated that it is okay to trespass and conduct these activities.

**Question 11:** Assuming that you own land, how strongly do you agree or disagree that you should be allowed to dig for and collect prehistoric or historic artifacts on your **private** land?

With the exception of those 70-79 and 80 years and older who remained neutral, the majority of respondents from all age groups agree or strongly agree. These results indicate that there is an overall moderate to very strong attitude regarding private property and ownership rights regardless of age group. Interestingly, zero respondents between the ages 30-39 either
disagree or strongly disagree. This age group had the highest amount of those who strongly agree (50%) and third highest (41.7%) who agree.

Results by group indicate that there are no statistically significant differences, however, there is a general similarity in trends between groups in which the majority of the public (61.5%) thinks these activities should be allowed on private land, followed closely by WAS respondents (59.8%), while fewer (46.9%) WAPA respondents agreed.

Results by level of education indicate that with the exception of those whose highest level of education was grade school, the majority of respondents feel that they should be allowed to dig for and collect artifacts on their private land, regardless of level of education.

Question 12: Assuming that you own land, how strongly do you agree or disagree that you should be allowed to dig for and collect human remains or grave goods on your private land? With the exception of 18-29 year olds, 30-39 year olds, and those 80 years and older, the majority of respondents disagree or strongly disagree. These results indicate that when it comes to your own private land, more respondents overall were likely to agree, strongly agree or remain neutral than those of Question 9. Overall, the results indicate an association with attitudes regarding private land and ownership rights and suggest that the preservation message be targeted at people between the ages of 18 and 39; specifically those between 18-29 years old.

Overall, the majority of respondents strongly disagree or disagree. Results trend similarly to those observed in the previous question, in which the public represents the highest amount of respondents who think these activities should be allowed (22.7%), followed by WAS respondents (12.0%), while a lesser amount of WAPA respondents agreed (6.2%). While not statistically significant, it is surprising to observe that any respondents of WAS and WAPA strongly agree, agree, or remain neutral, as these activities directly defy the code of ethics these members agreed to abide by.
Results by level of education indicate that with the exception of those whose highest level of education was grade school, there appears to be an association between those answering yes and increased level of education, in which fewer responses of yes were indicated as education increased. However, the lack of statistical difference between these groups indicates that there is no significant association between level of education and attitude pertaining to private land and ownership rights. Additionally, overall, this question received much fewer affirmative answers than those received by the previous question. These results indicate that while attitudes are somewhat similar amongst those who feel that these activities should be allowed, the majority of respondents felt that they should not be. This indicates that there is a general level of respect for human remains/grave goods that does not differ by increased levels of education.

**Question 13: Assuming that digging for and collecting artifacts on public land is illegal, what penalties should those conducting these activities face?**

Overall, with the exception of 30-39 year olds, the majority of respondents indicated that individuals conducting these activities should face a fine and community service. These results indicate that the majority of the public generally views such offenses as worthy of punishment, but that these punishments should not include jail time.

Group results indicate that the public prefers lesser penalties for those conducting these activities, while WAS selected slightly more increased penalties and WAPA respondents felt that harsher penalties were most appropriate. Overall, 40 percent of public respondents selected fine and community service, 22 percent selected fine, and 9.7 percent felt no punishment was necessary. 9.7 percent of public respondents also selected fine and imprisonment, while 2.6 percent selected imprisonment and community service, and less than 1 percent selected parole. Most WAS respondents (35.1%) selected fine and community service, followed by fine and imprisonment (29.9%), fine (18.2%), imprisonment and community service (5.2%), and
surprisingly, the 2.6 percent who selected none. WAPA members mostly selected fine and imprisonment (34.4%), followed by fine and community service (28.1%), imprisonment and community service (15.6%), and fine (3.1%). Zero WAS or WAPA respondents selected parole as a penalty and 0 percent of WAPA respondents selected none. These results indicate an obvious trend amongst WAS and WAPA members, who felt moderate to increased penalties were appropriate for such offenses, and the public, who preferred fines and community service or no penalty.

Results by level of education indicate that there does not seem to be a relationship between preferred punishment and level of education. The majority of respondents selected fine and community service, fine, or fine and imprisonment. Those with high school diplomas were more likely to feel that no punishment was necessary than the other education levels, but also more likely to select parole than the others.
Chapter VI

DISCUSSION AND CONCLUSIONS

This is the first research to focus on the cultural resource legislation and archaeological knowledge of Wyoming residents and to identify and analyze trends in spatial and tabular data on looting within the state. The results of this project are very meaningful and directly applicable to the state’s current and future State Preservation Plan (SHPO 2016a).

Statistical results of the survey responses of Wyoming residents within areas characterized by heavy prevalence of looting/vandalism were analyzed. The goal was to determine if a lack of public knowledge of federal and state cultural resource legislation was a contributing factor to these activities, or if the opposite was true. Based on survey results, it appears that there is a significant lack of knowledge pertaining to archaeology and cultural resource legislation among the public that is likely correlated with the heavy prevalence of looting/vandalism within the HIAs. However, there is also a moderately high level of interest in archaeology and overall, the majority of respondents feel that archaeology makes important contributions to preserving the past for future generations; providing data for research on past cultures; and educating modern society about other cultures. The overall attitude of being in favor of collecting on private land is much higher than for public land and there are strong attitudes regarding private landowner rights. Additionally, results indicate that people are less inclined to favor digging and collection of human remains than they are artifacts; especially on public lands. It is important to recognize and understand such trends if we are to find an effective means to their end. By targeting the public through their preferred means of seeking out information about archaeology and through increased education regarding cultural resource legislation, the amount of looting in the state might be significantly reduced. In combination with the results of the survey component of this
research, we now have a more objective insight into the trends, perceptions, and attitudes associated with looting. This information can be utilized to generate more informed methods to successfully combat these activities.

Comparative Discussion

The results of this thesis research share some similarities as well as differences to those of regional and nationwide surveys that were conducted between 1991 and 2000; Pokotylo and Mason 1991, Pokotylo and Guppy 1999, and Ramos and Duganne 2000. A few of these are discussed below.

While Pokotylo and Mason’s (1991) results did not indicate a significant association between level of education and knowledge of present laws, the opposite is true of the current study. Responses to Question 6 indicate that knowledge of federal laws pertaining to cultural resources, archaeological sites, burials, or artifacts on public lands increases with level of education.

Pokotylo and Mason’s findings (1991), and those of Pokotylo and Guppy (1999) and Ramos and Duganne (2000) regarding information source and preferred information source for archaeology were somewhat similar to those of the current study. However, the 1991 results exclude the internet as a potential selection, as the study was conducted during the same year that the World Wide Web was opened to the public. Television ranked number one for both categories in the 1991 (80.7%; 76.5%) and 2000 (556%; 50%) studies. In the 1991 study, magazines (65.5%) were the second most selected source of information, followed by books (58.7%), newspapers (47.3%), courses (46.7%), and movies (29.9%). Preferred information sources for the 1991 study were television (76.5%), followed by museum exhibits (67.9%), archaeological dig visits (66.1%), education system (57.9%), magazines (46.3%), newspaper
(40.3%), and books (39.6%). After the category museums (57.5%), respondents in the 1999 study indicated television (54.5%) for their information source, followed by travel (36.7%), books (24.3%), magazines (23.6%), secondary school (20.5%) and college (16.5%), and newspapers (11.1%), then primary school (9.2%). However, their preferred means were television (67.5%), travel (62.0%), and museums (57.7%), followed by books (34.5%), magazines (33.9%), education courses (24.4%), and newspapers (22.8%). The least preferred information source from the 1999 study was the internet (<5%). In the 2000 study, after television (56%), magazines (33%), books and encyclopedias (33%), and newspapers (24%) were primary sources of information, followed by college (23%), secondary school (20%) and primary school (10%). Preferred sources from the 2000 study include television (50%), magazines and periodicals (22%), books and encyclopedias (21%), and newspapers (11%).

Public respondents for the current study also indicated television (62.9%) as the typical information source; however, this was followed by newspaper (50.8%), magazine (37.8%), and internet (37.1%), and then archaeologists (18.1%), other (14.6%), school (13.5%), and brochure (7%). For preferred sources, after internet (54.3%), television (32.9%) was the top information source for the current study, followed by newspaper (27.8%) and then magazine (27.1%), other (15.8%), and archaeologists (14.8%), while school (7%) was the second least preferred source, and brochure (4.2%) was the least preferred. This is a significant difference between the three studies. Pokotylo and Mason (1991) reported that 57.9 percent of respondents indicated the education system as a preferred information source, and a total of 24.4 percent from the 1999 study and 53 percent of Ramos and Duganne’s respondents selected this source, while only 7 percent of public respondents of the current study selected this source. These results compare with those related to the education system for source of information (not necessarily preferred),
in which the percentages decrease with time. Results for education system/courses/school indicate a total of 46.7 percent from the 1991 study, 46.2 percent from the 1999 study, and 53 percent from the 2000 study hear about archaeology through these sources, while only 13.5 percent of respondents from the current study selected school as an information source. Overall, these results indicate that the education system has become less of a source for information over time and this likely correlates with the significantly decreased proportion of the public respondents in the current study who indicated school as their preferred source. It is therefore necessary that education efforts be focused on K-12 students throughout the state, so that school can once again become both a source of information and preferred source of information about archaeology.

Pokotylo and Guppy’s (1999) and Ramos and Duganne’s (2000) studies included questions regarding penalties for knowingly destroying archaeological sites or removing artifacts from sites on public land. While it was reworded in the current study to “assuming digging and collection of artifacts on public land is illegal, what penalties should those conducting these activities face?,” these questions served as the basis for Question 13 of the current study. In all three studies, the majority of respondents indicated that a penalty should be imposed for those conducting such activities. Of the potential penalties listed, the majority of respondents in Pokotylo and Guppy’s (1999) study and the current study indicated fine and community work (1999: 42.6%; current study: 40%), followed by fine (1999: 24%; current study: 22%). These results differ from those of respondents in Ramos and Duganne’s study (2000), in which the majority (62%) selected fine as the method of punishment. Of these respondents, 10 percent selected fine and community service. A total of 3.5 percent from the 1999 study and 9.7 percent from the current study selected fine and imprisonment. “Very few respondents [in the 2000]
study felt that the penalty should involve imprisonment” (Ramos and Duganne, 2000). Correspondingly, 0.8 percent from the 1999 study and 2.6 percent from the current study selected imprisonment and community service. Slightly less respondents from the 1999 study (0.8%) indicated that those conducting these activities should face no penalty. These results indicate that overall, penalties are generally conceived in the same manner by public respondents. While the majority of the public feels that some type of punishment for digging and collecting artifacts on public land is warranted, there is an overall lack of knowledge of the seriousness of the effects of such offenses amongst members of the public. Therefore, it is necessary that these impacts and the seriousness of actual related punishments under ARPA and the Wyoming Antiquities Act be brought to light, so that they might influence the reduction in such activities.

Additionally, all four studies indicate that the public is interested in archaeology, but has a general misunderstanding when it comes to what archaeologists do. Only 3 percent of nationwide respondents in Ramos and Duganne’s (2000) study indicated that they were uninterested in learning about archaeology, compared to the 15.2 percent in the current study. 43.1 percent of respondents from Pokotylo and Mason’s study indicated that archaeological practice involves excavation of valuable art objects. Similarly, 52 percent of public respondents in this study indicated that one of archaeology’s important contributions is finding artifacts that are skillful works of art. Only slightly more respondents from the 1991 study indicated that they believe archaeologists study fossils (56.6%) as compared to those of the current study (54.3%), while a surprisingly higher amount (92%) of respondents in Ramos and Duganne’s study selected this answer. Similarly, 85 percent of respondents in the 2000 survey thought
archaeologists study dinosaurs, while 42.2 percent of respondents in the current study selected this answer.

While less respondents in the current study selected dig dinosaurs and study fossils than those of the 1991, 1999, and 2000 studies, these results indicate the continued lack of knowledge/misconception on this subject over the past 25 years. While results were similar among respondents of both studies who indicated that archaeologists study past cultures, a higher amount of respondents of the current study indicated that archaeologists study living cultures (30.4%) than those from the 1991 study (16.2%).

Pokotylo and Guppy’s (1999) results indicate that the public considers archaeology relevant in contemporary society. While the current study formulates this question as one with multiple choices, the same overall results were observed. Over half of the public respondents indicated that archaeology’s important contributions include preserving the past for future generations (86.1%), providing data for research on past cultures (79.1%), educating modern society about other cultures (61.7%), and finding artifacts that are skillful works of art (52%).

Future Implementations, Directions, and Recommendations

“Apart from some vaguely characterized strategies of ‘awareness-raising’, there are no practical actions aimed at reducing demand,” but rather efforts are focusing on stopping supply (Brodie 2016). Brodie calls for more research into late- and early-twenty-first century collection practices and their market demand. He feels that the lack of research (Figure 5.1) demonstrates an absence in “scholarly interest in recently assembled collections of unprovenanced and most likely illicitly traded objects and their market context” (Brodie 2016). To further illustrate his opinion on the state of research pertaining to modern day collecting, he quotes the writing of sociologist, Angela Brew, “Research sometimes avoids attempting to solve society’s closest and
most pressing problems, instead choosing to escape from the world to pursue knowledge of that which is distant and socially unproblematic” (Brodie 2016).

![Figure 5.1](image)

**Figure 5.1**

Published Papers Focusing on Research into Collection Practices by Corresponding Decade (Adapted from Brodie 2016)

As evidenced by the suggestions included in this research, there are a multitude of varying perspectives associated with methods and strategies for combating looting. Contending the belief that by “eliminating the market, you will eliminate the digging,” Davis (1998) stated that “there will always be a market because collecting is part of human nature…[and] so long as there is a large market to be fed, there will be illegal digging.” Whatever the case may be, this does not negate the necessity to research, create, and implement new and existing methods in the battle against looting.
McManamon (2002:37) argues that a local, rather than “one size fits all” approach to archaeological messages would be most useful to the public and emphasizes the importance of researching “what the public knows, thinks about, or uses from the past” to constructing meaningful and effective messages. This project set out to do just that. The questionnaire was used as an evaluative tool. Combined with the non-survey components, the intended outcome was to gather and analyze data to aid in developing informed, effective means of decreasing the destruction of cultural resources within these highly impacted areas and the state as a whole. The results presented in this research can serve as a guide or basis for future research into these activities.

*Role of Museums and Outreach*

Elia (2009:131) emphasizes that it is vital that we stress the fact that more is at stake than a contest over ownership of “treasure” in public statements and media interviews. Although he is referring to cases involving the return of looted archaeological objects by museums, this concept also applies directly to efforts of public outreach.

“Unfortunately, in most negotiated agreements for the return of looted archaeological objects the culpability of museums in the destructive phenomenon of looting is rarely highlighted. Instead, in the interest of achieving the return of cultural objects without litigation, agreements are fashioned that allow museums to admit no guilt and accept no legal liability. They are, in effect, permitted to appear innocent of any wrongdoing, as though ignorant of the cause-and-effect relationship between unprincipled collecting and looting. Moreover, they are often rewarded in terms of generous loans that form parts of agreements. Source countries have every right to seek the return of looted antiquities in the manner that they deem fit. Moreover, the consequent media attention is certainly of public benefit in revealing that respected museum institutions have acquired looted objects and must return them. But it should be asked whether this is enough. Negotiators for source countries should act with the aim not only of securing the return of looted cultural objects but also of deterring further looting in their countries. They should be encouraged to focus not only on individual looted objects but also on pressuring museums to change their acquisition policies. Deterrence should be a goal equal to the recovery of looted artefacts, as the return of a few looted objects can never match the archaeological information that has been destroyed in the process. The return of looted archaeological objects can never be a complete victory unless it leads to the prevention of future looting and destruction” (Elia 2009:131).
As museums are perhaps the most visited places for knowledge about cultural resources, incorporating ethical messages regarding legality and preservation is an important part of public education and can serve as a way of influencing societal norms.

**Utilization of Technology as a Modern Method**

Since Contreras and Brodie’s (2010 and 2012), articles brought to light the usefulness of satellite imagery in detecting and battling looting, others have discussed the utility of employing related technological instruments and methods as some of the more modern techniques in the battle against looting. Very recently, Assistant Professor of Anthropology at DePaul University, Dr. Morag Kersel, has recommended using drones as a way of monitoring site destruction and looting (*The Siasat Daily* 2016).

Dr. Sarah Parcak, founding director of the University of Alabama at Birmingham’s Laboratory for Global Observation and associate professor of archaeology, received TED’s most prestigious ($1 million) award for her work that involves mapping looting using satellite technology (Blumenthal and Mashberg 2016). Parcak plans to use the funds to develop “cutting-edge computer technology for combating looting” (Pringle 2016). Her online program involves the use of satellite imagery and crowd-sourcing with the purpose of locating new archaeological sites and mapping looting activity; what is being referred to as “space archaeology” (Pringle 2016). Parcak’s plan combines an innovative public outreach approach that involves “citizen science” with the purpose of enlisting the public’s help in detecting and combating these activities. Additionally, Parcak plans to share the data on looting activity with the corresponding government, as well as provide archaeologists with maps of previously undocumented sites in their respective regions (Pringle 2016).

According to Parcak, “the reality is we are losing the battle against looting. Archaeologists have limited resources, and we need to scale up big time…The big dream is that
ultimately we will map the entire world…You’d have a global alarm system where areas would
glow red when they are being looted” (Pringle 2016). While it has been designed to be a globally
based technology, it seems that the program’s focus could also be narrowed down to a specific
country or area (i.e. Wyoming). Based on my results, which indicate that the public is interested
in archaeology, this would be a step in the right direction.

**Wyoming Specific Methods**

*Reducing Demand/Sharing Knowledge of Connected Illegal Activities*

Citing Elia’s (2009) *Collectors are the Real Looters* article, Brodie (2016) reiterates a
very important statement that “the illicit trade in cultural objects and the associated looting of
archaeological and cultural sites is a demand-led phenomenon.” McAllister (personal
communication 2016) and others (Bruhns 2001; Desio 2004; Patel 2009), have stated that these
illegal activities rank within the top 5 highest crimes and have been proven to be directly
correlated with other illegal activities, such as those dealing with methamphetamines and the gun
trade. If those involved in the detection of such more publicized crimes are properly educated in
cultural resource legislation and know what they are looking for, it is extremely likely that
cultural resource heritage crimes will be increasingly detected as part of other criminal
investigations.

*Public Outreach and Education*

Public education is perhaps the most common suggestion for reducing looting and
vandalism (Knoll 1991). It has been presented as a means of deterring these activities since their
effects were first recognized (Davis 1998). According to Zimmerman (2003:10), “we need to
find ways to teach that are entertaining and intellectually enlightening,” and “change our
attitudes and strategies about working with the media” (2003:123). Survey results indicate that
there is a need for increased educational efforts throughout the state focusing on cultural resource
legislation, archaeology in general, its values, and the importance of preservation. Information pertaining to archaeology is not as present in high school and lower grades as it is in college programs; therefore targeting grades K-12 with this information would effectively increase exposure to knowledge regarding archaeology and cultural resources.

Law Enforcement Outreach and Education

In direct relation to the statements made regarding the connection of looting activities to other illegal activities, it is suggested that the SHPO, other state agencies, federally recognized tribes, or even cultural resource management firms host local or statewide Archaeological Damage Investigation and Assessment (ADIA) classes. These classes would be directed at Wyoming Agency and Law Enforcement Officials, archaeologists, and tribal members with the purpose of focusing on cultural resource crimes, their detection, effects, and ways in which they can be successfully investigated and prosecuted. In addition to ADIA staff, Wyoming archaeologists and tribal members present could answer questions and address tangible effects of cultural resource crimes.

King (1991:81) states that it is “improbable that education will have more than a marginal impact on the overall pothunting problem”. Due to the continuation of these activities despite such previous efforts within the state, as my results indicate, it appears that King’s statement may in fact be correct that public education alone is ineffective. However, as recent successes have proven, when directed at law enforcement officials, education on cultural resource issues combined with effective use of legislation may have the most significant impact on reducing these activities. For this reason, a combination of educational efforts for both of these groups is suggested.
Incorporation of Native American Voices in Preservation Message

It is vital that the voices of Native Americans are incorporated into educational programs - especially in those related to preservation issues in which law enforcement and governmental officials are involved. It is suggested that these perspectives be specifically sought out and included in the following recommendations.

Influencing Public Opinion and Behavior

Brodie and Contreras (2012:23) suggest promoting financially modest strategies of heritage management to inspire public support of heritage as an educational resource or tourist attraction and “discourage digging through ostracism or other means of social persuasion.” They state that “strategies of social persuasion can be more productive than legislative countermeasures” and also recognize the importance of engaging with collectors and “policy makers charged with site protection and/or the movement, sale, and purchase of antiquities” (Contreras and Brodie 2010:30). While he warns of the potential dangers associated with interacting with criminals violating ARPA, King (2013:277) also promotes forming relationships with local artifact collectors with the purpose of converting them into site stewards who can help monitor and protect sites and report vandals.

Miller (1982) proposes changing the norms of behavior as a solution to the problem of looting. While he is suggesting that museums be the ones to take on this task, as their role “in forming public opinion and taste cannot be overestimated” (Miller 1982:42). These concepts can and should be undertaken by archaeologists as well. By making the public aware of the issues associated with looting; specifically that these activities negatively impact our understanding of the past and are not victimless crimes, and that collectors play a crucial role in the looting process, and replacing a “zeal for owning with a zeal for knowing” (Miller 1982:44), we can
influence changes in behavioral norms that will drastically decrease participation in these activities.

According to Pitblado and Schott (2015:37), “SAA has recently re-embraced the goal of working with the metal detecting community,” resulting in a mutual beneficial relationship. Metal detectorists or detecting clubs in Wyoming should be sub-target area for educational messages and training pertaining to state and federal laws. As this activity becomes more popularized by the entertainment industry, it corresponds with increases in looting of archaeological sites and emphasizes the overarching necessity of reaching out to these groups and individuals as a means of prevention. Survey results indicate that public service announcements and social media would be a good place to start. When properly informed and provided the opportunity to partner with professionals, these enthusiasts would be more likely to conduct their activities in an ethical manner. This may effectively influence the reduction in looting activities observed as having increased over the past 6 years related to historic sites.

While varying opinions exist regarding collaboration with collectors, Pitblado and Schott (2015) feel that a similar educational approach to the one employed by the SAA’s Metal Detecting Task Force would likely “yield maximum “wins” for maximum stake-holders.” This inclusive “engagement strategy” would enable us to reach a larger amount of those people who are most likely to accept professional methods and ethics and convert from their unintentionally destructive ways to become site stewards concerned with protecting the past (Pitblado and Schott 2015). Additionally, they, along with others (Luke and Kersel 2005) touch on an important topic regarding the gap in knowledge related to the lack of studies focusing on looter ethos. Pitblado and Schott (2015:37) advocate conducting ethnographic studies of collecting populations, which would allow us to “gain a better understanding of their demographics, motivations, extent, and
nature of prior interaction with professionals, desire to interact with professionals”…etcetera.

Actively seeking out and gaining an understanding of these key points will enable us to effectively influence social norms and thereby decrease looting activities.

*Using Popular Media to Employ Accurate Portrayal of Archaeology and Promote Conservation Ethic*

This type of method goes hand-in-hand with seeking to influence public opinion and behavior. Archaeologists need to work to change the way in which the media portrays archaeology and cultural resources. As current public interest lies in the hunt for “treasure,” we need to focus efforts on changing the ideology of what “treasure” means and reinforce the importance of every artifact and how it is the compilation of all of these artifacts in context that is the real treasure. Based on the fact that the public overwhelmingly prefers television and the internet as sources for learning about archaeology, efforts to use these sources to advance the preservation message should be a priority. Public Service Announcements, advertisements including short videos on popular websites and Facebook interest groups would be key first steps, with an “archaeology” television series that showcases real archaeology and incorporates a strong educational component as an ultimate goal.

*Lobbying for Establishment of State Burial Legislation*

To date, with the exception of NAGPRA pertaining to burials on public lands, Wyoming legislation does not include statutes to protect graves at abandoned cemeteries, those on private land or unmarked burials older than 125 years. State burial legislation is located in Appendix E. Due to the lack of protection for such burials; legislation was proposed in 2008 that would deal with the discovery and treatment of such human remains on both public and private lands. Unfortunately, this bill did not pass due to concerns from the legislature regarding private property rights (Judy Wolf, personal communication 2016).
Based on knowledge regarding perceptions and attitudes related to human remains and grave goods that was obtained as a result of this study, if made aware of the push for this legislation, it is very likely that Wyoming residents would be supportive of the bill’s reintroduction in the state legislature. Only a very minute proportion of the survey respondents felt that digging for and collecting human remains or grave goods on public and private land should be legal, and even less indicated that they felt these activities should be legal on private land without landowner permission. This indicates that an overwhelming majority of Wyoming residents feel that these activities should not take place regardless of landownership. As a result, if public opinion was polled for the establishment of State burial legislation pertaining to the discovery and treatment of unmarked burials, graves at abandoned cemeteries, and those on private land, it would likely indicate support of such legislation. It is therefore suggested that the opinions represented in this survey be made known to Wyoming legislature and that efforts of informing the public and gaining their support be made, so that if reintroduced, it would have more backing and be likely to pass.

**Wyoming Cultural Properties Form Updates/Additions**

To aid in data organization, accuracy in future research, and potentially in investigation and prosecution of cultural heritage resource crimes, it is suggested that the Wyoming SHPO update Section 3 of the Wyoming Cultural Properties Form; *Factors Affecting Integrity*. It would be beneficial to include an explanation of looting-related factors to avoid confusion among site recorders as mentioned in Chapter III – Research Question 3. Suggestions include:

- Adding a box to be checked to indicate site was previously collected by cultural resource investigator and separate box for evidence of looting-related collection
• Adding a box for manual excavation related to one-by-one units or shovel tests conducted by cultural resource investigator and separate box for evidence of unauthorized manual excavation (looters pits)

• Adding a box for additional looting activities observed during site revisits/re-records.

• Requiring detailed explanations, GPS mapping, and photographic evidence of looting-related activities – perhaps as a separate form that could be provided to law enforcement officials to aid in investigations/prosecution

**State Historic Preservation Plan Comments/Suggestions**

If at all possible, it is suggested that the ADIA training discussed above be integrated into the State Historic Preservation Plan. Not only would it make a great addition to existing methods, it could build upon existing contacts and relationships to aid in the overall success of these combined methods. The program could be implemented every two to three years or be dependent upon statewide law enforcement turnover rates. If incorporation into the plan and existing methods is not possible, it is then suggested that the SHPO publicly state their support for such training.

Survey results indicate that the public does not see schools as a source for such information. This correlates with the need for increased educational efforts. One of the new proposed public outreach components in the 2016-2026 Draft State Preservation Plan includes the development and incorporation of the Wyoming Archaeology Education and Outreach Plan, which plans to target Wyoming youth (K-12) and provide them with educational opportunities related to archaeology. According to the Plan’s Director and State Archaeologist, Greg Pierce (SHPO 2016a: 54-55), “this new educational plan will prove integral in educating Wyoming’s youth on the importance of the state’s history and opening up a dialog about issues relating to our cultural
resources.” As it is currently not included in the draft plan, incorporation of preservation as one of the main components of the proposed outreach plan is suggested.

Additionally, Goal 2 of the Wyoming Site Stewardship Program Goals and Strategies in the 2016-2026 Draft State Preservation Plan, includes increasing public awareness of the significance and value of cultural resources. The three strategies include the following (SHPO 2016a: 57):

- Visit locations across the state and offer site stewardship trainings and public talks.
- Make and distribute archaeological brochures and informational bookmarks to the state and federal agencies for public availability
- Use websites, social media, and local media/newspapers to publicize information about the successful site stewardship projects in the state

Based on the results of the current study, it is suggested that the program spend less time and efforts on making and distributing archaeological brochures and informational bookmarks for public availability and instead use those funds and time to focus their third strategy.

It is also recommended that:

- the SHPO consider getting CRM firms involved in the Stewardship Program to increase participation and the total number of sites able to be protected throughout all areas of the state
- and increased efforts be made to broadcast the preservation message across these websites, social media, and local media in incorporation with third strategy of Goal 2.
We shall conclude with a quote from Hester Davis from 1972 that is unfortunately just as applicable today as it was 44 years ago:

“The current crisis in American archeology has been brought about by a combination of the greatly increased rate of destruction of unique, irreplaceable archeological information and material, and the lack of adequate funding for salvage of what is being destroyed…Land leveling, urban development, inexperienced or ignorant diggers, commercial dealers in Indian relics…and many other agents of destruction are obliterating traces of the past…The problem of the destruction of archeological sites and information is a complex one, with no single solution…A combination of increased support for archeological research through increased funding, and development of a knowledgeable, interested public will go a long way toward assuring this country that a significant portion of the past will be available for the benefit of future generations. If solutions are not sought and found now, it will be too late – we will have committed ourselves, irretrievable and irreversibly, to the future, without benefit or knowledge of the mistakes and lessons of the past” [Davis 1972:272].
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APPENDICES
APPENDIX A

Survey Questionnaire
Sex: M / F  Age: __________  Length of Residence in Wyoming: ______________
Residential Status: Rural  Urban
Highest Level of Education: Grade School  Undergraduate Degree
High School Diploma  Graduate Degree
Level of Income: $11,500-36,499  $36,500-61,499  $61,500-86,499  $86,500-$111,500
Occupation: __________________________________________

*For each starred question, please select all of the answers that apply*

*1) Where do you typically hear about archaeology?*
  1) television  2) newspaper  3) magazine  4) archaeologists  5) brochure  6) school  7) internet
  8) other __________________________

*2) Which of the following do you actively use to seek out information about archaeology and cultural resources?*
  1) television  2) newspaper  3) magazine  4) archaeologists  5) brochure  6) school  7) internet
  8) other __________________________

*3) Which of the following things do archaeologists typically do?*
  1) dig for and collect artifacts  2) dig dinosaurs  3) study living cultures  4) study fossils  5) study past cultures

*4) To which of the following do you feel archaeology makes an important contribution?*
  1) preserving the past for future generations  2) providing data for research on past cultures
  3) supporting the heritage of modern society  4) finding artifacts that are skillful works of art
  5) educating modern society about other cultures  6) providing economic opportunities through heritage tourism

5) What is your level of interest in learning about archaeology/cultural resources?
  1) completely uninterested  2) not very interested  3) neutral  4) interested  5) very interested

6) Do you know of any federal laws related to cultural resources, archaeological sites, burials, or artifacts on public lands?  Yes / No

7) Do you know of any federal laws related to cultural resources, archaeological sites, burials, or artifacts on private lands?  Yes / No

8) Do you think it should be legal for members of the public to dig and collect prehistoric and historic artifacts on public land?  Yes / No

9) Do you think it should be legal for members of the public to dig and collect human remains or grave goods from public land?  Yes / No

10) Do you think it should be legal for members of the public to dig for and collect prehistoric and historic artifacts on private land without the landowner’s permission?  Yes / No

11) Assuming that you own land, how strongly do you agree or disagree that you should be allowed to dig for and collect prehistoric or historic artifacts on your private land?
  1) strongly disagree  2) disagree  3) neither agree nor disagree  4) agree  5) strongly agree

12) Assuming that you own land, how strongly do you agree or disagree that you should be allowed to dig for and collect human remains or grave goods on your private land?
  1) strongly disagree  2) disagree  3) neither agree nor disagree  4) agree  5) strongly agree

13) Assuming that digging for and collecting artifacts on public land is illegal, what penalties should those conducting these activities face?
  1) none  2) fine  3) fine and community service  4) fine and imprisonment  5) imprisonment and community service  6) parole  7) other __________________________
APPENDIX B

Informational Letter
May 1, 2015

Dear Sir or Madam,

You have been selected at random to participate in this anonymous survey conducted as part of a research project that is very important to the future of our state’s cultural heritage. Your participation is very much appreciated and will make a difference in the accuracy of the study. The following document contains a list of 13 multiple choice and yes/no questions designed with the purpose of gaining insight into basic knowledge and perceptions of archaeology and cultural heritage preservation laws in Wyoming. It should only take a few minutes to complete.

Your participation in the survey confirms you are at least 18 years of age or older and you voluntarily consent to participate. Please read each question carefully and choose the answer(s) that best represents your opinion. Participants will remain anonymous. Basic demographic information is being collected for the purpose of organizing the results, however, this information cannot be connected back to you in any way. The results of the survey will be published as part of my master’s thesis and will be available by email (kayla Bradshaw@hotmail.com) and on a webpage (https://stcloudstate.col1.qualtrics.com/CP/Report.php?RP=RP_3ws9bEeP2PAF9aJ). If you have any questions or concerns, or wish to discuss results, please don’t hesitate to contact me or my graduate advisor Dr. Mark P. Muniz (mpmuniz@stcloudstate.edu).

Please submit the filled-out questionnaires no later than May 30, 2015. Postage has been paid, so there is no cost to you.

I sincerely appreciate your help with this project and want to thank you in advance for your participation!

Sincerely,

Kayla Bradshaw
Kayla Bradshaw@hotmail.com
APPENDIX C

Newspaper Advertisement
Participants Wanted for Archaeological Survey

Within the coming week, randomly selected residents in your area will be receiving a pre-postage paid survey questionnaire in the mail asking for your participation in a research project. The purpose of this survey is to gain insight into basic knowledge and perceptions of archaeology and cultural heritage. Participants will remain anonymous. Basic background information will be collected for the purpose of data organization, but it cannot be associated with any respondents. The results of the survey will be published as part of a master’s thesis and will be available by email (kayla Bradshaw@hotmail.com) and on a webpage (https://stcloudstate.co1.qualtrics.com/CP/Report.php?RP=RP_3ws9bEeP2PAF9aJ). If you wish to participate, but do not receive a mailed survey, follow this link (https://stcloudstate.co1.qualtrics.com/SE/?SID=SV_0cbySo62kZfQaPz) to complete an online version of the survey. Please contact me at my email address with any questions or concerns, or if you wish to discuss results. Your participation is very important and will make a difference in the accuracy and overall success of the study.
APPENDIX D

Institutional Review Board (IRB) Approval Letter
Name: Kayla Bradshaw  
Address: 625 N Gould St. Sheridan, WY 82801 USA  
Email: Brka1304@stcloudstate.edu

Co-Investigators
Advisors: Mark Muniz

Project Title: A survey of Wyoming Resident’s Cultural Resource Legislation Knowledge

Comments:
The Institutional Review Board has reviewed your application to conduct research involving human subjects. We are pleased to inform you that your project has been APPROVED in full accordance with federal regulations. Please note the following important information concerning IRB projects:

- The principal investigator assumes the responsibilities for the protection of human subjects in this project. Any adverse events must be reported to the IRB as soon as possible (ex. research related injuries, harmful outcomes, significant withdrawal of subject population, etc.).

- For expedited or full board review, the principal investigator must submit a Continuing Review/Final Report form in advance of the expiration date indicated on this letter to report conclusion of the research or request an extension.

- Exempt reviews only require the submission of a Continuing Review/Final Report form in advance of the expiration date indicated in this letter if an extension of time is needed.

- Approved consent forms display the official IRB stamp which documents approval and expiration dates. If a renewal is requested and approved, new consent forms will be officially stamped and reflect the new approval and expiration dates.

- The principal investigator must seek approval for any changes to the study (ex. research design, consent process, survey/interview instruments, funding source, etc.). The IRB reserves the right to review the research at any time.

Good luck on your research. If you require further assistance, please contact the Office of Research and Sponsored Programs at 320-308-4932 or email lidonnay@stcloudstate.edu. All correspondence should include your SCSU IRB number as indicated on this letter.

For the Institutional Review Board:
Linda Donnay  
IRB Administrator  
Office of Research and Sponsored Programs

For St. Cloud State University:
Patricia Hughes  
Interim Associate Provost for Research  
Dean of Graduate Studies

SCSU IRB#:
Approval Date:
Expiration Date:
OFFICE USE ONLY
APPENDIX E

Chi-Square Results and Adjusted Standardized Residual Tables
for Survey Questions 1 through 13
Table E-1

Question 1 Chi-Square Results and Adjusted Standardized Residuals by Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Television</th>
<th>Newspaper</th>
<th>Magazine</th>
<th>Archaeologists</th>
<th>Brochure</th>
<th>School</th>
<th>Internet</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.006</td>
<td>0.149</td>
<td>0.078</td>
<td>0.846</td>
<td>0.6</td>
<td>0.24</td>
<td>0.038</td>
<td>0.366</td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

- **Television**: 18-29 years old (-2.2); 70-79 years old (2.2); 80+ years old (2.4)
- **Newspaper**: None
- **Magazine**: 40-49 years old (-2.1)
- **Archaeologists**: None
- **Brochure**: None
- **School**: None
- **Internet**: 70-79 years old (-2.2); 80+ years old (-2.4)
- **Other**: None

Table E-2

Question 1 Chi-Square Results and Adjusted Standardized Residuals by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Television</th>
<th>Newspaper</th>
<th>Magazine</th>
<th>Archaeologists</th>
<th>Brochure</th>
<th>School</th>
<th>Internet</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.001</td>
<td>0.002</td>
<td>0.261</td>
<td>0.378</td>
<td>0.003</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

- **Television**: Public (7.3); WAS (-6.3); WAPA (-3.2)
- **Newspaper**: Public (3.3); WAS (-3.3)
- **Magazine**: None
- **Archaeologists**: None
- **Brochure**: Public (-3.1); WAPA (2.7)
- **School**: Public (-12.2); WAS (8.5); WAPA (8)
- **Internet**: Public (-9.7); WAS (7.3); WAPA (5.8)
- **Other**: Public (-7.7); WAS (6.1); WAPA (4)
### Table E-3

Question 1 Chi-Square Results and Adjusted Standardized Residuals by Education

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>Question 1</th>
<th>Television</th>
<th>Newspaper</th>
<th>Magazine</th>
<th>Archaeologists</th>
<th>Brochure</th>
<th>School</th>
<th>Internet</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>0.001</td>
<td>0.408</td>
<td>0.909</td>
<td>0.157</td>
<td>0.130</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
</tr>
</tbody>
</table>

**Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)**

- Television: High School Diploma (3.9); Graduate Degree (-3.3)
- Newspaper: None
- Magazine: None
- Archaeologists: None
- Brochure: None
- School: High School Diploma (-5.9); Graduate Degree (6.2)
- Internet: High School Diploma (-5); Graduate Degree (4.4)
- Other: Undergraduate Degree (-2.2); Graduate Degree (4.1)

### Table E-4

Question 2 Chi-Square Results and Adjusted Standardized Residuals by Age

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>Question 2</th>
<th>Television</th>
<th>Newspaper</th>
<th>Magazine</th>
<th>Archaeologists</th>
<th>Brochure</th>
<th>School</th>
<th>Internet</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.075</td>
<td>0.045</td>
<td>0.040</td>
<td>0.247</td>
<td>0.849</td>
<td>0.015</td>
<td>0.001</td>
<td>0.605</td>
<td></td>
</tr>
</tbody>
</table>

**Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)**

- Television: None
- Newspaper: 18-29 years old (-2); 70-79 years old (3)
- Magazine: 80+ years old (2.5)
- Archaeologists: None
- Brochure: None
- School: 30-39 years old (2.2); 50-59 years old (2.6)
- Internet: 30-39 years old (2); 40-49 years old (2.9); 70-79 years old (-3.7); 80+ years old (-4.2)
- Other: None
Table E-5

Question 2 Chi-Square Results and Adjusted Standardized Residuals by Group

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>Question 2</th>
<th>Television</th>
<th>Newspaper</th>
<th>Magazine</th>
<th>Archaeologists</th>
<th>Brochure</th>
<th>School</th>
<th>Internet</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>0.001</td>
<td>0.010</td>
<td>0.011</td>
<td>0.654</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)</th>
<th>Television</th>
<th>Public (3.9); WAS (-2.8); WAPA (-2.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspaper</td>
<td>Public (2.8); WAS (-2.9)</td>
<td></td>
</tr>
<tr>
<td>Magazine</td>
<td>Public (-2.9); WAPA (2.1)</td>
<td></td>
</tr>
<tr>
<td>Archaeologists</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Brochure</td>
<td>Public (-4.3); WAS (3); WAPA (2.9)</td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>Public (-15.5); WAS (11.3); WAPA (9.7)</td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td>Public (-5.6); WAS (3.7); WAPA (4)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Public (-6.2); WAS (5.3); WAPA (2.8)</td>
<td></td>
</tr>
</tbody>
</table>

Table E-6

Question 2 Chi-Square Results and Adjusted Standardized Residuals by Education

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>Question 2</th>
<th>Television</th>
<th>Newspaper</th>
<th>Magazine</th>
<th>Archaeologists</th>
<th>Brochure</th>
<th>School</th>
<th>Internet</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>0.001</td>
<td>0.380</td>
<td>0.332</td>
<td>0.212</td>
<td>0.299</td>
<td>0.001</td>
<td>0.001</td>
<td>0.179</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)</th>
<th>Television</th>
<th>High School Diploma (3.9); Graduate Degree (-3.3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspaper</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Magazine</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Archaeologists</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Brochure</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>High School Diploma (-6.5); Graduate Degree (5.2)</td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td>Grade School (-2.5); High School Diploma (-4.2); Graduate Degree (4.5)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>
Table E-7

Question 3 Chi-Square Results and Adjusted Standardized Residuals by Age

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>Question 3</th>
<th>Dig/Collect Artifacts</th>
<th>Dig Dinosaurs</th>
<th>Study Living Cultures</th>
<th>Study Fossils</th>
<th>Study Past Cultures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.230</td>
<td>0.009</td>
<td>0.097</td>
<td>0.168</td>
<td>0.796</td>
<td></td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

<table>
<thead>
<tr>
<th>Dig/Collect Artifacts</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dig Dinosaurs</td>
<td>18-29 years old (-2); 30-39 years old (-2.3); 60-69 years old (2.4)</td>
</tr>
<tr>
<td>Study Living Cultures</td>
<td>None</td>
</tr>
<tr>
<td>Study Fossils</td>
<td>None</td>
</tr>
<tr>
<td>Study Past Cultures</td>
<td>None</td>
</tr>
</tbody>
</table>

Table E-8

Question 3 Chi-Square Results and Adjusted Standardized Residuals by Group

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>Question 3</th>
<th>Dig/Collect Artifacts</th>
<th>Dig Dinosaurs</th>
<th>Study Living Cultures</th>
<th>Study Fossils</th>
<th>Study Past Cultures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>0.059</td>
<td>0.001</td>
<td>0.223</td>
<td>0.001</td>
<td>0.001</td>
<td></td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

<table>
<thead>
<tr>
<th>Dig/Collect Artifacts</th>
<th>Public (2.3); WAS (-2.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dig Dinosaurs</td>
<td>Public (5.7); WAS (-3.6); WAPA (-4.4)</td>
</tr>
<tr>
<td>Study Living Cultures</td>
<td>None</td>
</tr>
<tr>
<td>Study Fossils</td>
<td>Public (7.1); WAS (-4.7); WAPA (-5.1)</td>
</tr>
<tr>
<td>Study Past Cultures</td>
<td>Public (-3.7); WAS (2.7); WAPA (2.3)</td>
</tr>
</tbody>
</table>
Table E-9

Question 3 Chi-Square Results and Adjusted Standardized Residuals by Education

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant ≤ 0.05)</th>
<th>Dig/Collect Artifacts</th>
<th>Dig Dinosaurs</th>
<th>Study Living Cultures</th>
<th>Study Fossils</th>
<th>Study Past Cultures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>0.364</td>
<td>0.001</td>
<td>0.945</td>
<td>0.001</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

<table>
<thead>
<tr>
<th>Dig/Collect Artifacts</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dig Dinosaurs</td>
<td>Grade School (2); High School Diploma (2.6); Graduate Degree (-3.9)</td>
</tr>
<tr>
<td>Study Living Cultures</td>
<td>None</td>
</tr>
<tr>
<td>Study Fossils</td>
<td>Grade School (2.1); High School Diploma (3.8); Graduate Degree (-4.1)</td>
</tr>
<tr>
<td>Study Past Cultures</td>
<td>High School Diploma (-3.6); Graduate Degree (3)</td>
</tr>
</tbody>
</table>

Table E-10

Question 4 Chi-Square Results and Adjusted Standardized Residuals by Age

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant ≤ 0.05)</th>
<th>Preserving Past for Future Generations</th>
<th>Providing Data for Research on Past Cultures</th>
<th>Supporting Heritage of Modern Society</th>
<th>Finding Artifacts that are Skillful Works of Art</th>
<th>Educating Modern Society About Other Cultures</th>
<th>Providing Economic Opportunities through Heritage Tourism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.345</td>
<td>0.249</td>
<td>0.285</td>
<td>0.111</td>
<td>0.787</td>
<td>0.248</td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

<table>
<thead>
<tr>
<th>Preserving Past for Future Generations</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing Data for Research on Past Cultures</td>
<td>None</td>
</tr>
<tr>
<td>Supporting Heritage of Modern Society</td>
<td>None</td>
</tr>
<tr>
<td>Finding Artifacts that are Skillful Works of Art</td>
<td>None</td>
</tr>
<tr>
<td>Educating Modern Society About Other Cultures</td>
<td>None</td>
</tr>
<tr>
<td>Providing Economic Opportunities through Heritage Tourism</td>
<td>None</td>
</tr>
</tbody>
</table>
Table E-11

Question 4 Chi-Square Results and Adjusted Standardized Residuals by Group

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>Preserving Past for Future Generations</th>
<th>Providing Data for Research on Past Cultures</th>
<th>Supporting Heritage of Modern Society</th>
<th>Finding Artifacts that are Skillful Works of Art</th>
<th>Educating Modern Society About Other Cultures</th>
<th>Providing Economic Opportunities through Heritage Tourism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>0.045</td>
<td>0.001</td>
<td>0.001</td>
<td>0.548</td>
<td>0.001</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

| Preserving Past for Future Generations          | Public (-2.1); WAS (2.8); WAPA (2.2) |
| Providing Data for Research on Past Cultures    | Public (-3.8); WAS (2.8); WAPA (2.2) |
| Supporting Heritage of Modern Society           | Public (-6.2); WAS (4.3); WAPA (4.2) |
| Finding Artifacts that are Skillful Works of Art| None                                      |
| Educating Modern Society About Other Cultures  | Public (-4.7); WAS (3.3); WAPA (3)       |
| Providing Economic Opportunities through Heritage Tourism | Public (-5.5); WAS (2.8); WAPA (5.1) |

Table E-12

Question 4 Chi-Square Results and Adjusted Standardized Residuals by Education

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>Preserving Past for Future Generations</th>
<th>Providing Data for Research on Past Cultures</th>
<th>Supporting Heritage of Modern Society</th>
<th>Finding Artifacts that are Skillful Works of Art</th>
<th>Educating Modern Society About Other Cultures</th>
<th>Providing Economic Opportunities through Heritage Tourism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>0.178</td>
<td>0.010</td>
<td>0.120</td>
<td>0.872</td>
<td>0.067</td>
<td>0.039</td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

| Preserving Past for Future Generations          | None                                      |
| Providing Data for Research on Past Cultures    | High School Diploma (-2.8); Graduate Degree (3) |
| Supporting Heritage of Modern Society           | None                                      |
| Finding Artifacts that are Skillful Works of Art| None                                      |
| Educating Modern Society About Other Cultures  | None                                      |
| Providing Economic Opportunities through Heritage Tourism | High School Diploma (-2.6); Graduate Degree (2.3) |
Table E-13

Question 5 Chi-Square Results and Adjusted Standardized Residuals by Age

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>0.038</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)</td>
<td></td>
</tr>
<tr>
<td>Completely Uninterested</td>
<td>None</td>
</tr>
<tr>
<td>Not Very Interested</td>
<td>18-29 years old (4)</td>
</tr>
<tr>
<td>Neutral</td>
<td>40-49 years old (3.3); 60-69 years old (-2.3)</td>
</tr>
<tr>
<td>Interested</td>
<td>None</td>
</tr>
<tr>
<td>Very Interested</td>
<td>None</td>
</tr>
</tbody>
</table>

Table E-14

Question 5 Chi-Square Results and Adjusted Standardized Residuals by Group

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)</td>
<td></td>
</tr>
<tr>
<td>Completely Uninterested</td>
<td>None</td>
</tr>
<tr>
<td>Not Very Interested</td>
<td>Public (3.3); WAS (-2.5)</td>
</tr>
<tr>
<td>Neutral</td>
<td>Public (6.1); WAS (-4.9); WAPA (-3)</td>
</tr>
<tr>
<td>Interested</td>
<td>Public (6.1); WAS (-4.1); WAPA (-4.3)</td>
</tr>
<tr>
<td>Very Interested</td>
<td>Public (-14.9); WAS (11); WAPA (8.9)</td>
</tr>
</tbody>
</table>

Table E-15

Question 5 Chi-Square Results and Adjusted Standardized Residuals by Education

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
<th>0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)</td>
<td></td>
</tr>
<tr>
<td>Completely Uninterested</td>
<td>Grade School (2.1)</td>
</tr>
<tr>
<td>Not Very Interested</td>
<td>None</td>
</tr>
<tr>
<td>Neutral</td>
<td>High School Diploma (2.9); Graduate Degree (-2.1)</td>
</tr>
<tr>
<td>Interested</td>
<td>High School Diploma (3.6); Graduate Degree (-2.3)</td>
</tr>
<tr>
<td>Very Interested</td>
<td>High School Diploma (-6); Graduate Degree (5.8)</td>
</tr>
</tbody>
</table>
Table E-16

Questions 6 and 7 Chi-Square Results and Adjusted Standardized Residuals by Age

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 6 - Age</td>
</tr>
<tr>
<td>Question 7 – Age</td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

<table>
<thead>
<tr>
<th>Question 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29 years old (-2.8); 40-49 years old (-2.6); 60-69 years old (2.1)</td>
</tr>
<tr>
<td>Question 7</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>

Table E-17

Questions 6 and 7 Chi-Square Results and Adjusted Standardized Residuals by Group

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 6 - Group</td>
</tr>
<tr>
<td>Question 7 – Group</td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

<table>
<thead>
<tr>
<th>Question 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public (-6.2); WAS (4.8); WAPA (3.3)</td>
</tr>
<tr>
<td>Question 7</td>
</tr>
<tr>
<td>Public (-5.2); WAS (2.6); WAPA (5)</td>
</tr>
</tbody>
</table>

Table E-18

Questions 6 and 7 Chi-Square Results and Adjusted Standardized Residuals by Education

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 6 - Education</td>
</tr>
<tr>
<td>Question 7 – Education</td>
</tr>
</tbody>
</table>

Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)

<table>
<thead>
<tr>
<th>Question 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Diploma (-4.6); Graduate Degree (3.7)</td>
</tr>
<tr>
<td>Question 7</td>
</tr>
<tr>
<td>High School Diploma (-3.6); Graduate Degree (3.2)</td>
</tr>
</tbody>
</table>
### Table E-19

Questions 8-10 Chi-Square Results and Adjusted Standardized Residuals by Age

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant $\leq$ 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 8 - Age 0.242</td>
</tr>
<tr>
<td>Question 9 - Age 0.118</td>
</tr>
<tr>
<td>Question 10 - Age 0.753</td>
</tr>
</tbody>
</table>

**Adjusted Standardized Residuals $\geq$ 2.0 standard errors (~95% confidence interval)**

<table>
<thead>
<tr>
<th>Question</th>
<th>Residuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 8</td>
<td>None</td>
</tr>
<tr>
<td>Question 9</td>
<td>None</td>
</tr>
<tr>
<td>Question 10</td>
<td>None</td>
</tr>
</tbody>
</table>

### Table E-20

Questions 8-10 Chi-Square Results and Adjusted Standardized Residuals by Group

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant $\leq$ 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 8 - Group 0.001</td>
</tr>
<tr>
<td>Question 9 - Group 0.046</td>
</tr>
<tr>
<td>Question 10 - Group 0.623</td>
</tr>
</tbody>
</table>

**Adjusted Standardized Residuals $\geq$ 2.0 standard errors (~95% confidence interval)**

<table>
<thead>
<tr>
<th>Question</th>
<th>Residuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 8</td>
<td>Public (5.4); WAS (-3.8); WAPA (-3.6)</td>
</tr>
<tr>
<td>Question 9</td>
<td>Public (2.4)</td>
</tr>
<tr>
<td>Question 10</td>
<td>None</td>
</tr>
</tbody>
</table>

### Table E-21

Questions 8-10 Chi-Square Results and Adjusted Standardized Residuals by Education

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant $\leq$ 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 8 - Education 0.025</td>
</tr>
<tr>
<td>Question 9 - Education 0.171</td>
</tr>
<tr>
<td>Question 10 - Education 0.264</td>
</tr>
</tbody>
</table>

**Adjusted Standardized Residuals $\geq$ 2.0 standard errors (~95% confidence interval)**

<table>
<thead>
<tr>
<th>Question</th>
<th>Residuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 8</td>
<td>High School Diploma (2.5); Graduate Degree (-2.7)</td>
</tr>
<tr>
<td>Question 9</td>
<td>None</td>
</tr>
<tr>
<td>Question 10</td>
<td>None</td>
</tr>
</tbody>
</table>
### Table E-28
Questions 11 and 12 Chi-Square Results and Adjusted Standardized Residuals by Age

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant $\leq 0.05$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 11 - Age</td>
</tr>
<tr>
<td>Question 12 - Age</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusted Standardized Residuals $\geq$ 2.0 standard errors (~95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 11</td>
</tr>
<tr>
<td>Question 12</td>
</tr>
</tbody>
</table>

### Table E-29
Questions 11 and 12 Chi-Square Results and Adjusted Standardized Residuals by Group

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant $\leq 0.05$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 11 - Group</td>
</tr>
<tr>
<td>Question 12 - Group</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusted Standardized Residuals $\geq$ 2.0 standard errors (~95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 11</td>
</tr>
<tr>
<td>Question 12</td>
</tr>
</tbody>
</table>

### Table E-30
Questions 11 and 12 Chi-Square Results and Adjusted Standardized Residuals by Education

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant $\leq 0.05$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 11 - Education</td>
</tr>
<tr>
<td>Question 12 - Education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusted Standardized Residuals $\geq$ 2.0 standard errors (~95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 11</td>
</tr>
<tr>
<td>Question 12</td>
</tr>
</tbody>
</table>
Table E-22

Question 11 Chi-Square Results and Adjusted Standardized Residuals by Age

| Chi-square Results (p values significant ≤ 0.05) | Question 11 - Age | 0.122 |
| Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval) | | |
| Strongly Disagree | None |
| Disagree | None |
| Neutral | None |
| Agree | None |
| Strongly Agree | None |

Table E-23

Question 11 Chi-Square Results and Adjusted Standardized Residuals by Group

| Chi-square Results (p values significant ≤ 0.05) | Question 11 - Group | 0.571 |
| Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval) | | |
| Strongly Disagree | None |
| Disagree | None |
| Neutral | None |
| Agree | None |
| Strongly Agree | None |

Table E-24

Question 11 Chi-Square Results and Adjusted Standardized Residuals by Education

| Chi-square Results (p values significant ≤ 0.05) | Question 11 - Education | 0.039 |
| Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval) | | |
| Strongly Disagree | Grade School (3.2) |
| Disagree | None |
| Neutral | None |
| Agree | None |
| Strongly Agree | None |
### Table E-25

**Question 12 Chi-Square Results and Adjusted Standardized Residuals by Age**

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant $\leq 0.05$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 12 - Age</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusted Standardized Residuals $\geq 2.0$ standard errors (~95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Disagree</td>
</tr>
<tr>
<td>Neutral</td>
</tr>
<tr>
<td>Agree</td>
</tr>
<tr>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

### Table E-26

**Question 12 Chi-Square Results and Adjusted Standardized Residuals by Group**

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant $\leq 0.05$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 12 - Group</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusted Standardized Residuals $\geq 2.0$ standard errors (~95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Disagree</td>
</tr>
<tr>
<td>Neutral</td>
</tr>
<tr>
<td>Agree</td>
</tr>
<tr>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

### Table E-27

**Question 12 Chi-Square Results and Adjusted Standardized Residuals by Education**

<table>
<thead>
<tr>
<th>Chi-square Results ($p$ values significant $\leq 0.05$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 12 - Education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusted Standardized Residuals $\geq 2.0$ standard errors (~95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Disagree</td>
</tr>
<tr>
<td>Neutral</td>
</tr>
<tr>
<td>Agree</td>
</tr>
<tr>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>
### Table E-31

**Question 13 Chi-Square Results and Adjusted Standardized Residuals by Age**

| Chi-square Results (p values significant ≤ 0.05) | Question 13 - Age | 0.533 |
| Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval) | | |
| None | None | |
| Fine | None | |
| Fine and Community Service | None | |
| Fine and Imprisonment | None | |
| Imprisonment and Community Service | None | |
| Parole | None | |
| Other | None | |

### Table E-32

**Question 13 Chi-Square Results and Adjusted Standardized Residuals by Group**

| Chi-square Results (p values significant ≤ 0.05) | Question 13 - Group | 0.001 |
| Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval) | | |
| None | Public (2.7) | |
| Fine | WAPA (-2.5) | |
| Fine and Community Service | None | |
| Fine and Imprisonment | Public (-5.8); WAS (4.3); WAPA (3.4) | |
| Imprisonment and Community Service | Public (-2.8); WAPA (3.6) | |
| Parole | None | |
| Other | None | |
Table E-33

Question 13 Chi-Square Results and Adjusted Standardized Residuals by Education

<table>
<thead>
<tr>
<th>Chi-square Results (p values significant ≤ 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 13 - Education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusted Standardized Residuals ≥ 2.0 standard errors (~95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
</tr>
<tr>
<td>Fine</td>
</tr>
<tr>
<td>Fine and Community Service</td>
</tr>
<tr>
<td>Fine and Imprisonment</td>
</tr>
<tr>
<td>Imprisonment and Community Service</td>
</tr>
<tr>
<td>Parole</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>