

**Archaeological Resources Protection Act Damage Assessment Report
for the Grassy Ranch Site (Site 41.22.18.2), Located in the
Department of the Interior, Bureau of Land Management
Black Rock Desert-High Rock Canyon-Emigrant Trails
National Conservation Area, Washoe County, Nevada
REDACTED by Nevada State Office**

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Summary:

This report documents the recent damage and alteration caused by the removal of archaeological resources from the Grassy Ranch Site. The Grassy Ranch Site, documented as Site 41.22.18.2, is a National Register of Historic Places-eligible resource that dates to the prehistoric period (before A.D. 1880) and is located on lands owned by the United States and administered by the Department of the Interior, Bureau of Land Management. Unauthorized (not permitted) acts removed archaeological resources and forever damaged and altered the Grassy Ranch Site's archaeological context.

Removal, damage, and alteration done by prohibited acts to archaeological resources at the Grassy Ranch Site caused monetary damage in terms of archaeological value, commercial value, and cost of restoration and repair. Archaeological value of the archaeological resources involved in the violation is **\$9,652.36**. Commercial value of the archaeological resources involved in the violation is **\$98.15**. Cost of restoration and repair of these resources is **\$15,417.30**. The total damage is calculated as either the cost of restoration and repair and archaeological value (**\$25,069.66**) or the cost of restoration and repair and commercial value (**\$15, 515.45**).

INTRODUCTION

This report provides a damage assessment for an archaeological resource referred to as “Grassy Ranch Site” and documented with a Bureau of Land Management (BLM) agency site number of 41.22.18.2 and a Smithsonian site number of 26Wa8291. The Grassy Ranch Site is an archaeological resource dating from several hundred to several thousand years ago. It consists of a variety of stone material remains, predominantly flaked stone tools, flaked cobbles, and flaked stone debris of black, glassy obsidian, a rock that is locally common and regionally important to Native Americans of the past: when broken this obsidian creates a very sharp edge that is usable as a cutting, piercing, or scraping tool.

The Grassy Ranch Site is the archaeological resource involved in an Archaeological Resource Protection Act (ARPA) violation case against Donald and Steven Parker (Case No.: 0749200008). This report provides the Grassy Ranch archaeological resource location and description; its scientific and humanistic importance; the damage assessment procedures applied; the damages that occurred; and assessments of the archaeological value, commercial value, and cost of restoration and repair relative to the prohibited acts involved. Appendices provide details including a standard professional site form, a photograph log for images collected during field work, and commercial value tables.

For this project, field work was conducted from June 27 to 29, 2007, by Stanley McDonald, BLM Idaho State Office Archaeologist and Deputy Preservation Officer; Thomas Burke, BLM Nevada State Office Archaeologist and Deputy Preservation Officer; and me (James Carter, Lead Archaeologist for the BLM Sierra Front Field Office [FO]). I wrote this report. Dr. Burke completed analyses of material remains. Dr. Burke; Mr. McDonald; Penni Borghi, BLM Surprise FO Archaeologist; and David Valentine, former BLM Archaeologist for the Black Rock Desert-High Rock Canyon-Emigrant Trails National Conservation Area (NCA), contributed information for this technical report. BLM Sierra Front FO Archaeologist Elizabeth Lane assisted me in preparing report maps.

LOCATION AND IDENTIFICATION OF LAND STATUS

The Grassy Ranch Site is located within the remote and rugged backcountry of northern Washoe County, in the archaeologically rich northwest corner of Nevada (Figure 1). The Grassy Canyon drainage flows southeast (Figure 2), with its mouth in [redacted]. Specifically, the Grassy Ranch Site is located in the Township [redacted] North, Range [redacted] East, northwestern portion of Section [redacted] and southwestern portion of Section [redacted], and Township [redacted] North, Range [redacted] East, east portion of Section [redacted], Mount Diablo Meridian, with a mapped site datum at the wooden building measured using a Global Positioning System (a Trimble GeoExplorer 3) of Zone [redacted] [redacted] meters North, [redacted] meters East (1983 North American Datum) (Figure 3).

The Grassy Ranch Site is on public lands, fee title of which is owned by the United States and administered by the BLM as part of the Black Rock Desert-High Rock Canyon-

Emigrant Trails NCA. This NCA was created in 2000 by congressional proclamation to protect natural and archaeological resources such as the Grassy Ranch Site.

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Figure 1. The location of the Grassy Ranch Site archaeological resource on BLM lands within the Black Rock Desert-High Rock Canyon-Emigrant Trails NCA.



Figure 2. The setting of the Grassy Ranch Site archaeological resource in Grassy Canyon. Looking south-southwest. Frame IMG 1622.

On March 7, 2007, Dr. Burke checked records in the BLM Nevada Archaeological Resource Protection Act (ARPA) permit files at the BLM Nevada State Office in Reno, Nevada. As a result of his review of the ARPA permit files, he learned that no ARPA permit was ever applied for or issued to any persons for any acts involving excavation, removal, damage, alteration or defacement to any archaeological resource at or within several miles of the location of the Grassy Ranch Site prior to June 27, 2007. Dr. Burke also contacted BLM California State Archaeologist, Ken Wilson, on June 26, 2007. Mr. Wilson confirmed that his office had no record of issuing any ARPA permits for this area, to the suspects in the case, or for any acts involving excavation, removal, damage, alteration or defacement to any archaeological resource. These lines of research confirm that any such acts at the site were, in fact, unauthorized.

ARCHAEOLOGICAL RESOURCE DESCRIPTION

The Archaeological Resources Protection Act states that, the term “archaeological resource’ means any material remains of past human life or activities which are of archaeological interest . . . at least 100 years of age” (Title 16, United States Code, Section 470bb(1)). The ARPA Uniform Regulations state that, “Material remains’ means physical evidence of human habitation, occupation, use, or activity, including the site, location, or context in which such evidence is situated” (43 CFR Part 7.3(a)(2)). The ARPA Uniform Regulations also state that, “Of archeological interest’ means capable of providing scientific or humanistic understandings of past human behavior, cultural adaptation, and

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Figure 3. Mapped location of the Grassy Ranch Site archaeological resource (Site 41.22.18.2).

related topics through the application of scientific or scholarly techniques such as controlled observation, contextual measurement, controlled collection, analysis, interpretation and explanation” (43 CFR Part 7.3(a)(1)).

The Grassy Ranch Site is one of the most prominent and largest of the prehistoric open sites in northwestern Nevada, physically situated in an open sagebrush and grass setting, on the ridgetop and slopes of an unnamed ridge, and set north and east of the main stem of the Grassy Canyon drainage. The site extends up approximately one and half miles of the east bank of Grassy Canyon drainage, from about 9 to 10.5 miles upstream from [redacted]. The area near the wood building known locally as “Grassy Ranch” includes historic-era archeological material remains dating from the 1880s to 1930s, as well as prehistoric material remains that are documented in this report and the attached archaeological site form (Appendix A) as Lithic Concentration Locus 4 (Figures 4 and 5).

From the Grassy Ranch building (“house”), evidence of the prehistoric archaeological resource extends over a thousand yards distance up the slope to the north, including a relatively flat bench and the area recorded as Lithic Concentration Locus 3 (Figure 6) at an elevation of about 5975 feet. Nearby, and above this flat bench and near the ridgetop, is a fenced spring. A smaller unnamed tributary of the Grassy Canyon drainage is east of the spring about 600 yards, along and near the east edge of the site, immediately below a steep rock ridge. Beside this tributary is Lithic Concentration Locus 2 (Figure 7). Prehistoric material remains found in variable densities at the site—including great densities at distinguishable loci—allow archaeology professionals to interpret past human behavior.



Figure 4. Lower area of the Grassy Ranch Site archaeological resource, at the wooden building known as “Grassy Ranch.” Looking south, with the main Grassy Canyon drainage beyond building. Frame 13.



Figure 5. Lower area of the Grassy Ranch Site archaeological resource, at Locus 4. Looking northeast. Frame 24.



Figure 6. Upslope area of the Grassy Ranch Site archaeological resource, at Locus 3. Looking east. Frame 6. Person in photograph is Thomas Burke (for scale).



Figure 7. Rocky ridge and unnamed tributary north of the main Grassy Canyon drainage at the northeast edge of the Grassy Ranch Site archaeological resource: at Locus 2. Looking northeast. Frame IMG 1662.

The site belongs in the context of the “Great Basin Archaic” culture, which references a prehistoric¹ mobile hunter/gatherer way of life dating from before 10,000 years ago up until approximately the 1860s to 1880s. This lifeway is well documented throughout the Great Basin region of the United States and is marked by a continuance of nomadic hunting of animals and gathering of native plant resources that lacks settled horticultural subsistence.

Several archaeological resources in the vicinity are listed in or eligible for inclusion on the National Register of Historic Places including sites on Grassy Rock; near Massacre Lake and Summit Lake; and in Surprise Valley and High Rock Canyon, each within 40 miles of Grassy Ranch Site. The creation of the National Conservation Area that includes the Grassy Ranch Site illustrates the importance of local archaeological resources to the American public. Annually, thousands of American and foreign tourists visit locations of archaeology in the region—and museums in Reno, Carson City, and Cedarville—that present exhibits on the local prehistory.

Archaeological resources of the immediate area and broader region provide considerable scientific information about the Archaic way of life. The Grassy Ranch Site² contributes to this knowledge, with data indicating most Native American activity at this site during the Middle to Late Archaic periods (about 2000 B.C. to A.D. 1300). For these periods, the region that includes northwestern Nevada is recognized by archaeology scholars as occupied by Northern Paiute and at times, Pit River or Modoc peoples (Gates 1983; McCarthy and Scotten 2004). In Grassy Canyon this hunter/gatherer culture is evident (Appendix A; King et al. 2004; Leach 1988), with the Grassy Ranch Site exhibiting predominantly Middle Archaic and Late Archaic styles in the known material remains. However, material remains attributed to the site indicate people used this location for over 6,000 years, and possibly from as early as 8000 B.C.

Regional archaeology research indicates that Native American occupation of the immediate area begins before 10,000 years ago, with abandonment of nomadic practices by Indian groups before the 1880s. After this period, local Native Americans continue traditional spiritual, artistic, and some functional practices, but with aboriginal settlement and subsistence ways of life curtailed. Tribal people worked on local ranches but in a manner similar to non-Indians: using horses for transportation and guns as firearms, and eating mostly a diet of processed and purchased foods. To the northwest and west of Grassy Ranch, mining expansion of the 1850s and the Modoc War of 1872-1873 effectively ended the last use of traditional settlement locations, with surviving Modoc and their supporters sent to Oklahoma and later returning to the Klamath region (Murray 1959, Ray 1963). For the Pit River people (of either the *Achumawi* or *Atsugewi* group), many members of these bands were rounded up by miners and settlers who invaded their lands in the 1850s, and by 1859 most were driven to Round Valley in the California Coast Range (Wheeler-Voegelin 1974). Remaining Pit River people in northeastern California “became largely dependent

¹ Prehistoric refers to the time before historic use of the region by non-Native Americans.

² The Grassy Ranch Site (Site 41.22.18.2) was originally recorded on August 11, 1977 by Melinda Leach. Her original form provides few details on location, extent, and complexity of the resource (see Appendix A).

on white settlers for jobs” (Gates 1983:10). Prior to white settlement, the Grassy Ranch area was inhabited by Northern Paiute bands, with the *Kidutokado*, *Kamodokado*, and *Aga ipaninadokado* likely converging upon this landscape (Fowler and Liljeblad 1986: Figure 1). In areas of the Northern Paiute groups, Peter Lassen reached Honey Lake in 1850 and settlers and ranchers quickly followed, with their livestock affecting the meadows and grasslands of northern Nevada and northeastern California (Riddell 1960). Within 30 miles west of Grassy Ranch, Surprise Valley settlement by non-Indians began in the 1860s, with 300 residents, and Fort Bidwell was present by 1865 (Hedel et al. 1981).

By the 1880s, the region was heavily grazed by cattle and sheep, with public lands in and around Grassy Canyon ranged by stock of the Gerlach Land and Cattle Company, the Miller and Lux Pacific Livestock Company, Bare Ranch, and Home Camp Outfit. Native Americans living a prehistoric lifeway likely did not affect the material remains of the Grassy Canyon area after the mid-nineteenth century, and archaeologists consider the entire prehistoric component at Grassy Ranch Site to pre-date the 1880s, with most evidence pre-dating A.D.1300.

ARCHAEOLOGICAL INTEREST

Scientific archaeological interest in the local sites and their material remains exist for a number of reasons. The Grassy Ranch Site retains—or retained prior to damage, alteration, and removal—important information pertaining to prehistoric mobility and trade, chronology, tool stone technology, settlement, subsistence, and environment.

Based on our investigations, it is clear that prehistoric occupants of the site used a variety of stone materials (including chert³ and basalt, but predominantly of obsidian) for the manufacture of chipped stone weapons and tools. Some of these materials were obtained from the immediately local area, but some were obtained through trade from more distant tool stone sources, probably through trade with other groups or through visiting other source locations. Conversely, the obsidian readily available at Grassy Ranch would have been transported to other regional archaeological sites.

Additional research of Grassy Ranch Site obsidian can provide evidence of obsidian transport and trade over time. Obsidian forms through a volcanic eruption, and although an eruption may cover a fairly large area, each has its own unique chemical “fingerprint.” While the chemical components of obsidian are 98 percent aluminum and silicon, the trace element composition of the remaining two percent is variable and unique between volcanic source locations. Therefore, scientists can determine the source of obsidian material remains from a specific location through a method called X-ray fluorescence (XRF) analysis. Through use of XRF data, archaeologists can gain an understanding of trading networks, mobility, and settlement patterns of the prehistoric people in an area.

Another scientific test called obsidian hydration is used to determine the relative amount of moisture (water molecules) absorbed by this type of stone since it was broken (chipped),

³ *Chert* is a stone material, often used to make stone tools, that includes cryptocrystalline silicates (ccs).

providing an important means for determining the age of human activity at a site. Combined, using XRF analysis and obsidian hydration evidence provide archaeologists with patterning of obsidian from different places on the landscape and their movement as material remains at different periods of time.

Another method of dating the time of human activities at the Grassy Ranch Site is through study of the specific types of artifacts found. These stone tools and tool-making debris (chips or “flakes”) at regional archaeological sites have been well studied through careful analysis for nearly one hundred years. This large body of research allows archaeologists to determine the age of an archaeological resource based on the chipped or ground stone tool types present. One specific type of tool—the stone artifacts that tipped spears, darts, and arrows—varied in style through time, with a general trend that witnessed a change from large to small types through time. Few of these artifact types have been documented by archaeologists at the Grassy Ranch Site, but 24 such artifacts are in the seized items associated with the current investigation. Through analysis of these material remains, we are able to identify items that represent site use dating back at least 6,000 years. Stone dart tips and “Rose Spring” stone arrow tips in the seized collections, as well as the types of ground stone and specific types of chipped cobbles, are in greater frequency, and these effectively suggest that most prehistoric activity occurred here between about 2000 B.C. and A.D. 1300. However, as the specific location of these items is not known, additional details and patterns that allow for archaeologists to interpret behavior are forever lost.

The study of chipped stone tool assemblages⁴ can tell us much about the individual activities undertaken at sites. Researchers have techniques for recovering blood residue from stone tools and identifying species processed with these tools. Use of the tool can be analyzed through “use wear” patterns such as dulling, polishing, or micro-flaking on the edges, providing insights into the use of that tool. Comparing the number and types of various chipped stone tools and the debris flakes at various locations on the site provide important clues on the activities undertaken at specific places on the landscape. In concert with evidence of when these activities occurred (through dating types of projectile points, obsidian hydration, and radiometric dating methods⁵), these patterns can be analyzed through time, as well as through space.

Recovery of minute traces of material from ground stone provides valuable data on prehistoric activities. Through the extraction of pollen and starch grains from small cracks and holes in ground stone artifacts, scientists can now identify more precisely which specific plants were actually processed at the site. In a few cases, mineral pigment is present on ground stone indicating a preparation of paint for application on the body or stone walls, such as at Serendipity Shelter at Grassy Rock (Barker 2007; Leach 2001).

⁴ A *stone tool assemblage* represents the number and types of flaked stone tools such as scrapers for scraping or preparing hides, knives for cutting, projectile points for hunting wild animals, drills used in basketry and clothes making, etcetera, and the flaking debris removed from these items.

⁵ *Radiometric dating*—also referred to as radiocarbon or Carbon-14 dating—provides a means of dating organic items. It works by measuring the ratio of the stable ¹²C isotope of carbon and the unstable isotope ¹⁴C in the remains of an organism, knowing that the ratio of ¹⁴C decreases upon the death of the organism at a specific rate.

Recovery of blood residue from ground stone has recently led to an understanding that wild animals, such as rabbits, were processed using tools previously ascribed to grinding grass seeds, nuts, and other plant remains.

The Grassy Ranch Site⁶ contains material remains that include spatially variable concentrations of material remains that suggest human activity areas; organic midden⁷ remains that may retain hearth charcoal and fire-altered rock fragments; thousands of fragments of chipped stone debris flakes; chipped stone items formed into specific tools; chipped cobbles and cores; and ground stone tool fragments. Each of these material remains, in appropriate context, is of archaeological interest and provides evidence of the past human behavior of the ancient inhabitants.

When archaeologists scientifically investigate archaeological contexts and material remains, they focus upon certain types of patterns. Research that may be possible at the Grassy Ranch Site includes studying the patterns of where people obtained high-quality obsidian for making stone tools, where they processed plant and animal foods, and how they traded obsidian and other stone tools throughout the region. Several kinds of dating methods—projectile point typology, obsidian hydration, and radiometric dating—are or may have been present at the Grassy Ranch Site to associate the patterns with particular periods of prehistoric activity. However, when the chipped or ground stone material remains—such as those seized as evidence—are removed from the site, that removal alters and damages the archaeological context and removes the items from association with other elements that allow researchers to interpret patterns. This removal of material remains, and alteration and damage to archaeological context permanently destroys archaeological data of scientific interest that can lead to understanding prehistoric human activities and ways of life.

The status of this site relative to inclusion in the National Register of Historic Places provides another indicator of the archaeological interest of Grassy Ranch Site and the archaeological resources it contains. The National Register of Historic Places was created by the National Historic Preservation Act of 1966 (Title 16, United States Code, Section 470), as amended, as a register of, "... districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture" (Title 16, United States Code, Section 470a(a)(1)(A)). The prehistoric component of the Grassy Ranch Site is considered by the BLM as eligible for the National Register of Historic Places as a historic property that has "yielded or is likely to yield, information important in prehistory or history" (Criterion D) for its important research potential of the prehistoric archaeological context and material remains to address prehistoric behaviors such as

⁶ The Grassy Ranch Site (Site 41.22.18.2) was updated June 27, 28, and 29, 2007 as part of this damage assessment. The site form for the Grassy Ranch Site archaeological resource (see Appendix A) provides further detail on the spatial concentrations of material remains and other aspects of the material remains present.

⁷ *Midden* refers to the gray-tinted sediment at an archaeological site, rich in phosphorous and carbon, that originates from the organic residue of refuse, human burials, and other pieces of material culture deposited by the site's inhabitants.

procuring high-quality stone for making tools. Additional details on the site are provided in the attached site documentation form (Appendix A).

The activity of prehistoric Native American people at this site and importance to direct descendents is of great humanistic value. In the Grassy Canyon drainage and immediately adjacent areas, archaeological resources tended to be open settings, with stone tool procurement of raw obsidian stone a main activity, but with evidence also representing activities associated with stone tool manufacture (reducing procured stone into useful tools), subsistence (such as animal and plant food processing), and habitation (temporary camp sites, fire hearths, midden, etc.). This suite of prehistoric activities at an open site setting is present at the Grassy Ranch Site. Few archaeological sites capably provide this high level of clarity about past human behavior and include this entire range of human activities.

The Northern Paiute whom now have their residence base at local reservations at Summit Lake (about [redacted] miles east of Grassy Ranch), Fort Bidwell (about [redacted] miles to the northwest), and Pyramid Lake (about [redacted] miles to the south) along with Pit River and Modoc groups now residing in northeastern California, are the probable descendents of Native Americans that used the Grassy Canyon region during the prehistoric time of the Archaic identified in this analysis. As mobile groups, each of these peoples would have valued and utilized the abundant tool stone (obsidian) resource available. These groups believe that the material remains found at this site provide a physical link to their ancestors and therefore are important for retaining their cultural identity.

DAMAGE ASSESSMENT PROCEDURES

For this project, the National Park Service (NPS) requested BLM assistance. Per that request, Dr. Burke and BLM Special Agent Zachary Oper met with Amy Lueders, BLM Nevada Associate State Director, on March 7, 2007. Prior experience with ARPA criminal investigations was deemed essential. In May 2007, Mr. McDonald was identified as an experienced professional and asked to assist on this project. The NPS and BLM targeted the last week in June for field work. Dr. Burke contacted me on June 18, 2007, to be the lead archaeologist on the project, as I have experience in the local area. From this point in time on, BLM archaeologists, working under the direction of Ms. Lueders, conducted a number of steps to assist NPS Special Agent Todd Swain's and Special Agent Oper's investigation into suspected removal, damage, and alteration to an archaeological resource, and to identify and document the resources involved.

Between June 21 and June 26, 2007, Dr. Burke, Mr. McDonald, and I mobilized for the field, contacted local BLM archaeologists Penni Borghi and David Valentine about the known resources in the immediate area, printed maps of the region, and prepared travel arrangements. We each traveled as necessary to meet at the BLM Nevada State Office in Reno, Nevada, on Wednesday morning, June 27, 2007. At 10 AM that morning, the three of us archaeologists traveled with Special Agents Swain and Oper to Grassy Ranch Site, and we began a field work in the area that afternoon. Until the afternoon of June 29, 2007, we continued conducting field work. While in the field we completed GPS, photographic,

and other site documentation; prepared maps illustrating the areas of damage and alteration; conducted material and context analyses; and collected samples for the purpose of understanding the archaeological resource involved and to document the current site condition. We left the Grassy Ranch Site on June 29, 2007 at 12:15 PM, returning to the BLM office in Reno.

During our time conducting field work at this site, Special Agent Swain provided us with copies of items seized during the investigation and suspected to be from the immediate area including 1) a hand-drawn map (Evidence Item #96: see Appendix A), and 2) photocopies of photographs of the suspects and the general landscape. Based on these photographs and the map, we located areas of lithic (stone) concentrations and areas lacking in material remains that corresponded to places highlighted on the hand drawn map.

During the field documentation of June 27 to 29, 2007, the archaeology team took a series of photographs of the archaeological resource using a Minolta Dimage Z1 3.2 megapixels digital camera (Photographs 1-63: photograph log is Appendix B with photographs included as part of Appendix A). Scale used in photographs is a mechanical pencil, 5 ½ inches in length. Azimuth of each photograph that is not taken in a down direction is logged in the attached photograph log, measured using a Silva Ranger compass with a set declination of 18.5 degrees west.

Location of the areas walked in transects across the site are documented using GPS and provided in Figure 8. Loci of lithic or historic debris were also GPSed, as was the overall area identified at this time as the Grassy Ranch Site's boundary, the location of the wood building, and historical or modern landscape features such as fences and a stock pond. From these GPS data points, lines, and polygons, the maps identified as Figure 3 and Figure 8 in this report, and the figures in the site form (see Appendix A) were generated using ArcMap and AutoCad software by BLM Archaeologist Elizabeth Lane and me.

On August 15, 2007, Dr. Burke analyzed material remains seized as evidence in the archaeological resource violation case against Donald and Steven Parker (Case No.: 0749200008). From October 23 to 26, 2007, he conducted additional analysis of stone items collected from archaeological context and documented in photographs seized as evidence. This damage assessment has been prepared based on the June 2007 field work, the analysis of the stone material remains seized as evidence, and the analysis of artifacts from archaeological context.

ARCHAEOLOGICAL RESOURCE DAMAGE

ARPA and the ARPA Uniform Regulations specify that under certain circumstances (e.g., lack of ARPA permit), prohibited conduct includes the following acts: "excavate, remove, damage, or otherwise alter or deface" any archaeological resource, "or attempt to (do any such act)" (Title 16, United States Code, Section 470ee(a); 43 CFR Part 7.4(a)). This prohibited conduct applies to both ARPA criminal offenses (Title 16, United States Code, Section 470ee(d)) and ARPA civil penalties (Title 16, United States Code, Section 470ff(a)(1); 43 CFR Part 7.15(a)).

The Grassy Ranch Site is a large area of Native American Indian prehistoric activity. Special Agent Swain conducted interviews with people involved with the violations being investigated for this ARPA issue, with two collecting trips suggested as made to this area (see report by Special Agent Swain). Photographs that appear to represent places within the Grassy Ranch Site, maps that appear to reflect specific locations within the Grassy Ranch Site, along with prehistoric artifacts collected from this site were subsequently seized during the investigation. The area in which these collections were made was indicated to Special Agent Swain. Based on this information, the damage assessment field work was conducted by Mr. McDonald, Dr. Burke, and me from June 27 to 29, 2007. Based on the locations we observed on-the-ground, several areas equate to the seized maps and photographs, and as indicated to Special Agent Swain through interviews as having been systematically collected. Based on this field work, we identified a total of 494 acres as the area damaged and altered by prohibited acts (see Figure 8). This will be the area discussed in the following section.

VALUE AND COST DETERMINATIONS

The “Prohibited Acts and Criminal Penalties” section of ARPA identifies three monetary values that will be considered in relation to criminal or civil penalties for the offense. These are the “commercial value” or the “archaeological value” of the archaeological resources involved in the violation and the “cost of restoration and repair” of these resources (Title 16, United States Code, Sections 470ee(d) and 470ff(a)(2)). Procedures for determining values are found in the ARPA Uniform Regulations (43 CFR Part 7.14).

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Figure 8. Map of the area investigated by BLM archaeologists on June 27, 28, and 29, 2007, and the area damaged/altered by violators.

In the following section of this report, the monetary values of archaeological value, commercial value, and cost of restoration and repair are each considered.

Archaeological Value

The ARPA Uniform Regulations define the term “archaeological value” as follows:

... the archaeological value of any resource involved in a violation ... shall be the value of the information associated with the archaeological resource. This value shall be appraised in terms of the costs of the retrieval of the scientific information which would have been obtainable prior to the violation. These costs may include, but need not be limited to, the cost of preparing a research design, conducting field work, carrying out laboratory analysis, and preparing reports as would be necessary to realize the information potential (43 CFR Part 7.14(a)).

The Society for American Archaeology (SAA) is an international organization dedicated to the research, interpretation, and protection of the archaeological heritage of the Americas. With more than 7,000 members, the society represents the largest organization for professional, student, and avocational archaeologists working in a variety of settings including government agencies, colleges and universities, museums, and the private sector. SAA was founded in 1934, and I have been a member of SAA since 1990. SAA has established “Professional Standards for the Determination of Archaeological Value” (<http://www.saa.org/government/ARPAstandards.pdf>). I am familiar with these standards, I have completed over 100 hours of training on the application of these standards, and I apply them in this section.

I am an archaeologist with over 20 years of professional experience, hold a Master’s degree in anthropology, and am a member of the Register of Professional Archaeologists. I am currently the lead archaeologist for the Bureau of Land Management in the Sierra Front Field Office. I conducted the field work for the damage assessment with archaeologists Dr. Burke and Mr. McDonald, and determined the area damaged, with removed material remains and altered contexts. As described above, the area that was damaged and altered by prohibited acts is the 494-acre block illustrated in Figure 8. The specific archaeological resource involved is the surface context of the Grassy Ranch Site, defined above and in Appendix A, and illustrated in Figures 3 and 8.

The archaeological value was determined by computing the costs of appropriate archaeological research. The scientific information retrieval operations involved in this strategy would include a number of necessary steps required for a professional archaeological surface inventory following professional guidelines and federal laws, including ARPA Uniform Regulations (43 CFR Part 7). Necessary steps would include consultation with local tribal entities that claim historical territorial use of lands in the northwestern portion of the National Conservation Area, as required by National Historic Preservation Act (NHPA), as amended⁸; preparation of a research design that may be reviewed and commented on by the Nevada State Historic Preservation Office (SHPO), the local tribal entities, and by the BLM Field Office Manager for the NCA; field work; laboratory analyses; and report preparation. All scientific data files and material remains would be curated in accordance with federal curation standards. Costs are provided in Table 1. This is proportional to the nature and extent of prohibited conduct damage as an appropriate measure of the magnitude of harm to the archaeological resource.

Consult with American Indians and Nevada State Historic Preservation Office

Consultation with local tribal entities would be necessary and important, as they represent the federally-recognized Native American descendents for the prehistoric people who lived in what is now northwestern Nevada. The Northern Paiute, and possibly tribal people

⁸ Tribal entities with historical use claim to the immediate region include the Summit Lake Paiute Tribe, the Fort Bidwell Community of Paiute Indians, the Pyramid Lake Paiute Indian Tribe, the Susanville Indian Rancheria; the Modoc Indian Tribe, the Pit River Tribe of California, and the Alturas Rancheria of Pit River Indians.

within the Modoc and Pit River groups, hold archaeological and humanistic interest in the Grassy Ranch Site. Consultation would meet NHPA law and relevant sections of BLM Manuals (8100 Series), and provide value for present and future members of this group of American people.

The Northern Paiute and other tribal entities would be anticipated to participate in ethnographic studies specific to the Grassy Ranch Site and this activity may produce text or reports that could be added to the projected technical report. The projected consultation work conducted by tribal entities with historical use claim would, at a minimum, include a visit to the area by the tribal representatives at a cost of \$600 for their participation. In addition, a BLM Archaeologist would require 14 hours to coordinate with the local tribal entities, including two rounds of informational letters to them, followed by two rounds of telephone calls from the Field Manager or his representative from the BLM Black Rock Desert-High Rock Canyon-Emigrant Trails NCA, to each of the tribal representatives in conjunction with the letters. The BLM archaeologist also would accompany tribal representatives to the field.

Consultation with the Nevada SHPO also would be necessary and important. The BLM bears legal responsibility for carrying out specific undertakings, such as that proposed here. However, Nevada SHPO is directed to reflect “the interests of the State and its citizens in the preservation of their cultural resources” (36 CFR Part 800.2(c)(1)) and “advise and assist, as appropriate, Federal and State agencies and local governments in carrying out their historic preservation responsibilities” (Title 16, United States Code, Section 470a(b)(3)(e)). BLM would consult with the Nevada SHPO, and this would require two hours of my time to coordinate, including informational letters to them, followed by telephone calls from me or the BLM Field Office Manager for the NCA.

The projected consultation work with and by the BLM, the local Northern Paiute people, other tribal entities, and with the Nevada SHPO, would cost a total of \$1,434.56.

Table 1: ARPA Archaeological Value				
Scientific Information Retrieval Operations, the Grassy Ranch Site (41.22.18.2)				
I. Consult with Native Americans and Nevada SHPO				
	LABOR	HOURS	RATE	TOTAL
	BLM Archaeologist (Carter GS 12/1)	16	\$48.16	\$963.20
	DIRECT COSTS	ITEM	COST	
	Tribal Entity Consultation Fee	1	\$600.00	\$600.00
	Postage (registered, return receipt)	16	\$4.00	\$64.00
	Subtotal for I. "Consultation"			\$1,434.56
II. Prepare a Research Design				
	LABOR	HOURS	RATE	TOTAL
	BLM Archaeologist (Carter GS 12/1)	24	\$48.16	\$1,155.84
	BLM Archaeologist (Lane GS 9/1)	4	\$32.26	\$129.04
	DIRECT COSTS	ITEM	COST	
	Postage (registered--to tribal entities and SHPO)	8	\$5.50	\$44.00
	Subtotal for II. "Research Design"			\$1,328.88
III. Conduct Field Work				
	LABOR	HOURS	RATE	TOTAL
	BLM Archaeologist (Carter GS 12/1)	40	\$48.16	\$1,926.40
	BLM Archaeologist (Lane GS 9/1)	40	\$32.26	\$1,290.40
	DIRECT COSTS	ITEM	COST	
	Vehicle Cost (mileage)	540	\$0.48	\$259.20
	Camp Rate (per day)	8	\$29.00	\$232.00
	Expendable Field Supplies (bags, forms, batteries, etc.)	1	\$25.00	\$25.00
	Subtotal for III. "Field Work"			\$3,733.00
IV. Conduct Laboratory Analysis				
	LABOR	HOURS	RATE	TOTAL
	BLM Archaeologist (Lane GS 9/1)	4	\$32.26	\$129.04
	DIRECT COSTS	ITEM	COST	
	Expendable Lab Supplies (bags, boxes, forms, etc.)	1	\$15.00	\$15.00
	Subtotal for IV. "Laboratory Analysis"			\$144.04
V. Prepare Reports				
	LABOR	HOURS	RATE	TOTAL
	BLM Archaeologist (Carter GS 12/1)	42	\$48.16	\$2,022.72
	BLM Archaeologist (Lane GS 9/1)	4	\$32.26	\$129.04
	DIRECT COSTS	ITEM	COST	
	Report production cost (per page)	600	\$0.10	\$60.00
	Postage (registered--to tribal entities and SHPO)	8	\$7.00	\$56.00
	Subtotal for V. "Prepare Reports"			\$2,267.76
VI. Curate Material Remains and Records				
	LABOR	HOURS	RATE	TOTAL
	BLM Archaeologist (Lane GS 9/1)	6	\$32.26	\$193.56
	DIRECT COSTS	ITEM	COST	
	Vehicle Cost (mileage)	22	\$0.48	\$10.56
	Museum Curation Fee	1	\$540.00	\$540.00
	Subtotal for VI. "Curate"			\$744.12
	TOTAL ARCHAEOLOGICAL VALUE (I, II, III, IV, V, and VI)			\$9,652.36

Prepare a research design

A research design would be an important and necessary step that allows the BLM, Nevada SHPO, and local tribal entities to review and comment on the proposed field work and analyses prior to these occurring. The research design⁹ would include information deemed necessary by the Nevada BLM State Office and in accordance with relevant sections of BLM Manuals (8100 Series). This research design would include, but not be limited to, “information concerning the time, scope, and location and specific purpose of the proposed work” (Title 16, United States Code, Section 470bb(1)).

Modern archaeology in the United States and Nevada is explicit in the kinds of questions and avenues of research asked of archaeological resources to retrieve important scientific information. Specific means of field work and laboratory analyses are used to extract answers. Therefore, archaeologists structure the reasoning associated with research and interpret archaeological context relative to what is the known nature of the archaeological resources, environment, and ethnographic history. Components of the archaeological resource include the patterning of the spatial area and relationship between material remains, constructed features, hearths and areas of discard, and environmental factors (such as raw stone, springs, slope, and plant types). Obtaining the spatial relations and material remains adequate to meet these needs is vital to understanding contexts. Research questions that would need to be considered prior to initiating field work into the specific prehistoric-period archaeological resource at the Grassy Ranch Site include:

- Based on initial data and analysis, the chipping/flaking of rocks at Grassy Ranch Site were not done at only one period of time. Evidence includes projectile points of different types being present. What specific periods of habitation, raw material acquisition, and other activities are represented at the site?
- What raw materials are available and how are they distributed across the landscape? What raw materials were preferred, and for what kind of tools?
- How did people structure their habitation, stone tool manufacture, and other use areas at this site, and how are these areas related to the nearby sites at Grassy Rock, in High Rock Canyon, at Massacre Lake, and elsewhere in the region?
- What relationship did the people have with other people living in the immediate area, and how did they interact and trade, and if so what was traded?
- Was use and stone acquisition of the archaeological resource all done by the same group of people, or is there clear evidence that suggest population change?
- Exactly what type of artifacts were used and made by people at Grassy Ranch Site, and did the tools used and made change over time?
- Do distribution of artifacts and features within the site provide data on household size and organization, occupational specialization and redistribution of material goods, and patterns of differential wealth, status, or political control?

⁹ A *research design* would be a document that meets the needs of a “Treatment Plan,” as described in the BLM’s 8100 Manual and in the Nevada BLM/SHPO Protocol (1999).

This research would relate to the humanistic context as well, and the research design would reflect this context. The local tribal entities continue to live and conduct their lives in the region, and hold vital ties to their ancestors, including the prehistoric inhabitants of the Grassy Ranch Site. Research at specific locations and into specific archaeological context could evince past known and unknown behaviors and links with their modern kin.

The projected time required for preparing a research design for this project would be 24 hours of my time, and with additional production and postage costs, would total \$1,328.88.

Conduct field work

Field methods for this operation would follow current and customary professional standards of archaeologists and would meet the Department of the Interior's "Archaeology and Historic Preservation: Secretary's Standards and Guidelines" (*Federal Register* 48(190), September 29, 1983), and relevant sections of BLM Manuals (8100 Series). As an archaeologist, I meet the requirements Department of the Interior's "Archaeology and Historic Preservation: Secretary's Standards and Guidelines," and could lead field work.

Field work would involve surface inventory of the 494 acres identified in Figure 8. Inventory would be performed at 30-meter wide parallel transects, walked back and forth across the area. Other fieldwork tasks would necessarily include archaeological resource and materials documentation, sample collection, preparation of a site form, photography and photograph log entries, and text and GPS data collection. Based on my 20 years of professional experience, an archaeology professional can complete 40 to 60 acres of inventory and documentation per person, per day, in a landscape such as Grassy Canyon. Therefore, a very conservative estimate for completing field work in the area systematically collected would entail 32 hours for each person. Travel time to the location would take an additional four hours per person, each direction.

As no unauthorized excavation of the Grassy Ranch site was observed during field work at the site, the cost of scientifically controlled excavation units are not included. Projected cost specific to the field work described would be \$3,733.00.

Conduct laboratory analyses

Once out of the field, it would be necessary to carry out laboratory analyses on the material remains, samples, and data recovered in the field. Projected recovery from the site would include approximately 45 sampled material remains. Ms. Lane would process the collected material remains using current and conventional professional methods that meet relevant sections of BLM Manuals (8100 Series). These methods include processing the collection (washing or dry brushing of stone collected materials, measuring and weighing objects, documenting material type and style appropriate for collected material remains from northwestern Nevada, applying a permanent collections number to each object, and creating a collections catalog database for the information collected). Processed materials would be stored in clean 4 mil zip-closure polyethylene bags, labeling the bag with the unique catalog number, site number, and date of collection. The bagged collected material

remains and samples would be prepared for curation¹⁰ (see below). Projected time for Ms. Lane to processing and analyzing the collections is four hours, and with projected costs, would total \$144.04.

Preparation of reports

Report preparation necessary to meet the conditions of a federal permit includes documenting the field work, putting the recovered scientific data into both regional and site-specific context, and preparing a site form that meets BLM and other federal standards for this region. Report preparation would follow relevant sections of BLM Manuals (8100 Series). I would produce a fully documented narrative (technical archaeological report) detailing, at a minimum, the project research design, summary of archeological overview of regional prehistory, field work methods, and results from the spatial contexts and material remains documentation at the Grassy Ranch Site. This report would include an introduction, references cited, discussion of the results. The contexts include those of the features, the material remains, and the site landscape that can address Great Basin Archaic past human life and activities. Plan maps, photographs, and tables would be used, as necessary, to illustrate methods, results, and discussions of context. Report preparation is projected to cost \$2,267.76.

Curation of recovered material remains

Current and customary professional standards appropriate to the archaeological methods, described above, would result in a body of material remains and scientific information (including field and laboratory notes, field maps, photographs, photograph logs, and reports). The scientific information would be copied on acid-free paper and labeled, and both the information and material remains would be stored in an acid-free box and curated in perpetuity in accordance with federal curation standards (36 CFR Part 79). Time specific to preparation of collections for curation, along with the cost of driving to the museum facility, would total \$204.12.

Scientific information retrieval operations projected to determine archaeological value at the Grassy Ranch Site would result in the recovery of non-Native American Graves Protection and Repatriation Act material remains. The volume of these items to be curated is estimated to total one cubic foot, and would be delivered to the Nevada State Museum Annex, Carson City, Nevada, and curated, in perpetuity, at this designated federal repository at a cost of \$540.00 per cubic foot.

Total Archaeological Value

The cost of each of the scientific information retrieval operations is summarized above in Table 1. The archaeological value of the information of archaeological and humanistic interest associated with the archaeological resource involved in the ARPA violation is \$9,652.36.

¹⁰ *Curation* is the act of housing material remains, samples, and copies of records, data, photographs, reports, and other documents, processed to archival standards, at an appropriate curatorial facility.

Commercial Value

This section documents the commercial value determination prepared by Dr. Burke for 157 commercially valuable artifacts seized in the archaeological resource violation case against Donald and Steven Parker (Case No.: 0749200008) and for 90 commercially valuable artifacts within photographs seized in the same case (Evidence Item #10 and Evidence Item #57). These items are identified by Special Agent Swain as being from the Grassy Ranch Site archaeological resource.

The ARPA Final Uniform Regulations of 1984 (43 CFR Part 7) define the term “commercial value” as follows:

For the purposes of this part, the commercial value of any archaeological resource involved in a violation ... shall be its fair market value. (43 CFR Part 7.14(b)).

According to *Black's Law Dictionary*, “fair market value” is, “The amount at which property would change hands between a willing buyer and a willing seller ...” (Black 1991:414). Therefore, the commercial value of an archaeological resource is the fair market value which a willing buyer would pay to a willing seller in the artifact collector marketplace. In this case, the total commercial value figure will be the sum of the commercial value for each of 160 material remains seized and for the 98 items in photographs seized in this case.

At the request of Special Agent Swain, Dr. Burke conducted the commercial value determination documented here in the BLM Law Enforcement Work Area at the BLM Nevada State Office on August 15, 2007, and between October 23 and 26, 2007. Of 188 physical items seized in the case, Dr. Burke’s analysis identified 160 material remains as prehistoric artifacts, with 157 of these commercially valuable. This count includes two conjoining pieces tallied as one artifact. Of the seized material remains, 27 pieces were determined to have no commercial value as they were not artifacts under ARPA definitions (*e.g.*, natural, unmodified rocks). One additional seized artifact, a glass sherd of amethyst glass, was not included in the commercial value determination as it might be less than 100 years old. Three items are considered to be flaked stone arrow tips, or fragments of arrow tips¹¹, and not included in commercial value calculations. Thus, a total of 31 of 188 seized specimens were eliminated from consideration of commercial value.

The 98 artifacts within photographs seized in this case (Evidence Item #10 and Evidence Item #57) are not included in the analysis of physical material remains, but were assessed for commercial value separately, having evidently been collected from the Grassy Ranch Site archaeological resource based upon pictures and statements made to Special Agent Swain. Of the 98 photographed specimens displayed, eight of these items in each photograph, for a total of 16, are classifiable using Overstreet’s (2005) categories for the Far West Section since they appear to be fragments or whole examples of diagnostic projectile points. Eight of the photographed diagnostic projectile points were judged as

¹¹ *Arrow tips* are material remains that likely represent the flaked stone tool affixed to the distal end of an arrow, and could be termed arrow points or “arrowheads.”

possible arrow tips, or arrow tip fragments, and excluded from the commercial value calculation. For each of the remaining 90 artifacts considered to have commercial value, however, as Dr. Burke only has the photographs to rely on, value assigned is at the lowest range available. These may in fact be very valuable, but since Dr. Burke cannot physically examine them, the values assigned are conservative.

The remaining 82 photographed specimens are categorized as bifaces, although some might be classifiable as large projectile points (larger than the size of arrow tips) if better photos were available or if they were physically available. All photographed biface specimens have commercial value that might be listed by Overstreet or by Canaday (2003).

To facilitate the commercial value determination, Dr. Burke completed specific artifact type identifications for the 160 seized specimens and the 98 artifacts in the photographs. Dr. Burke, the BLM Nevada State Archaeologist, is a professional archaeologist familiar with the archaeology of the region where the Grassy Ranch Site is located and an expert in flaked stone identification. His artifact type identifications (Appendix C) comprise the data on which a commercial value determination is based. Based on his professional judgment, both the 157 physical material remains and 90 photographed artifacts are similar to archaeological specimens seen in the field from June 27 to 29, 2007, during our documentation of the Grassy Ranch Site, both in the material types represented (such as obsidian and various cryptocrystalline silicates) and in the stylistic attributes of the stone tool assemblages.

Where a morphological or typological correspondence could be established, commercial values for flaked stone artifacts were determined by reference to the most recent edition of a published price guide entitled *Official Overstreet Identification and Price Guide to Indian Arrowheads* (9th Edition) by Robert M. Overstreet (2005). The commercial value of three ground stone material remains was obtained using comparables in a recent damage assessment prepared by Canaday (2003), as was done for several other artifact categories that could not be found in Overstreet (2005).

Numerous examples of flaked stone specimens in early to middle stages of manufacture (commonly referred to as “bifaces” by archaeologists as they are flaked on two sides) are represented in the seized material remains and are included in the assessment of commercial value. Bifaces are similarly illustrated in the photographed specimens. The presence of early stage and broken bifaces in a stone source area (such as an obsidian quarry) is not unusual and, indeed, provides important avenues to archaeological analyses, interpretation, and public appreciation. Overstreet (2005) considers primarily the values of late stage and finished pieces, many suitable for hafting to a handle or shaft of wood, bone or similar material. Overstreet’s other examples are bifacially modified without clear evidence for any means of hafting, but meet desirable collector criteria such as large size, fine workmanship, thinness, or association with a known archaeological site. Some exceptions made by Overstreet to the presentation of complete, late stage specimens in the Far West section (discussed below) include the “chopper” and the “scraper,” which are included in the commercial value table (Appendix C). These descriptive terms are based

strictly on morphological or typological comparability with Overstreet's photographs and text and are not statements regarding the potential age of the items.

While Overstreet's book title refers to "arrowheads," archaeologists would identify most of specimens in his book as pre-dating the appearance of the bow and arrow in North American prehistory. Bifaces commonly found in the seized materials in this case are not listed among types found in Overstreet's (2005) Far West region. None of the seized biface specimens is particularly large in size, thin, or of fine workmanship. Many seized specimens are broken and incomplete; these are most likely a result of a failure during manufacture, perhaps a consequence of a material flaw such as a crack or impurity, but also a likely outcome of a misdirected hit or similar accidental blow. Flaking methods are limited mostly to direct percussion¹². Edges tend to be sinuous rather than straight. Pressure flaking¹³ is very scarce among the seized bifaces, except for those material remains listed a projectile points/knives. Nonetheless, these biface specimens have a commercial value as 'curios,' 'curiosities' or 'Indian artifacts' that may be found in places such as swap meets and garage sales. Values for artifact categories not found in Overstreet were taken from commercial value determinations in other, similar situations (Canaday 2003:Table 10 to Table 27). All sites considered by Canaday (2003) are also in the Far West area, and the value estimates are recent enough to provide a conservative basis for commercial value of these artifact categories.

This *Official Overstreet Identification and Price Guide to Indian Arrowheads* has been published periodically since 1989 and is widely known as the authoritative source for identifying, grading and determining the value of flaked stone arrow tips and other flaked stone artifacts, including dart and spear points, knives, and scrapers. The 9th Edition of the *Official Overstreet Identification and Price Guide to Indian Arrowheads* is 1,198 pages in length and includes sections on identifying and classifying flaked stone artifacts, grading flaked stone artifacts to determine their value, buying flaked stone artifacts, and flaked stone artifact market conditions. The majority of the book is devoted to regional artifact sections for each of ten geographic regions identified for the United States. Well-known flaked stone artifact collectors and dealers contributed market reports and served as consultants and advisors on the regional sections.

Overstreet (2005:63-68) describes factors that determine a given type as: 1) shape or form; 2) size; 3) style or flaking; 4) thickness or thinness; 5) kind of material, and he utilizes photographs to show the range of size, quality, and variation of form, as well as grades and their corresponding prices.

Regarding the prices he assigns to flaked stone artifacts, Overstreet (2005:64) presents the following general comments:

¹² *Direct percussion* is the method of directly striking the margin of a stone in order to purposefully remove a flake from the opposite side of the raw material core or biface. This produces a fairly large waste flake.

¹³ *Pressure flaking* is a method used during the production of a biface where physical pressure is applied, intentionally breaking off a small flake during the final sharpening stages. This is used to finish many artifacts, producing a straight, sharp edge with very small waste flakes removed.

All values listed in this book are in U.S. currency and are wholesale/retail prices based on (but not limited to) reports from our extensive network of experienced advisors which include convention sales, mail order, auctions and unpublished personal sales. Overstreet, with several decades of market experience, has developed a unique and comprehensive system for gathering, documenting, averaging and pricing data on arrowheads.¹⁴ The end result is a true fair market value for your use. We have earned the reputation for our cautious, conservative approach to pricing arrowheads. You, the collector, can be assured that the prices listed in this volume are the most accurate and useful in print.

... **The low price** is the wholesale price (the price dealers may pay for that point). **The high price** is the retail price (the price a collector may pay for that point)... The prices listed have been averaged from the highest and lowest prices we have seen, just prior to publication. We feel that this will give you a fair, realistic price value for each....

Overstreet bases the value of flaked stone artifacts on what he refers to as their “grade” (2005:65). In the section of his price guide entitled “How to Grade Points,” Overstreet describes his grading system as follows:

Before a point's true value can be assessed, its condition or state of preservation as well as quality must be determined. The better the quality and condition, and the larger the size, the more valuable the point. Perfect points that are classic for the type, thin, made of high quality materials with perfect symmetry and flaking are worth several times the price of common, but complete, low grade field points. [The factors that influence the grade and value of points are:]

Condition: Perfection is the rule. Nicks, chips, and breakage reduce value.

Size: Everything else being equal, a larger point will grade higher than a smaller point and larger points are worth more.

Form: The closer a point comes to being a classic for the type, the higher the grade and value.

Symmetry: Points with good balance and design are higher grade and worth more.

Flaking: Points with precision percussion and secondary flaking, a minimum of hinge fractures and problem areas are higher grade and worth more. Points with unusual flaking patterns, such as collateral or oblique transverse, enhance grade and value.

Thinness: The thinner the better.

After all the above steps have been considered, then the reader can begin to assign a grade to his point. Points are graded on a scale of 1 to 10+, where a 10+ is the best and a 1 is the lowest grade for a complete point. [Grading definitions are:]

¹⁴ Note that Overstreet uses the term “points” and “arrowheads” as a general term for all of the artifact types covered in the price guide. These artifact types include arrow tips, dart tips, spear tips, drills, knives, scrapers, and other types.

Grade 10+: The exceptional perfect point. One of the few half dozen best known to exist. Perfect in every way, including thinness, flaking, material, symmetry and form. The best example you would ever expect to see of any given type. This grade is extremely rare, and applies to medium to large size points that normally occur in a given type.

Grade 10: A perfect point, including thinness, flaking, symmetry and form. This grade is extremely rare, and applies to all sizes of points that normally occur in a given type. A point does not have to be the largest known to qualify for this grade.

Grade 8 or 9: Near perfect but lacking just a little in size or material or thinness. It may have a small defect to keep it out of a 10 category. Still very rare, most high grade points would fall into this category.

Grade 6 or 7: Better than the average grade but not quite nice enough to get a high ranking. Flaking, size, and symmetry are just a little above the average. Points in this grade are still very hard to find in most states. A very collectible grade.

Grade 4 or 5: The average quality that is found. The flaking, thickness, and symmetry is average. 2 or 3 very minute nicks may be seen but none that would be considered serious.

Grade 1-3: Field grade points that have below average overall quality. Better points with more serious faults or dings would fall into this grade. The most common grade found and correspondingly, the least valuable.

Broken points: Usually little to no value. However, good high grade broken backs of popular type points have fetched good prices. Examples would be Paleo [-Indian] points and many of the rare Archaic beveled and notched types (2005:65).

Overstreet also identifies four other factors which influence the value of flaked stone artifacts. These factors are: known “provenance” (where the artifact was found); material and its’ color; rarity; and “popularity of type” (2005:65-66).

To use his price guide to determine the value of flaked stone artifacts, black-and-white photographs of flaked stone artifacts are provided. Overstreet states that:

After a point has been graded and assigned a grade number, it should be compared with similar points in the alphabetical listings. The prices listed should give the reader a guide as to the probable value of his point ... [by comparing] grade with grade. If your point has a little ear or tip broken, the value is affected drastically (2005:65).

Dr. Burke applied the step-by-step procedures necessary to utilize the Overstreet price guide to determine the commercial value of each of the corresponding flaked stone items or items identified in photographs associated with the Grassy Ranch Site case. He measured and recorded the size and thickness of seized projectile points in centimeters, although most are broken. Only whole bifaces or nearly whole seized bifaces were measured, in centimeters, since those categories were likely to have somewhat more value than broken specimens. It was not possible to size or scale the artifact photographs provided by Special

Agent Swain. The Far West regional section of the Overstreet (2005) price guide was utilized to establish the grade and values of the flaked stone artifacts because the site where the violation occurred, the Grassy Ranch Site, is located in this region. Comparable values for bifaces, biface fragments, worked flakes, and ground stone tools were taken from ranges listed in Canaday (2003).

The value assigned to each material remain reflects the retail or collector value shown in the Overstreet price guide or in Canaday's tables because this retail or collector value corresponds to the "fair market value" definition of "commercial value" in the ARPA Final Uniform Regulations (43 CFR 7.14(b); see above).

The total commercial value of the 160 artifacts seized and 98 artifacts photographed is \$98.15 (see Appendix C for details).

Cost of Restoration and Repair

The ARPA Uniform Regulations define the term "cost of restoration and repair" as follows:

... the cost of restoration and repair of archaeological resources damaged as a result of a violation ... shall be the sum of the costs already incurred for emergency restoration or repair work, plus those costs projected to be necessary to complete restoration and repair, which may include, but need not be limited to the costs of the following:

- (1) Reconstruction of the archaeological resource;
- (2) Stabilization of the archaeological resource;
- (3) Ground contour reconstruction and surface stabilization;
- (4) Research necessary to carry out reconstruction or stabilization;
- (5) Physical barriers or other protective devices, necessitated by the disturbance of the archaeological resource, to protect it from further disturbance;
- (6) Examination and analysis of the archaeological resource including recording remaining archaeological information, where necessitated by disturbance, in order to salvage remaining values which cannot be otherwise conserved;
- (7) Reinterment of human remains in accordance with religious custom and State, local, or tribal law, where appropriate, as determined by the Federal land manager;
- (8) Preparation of reports related to any of the above activities (43 CFR Part 7.14(c)).

Emergency Restoration and Repair

Some field work procedures were performed by BLM archaeologists on June 27, 28, and 29, 2007, as an emergency measure to examine and analyze the archaeological resource involved and document the unauthorized damage, alteration, and removal of material remains and archaeological context at Grassy Ranch Site. The procedures on those dates are described above in the section on "Damage Assessment Procedures." These included

Dr. Burke, Mr. McDonald, and I preparing for (mobilizing) and traveling to and from the site, and conducting the field work for the damage assessment. Through review and documentation in the field, it was determined that no immediate stabilization of specific site areas were necessary at that time. Field work, mobilization, travel, and demobilization of the data collected required 31 hours of Dr. Burke's time, 39 hours of Mr. McDonald's time, and 35 hours of my time.

In addition, since completing the field work, BLM archaeologists have conducted additional damage assessment procedures including obtaining and using archival data; download digital and GPS data; prepared site documentation including site maps and photographs; and prepared this damage assessment report that includes costs associated with an archaeological violation.

On August 15, 2007, Dr. Burke conducted an initial cataloging of seized material remains at the BLM Nevada State Office, Law Enforcement Work Area, requiring 4 hours of time. His commercial valuation and related report preparation occurred between October 23 and 28, 2007, and required an additional 10 hours. The time spent by Dr. Burke on the commercial value data analysis was 14 hours.

From September 20 to December 31, 2007, I prepared the damage assessment report (this report). Preparation of this report required 60 hours of my time, and 6 hours for Ms. Lane.

On December 27, 2007, Dr. Burke, Ms. Lane, and I completed assembling the data necessary to produce an Intermountain Antiquities Computer System (IMACS) site form that includes the site context, remaining archaeological information and material remains, and the NRHP eligibility determination for the Grassy Ranch Site. Preparation of this site form required 8 hours of my time, 3 hour for Ms. Lane, and 6 hours for Dr. Burke.

This damage assessment report for the Grassy Ranch Site was reviewed by Mr. McDonald, requiring 8 hours of his time. Final report and site form preparation, production of copies of this report and the site form, communication, and distribution of the draft of the damage assessment to Special Agents and the Assistant United States Attorney required an additional 2 hours of my time.

Cost of these measures is \$12,410.46 for Emergency Restoration and Repair (Table 2).

Projected Restoration and Repair

In order to complete restoration and repair, BLM will need to conduct a few projected tasks. I would require six hours of my time to initiate consultation with the seven local tribal entities identified above (see footnote #8) on the work completed and the archaeological resource involved in the violation. This consultation would include preparation of a letter, and conducting a series of three telephone calls to tribal representatives to inform them of the damage, emergency restoration and repair measures completed, and projected restoration and repair tasks. Presenting a copy of this damage assessment may be appropriate, as may be distribution of the completed site form. No site

visit by a BLM archaeologist is projected. Based on this consultation, the Northern Paiute, Pit River, and Modoc tribal entities would be expected to initiate research and oral history consultation with elders specific to the Grassy Ranch Site. Internal tribal research and documentation may include a visit to the site location and would be estimated to cost \$600.

Additional data collection steps that are projected tasks would include final processing of the damage assessment and site form for the Grassy Ranch Site for distribution to tribes, Nevada SHPO, and the NCA archival records. This final report may include text prepared by the tribal entities as a result of their research and consultation with elders, and finalized maps and photographs prepared by Ms. Lane. Total time for the final reporting efforts would be 20 hours of my time, four hours by Dr. Burke, and two hours by Ms. Lane.

Scientific data and results would be processed for curation, with an additional six hours required for Ms. Lane to prepare the collection and deliver it to the Nevada State Museum Annex. In addition, the projected one cubic foot of data would be curated at a federal repository in accordance with federal curation standards (36 CFR Part 79) at a cost of \$540.

The cost of these Projected Restoration and Repair measures is \$3,006.84 (see Table 2).

Table 2: Cost of Restoration and Repair			
Scientific Information Damage , the Grassy Ranch Site (41.22.18.2)			
I. Emergency Restoration and Repair			
LABOR	HOURS	RATE	TOTAL
BLM Archaeologist (Carter GS 12/1)	105	\$48.16	\$5,056.80
BLM Archaeologist (Burke GS 12/5)	51	\$57.51	\$2,933.01
BLM Archaeologist (McDonald GS 13/5)	47	\$69.20	\$3,252.40
BLM Archaeologist (Lane GS 9/1)	9	\$32.26	\$290.34
DIRECT COSTS	ITEM	COST	
Vehicle Cost (mileage)	529	\$0.48	\$253.92
Camp Rate (per day)	6	\$29.00	\$174.00
Other travel expenses (McDonald)	1	\$230.03	\$230.03
Air travel (McDonald)	1	\$219.96	\$219.96
Subtotal for I. "Emergency Restoration and Repair"			\$12,410.46
II. Projected Restoration and Repair			
LABOR	HOURS	RATE	TOTAL
BLM Archaeologist (Carter GS 12/1)	26	\$48.16	\$1,252.16
BLM Archaeologist (Burke GS 12/5)	4	\$57.51	\$230.04
BLM Archaeologist (Lane GS 9/1)	8	\$32.26	\$258.08
DIRECT COSTS	ITEM	COST	
Tribal Entity Consultation Fee	1	\$600.00	\$600.00
Report production cost (per page)	400	\$0.10	\$40.00
Vehicle Cost (mileage)	22	\$0.48	\$10.56
Postage (registered--to tribal entities and SHPO)	8	\$7.00	\$56.00
Expendable Lab/Curation Supplies	1	\$20.00	\$20.00
Museum Curation Fee	1	\$540.00	\$540.00
Subtotal for II. "Projected Restoration and Repair"			\$3,006.84
TOTAL COST OF RESTORATION AND REPAIR (I and II)			\$15,417.30

Total Cost of Restoration and Repair

The costs involved are detailed in Table 2. The total cost to restore and repair the damage, alteration, and removal of material remains to the archaeological resource at the Grassy Ranch Site is \$15,417.30.

CONCLUSIONS

Based on a field damage assessment conducted June 27, 28, and 29, 2007, professional archaeologists from the BLM examined, analyzed, and documented material remains and archaeological contexts at the Grassy Ranch Site. The prehistoric component of the Grassy Ranch Site that is the archaeological resource involved in this damage assessment is over 100 years of age. Data indicate that most of the prehistoric activity dates to circa 2000 B.C. to A.D. 1300 and represents a Great Basin Archaic tool stone acquisition and habitation site.

The Grassy Ranch Site is an archaeological resource located on Federal public lands. No ARPA permit was ever applied for or issued to any persons for any acts involving excavation, removal, damage, alteration or defacement to any archaeological resource at or within the location of the Grassy Ranch Site prior to June 27, 2007.

In the field, BLM archaeologists observed and documented material remains, landscape features, and spatial concentrations of prehistoric use at the locations indicated on seized maps and photographs involved in an investigation of an archaeological resource violation case against Donald and Steven Parker (Case No.: 0749200008). BLM archaeologists recorded a sample of the material remains and archaeological context that remained in the field. This included photographs and GPS data. Based on that data collection, prohibited acts removed material remains and damaged and altered the archaeological context of the Grassy Ranch Site.

Of important consideration is our professional analysis and observed relationship between 1) the artifacts we documented in the field June 27 to 29, 2007, and 2) the material remains seized in the case and analyzed by Dr. Burke (see the section on "Commercial Value" and Appendix C). Similarities exist in the material types represented (such as obsidian and various cryptocrystalline silicates) and in the stylistic attributes in the stone tool assemblages. However, although items such as bifaces, scrapers, cores, and especially projectile points are observed during the June 27 to 29, 2007 fieldwork, they are in reduced frequency. For example, only three projectile points were recorded in the field, while 24 projectile points (including 11 arrow tips) were in the seized physical specimens and photographs. The unauthorized removal of material remains forever altered and damaged the context of the Grassy Ranch Site.

The Grassy Ranch Site is of archaeological interest to both scientists and the multiple tribal entities in northwest Nevada and northeastern California, and holds value to the direct descendents local Native American groups. Damage done by unauthorized acts to

archaeological resources at the Grassy Ranch Site caused monetary damage in terms of archaeological value, commercial value, and cost of restoration and repair. Archaeological value of the archaeological resources involved in the violation is \$9,652.36. Commercial value of the archaeological resources involved in the violation is \$98.15. Cost of restoration and repair of these resources is \$15,417.30. The total damage is calculated as either the cost of restoration and repair and archaeological value (\$25,069.66) or the cost of restoration and repair and commercial value (\$15, 515.45).

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