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Historic Trails Research in the Miranda Valley, Taos County, New Mexico

Edited by Christopher M. Johnston

Research Contribution 109

PCRG
Paleocultural Research Group

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With Contributions by
Christopher M. Johnston
Mark D. Mitchell
Amy Nelson
Britni V. Rockwell

2019

PCRG
PaleoCultural Research Group

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Abstract

In 2017 and 2018, Paleocultural Research Group (PCRG) carried out two field investigations in the Miranda Valley outside of Ranchos de Taos, New Mexico. Prior to these investigations, few archaeological research surveys have been conducted in the area. The project's primary goal was to identify and document historic trail segments, including those that may represent Old Spanish Trail-era use of the valley. Other cultural resources were also documented as they were encountered. This research built on records and field data compiled by Corky Hawk and the Taos County Historical Society, whose data proved instrumental in carrying out this project.

During the course of fieldwork, 25 archaeological sites were identified. Ten of these sites contain only historic components, nine of which include trail traces or swale segments. The other is a segment of an acequia (ditch) of unknown age. Ten sites contain only prehistoric artifacts. Many of the sites have multiple prehistoric components within them, with some dating as far back as the Middle Archaic period. Five sites have both prehistoric and historic components. Six isolated occurrences were documented during the fieldwork, all are prehistoric and contain one or only a few artifacts.

Over 30 trail segments across nine different sites were identified during the two field sessions, highlighting that the Miranda Valley contains an extensive and complex network of historical trail segments. Although the field research could not definitively link any of the segments to the Old Spanish Trail, historical records clearly indicate the trail came through the area. Evidence of this period of use, as well as earlier uses by Spanish colonists and captains in the seventeenth and eighteenth centuries, has likely been obscured or destroyed by later uses of these trail segments.

The valley also contains a rich American Indian occupation. Prior to this research, no Archaic-age sites had been documented in the valley. There are now at least seven different Archaic-aged localities documented in the valley as a result of this research, which will add valuable data to this poorly understood era. The field effort also updated the site recording of a Valdez phase farming hamlet which has great potential for additional data. The presence and density of American Indian artifacts across the valley also indicates that later travelers on the trail networks undoubtedly utilized paths first blazed by American Indians hundreds, if not thousands, or years prior.

While this project was not tied to a specific undertaking or potential impacts, cultural resources were evaluated for their eligibility to be included on the National Register of Historic Places (NRHP). Of the 25 sites, 10 are recommended as eligible for the NRHP, three are recommended as needing additional data, and 12 are recommended as not eligible.

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Acknowledgements

PCRG's Miranda Valley research would not have been possible without the detailed archival and field research carried out by Corky Hawk and members of the Taos County Historical Society. The uncounted days that Corky and his tireless team devoted to the project over many years are testimony to their dedication. Their work represents the best in historical scholarship.

PCRG is also grateful to long-time colleague and friend Angie Krall, who conceived and initiated the project during a stint as Carson National Forest Heritage Program Manager. Without Angie's vision the project never would have gotten off the ground. PCRG also recognizes the outstanding support provided by the forest's current Heritage Program Manager Price Heiner. Price, along with Forest Service archaeologists Patricia Corral, Amber Greak, and Andrea Kayser, contributed greatly to the field investigations and provided invaluable guidance on the subsequent analyses.

PCRG thanks Cyndy Gimble, Campus Coordinator of the Fort Burgwin campus, Dr. Michael Adler, Director of SMU-in-Taos, and the outstanding Fort Burgwin staff for their hospitality. Seldom have PCRG staff and volunteers eaten so well!

Numerous PCRG members, including both professional archaeologists and enthusiastic avocationals, participated in the fieldwork; participants are listed in chapter 1. PCRG's citizen science projects depend on a cadre of dedicated volunteers and the Miranda Valley project was no exception. PCRG is especially grateful to Pete Gleichman, and long-time member and retired professional. Pete graciously agreed to interrupt his well-deserved retirement to co-direct the 2018 field investigation.

PCRG gratefully acknowledges the many contributions that Charlie Haecker made to the project. Charlie participated in the 2017 field investigation—despite an otherwise full schedule compounded by car troubles. Charlie designed the metal detector survey, provided high-quality metal detectors, and trained the volunteer crew. Charlie also analyzed selected artifacts collected during the survey.

Finally, it is no exaggeration to say that the project would have ended up in the proverbial (and literal) ditch without the good sense and foresight of Mickey Blake. PCRG is forever grateful to Mickey for bringing the right equipment!

About the Contributors

Chris Johnston is the Operations Director and a Project Archaeologist for Paleocultural Research Group. Chris began his career as a PCRG undergraduate work-study while at the University of Colorado at Boulder. Chris earned his MA from Colorado State University in 2016 where his thesis research was on communal bison hunting at the Roberts Ranch Buffalo Jump (5LR100). He has worked for the USDA Forest Service, in cultural resource management, and as a researcher with PCRG and the Center for Mountain and Plains Archaeology at CSU. Chris served as the Assistant State Archaeologist of Colorado from 2016-2018 where he was the lead instructor for the Program for Avocational Archaeological Certification and managed the statewide archaeological and paleontological permitting system. He has worked on a variety of contract and research projects across the Great Plains and Rocky Mountains and has authored numerous technical reports, journal articles and conference presentations. Most recently he was the co-editor of The Lithic Caches of Colorado, a special issue of the journal *Southwestern Lore*.

Mark D. Mitchell is Research Director for Paleocultural Research Group. His research explores the archaeology of two different regions: the Northern Plains in western North Dakota, and the Southern Rocky Mountains in Colorado and New Mexico. Mitchell's Southern Rockies research focuses on American Indian mobility and land use in the San Luis Valley and adjacent mountains. He is particularly interested in how technological and environmental change affected native peoples' economic decisions. Mitchell's Northern Plains research focuses on the political and economic development of post-A.D. 1200 farming villages of the Missouri River valley.

He also studies historic American Indian rock art and the history of archaeology. Mitchell's research has appeared in *Plains Anthropologist*, *Antiquity*, *American Antiquity*, *Southwestern Lore*, *Colorado Archaeology, Quaternary International*, and in a number of book chapters. He is the author of *Crafting History in the Northern Plains: A Political Economy of the Heart River Region, 1400-1750* (University of Arizona Press, 2013) and co-editor of *Across A Great Divide: Continuity and Change in Native North American Societies, 1400-1900* (University of Arizona Press, 2010).

Amy Nelson currently serves as a Project Archaeologist for Paleocultural Research Group, a position she began in August of 2016. Previously, she served as a Project Director at Metcalf Archaeological Consultants (MAC) where her role included conducting inventory, data recovery and monitoring projects as well as supervising field technicians and project reporting. She joined MAC in 2005 as an archaeological field technician. Since that time, she has worked in many of the western states and has supervised survey and data recovery projects in Colorado, Utah, and Wyoming. She has also been involved in an ongoing project in the Kingdom of Jordan and in the Boundary Waters Canoe Area Wilderness. Ms. Nelson is currently working toward a Master's of Science degree in Anthropology/ Cultural Resource Management Archaeology at St. Cloud State University in Minnesota.

Britni Rockwell earned her BA in Anthropology from Colorado State University in 2016. Britni began her career with PCRG while on the 2015 CSU archaeological field school that was led by Dr. Mark Mitchell and PCRG. In 2016, she became the PCRG Lab Manager and Volunteer Coordinator. In this capacity, Britni coordinates all aspects of lab analysis, training student lab workers and volunteers, and manages all the logistics for field projects. Britni has also worked in cultural resource management, conducting data recovery excavations and pedestrian survey projects across Colorado.

1

Introduction

Mark D. Mitchell

*H*istorians LeRoy and Ann Hafen (1993:19) describe the Old Spanish Trail (OST) as the "the longest, crookedest, most arduous pack mule route in the history of America." During the trail's heyday in the 1830s and 1840s traders used its braided routes to carry New Mexican blankets and other woolens to California, where they were exchanged for horses and mules (figure 1.1). Merchants in Santa Fe sent annual trading caravans over the trail to Los Angeles beginning in 1829. Caravan traffic ended in 1848 with the Mexican Cession following Mexico's defeat in the Mexican-American War.

The routes that the caravans would eventually travel were blazed in the closing decades of the eighteenth century and the opening decades of the nineteenth by explorers, fur trappers, and Americans Indians. Although they shared mercantile objectives their efforts were mostly uncoordinated, resulting in a tangled network of trails rather than a single well-define route.

Close to its eastern terminus in Santa Fe segments of what would later become the OST were also routes of Spanish colonial settlement and military conquest. One such segment—the Miranda Valley Road located south of modern Ranchos de Taos, New Mexico—was the focus of a cooperative citizen-science project carried out in 2017 and 2018 by Paleocultural Research Group (PCRG), a nonprofit research and education organization, and the Carson National Forest (figure 1.2). This report describes the results of that project.

Finding the Old Spanish Trail

The Hafens' evocative description of the trail also neatly summarizes the challenges archaeologists face in finding traces of the OST on the modern

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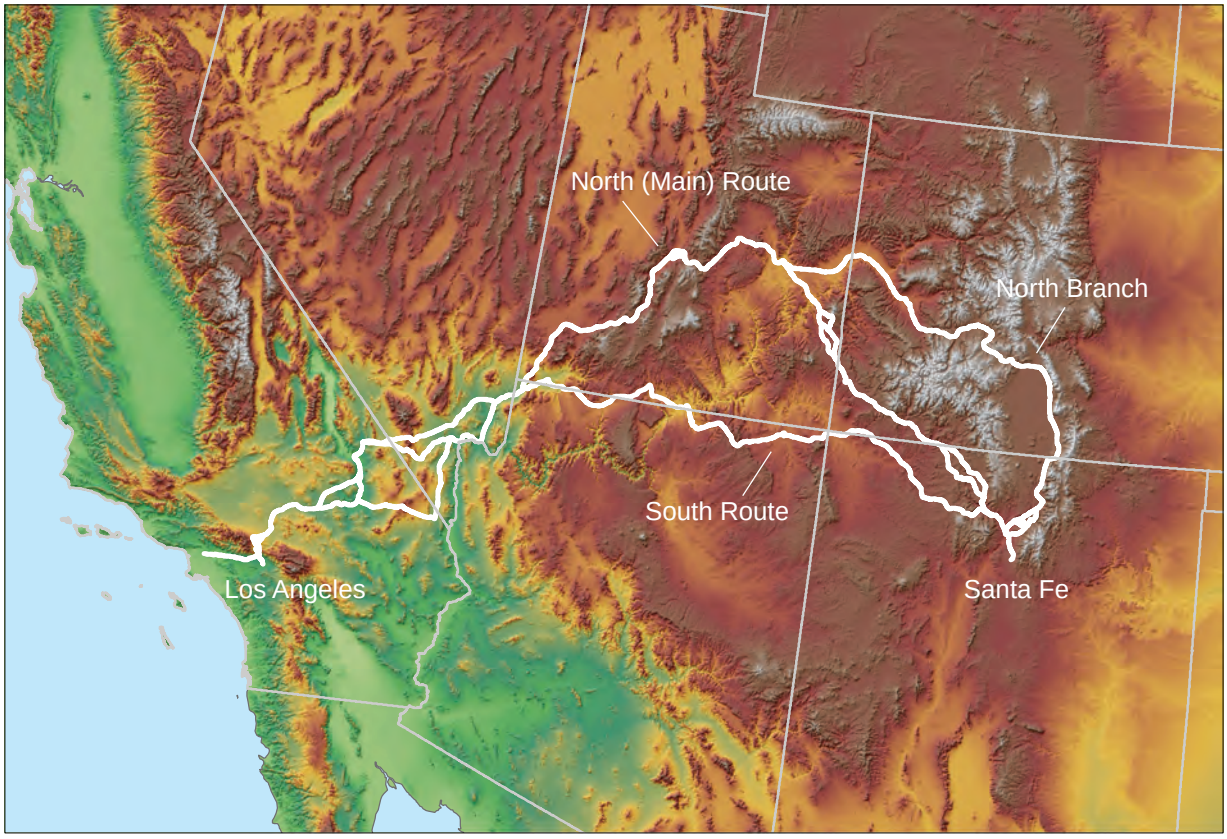

Figure 1.1. Map showing the routes of the Old Spanish Trail from Santa Fe, New Mexico, to Los Angeles, California. The illustrated routes represent the Congressionally designated Old Spanish National Historic Trail (NPS 2001; spatial data provided by National Park Service, National Trails Intermountain Region, electronic dataset, https://irma.nps.gov/DataStore/Reference/Profile/2238915, accessed September 15, 2019).

landscape. The most important element of their definition that has implications for the archaeology of the OST is the fact that it was a pack mule route. Unlike many historic trail routes—such as the contemporaneous Santa Fe Trail that connected Franklin, Missouri with Santa Fe—wagons or other wheeled vehicles were seldom used on the OST. As a consequence, the original routes of the OST are rarely marked today by the swales or other landscape features that are characteristic of routes pioneered by freighters or immigrants. In fact, the route of the OST was faint even during its period of use. Locating the actual routes of the OST today therefore depends on circumstantial rather than direct evidence, including identification of swales produced by the wagons of explorers who were following the original track of the OST or by those of the earliest settlers along its course. The locations of explorers' camps and early settlements also provide important clues.

Another element of the Hafens' description that has implications for the archaeology of the OST is its arduousness and crookedness. OST travelers navigated a rugged and inhospitable landscape that included mountain passes, major rivers, and waterless deserts. Seasonal variations in river flow, snow pack, and water availability dictated the use of alternate routes. Changing political and economic relationships among traders and the many American Indian groups who lived astride the trail also influenced route selection. Moreover, the trail shifted course over time, as traders sought simpler or safer shortcuts. As a result, the OST eventually included multiple primary travel corridors as well as numerous variant routes spanning roughly 4,300 km (2,700 miles).

The first of the annual caravans, led by Antonio Armijo in 1829, followed what is known today as the Armijo or South Route that ran west from Abiquiu, New Mexico, picked its way across the canyon country of northern Arizona, then angled southwest across the Mojave to Los Angeles. Sections of what

would become the more commonly used North or Main Route of the OST were pioneered by Franciscan missionaries Francisco Atanasio Domínguez and Silvestre Vélez de Escalante. The Main Route drifted northwest from Abiquiu, arced through south-central Utah, then paralleled the Armijo Route across the Mojave. The longest and least well-traveled route is known as the North Branch, which ran north from Santa Cruz de la Cañada through Taos and into the San Luis Valley, then west-northwest through the Southern Rockies to a junction with the Main Route near the Green River crossing.

Many segments of the OST either connected to other trails or were used for purposes other than the Santa Fe-Los Angeles caravan trade. For example, the southern sections of the North Branch were also known as the Spanish Road, the Trappers Trail, or the Taos Trail, which connected the Arkansas and Platte river basins of eastern Colorado with the Rio Grande basin. The western end of the North Branch connected to trails that ran northward into the Uinta Basin and beyond. The western half of the Main Route would become the Mormon Road and eventually the Los Angeles-Salt Lake Road. In addition, many sections of the OST also carried local traffic, both during and after the caravan period.

For these reasons, locating physical evidence of the OST today is a complex, iterative task. The first steps primarily involved historical research, including analyses of trapper's journals and trader's itineraries. Descriptions contained in the detailed reports produced in the 1850s by U.S. government expeditions were especially important for initial route identification. More recent work has involved the use of geographic information systems (GIS) to analyze terrain features along the identified routes and to compare them with historical descriptions. GIS analyses also incorporate early maps, such as General Land Office (GLO) plats, as well as recently acquired remote sensing data, such as surface models derived from lidar data.

However, positive identification of the trail route ultimately requires on-the-ground pedestrian inventories to identify swales or other landscape features as well as artifacts discarded by trail travelers or the explorers and settlers who followed them.

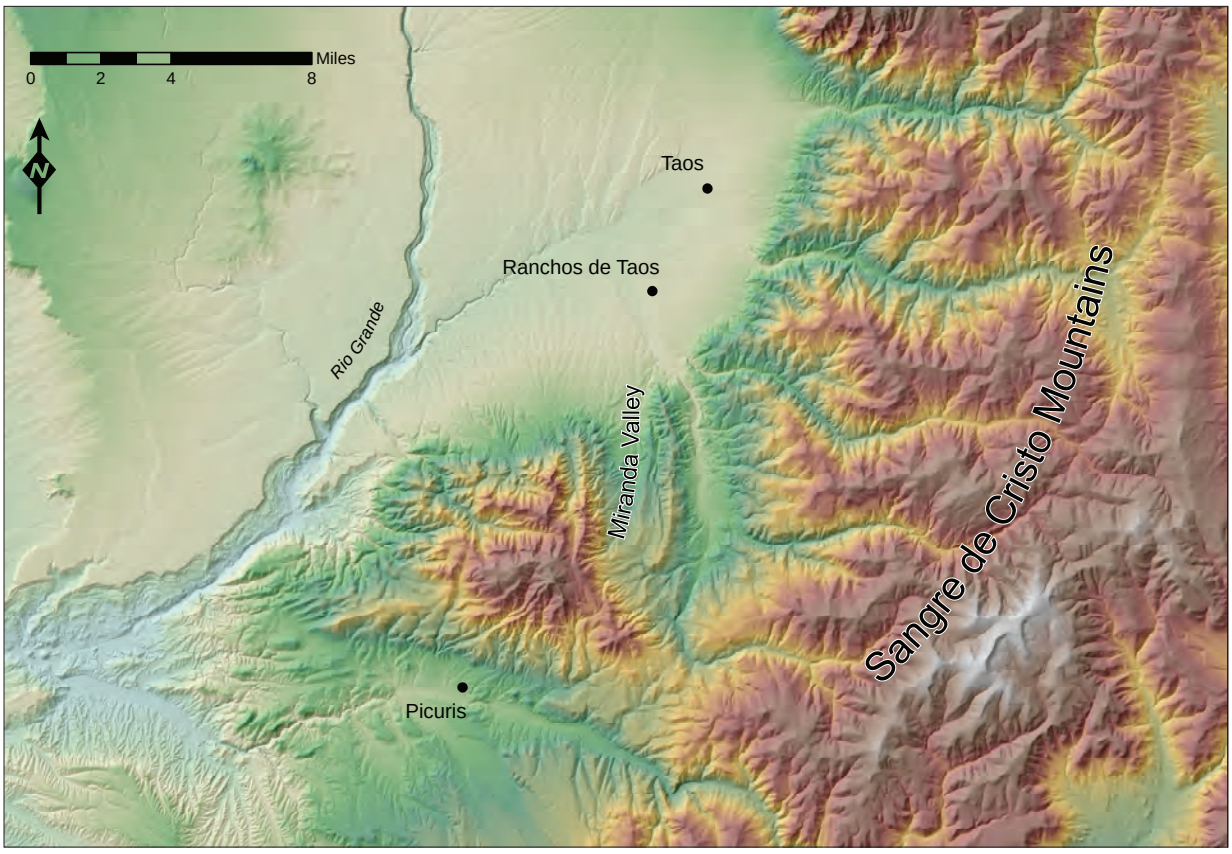

Figure 1.2 Map of the Taos Valley showing the location of the Miranda Valley project area.

The Old Spanish National Historic Trail

National historic trails "follow as closely as possible and practicable the original route or routes of travel of national historical significance" (NPS 2001:1). The goal of a national historic trail designation is to identify and protect for public use and enjoyment remnants of a historic route. The United States Congress in 1996 authorized a study to evaluate the eligibility of the OST for national historic trail designation and the feasibility of doing so. To be eligible, trail routes must meet three criteria: they must have been established by historic use; they must be nationally significant; and they must have potential for public recreational use or historical interpretation. The route need not currently exist as a discernable landscape feature, but its location must be sufficiently well documented to permit public recreation and interpretation.

The National Park Service (NPS) completed its OST feasibility study in 2001 and Congress added the Old Spanish National Historic Trail (OSNHT) to the National Trails System in 2002 (Public Law No. 107-325; 16 USC 1244). The law set limits on the acquisition of new property for the trail, directed the Secretary of the Interior to consult with Federal, state, and local agencies on trail-related planning and development, and provided a mechanism for designating additional OST segments.

The Secretary of the Interior designated the NPS and the Bureau of Land Management (BLM) as co-administrators of the OSNHT and the two agencies subsequently developed an administrative plan for its entire length, including segments managed by a wide variety of agencies (BLM and NPS 2017). The administrative plan identifies cooperative partners, interpretive and education themes, key sites and resources, and processes for ongoing consultation. Although the national historic trail designation and the administrative plan recognize the complex history of the OST, the defined period of significance only spans the years between 1829, when Armijo pioneered the southern caravan route, and 1848, when both New Mexico and California were ceded to the United States under the terms of the Treaty of Guadalupe Hidalgo.

Because the OST, like most national historic trails, spans multiple jurisdictions, Federal agencies charged with administering it have entered into a variety of agreements to share resources and expertise (e.g. Federal Interagency Council on the National Trails System 2017). Under these agreements, "National Trail administering agencies" and "National Trail managing agencies" consent to jointly manage the National Trail System to promote trail awareness and conservation, to encourage private organization involvement and partnership development, and to fund inventory and research efforts. The U.S. Forest Service is a party to these agreements and funded PCRG's research in the Miranda Valley as a part of its overall effort to preserve and manage the OSNHT.

Superimposed Trail Traces in the Miranda Valley

Especially in areas where terrain constricts travel, the route of the OST often overlaid earlier tracks and, in turn, was overlain by more recent tracks. Nowhere is this palimpsest of transportation traces more evident than in the Miranda Valley tracks (Blumenschein 1968; Hawk 2005-2011, 2009; Merlan *et al*. 2011). Even before the arrival of European colonists in the Americas the Miranda Valley was an important travel corridor connecting the Northern Tiwa communities of Taos Pueblo and Picuris Pueblo. Habitation sites, toolstone quarries, and artifact scatters attest to earlier occupancy by American Indians. More recently, the valley was an important travel corridor for Spanish colonists, possibly beginning as early as 1598. Don Deigo de Vargas certainly used the road in the 1690s, during his reconquest of the Rio Grande valley following the 1680 Revolt. Throughout the eighteenth century, the Miranda Valley was one of the main routes between Santa Fe and Taos, an extension of the Camino Real that linked New Mexico with the colonial capital. Thus, when OST caravan traffic began in 1830s, the Miranda Valley was already a well-worn route.

Before the caravan traffic ceased, the road had been improved to permit the passage of wagons; U.S. Army Colonel Sterling Price hauled wagon-mounted artillery through the Miranda Valley during the Taos Revolt in 1847. The importance of the Miranda Valley Road diminished after the U.S. Army built a route closer to the Rio Grande in 1875. However, the valley was still used for local traffic and for resource procurement, including timber harvesting. Details on each of these uses are presented later in this chapter, in the regional archaeological and historical context.

The Old Spanish National Historic Trail in the Miranda Valley

Figure 1.3 illustrates the routes of the OST through southern Taos County. The red lines represent the original Congressionally designated routes, while blue lines represent routes derived from subsequent study of archival sources including historical descriptions and maps (Hawk 2005-2011; Merlan *et al.* 2011). Figure 1.4 enlarges the Miranda Valley or Arroyo Miranda portion of figure 1.3. These figures illustrate the scope of the corrections and refinements that are possible through focused historical research. For the Miranda Valley in particular, the Congressionally designated route is wholly impractical: it follows what might be described as a path of greatest resistance across ridges, up and down steep slopes, and through narrow waterless valleys. The actual route subsequently identified through historical research accommodates terrain sensibly and—as PCRG's field investigation demonstrates—follows trail traces that are preserved on the landscape today. Merlan and others (2011:62) regard the Congressionally designated route through the Miranda Valley as "an error in the NPS mapping system, probably due to the conversion of large-scale maps to the 1:100,000 series."

Merlan and others (2011:4) identify the OST through the Miranda Valley as a segment of the "Camino Real Summer Route to Taos." Beginning at Santa Cruz de la Cañada, the route passed through Chimayo and along the western slopes of the Sangre de Cristo Mountains to Trampas and Picuris Pueblo. From Picuris, the route climbed into the Picuris Mountains, passed over a divide known as La Cuesta del Aire, and descended through the Miranda Valley into the Taos Valley. In this corridor the OST was following a northern extension of El Camino Real de Tierra Adentro or "The Royal Road of the Interior Lands" that primarily connected Santa Fe to Mexico City beginning in the late sixteenth century (Palmer 1993; Palmer and Fosberg 1999).

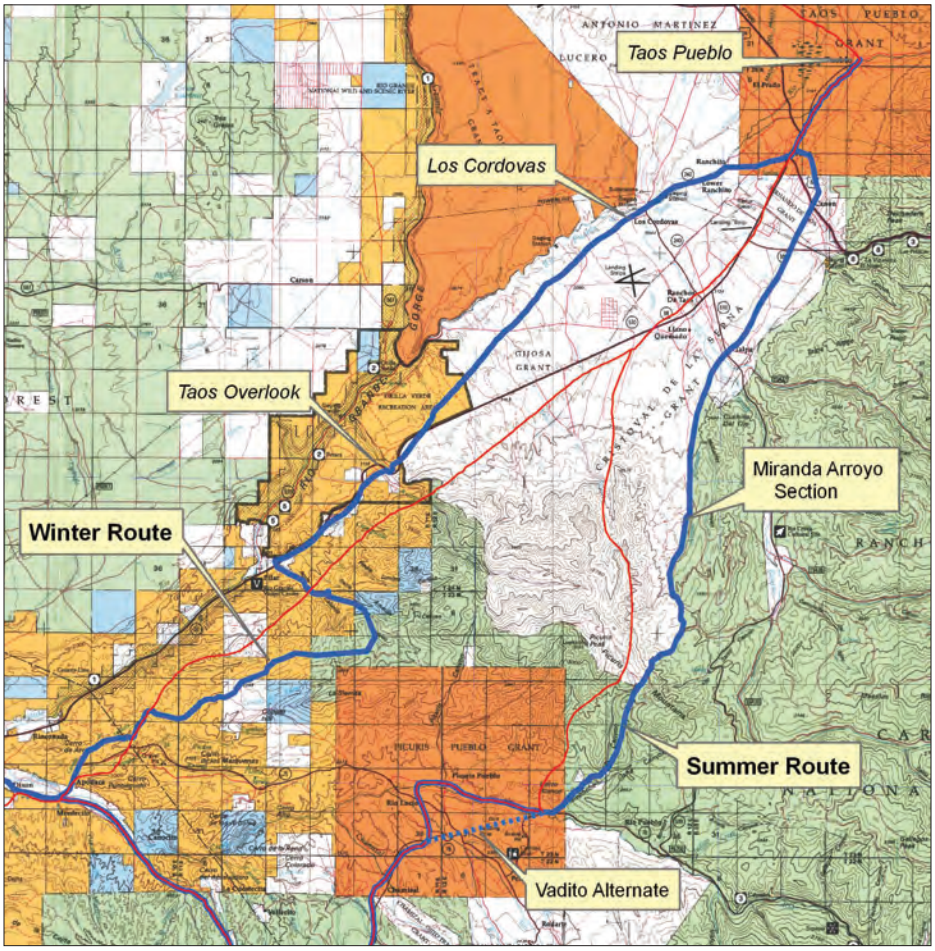

Figure 1.3. Map showing routes of the OST through southern Taos County (Merlan et al. *2011:Appendix 1, Map 8).*

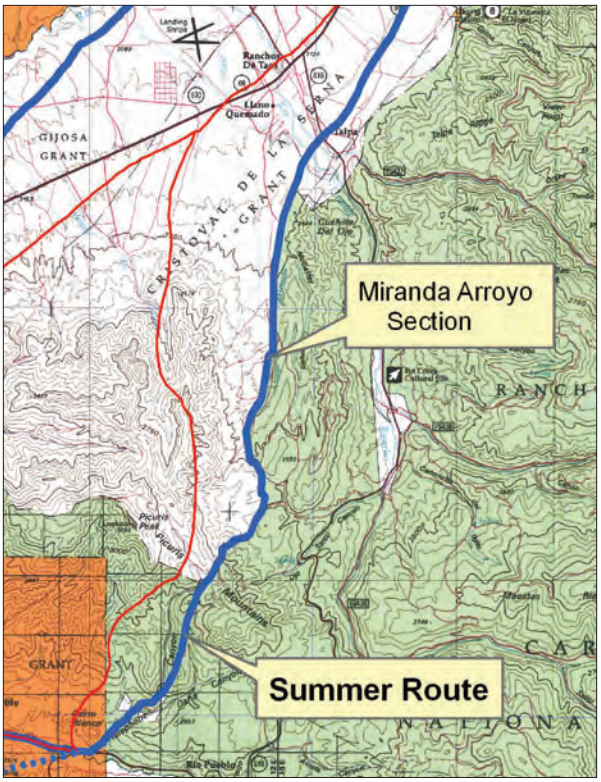

Figure 1.4. Enlarged map showing route of the OST through Miranda Valley (Merlan et al. *2011:Appendix 1, Map 8).*

Overview of the Project

PCRG's Miranda Valley field investigation was conducted for the Carson National Forest (CNF) under Section 110 of the National Historic Preservation Act (NHPA; 16 U.S.C. 470). Major funding for the work was provided by the CNF under Challenge Cost Share Agreement 16-CS-11030200-014, as amended.

PCRG carried out the field investigation during two sessions, one in 2017 and one in 2018. The 2017 work occurred between May 26 and June 1, while the 2018 work occurred between September 4 and 9. PCRG Research Director Mark Mitchell was the project's principal investigator. PCRG Project Archaeologist Amy Nelson served as field director. Nelson was assisted in 2017 by Mitchell and PCRG Lab Supervisor Britni Rockwell and in 2018 by Peter Gleichman, a PCRG member and retired professional archaeologist. In 2017, the PCRG crew was joined by Price Heiner, CNF Heritage Program Manager, along with Forest Service archaeologists Patricia Corral, Amber Greak, and Andrea Kayser. Heiner and Corral also joined the crew in 2018.

PCRG volunteer crew members in 2017 included Skylar Bauer, Micky Blake, Charles Haecker, Corky Hawk, Mark Howard, James Kovats, Carrie Leven, Anne Robinson, Peter Schlegel, and Joshua Warren. The 2018 crew included Micky Blake, Bill Haddock, Larry Hansen, Corky Hawk, Anne Holloway, Bruce Holloway, Met Innmon, Peter Schlegel, Jack Wheeler, John Michael Wolter, and Cole Zwisler.

Overall, staff and volunteers devoted 1,492 hours to the 2017 and 2018 field investigations, of which 1,188 (80 percent) were donated.

The primary goal of the project was to identify and document historic trail segments in the project area, including those possibly representing use during the OST period of significance between 1829 and 1848. Because the work was not tied to a specific NHPA Section 106 undertaking, the field investigation was not conducted within a defined area of potential effect. Instead, the project area was defined generally by the topography of the Miranda Valley and specifically by the results of prior historic trails research carried out by the Taos County Historical Society (TCHS) (Hawk 2005-2011, 2009). Additional discussion on TCHS methods and results is provided later in this introduction.

Archaeological inventory occurred primarily within unplatted portions of three USGS 7.5-minute topographic quadrangles, including the Ranchos de Taos, Tres Ritos, and Penasco quadrangles (figure 1.5). In general, the inventory area straddles the boundary between the Cristobal de la Serna Grant and the Rancho del Rio Grande Grant, beginning at the confluence of McGaffey Canyon and Arroyo Miranda in the north and running south to the head of the Miranda Valley. From there, the inventory area includes sections of a low pass in the Picuris Mountains, as well as sections of a ridge on the east side of Telephone Canyon. The later area is located within Township 23N, Range 12E. The inventory covered a total of 80.6 ha (199 acres), including 49.9 ha in 2017 and 30.7 ha in 2018.

The rationale for selecting specific inventory blocks is discussed in chapter 2. Field methods included standard pedestrian inventory as well as small-block metal detection surveys. Inventory efforts focused on the identification and documentation of linear trail features as well as artifacts or other features associated with the use of the Miranda Valley as a transportation corridor. Data were also collected on American Indian use of the area. Additional information on field methods is presented in chapter 2.

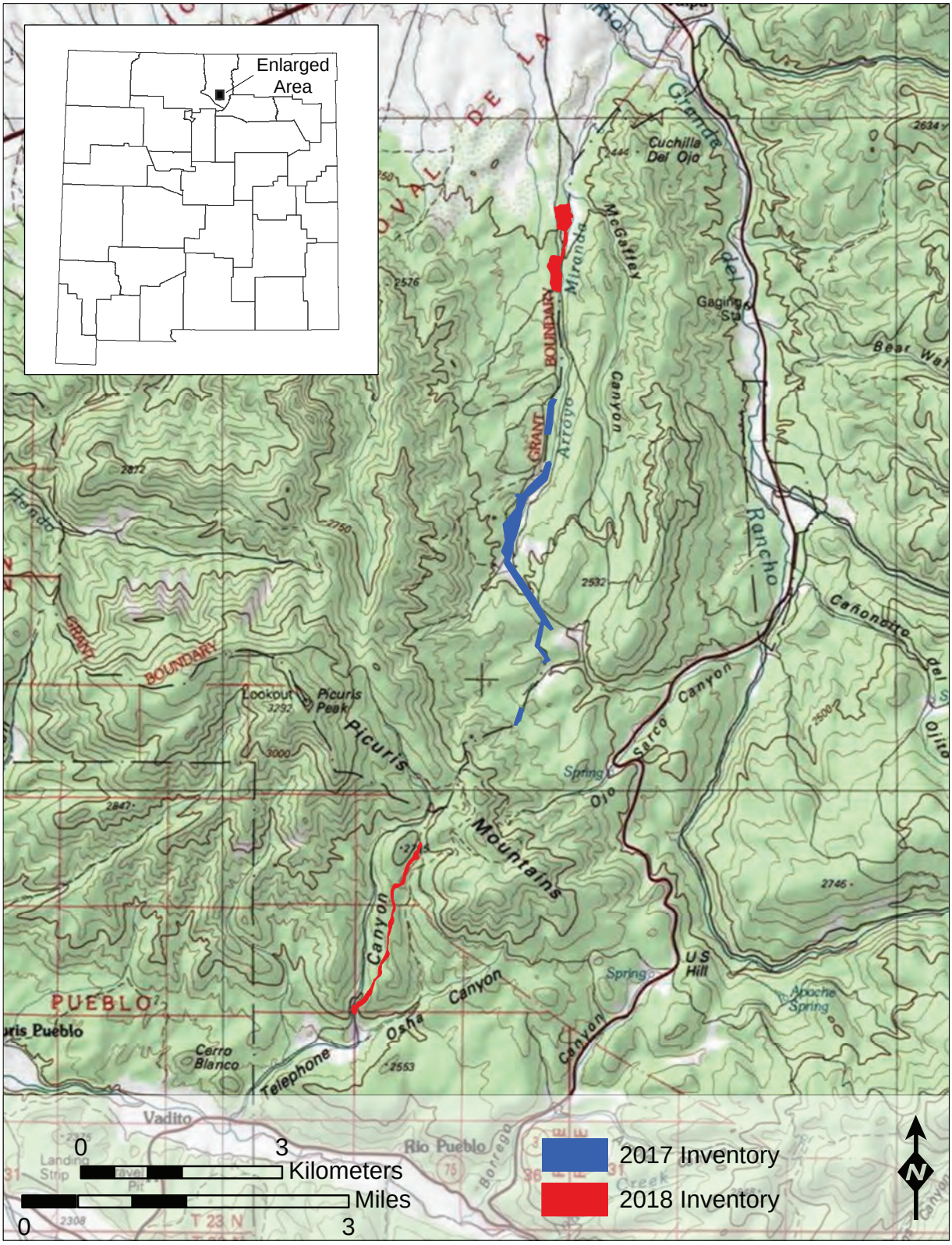

Figure 1.5. Map of the Miranda Valley showing the 2017 and 2018 PCRG inventory parcels.

Mitchell and Nelson planned the project. Nelson conducted the initial file search and wrote the research design. She also drafted most of the site forms and began the initial upload of data to the New Mexico Cultural Research Information System (NMCRIS). PCRG Project Archaeologist Chris Johnston assisted with site form preparation, assembled and edited the final report, and wrote the project synthesis. PCRG Lab Supervisor Britni Rockwell created graphics for the report and managed the project's GIS data, assisted by Nelson and Johnston. Charles Haecker analyzed selected metal artifacts collected during 2017. Mitchell provided supplementary analyses of ceramics identified in the field based on notes and photographs. Johnston provided supplementary analyses of the stone tools identified in the field.

History of Research and Existing Data

PCRG's fieldwork in the Miranda Valley, as well as other historic trails projects in the Northern Rio Grande (e.g. Merlan *et al.* 2011), have benefited greatly from the exhaustive primary archival and field research undertaken by the Taos County Historical Society (TCHS). Without the data accumulated by Hawk (2005-2011, 2009) and his team, PCRG's project would have been much less productive.

Building on prior research conducted by Blumenshein (1968), Colville (1996), and others, TCHS researchers began by compiling all historical accounts that describe or illustrate trails into and through the Taos Valley. The available narratives and maps range in age from Spanish descriptions written in the late sixteenth century to U.S. Army reports produced in the second half of the nineteenth century. Many of the compiled archival sources contain detailed descriptions of the Miranda Valley Road.

Hawk and the TCHS researchers identified three main routes into the Taos Valley from the south that date in part to the OST's period of significance. The westernmost route, the Embudo Pass-Apodaca Pass Road/Los Cordovas Trail (Winter Route to Taos [Merlan *et al.* 2011]), paralleled the Rio Grande from Velarde to Taos. The central route, known as the Picuris Trail or Camino Medio a Picuris, crossed the rugged crest of the Picuris Mountains. The easternmost route was the Miranda Valley Road. Hawk (2009) also describes several cutoffs or connector routes between these three main corridors. Another route into the Taos Valley from the south, the U.S. Hill Road east of the Miranda Valley, post-dates the OST.

Critical to the TCHS field research in the Miranda Valley was Hawk's (2005-2011:95-96) recognition that segments of the Camino Real, some of which later became part of the OST, were integral to the boundary definitions of Spanish land grants in the area and therefore that boundary markers could be used as proxies for those routes. Three land grants located on the north slope of the Picuris Mountains are defined in part by the Camino Real (figure 1.6). A portion of the eastern boundary of the 1715 Francisca Antonia de Gijosa Grant, the westernmost of the three, is defined as the "middle road" between Picuris and Taos. The Miranda Valley Road defined the western boundary of the 1795 Rancho del Rio Grande Grant, the easternmost of the three north slope land grants. Between the Gijosa and Rancho del Rio Grande grants was the Cristobal de la Serna Grant, which was granted in 1710 and revalidated in 1715. The western boundary of the Serna Grant was the Camino Medio a Picuris. The original definition of the grant's eastern boundary was obscure (Hawk 2005-2011:95), but a variety of sources including resident testimony, indicate that it was conterminous with the Miranda Valley Road and the western boundary of the Rancho del Rio Grande Grant.

A boundary survey for the Serna grant was carried out by John H. Walker in 1894. Hawk (2005-2011) identifies a series of errors in Walker's Serna Grant survey, errors that affect its utility for identifying trail traces. The boundary of the Rancho del Rio Grande Grant was surveyed in 1877, 1879, and 1894. The earlier two surveys were rejected, but the stone markers that Walker emplaced at meander corners and mile makers during his 1894 survey accurately reflect the location of the Taos-Picuris Road through the Miranda Valley.

Walker's western boundary of the Rancho del Rio Grande Grant was resurveyed in 1962 when the grant was acquired by the U.S. Forest Service. The Forest Service surveyors attempted to relocate Walker's stone monuments, along with his bearing trees. Although some had been destroyed or displaced by logging and other recent activities, others remained in place. The Forest Service surveyors set brass-cap markers at the meander corners and buried Walker's stone markers. A boundary fence that followed the brass markers was also constructed.

To locate traces of the Miranda Valley Road on the modern landscape, TCHS researchers first compiled the surveyors' original instructions, notes, and maps. Subsequently, they collected annotated spatial data

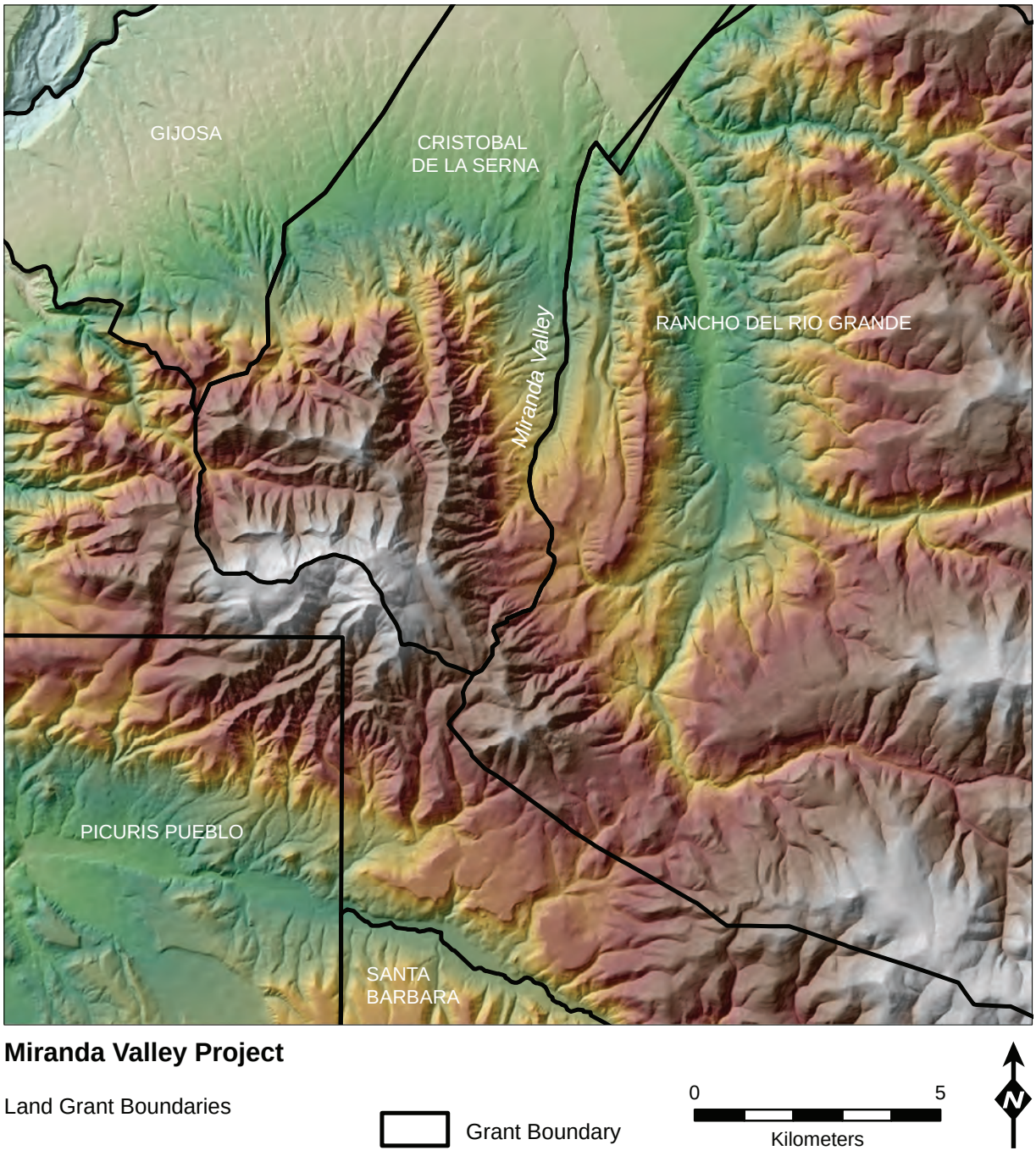

Figure 1.6. Map of the Picuris Mountains showing the locations of land grant boundaries and the Miranda Valley. The western boundary of the Rancho del Rio Grande Grant was defined as the Taos-Picuris Road.

on angle points (stone piles and brass caps) and other features within the Miranda Valley. PCRG used the TCHS spatial data and associated notes to plan the 2017 and 2018 field investigations. TCHS data were also used in the field during site recordation.

Archaeological Research

Although numerous archaeological survey and excavation projects have occurred in the Taos Valley (Vierra 2013), relatively few have taken place the Miranda Valley proper. The most important nearby

projects have focused on the Pueblo archaeology around the confluence of the Rio Grande del Rancho and the Rito de la Olla, located roughly 3.5 km due east of the Miranda Valley (e.g. Boyer *et al*. 1994; Crown 1991; Green 1976; Fowles 2005, 2009; Herold and Luebben 1968; Wetherington 1968). However, several of these projects have included sections of the Miranda Valley. Herold's (1968:23, Fig. 2) regional survey identified two Valdez phase pithouse sites in the upper sections of the Miranda Valley, as well as numerous pithouses and surface structures on the terraces above the lower valley, close to the confluence of Arroyo Miranda and the Rio Grande de Rancho. One of Green's (1976:22-32) excavated Valdez phase sites (TA-47) occurs in this same area. Woosley and Olinger (1990) describe the results of a survey designed to identify sites containing micaceous ceramics that included portions of the lower section of the Miranda Valley. NHPA Section 106 inventories have also occurred in the Miranda Valley; those projects are described in the following section.

NMCRIS File Search

PCRG obtained data on prior inventories and previously recorded sites from the New Mexico Cultural Resource Information System (NMCRIS) database on March 2, 2017. The project's file search area covers approximately 1,600 ha (3,900 acres), extending from the confluence of Arroyo Miranda and the Rio Grande de Rancho in the north to the junction of Telephone Canyon and the Rio Pueblo in the south (figure 1.7). The search identified 10 previous inventories (table 1.1). These inventories were carried out by the Forest Service and several cultural resource management firms and include linear and small block inventories for road closures, a prescribed burn, a timber sale, and other activities. Six of the projects are reported only as legacy data and detailed information about their scope or results is lacking.

These 10 inventories resulted in the documentation of 20 cultural resources (table 1.2 and figure 1.8). No historic cultural properties (HCPI) or sites listed on the NRHP are located within the project area. Ten of the 20 sites contain historic components, eight contain prehistoric components, and two contain both historic and prehistoric components. Just seven of the 20 previously documented sites (LA68170, LA152719, and LA152721-LA152725) are associated with one of the 10 prior inventories. Girard (1986, 1988) reports results of the Southern Methodist University (SMU) field school survey, but that survey apparently was never assigned a NMCRIS Activity Number.

Previously recorded sites include clay and chipped stone quarries, habitation sites, camps, and limited activity sites. Sites range in age from the Valdez phase (A.D. 1100 – 1225) to recent historic (A.D. 1940 – 1960). The most abundant Ancestral Pueblo sites date to the Valdez phase. Later Pueblo occupations as well as historic American Indian occupations are also represented.

Two previously recorded sites are interpreted as segments of the Camino Real. LA145418 is a 3.8-mile segment of trail located in the southern portion of the project area. The recorded segment begins at a saddle in the Picuris Mountains and follows an unnamed drainage south to Osha Canyon. LA145419 is a 2.8-mile trail segment in the northern part of the project area. This segment follows Arroyo Miranda on the east side. Both segments were originally documented in 1989 and appear to follow existing two-track roads. The relationships between these previously recorded trail segments and trail segments recorded by PCRG are discussed in chapter 4.

Environmental Setting

For much of its course the Rio Grande follows the axis of the Rio Grande Rift, a tectonic depression that extends from southern Wyoming into northern Mexico (Chapin 1979; Kellogg *et al*. 2017). The depression consists of a series of structural basins, including the San Luis Basin in south-central Colorado and the Española and Albuquerque basins in north-central New Mexico. Vierra (2013:2) defines the Northern Rio Grande archaeological region as the combined extent of the San Luis Basin and the Española or Tewa Basin. Scurlock (1998) includes the Española and San Luis basins, along with the Chama River Valley, in his Upper Rio Grande Basin ecological unit.

Structurally, the San Luis Basin is a tilted half-graben, bracketed on the east by major faults along the foot of the Sangre de Cristos and on the west by a broad hinge east of the San Juan Mountains (McCalpin 1996). Major faults in the Española Basin occur on the west (Manley 1979). Both basins are bounded on the east by the Sangre de Cristo Mountains. The western boundary of the Española Basin is formed by the Jemez Mountains and the Pajarito Plateau. The east-west trending Picuris Mountains, which

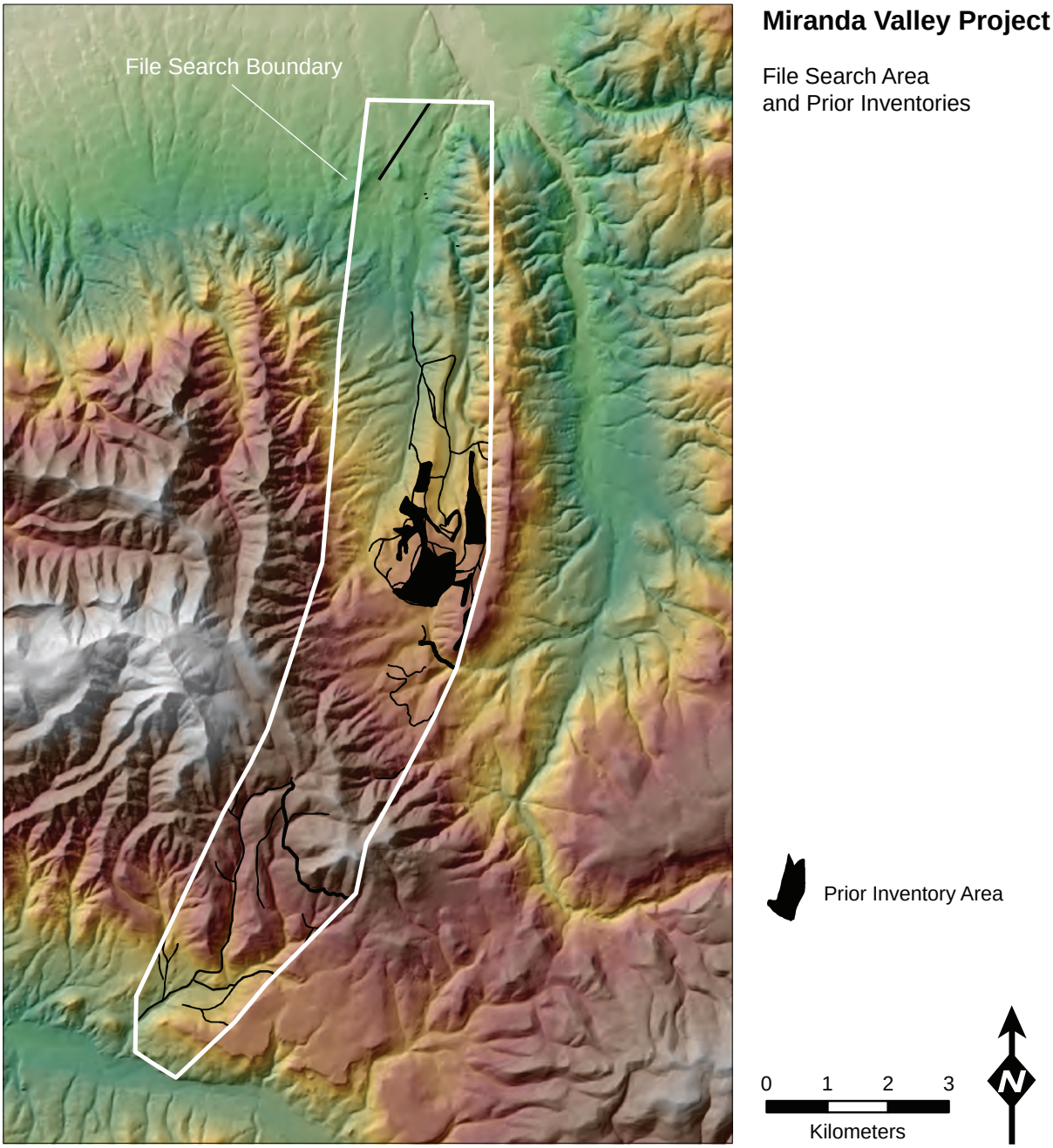

Figure 1.7. Map of the Miranda Valley showing the locations of prior inventory projects.

are drained in part by the Arroyo Miranda, mark the approximate boundary between the San Luis Basin and the Española Basin (Manley 1979).

Climate and Vegetation Communities

The climate of both the San Luis and Española basins is semi-arid. Table 1.3 summarizes data from three National Weather Service Cooperative Network stations in northern New Mexico. Cerro is located about 38 km north of Taos, roughly midway between Taos and the Colorado New-Mexico state line, while Española is located 65 km southwest of Taos. Annual precipitation and mean minimum and maximum temperatures in the Northern Rio Grande are functions both of altitude and latitude. Mean annual precipitation increases from about 25 cm at Española to about 32 cm at Cerro. Annual snowfall increases

Table 1.1. Previous NHPA Section 106 inventories within the Miranda Valley. Legacy projects are indicated by gray shading.

NMCRIS Activity Number	Acres	Type	Agency	Year	Report Title
23276	226	Linear	Forest Service	1988	Vallecitos Road Closures for Carson NF-Camino Real RD
21780	322	Block	Forest Service	1986	Vallecitos Ranger Sale for Carson NF-Taos RD
21048	135	Block	Forest Service	1988	Vallecitos Prescribed Burn for Carson NF-Camino Real RD
114153	2,881	Linear	Four Corners Research	2009	Carson NF Roads; report pending
36666	9	Linear	Forest Service	1991	Road 476 Closure/Obliteration Cultural Resource Surface Survey, Camino Real RD, Carson NF
21792	56	Linear	Forest Service	1986	Taos Road Closures: 1986 for Carson NF-Taos RD
99161	41	Linear	Taschek Environmental	2006	Cultural Resource Inventory for the Ranchos de Taos Subdivisions, Taos County, New Mexico
21761	49	Linear	Forest Service	1986	Sawdust and Vallecitos Roads for Carson NF-Taos RD
21348	296	Linear	Forest Service	1988	Telephone Canyon Road Closures for Carson NF, Camino Real RD
118593	3,424	Linear	Paleowest	2010	A Cultural Resources Survey of Approximately 4,635 Acres: Travel Management Rule Heritage Survey, Carson NF, New Mexico

Table 1.2. Previously recorded sites in the Miranda Valley. Sites with legacy data are indicated by gray shading. Sites re-visited by PCRG are shown in bold.

ARMS ID	Component Type	Site Type(s)	Recorder	Year Recorded	Occupation Period(s)
LA32480	Multicomponent	Clay Quarry	University of Nebraska	1968	Pueblo IV; Spanish Contact (Jicarilla Apache)
LA55663	Prehistoric	Camp	SMU Field School	1986	Pueblo III/IV (Coalition)
LA55665	Multicomponent	Lithic and Ceramic Scatter	SMU Field School	1986	Pueblo II/III; Apache
LA55666	Historic	Lithic and Ceramic Scatter; Camp	SMU Field School	1986	Apache
LA55669	Prehistoric	Lithic and Ceramic Scatter	SMU Field School	1986	Pueblo II (Developmental; Valdez Phase)
LA68170	Prehistoric	Lithic and Ceramic Scatter	Forest Service	1988	Pueblo II/III
LA145336	**Prehistoric**	**Habitation**	**Forest Service**	**1975**	**Pueblo II/III**
LA145337	**Prehistoric**	**Lithic Quarry**	**Forest Service**	**1975**	**Pueblo III**
LA145338	**Prehistoric**	**Habitation**	**Forest Service**	**1975**	**Pueblo III**
LA145361	Prehistoric	Pithouse; Burial	Forest Service	1976	Pueblo III (Valdez Phase)
LA145418	Historic	Historic Trail	Forest Service	1989	Post-Pueblo Revolt to US Territorial
LA145419	Historic	Historic Trail	Forest Service	1989	Post-Pueblo Revolt to US Territorial
LA152719	Historic	Artifact Scatter	Taschek Environmental	2006	NM Statehood to Recent Historic
LA152721	Historic	Artifact Scatter	Taschek Environmental	2006	NM Statehood to Recent Historic
LA152722	Historic	Artifact Scatter	Taschek Environmental	2006	NM Statehood to Recent Historic
LA152723	Prehistoric	Lithic and Ceramic Scatter	Taschek Environmental	2006	Pueblo II/III (Developmental to Classic)
LA152724	Historic	Artifact Scatter	Taschek Environmental	2006	NM Statehood to Recent Historic
LA152725	Historic	Artifact Scatter	Taschek Environmental	2006	NM Statehood to Recent Historic
LA167691	Historic	Road Segment	Forest Service	2010	NM Statehood to Recent Historic
LA167692	Historic	Rock Alignment or Stone Wall	Forest Service	2010	NM Statehood to Recent Historic

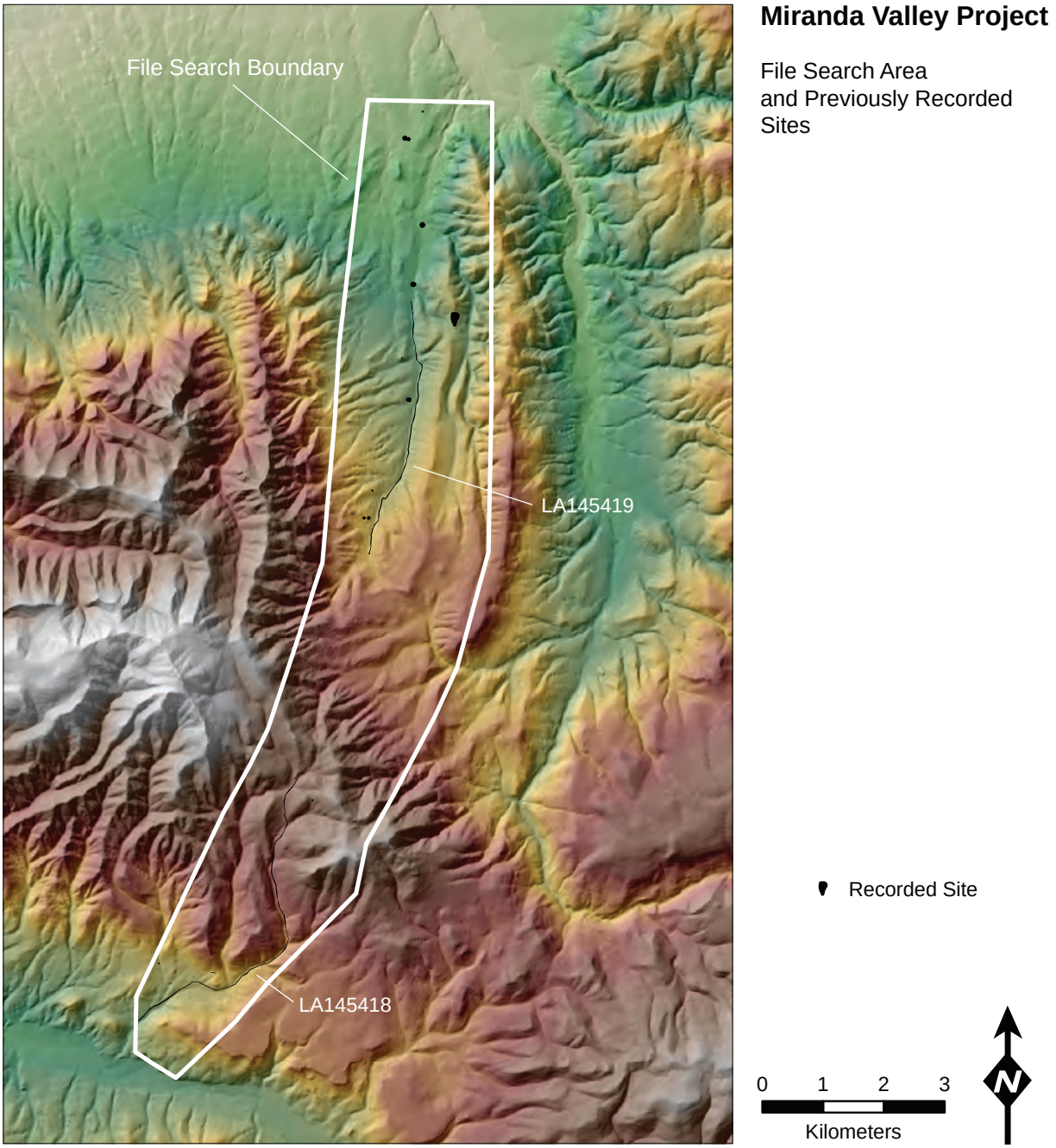

Figure 1.8. Map of the Miranda Valley showing the locations of previously recorded sites.

by a factor of five between Española and Cerro. In general, annual precipitation across the Northern Rio Grande varies between 23 cm at the lowest elevations and 115 cm at the highest. Much of this precipitation occurs during the summer monsoon between July and September; the summer monsoon is an important feature of the Northern Rio Grande's climate (Sheppard *et al.* 1999).

Temperature in the Northern Rio Grande varies seasonally. Mean maximum temperature rises from about 16 degrees C in Cerro to 20 degrees C at Española, while mean minimum temperatures rise from about -2 to 1 degrees C. These relatively cool temperatures may limit the growing season, especially in the north. Maize can require 2,000 to 2,700 growing degree days to fully mature. Scurlock (1998:Table 10)

Table 1.3. Climate records for three weather stations in the Northern Rio Grande (Western Regional Climate Center 2019).

	Weather Station		
Variable	Cerro (291630)	Taos (298668)	Espanola (293031)
Period of Record	1910-2016	1892-2016	1895-2012
Elevation (ft/m)	7660/2335	6980/2128	5630/1716
Mean Annual Max. Temperature (℉/℃)	60.0/15.6	63.6/17.6	68.6/20.3
Mean Annual Min. Temperature (℉/℃)	28.8/-1.8	31.0/-0.6	34.6/1.4
Mean Annual Total Precipitation (in/cm)	12.7/32.3	12.4/31.4	9.9/25.1
Mean Annual Snow Fall (in/cm)	55.0/139.7	29.5/74.9	11.7/29.7
Mean Annual Maize Growing Degree Days	2,592	2,942	3,722

reports 139 mean annual frost-free days at Taos and 170 at Española.

The temperature gradient between the basin floor adjacent to the Rio Grande and the surrounding foothills and higher peaks is weak; the San Luis Valley commonly is cooler in winter and warmer in summer than are the uplands, but not dramatically so (Hoefer 1999b). Owing to the combination of low but altitude-dependent precipitation and relatively cool temperatures, the Northern Rio Grande is ringed by a series of distinct ecological zones (Dixon 1971; Bevilacqua and Dominguez 2011; Hoefer 1999b). Larson (2008) identifies six vegetation zones within the Carson National Forest that are defined by a range of factors including elevation, aspect, geologic substrate, soil, and so forth. Each zone is divided into one or more ecological communities. The major zones include the Alpine, Forest and Woodland, Shrubland, Grassland, Wetland, and Disturbed zones. The Alpine and Forest and Woodland zones are primarily elevation dependent, with the Alpine occurring above about 11,000 ft (3350 m) in the Sangre de Cristo Mountains and various Forest and Woodland communities occurring in bands between 11,000 and 6000 ft (3350 and 1825 m). The remaining four zones occur throughout the region at various elevations, depending on local factors. Overall, Larson (2008:68) identifies 1,229 unique taxa representing 97 families, including 120 taxa that are not native to the region.

Vegetation in the upper end of the Miranda Valley and the lower slopes of the Picuris Mountains consists primarily of the Mixed Conifer Forest and Ponderosa Pine Forest communities of the Forest and Woodland zone (figure 1.9). The lower end of the valley is dominated by the Piñon-Juniper Woodland community. Localized wetland zone communities occur along Arroyo Miranda and around valley-margin springs. The Montane Meadow community of the Grassland zone occurs within two upland parks in the project's inventory area.

Geologic Resources

Unlike many portions of the Southern Rockies, the Sangre de Cristo Mountains do not contain significant sources of stone tool raw materials. The range's core rocks consist of Precambrian granites, gneisses, and quartz monzonite, as well as Paleozoic conglomerate, arkose, sandstone, and shale (Cappa and Wallace 2007), none of which are suitable for chipped stone tool production. Isolated outcrops of undivided Lower Mississippian to Upper Cambrian rocks (potentially including exposures of the Leadville Limestone, Fremont Dolomite, Manitou Formation, or Sawatch Quartzite) occur in the Sangre de Cristo Range in Colorado and some of these may contain usable toolstone; however, the presence of exploitable raw materials has so far not been reported (Hendrickson *et al.* 2011). A large orthoquartzite quarry, known locally as the Alkali Springs or Trickle Mountain source, occurs in Saguache Creek on the northwest margin of the San Luis Valley (Black 2000; Mitchell 2017). Numerous chert sources occur in the eastern San Juan Mountains and La Garita Mountains (Mitchell 2012; Spero and Hoefer 1999).

A wide variety of dark toolstones occur in the Taos Plateau on the west side of the San Luis Basin in New Mexico (Black 2000, 2007; Boyer *et al.* 2001). Particularly important are sources of dacite and andesite, gray to black volcanic rocks that look similar to basalt and have often been confused as such (Shackley 2011). Dacite in particular is much finer grained and contains more silica than basalt and would have been preferred over basalt for its predictable fracture patterns. Obsidian also appears in archaeological contexts in the San Luis and Española

Figure 1.9. Three views of the Miranda Valley project area. **Upper***: Mixed Conifer Forest on the flank of Picuris Mountain;* **Middle***: the Mountain Meadow community in the upper valley section;* **Lower***: Piñon-Juniper Woodland in the lower valley section.*

basins. Most, if not all, of this obsidian comes from sources in the Jemez Mountains (Baugh and Nelson 1987; Glascock *et al.* 1999; Shackley 2005, 2013). Gravels containing chert and quartzite occur within the Santa Fe formation (Boyer *et al.* 2001). Pedernal chert outcrops at several locations in the Chama River Valley, but also is common as secondary cobbles in streambed deposits in the Albuquerque area (Boyer *et al.* 2001:50). Boyer and others (2001) note that Alibates agatized dolomite, which outcrops in the Texas Panhandle, occurs on some sites in the Taos District.

Cultural Environment and Current Impacts

Although traces of the OST are better preserved in upland settings than on the floor of the Taos Valley (Hawk 2009), historic trails in the Miranda Valley have nevertheless been impacted by variety of activities. Perhaps the most significant has been logging in the Picuris Mountains. Roads built to access timber stands have altered or obliterated sections of the trail (Hawk 2005-2011). More recently, unregulated off-road vehicle traffic within the privately-owned Cristobal de la Serna Grant has caused extensive erosion. Portions of the Serna Grant, especially in the lower portions of the Miranda Valley, have been used for domestic refuse dumping.

Archaeological Context

The culture history of the Northern Rio Grande is as complex and varied as the region's landscape and environment. Paleoindian sites are present if not abundant throughout the region; intriguingly, the best known occur at the highest elevations. A complex local Archaic sequence is known from sites scattered throughout the region. The Pueblo occupation of the region began later than elsewhere in the northern Southwest but continues today. Especially during the last half millennium, the Northern Rio Grande was "a crossroads that linked the San Juan Mountains to the north with the Chihuahua Desert to the south and the Colorado Plateau to the west with the Great Plains to the east" (Vierra 2013:1). The arrival of Spanish colonists in the late sixteenth century added complexity to an already dynamic set of social, economic, and cultural relationships.

There is also a long history of anthropological and archaeological research in the Northern Rio Grande. This is especially true for the Taos Valley. Early work focused primarily on the most conspicuous Pueblo sites and settlements, while mid- and late-twentieth century projects investigated a wide variety of Pueblo and earlier sites. The region's Archaic archaeology has been an important focus of research during the last 20 years.

Additional regional syntheses are provided by Cordell (1979), Eiselt (2012), Martorano and others (1999), Mitchell and Krall (In Press), Riley (1995), Stanford (1999), Stuart and Gauthier 1988), and Vierra (*ed.* 2013).

Paleoindian Stage

As is true of the Southern Rockies and northern Southwest generally, relatively little is known about the Paleoindian archaeology of the Northern Rio Grande (Vierra *et al.* 2012). However, Folsom period use of the San Luis Valley and adjacent mountains is relatively well attested: 43 localities are known, and excavation data are available from four sites (Jodry 1999a). Folsom sites are also the most common Paleoindian sites in Judge's (1973) Central Rio Grande Valley sample.

In the San Luis Valley, Folsom camps occur in a wide variety of ecological settings, from the valley floor to timberline in the eastern San Juan Mountains. Camps on the valley floor are associated with bison kill and butchery localities; bison population density likely peaked in the San Luis Valley during Folsom times (Jodry 1999b).

The most important Folsom sites in the mountains surrounding the San Luis Valley are the Black Mountain site in the eastern San Juan Mountains and the Mountaineer site in the Gunnison River basin. At 3,097 m, the Black Mountain site is the highest excavated Folsom campsite (Jodry 1999a). Located in a forest-edge setting adjacent to an upper tributary of the Rio Grande, the site consists of two concentrations of flaking debris and stone tools indicative of a multi-function camp, where hunters refurbished equipment for the next kill. At the Mountaineer site, located at 2,630 m on an isolated mesa overlooking the Gunnison River, a Folsom band built a roughly circular structure made of daub-covered poles (Stiger 2006). Both Black Mountain and Mountaineer are indicative of a generalized, rather than focal, use of high-country settings by Folsom people.

Paleoindian technocomplexes other than Folsom are less well represented in the region. Isolated surface finds of Clovis points are reported from a variety of

settings (Cordell 1979; Jodry 1999a; Judge 1973). A few Agate Basin and Hell Gap style projectile points have been reported, but no sites associated with these types are currently known in the Northern Rio Grande or San Luis Valley. More common are Middle to Late Paleoindian Cody and Plainview/Belen sites (Holliday *et al*. 2017; Jodry 1999a). Cody Complex points are the most common Paleoindian type in the Taos District and adjacent mountain ranges (Vierra *et al*. 2012).

Late Paleoindian lanceolate points exhibiting parallel-oblique flaking, a slightly- to strongly-concave base, and ground lateral margins are more common in Southern Rockies than are earlier Paleoindian types (Jodry 1999a; Pitblado 1998; Reed and Metcalf 1999). Points exhibiting these attributes generally are assigned to the Angostura, James Allen, or Frederick types date to between 9000 and 8000 B.P. A variety of approximately contemporaneous types that are assigned to the Foothills-Mountain complex include weakly stemmed forms and some that exhibit parallel-transverse to collateral flaking patterns (Frison 1992; Kornfeld *et al*. 2010). Many Late Paleoindian flintknappers preferred quartzites or other brittle materials for making projectile points (Bradley 2010; Pitblado 2003; Reed and Metcalf 1999). Late Paleoindian groups living in the mountains pursued a broad-spectrum subsistence strategy, in contrast to their bison-focused contemporaries in the Plains (Frison 1992).

Archaic Stage

During the Early Holocene, the climate of western North American was much warmer and dryer than at present and those conditions spurred significant and enduring changes in American Indian lifeways (Geib and Jolie 2018; Huckell 1996). Mobility decreased and use of local resources increased. Diets changed as harvesting and processing of seeds, roots, and other plant resources intensified. Hunting weaponry shifted from lanceolate styles to a variety of stemmed and notched styles. Taken together these changes mark the beginning of the Archaic stage.

Many researchers working in the Southern Rockies accept the view that Archaic hunter-gatherers living there practiced a local, year-round, mountain-focused settlement and subsistence system distinct from that of groups living in adjacent regions (Black 1991). Most researchers also recognize long-term adaptive continuity in the region, beginning as early as the Late Paleoindian period (Metcalf 2011). Whether this also reflects cultural continuity remains a subject of debate (Stiger 2001), as do the specific attributes that define a mountain adaptation (Reed and Metcalf 1999).

In the Rio Grande basin, data on Archaic stage archaeology frequently are organized around the periods of the Oshara tradition, a cultural taxonomy that Irwin-Williams (1973) developed to trace the antecedents of Pueblo culture in the northern Southwest. Based primarily on data from the Arroyo Cuervo region, located about 50 km northwest of Albuquerque, New Mexico, the Oshara tradition divides pre-Puebloan archaeology in to five phases spanning the period from about 7500 B.P. to 1550 B.P. These phases include the Jay (7500 – 6750 B.P.), the Bajada (6750 – 5150 B.P.), the San Jose (5150 – 3750 B.P.), the Armijo (3750 – 2750 B.P.), and the En Medio (2750 – 1550 B.P.).

In Irwin-Williams's scenario, components of the Jay and Bajada phases represent small-group, short-term residential camps. Jay and Bajada microbands practiced a local, year-round, "mixed spectrum" subsistence strategy (Irwin-Williams 1973:5). Climate, and therefore resource patch productivity, improved during the subsequent San Jose phase, permitting an increase in site-use intensity. Diet breadth increased, especially through the incorporation of more small seeds and other floral resources.

Important subsistence and settlement changes took place during the Armijo phase. Paralleling a similar development in the Arkansas basin, limited quantities of maize appear in Armijo phase macrofloral assemblages. Fall or fall-winter seasonal aggregation sites first appeared during this time, as did specialized-function sites. The final Archaic phase of the Oshara tradition, the En Medio, witnessed an amplification of trends begun during the Armijo. Storage features first appeared during the En Medio phase and groundstone tools became more common and morphologically diverse. Irwin-Williams argues that increases in the number of sites and in the size and intensity of site use reflect population growth during the En Medio phase. Bands began exploiting seasonally productive, but previously untapped, resource patches. This shift may point to either an increasing reliance on logistical organization or to periodic small-group residential mobility punctuated by annual macroband aggregation.

Vierra and others (2018) summarize the Archaic archaeology of the Northern Rio Grande.

Formative Stage

Archaeologists working in the Northern Rio Grande have long recognized that maize horticulture and Ancestral Pueblo occupation came late to the region compared to other parts of the northern Southwest (Vierra and McBrinn 2016). Vierra and others (2018) argue that this late persistence of a hunting-and-gathering economy was due to the comparative abundance of higher-ranked plant and animal resources, including piñon nuts and deer. Regardless of the reason, Ancestral Pueblo people appear to have first come to the Taos Valley about A.D. 1100 or perhaps a litter earlier (Boyer *et al*. 1994). The late persistence of hunter-gatherers, combined with the immigration of Pueblo people from the south, encouraged intimate social interactions between foragers and farmers in the Northern Rio Grande, interactions that had long-term consequences for American Indians in the Taos Valley (Boyer 2008; Fowles 2005; Vierra *et al*. 2018).

The earliest Puebloan occupation of the Taos Valley is known as the Valdez phase (A.D. 1100 – 1225 [Boyer *et al*. 1994]). Crown (1990) argues for a slightly earlier beginning for the Valdez phase at A.D. 1050. Valdez phase sites mostly consist of scattered homesteads or hamlets represented by one or a few pithouses. In some cases, the pithouses are associated with jacal surface structures. A few larger surface structures have also been attributed to the Valdez phase. Both round and square or rectangular pithouses occur, with round structures more common on the south end of the Taos Valley, including in the Rio Grande de Rancho, and square more common on the north. Ceramic assemblages consist of Taos Gray utility wares and Taos Black-on-White decorated wares.

The succeeding Pot Creek phase (A.D. 1225 – 1260 or 1270 [Crown 1990]) was a period of population aggregation out of Valdez phase farmsteads and into small pueblos. Pot Creek phase sites occur throughout the Taos Valley. The first appearance of kivas in the area may date to the Pot Creek phase. Production of Taos Gray utility wares continued, although frequencies of the incised and neck-banded varieties declined while the frequency of the corrugated variety increased. Taos Black-on-White was partially replaced by the carbon-painted Santa Fe Black-on-White.

Aggregation continued during the Talpa phase (A.D. 1260 or 1270 – 1320s [Crown 1990]). Smaller Pot Creek phase pueblos were abandoned, and Pot Creek Pueblo grew to about 300 ground-floor rooms. Talpa Black-on-White and Taos Gray pottery was produced during the Talpa phase.

The abandonment of Pot Creek Pueblo marks the end of the Talpa phase. However, Ancestral Pueblo occupation of the Taos Valley continued at Cornfield Taos and in the Rio Pueblo Valley at Picuris (Dick 1965; Ellis and Brody 1964). Vadito Black-on-White, a successor to Talpa Black-on-White, was produced between about A.D. 1325 and 1600 (Wilson 2007). Taos Gray may have continued as the local utility ware until the early eighteenth century (Levine 1994).

Spanish Period (1540 – 1821)

Although Spain had sent both military and civilian expeditions to the Rio Grande Valley in the sixteenth century, it was not until 1598 that Don Juan de Oñate established the first colony in New Mexico (Spicer 1962). In July 1598, Oñate visited Picuris and Taos pueblos, using either the Middle Road from Picuris or the Miranda Valley Road to access the Taos Valley.

That first Spanish colony at Ohkey Owingeh (San Juan) was moved in 1610 to what is now Santa Fe. Spain's influence on the Rio Grande Valley slowly expanded through the seventeenth century, as missions and land grants were established. The Franciscan Alonso de Benevides in the 1620s visited missions that had been established at the Northern Tiwa pueblos, again using either the Middle Road or the Miranda Valley Road to reach the Taos Valley.

The Pueblo Revolt of 1680—in which Taos Pueblo played a leading role—brought Spanish colonization of New Mexico to a temporary halt. The Revolt also greatly affected the indigenous political economy of the Northern Rio Grande. Taos Pueblo had long maintained connections with mobile groups living in the Plains and Southern Rockies (e.g. Spielmann 1991), but when the Spanish returned in the 1690s relationships among native groups had changed substantially. By the early eighteenth century, Apaches had become permanent residents of the region (Eiselt 2009) and Comanches and Utes were regular visitors (Fowles *et al*. 2017).

When the Spanish returned to the Northern Rio Grande in 1692, Don Diego de Vargas entered the Taos Valley via the Miranda Valley Road (Hawk 2005-2011). Vargas camped in the upper valley, at a location he described as the "campsite" or "outpost" of Miranda and that Blumenschein dubbed the Paraje de Miranda (Hawk 2005-2011:83). In 1694, Vargas

again used the Miranda Valley Road to enter the Taos Valley. However, his return trip to Santa Fe involved a long detour to the north, following trails into the San Luis Valley that more than a century later would be knonw as the Spanish Road or the Trappers Trail and the North Branch of the OST (Colville 1996).

Although land grants—property given by the Spanish crown and later by the Mexican government to individuals, groups, and communities to encourage settlement—were first established during Oñate's initial colonization, most land grant records were destroyed during the Pueblo Revolt (Poling and Kasdan 2001; Spicer 1962). Claimed and adjudicated land grants therefore mostly post-date 1692. Both community and individual grants occur in the Picuris Mountains, and as described previously the boundaries of three community grants there are defined in part by routes of the Camino Real.

Although the OST would not be established until after Mexican Independence, Spain recognized as early as the 1760s the need for a commercial link between New Mexico and missions of California (Hafen and Hafen 1993). The search for a viable route began both from the east in Santa Fe and from the west in Los Angeles. The most important exploration conducted by Spain occurred in 1776, with Francisco Garcés exploring western sections and Francisco Atanasio Dominguez and Silvestre Vélez de Escalante exploring portions of the eastern sections.

Mexican Period (1821 – 1848)

Mexican Independence dramatically shifted trade relationships in the Northern Rio Grande. Independence severed Mexico's connection to Europe. The peripheries of what had been New Spain were especially hard-hit. In response, the Mexican government welcomed commercial ventures with U.S. businesses. The most immediate response was the opening of the Santa Fe Trail between Franklin, Missouri, and Santa Fe. In addition, French Canadian, British, and American trappers and traders were afforded greater access to the Southern Rockies and the Southwest. Taos quickly became a base of operations for fur trappers, who helped expand the routes into the Southern Rockies and Great Basin that had first been pioneered by Spain in the late eighteenth century. Traffic on what would become the North Branch into the San Luis Valley and the Trapper's Trail into the Arkansas River basin rapidly increased after 1821 (Hafen and Hafen 1993; LeCompte 1978).

Jedediah Smith is commonly credited as the first man to traverse the entire trail, although not in a single trip. The first dedicated commercial expedition was made in 1829 by Antonio Armijo and a party of 60 men, who took 86 days to cross the South Route from Abiquiu through southern Utah and northern Arizona (Merlan *et al*. 2011). Most of the caravan traffic subsequently used the Main or North Route. The North Branch through Taos was used by some Los Angeles-bound travelers, but primarily remained a fur-trappers trail.

The early-nineteenth-century archaeology of the Jicarilla Apaches, Utes, and other mobile groups has become an important focus of regional archaeological research (e.g. Eiselt 2012). American Indian sites of the period exhibit a complex material culture signature that includes items of indigenous manufacture as well as items of European or American manufacture. Key features of late-eighteenth and nineteenth-century indigenous sites is in the Southern Rockies are peeled ponderosa pines and brush shelters known as wickiups. American Indians harvested the inner bark of ponderosa pines and other trees for comestible and medicinal purposes. They also used wood and bark for building materials and for manufacturing a wide variety of tools, containers, and other objects. Scars left by harvesting are readily observable, although unevenly distributed, on both living and dead trees in many parts of the Northern Rio Grande (Corral 1996; Martorano 2011).

U.S. Territorial Period (1848 – 1912)

The Treaty of Guadalupe Hidalgo that ended the Mexican-American War also ended the caravan traffic on the OST. Both Santa Fe and Los Angeles became parts of the United States after the war, lessening the economic importance of the OST trade. The nearly simultaneous discovery of gold at Sutter's Mill, as well as the recent arrival of Mormon colonists in the Salt Lake Valley, further altered the economic structure of the West.

Travel on the OST, including through the Miranda Valley, waned after the war, although Sterling Price likely used the route in 1847 during the U.S. Army's suppression of the Taos Revolt (Hawk 2005-2011:90-91). However, several important expeditions traversed the North Branch through the San Luis Valley in the early 1850s. Those expeditions were primarily prompted by a search for a practicable trans-continental rail route. Descriptions penned

by participants in those U.S.-government sponsored projects have been critical for identifying OST routes.

2

Methods

Christopher M. Johnston and Mark D. Mitchell

The Miranda Valley project was carried out for the Carson National Forest under Section 110 of the National Historic Preservation Act (NPHA; 16 U.S.C. 470). Because the project was not associated with a NHPA Section 106 undertaking, an area of potential effect (APE) was not defined. The inventory areas include the route of the Camino Real as defined by multiple sources, including archival research, land grant boundary markers, and recently acquired lidar data. For file search purposes, the project area was nominally defined as the Miranda Valley and sections of the Picuris Mountains, extending from the confluence of Arroyo Miranda and McGaffey Canyon to the confluence of Telephone and Osha canyons.

The project's primary goal was to identify and document historic trail segments. The fieldwork focused on identifying and documenting surface swales and artifacts or other features associated with the use of the Miranda Valley as a transportation corridor. However, other cultural resources were documented as they were encountered. Field crews employed multiple methods to identify cultural resources, including full-coverage pedestrian survey, reconnaissance survey, and metal detector surveys. Method is described in more detail later in this chapter.

Placement of the inventory blocks was based primarily on archival research conducted by the Taos County Historical Society (TCHS) (Hawk 2005-2011). The scope and overall results of the TCHS research effort are described in chapter 1. The most important data for PCRG's field investigation were spatial data on land grant boundary markers and detailed field notes accompanying them. Using these data, PCRG selected four general survey areas for the 2017 field investigation, including from south to north the north slope of the Picuris

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Mountains, the head of Arroyo Miranda, and the upper and middle sections of the Miranda Valley. The 2018 field investigation again used TCHS spatial and narrative data, along with lidar data, to select two general survey areas, including the area near the mouth of McGaffey Canyon in the north and the east side of Telephone Canyon in the south.

Field Methods

PCRG conducted field investigations in the Miranda Valley in 2017 and 2018 (see chapter 1), and the overall field strategies as well as the methods used varied between the two field seasons. During 2017, field crews mainly conducted a reconnaissance survey rather than a full-coverage survey within defined inventory blocks. The goal was to better understand the distribution of historic trail segments within the project area and to gauge the extent of trail-segment morphological variability. Prior to the field investigation, PCRG staff used the TCHS spatial and narrative data to identify potential inventory blocks. These potential inventory blocks were then checked in the field for evidence of historic trail segments and other archaeological materials. In some cases, crews extended the inventory coverage outside these potential inventory blocks to examine additional areas, including areas between potential inventory blocks. Coverage was also extended to ensure complete recordation of non-trail related sites incidentally encountered during the fieldwork. Of particular interest during the 2017 field investigation were two open meadows that may have been used by Vargas and his men as camp locations in 1692 and again in 1694. Metal detector surveys, described later in this chapter, were conducted in both locations.

Although TCHS researchers had previously observed numerous historic trail segments in the Miranda Valley, archaeological field recordation had not occurred prior to 2017. In addition to standard field documentation methods, PCRG used a newly developed form to record trail segments, which is described in a subsequent section. Because many of the trail segments were long and spanned multiple landforms it was sometimes difficult in the field to determine the spatial relationships among them. For that reason, PCRG elected to determine site boundaries in the lab using field-collected GPS data on trail segments and artifacts as a guide. The goal was to create suitably compact site boundaries that also incorporated connecting or potentially connecting swales and other cultural materials. This method allowed the field crews to focus on swale recordation. However, the post-hoc determination of site boundaries presented data-management challenges in the lab and was therefore abandoned for the 2018 field investigation.

During 2018, PCRG took a more traditional approach to survey, including full-coverage inventory of pre-selected survey areas. Two factors made this possible. The first was a better understanding of swale morphology and distribution gained through the 2017 field investigation. The second was the availability of high-resolution airborne lidar data for the Miranda Valley and adjacent areas. Following the conclusion of PCRG's 2017 fieldwork, the Natural Resources Conservation Service (NRCS) generously provided provisional lidar data for the area that clearly shows swales of various sizes and lengths. (The lidar datasets have since been published and are available for direct download from the U.S. Department of Agriculture's Geospatial Data Gateway and from the U.S. Geological Survey's National Map.) PCRG used the NRCS lidar data to identify target locations for inventory, most of which were visited during the 2018 field session. However, the number of non-trail-related resources encountered in 2018 was significantly greater than those encountered in 2017, and documenting those sites limited the amount of time available to document historic trail segments. Metal detectors were not used during the 2018 field investigation.

During both 2017 and 2018, pedestrian survey transects were spaced no more than 15 m apart. Survey crews ranged in size from three to six people. In areas with poor visibility, transect intervals were reduced at the discretion of the field supervisor. All archaeological sites and historic cultural properties encountered were documented.

When cultural materials were first encountered, the immediate area was intensively examined to determine the nature and extent of the resource. Handheld GPS receivers were used to record the locations of trail swales, artifacts, and other features. During 2018, site boundaries were also recorded in the field. All GPS data were collected in the UTM system using the North American Datum 1983. All cultural resources were evaluated for NRHP eligibility under the Criteria for Eligibility (36CFR60.4). Photographs showing the site setting and notable artifacts were taken digitally; these digital images, along with all field records and notes are stored at PCRG's Broomfield, Colorado, laboratory.

Resources were documented in the field using standard PCRG field inventory forms, which closely mirror the various sections of the Laboratory of Anthropology Site Record forms. Artifacts primarily were analyzed in the field and not collected. Temporally diagnostic artifacts or those that were particularly notable were photographed. The only artifacts collected were those recovered during the metal detector survey, many of which were amenable to additional laboratory analysis, and four prehistoric artifacts. The collected artifacts are tallied and described in chapter 3.

Lithic debitage was tallied by material type, size grade (figure 2.1), and presence of cortex. Stone tools were measured and described on field forms, and in most cases photographed. Pottery was tallied on field inventory forms and assigned to ceramic types in the field. Photographs and field descriptions were used in the lab to validate these types and adjust them as necessary. Metal and other historical artifacts that were not collected were tallied and analyzed in the field.

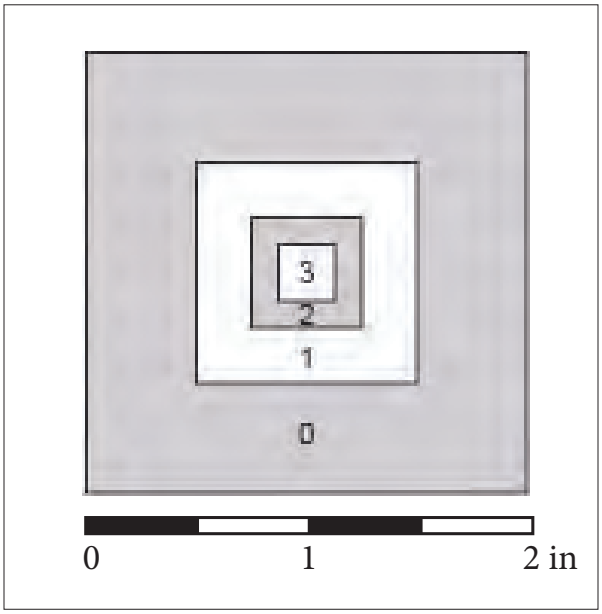

Figure 2.1. Diagram showing flaking debris size-grade classes.

Metal Detector Survey Methods

With the guidance of Charles Haecker, systematic metal detection surveys were carried out at two locations during the 2017 fieldwork. The goal of the surveys was to locate temporally diagnostic artifacts that could be used to refine the ages of surface swales. Of particular interest were artifacts representing Vargas's use of the valley during the Reconquest.

Two open meadows were surveyed with metal detectors in 5 m transects to ensure complete coverage. In groups of two, the meadows were scanned for metal artifacts which were then dug up using garden shovels and ⅛-in screens. The artifacts were flagged and numbered, and a crew chief examined each to determine its likely age. If the specimen seemed to pre-date the early twentieth century, a GPS point was taken and the artifact was collected and assigned a temporary identification number. Haecker and others (2019) provide additional information on the field methods used.

Collected artifacts were brought to the PCRG lab, cleaned, and bagged in 4 mil plastic bags. A subset of these were sent to Charles Haecker for additional analysis. The remainder were analyzed and described by Mark Mitchell and Chris Johnston. Chapter 3 provides a thorough description of the metal detection blocks and the associated artifacts.

Trail Segment Documentation

Because an extensive network of recent two-track roads is present in the Miranda Valley, and because the project's primary purpose was to identify and record historic trail segments, PCRG developed a series of qualitative and quantitative criteria for distinguishing historic swales from recent roads built for logging and off-road vehicle use. Swales that did not meet these criteria were not recorded.

Three primary criteria were used. A historic trail segment generally had to be more than 100 m long. In a few cases, well-defined segments less than 100 m long were documented; however, most of these were discontinuous sections of longer segments or were associated with other parallel historic segments. Overall, the 100-m criterion was used to focus the field effort on the best-preserved swales and to minimize the possibility of recording surface features produced by processes other than through-valley transportation.

A second criterion was the general swale morphology. Only single-swale, uncrowned features lacking exterior berms were recorded. While it is possible that ruts or tracks that are crowned, that exhibit paired depressions and a center mound (a "two-track" road), or that exhibit exterior berms may represent historic trail segments, these subsequent

modifications have made it impossible to verify their original use. The third criterion PCRG used to distinguish historic trail swales from other features was that the subject swale could not be an active erosion channel. As is the case for two-track roads, erosion channels may have begun as historic transportation features, but subsequent modification has made it impossible to verify their original use. Oregon-California Trails Association (2014) provides additional general criteria for identifying historic trail segments and PCRG used these criteria during the Miranda Valley fieldwork.

PCRG used a field documentation form specifically designed for recorded historic trail segments (figure 2.2). The form captured relevant data for each segment, including its width and depth relative to the surrounding surface at multiple points along its length. Segment length was calculated in the lab using the GPS data recorded for each feature. Photographs were taken at different points along each segment.

Linear Feature Log

Project _____ **Page** _____ **of** _____

Segment ID	**Date**	**Initials**	**Segment Points**	**UTMs** *Get UTMs and photos at each end and from approx. middle point*	**Photo Numbers**	**Description** *Describe general height/depth, shape, length, position on landscape (ie. follows contours, cuts across slope, visible in and out of drainage), cut trees, spoil piles, or rock along edges, possible associated features or artifacts, etc. Brief description of vegetation, landform.)*	**NHT Condition Category**
			A	N E			
			Middle	N E			
			B	N E			
			A	N E			
			Middle	N E			
			B	N E			
			A	N E			
			Middle	N E			
			B	N E			
			A	N E			
			Middle	N E			
			B	N E			

Figure 2.2. The linear feature log PCRG used to record historic trail segments in the Miranda Valley. Each segment was assigned a unique identification number in the field and GPS data were collected on all segments.

3

Field Investigation

Christopher M. Johnston, Amy Nelson, & Britni V. Rockwell

A total of 25 sites were recorded during the two field investigations (table 3.1). Ten contain only historic components, nine of which include trail swales that may relate to the OST. The other is a segment of a ditch of unknown age. Ten sites contain only prehistoric artifacts. Many have multiple prehistoric components, with some dating as far back as the Middle Archaic period. Five sites have both prehistoric and historic components. Six isolated occurrences were documented during the fieldwork. All are prehistoric and contain one or only a few artifacts. The results of the survey are summarized in chapter 4, including key findings, directions for future research, and eligibility status.

Artifacts were collected from four different sites, all during the 2017 field investigation. In total, 96 artifacts were collected. These include three chipped stone artifacts and one ceramic "cloud blower" pipe fragment, along with 92 historic artifacts collected during the intensive metal detection surveys. Thirty-one historic artifacts were sent to Charles Haecker for analysis. Unfortunately, these artifacts were stolen from Haecker's locked storage facility before photographs could be taken. He had completed his analysis and the results are presented in each site description, but these artifacts are no longer part of the collection. The remaining 64 artifacts are curated with the Carson National Forest in Taos.

Site Descriptions

This section describes each site recorded during the field investigations. A summary table introduces each site, presenting relative data such as environment, topographic location, temporal and cultural affiliations, and the

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Table 3.1. Inventory of sites recorded during the investigations.

Site Number	Forest Service Site Number	Site Type	Components	NRHP Recommendation
LA145336	AR-03-02-04-00408	Open Camp	Prehistoric	Not Eligible
LA145337	AR-03-02-04-00409	Open Camp	Prehistoric	Eligible
LA189635	AR-03-02-04-00410	Linear, artifact scatter	Historic	Eligible
LA189636	AR-03-02-04-00411	Linear, CMT	Historic	Eligible
LA189637	AR-03-02-04-00412	Linear	Historic	Eligible
LA189638	AR-03-02-04-00413	Linear	Historic	Eligible
LA189639	AR-03-02-04-00414	Linear	Historic	Eligible
LA189640	AR-03-02-04-00415	Taos Gray sherd; Artifact scatter	Prehistoric; Historic	Not Eligible
LA189641	AR-03-02-04-00416	Open lithic; Linear, artifact scatter CMT	Prehistoric; Historic	Eligible
LA189642	AR-03-02-04-00417	Linear, CMT	Historic	Eligible
LA193570	AR-03-02-04-00418	Open Camp	Prehistoric	Not Eligible
LA193571	AR-03-02-04-00419	Open Lithic	Prehistoric	Not Eligible
LA193572	AR-03-02-04-00420	Open Camp; artifact scatter	Prehistoric; Historic	Not Eligible
LA193573	AR-03-02-04-00421	Open Camp; artifact scatter	Prehistoric; Historic	Needs Data
LA193574	AR-03-02-04-00422	Open Lithic	Prehistoric	Not Eligible
LA193575	AR-03-02-04-00423	Open Lithic	Prehistoric	Not Eligible
LA193576	AR-03-02-04-00424	Open Camp; one horseshoe	Prehistoric; Historic	Not Eligible
LA193577	AR-03-02-04-00425	Open Lithic	Prehistoric	Not Eligible
LA193578	AR-03-02-04-00426	Open Camp	Prehistoric	Not Eligible
LA193579	AR-03-02-04-00427	Linear	Historic	Eligible
LA193580	AR-03-02-04-00428	Linear	Historic	Eligible
LA193581	AR-03-02-04-00429	CMT	Historic	Needs Data
LA193583	AR-03-02-04-00430	Open Camp	Prehistoric	Needs Data
LA193584	AR-03-02-04-00431	Open Camp	Prehistoric	Not Eligible
HCPI46300	AR-03-02-04-00432	Linear-Ditch	Historic	Not Eligible

National Register of Historic Places (NRHP) eligibility recommendation. The sites are organized by their Laboratory of Archaeology (LA) record number, with the Forest Service site number noted parenthetically for each site. Each site is then discussed in more detail and relevant data are presented. Isolated occurrences are summarized in the last section of this chapter. A more complete summary of the NRHP eligibility recommendations is presented in chapter 4.

LA145336 (AR-03-02-04-00408)

No. of Components:	1
Site Type:	Open camp
Cultural Affiliation:	Anasazi
Temporal Period:	Developmental to Classic (A.D. 1100 to 1350 and possibly later)
Previously Recorded:	1975
Prior NRHP Status:	Potential (Needs Data)
NRHP Recommendation:	Not eligible
Artifacts Collected:	No
Topographic Location:	Bench
Vegetation:	Pine forest with an understory of short scattered grasses and forbs
Elevation:	7960 to 8000 ft
Depositional Context:	Alluvial; colluvial
Dimension and Area:	20 m x 55 m; 715 sq m
Ground Visibility:	0-50%

LA145336 was first documented in 1975 by archaeologists with the Carson National Forest but a record was never submitted to the ARMS database. The site file in the ARMS database states the records for this site were discovered during the Forest Service Concordance Project of 2003-2004 and it was during this project that an LA number at ARMS was assigned. According to this record, many sites discovered during the Concordance Project were not associated with any reports.

The site is located along a small bench on an east

facing slope on the west wall of Miranda Valley. A two-track road is downslope about 35 m to the southeast with a drainage 155 m to the northwest (figure 3.1). The 1975 site recording documented the presence of lithic materials and ceramics that date to the Pueblo II and III periods, similar to the PCRG recording. The original recording also indicated it was a habitation site with one pithouse, with adobe marked as the type of architecture. This pithouse was not observed during the 2017 recording.

An artifact concentration within the site boundary was identified which produced a relative sample of the artifacts across the whole site. Ceramics dominate the assemblage, but eight ground stone tools were also identified, including one complete hand stone. A metal datum tag, labeled with 102 (the temporary site number), was nailed to a tree on the north end of the artifact concentration.

The pottery assemblage documented at site LA145336 comprised 17 specimens, including 14

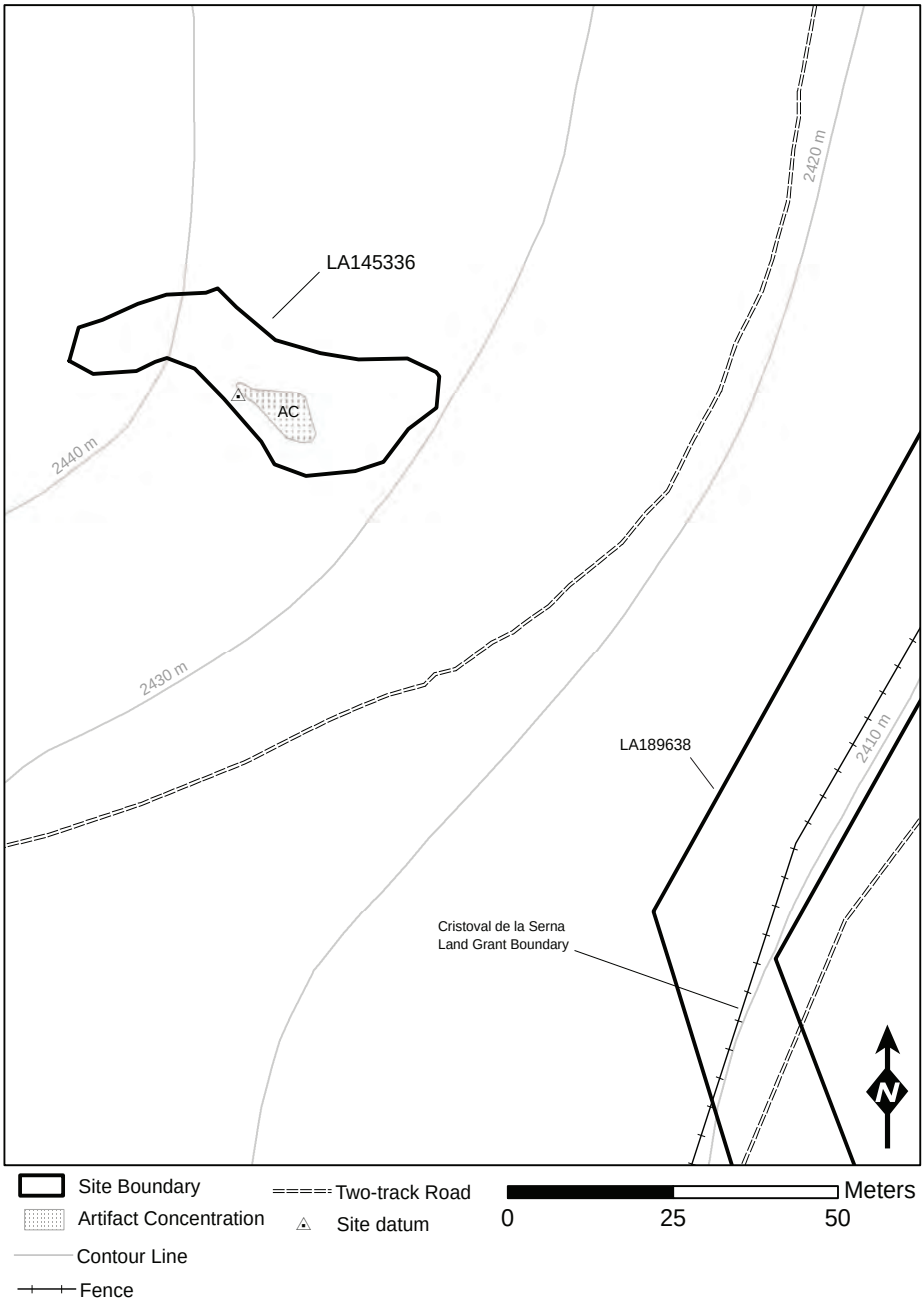

Figure 3.1. Sketch map of LA145336.

Taos Black-on-White jar or bowl sherds, one Taos Gray sherd, and two unidentified brown ware sherds. This total represents a sample of the site assemblage and includes specimens tallied within the mapped artifact concentration. Most of the Taos Black-on-White sherds exhibit framed zones infilled with hatching. The single grayware body sherd lacked decorative modification. Levine (1994) suggests that Taos Black-on-White was produced between A.D. 1100 and 1350. Oppelt (2002) suggests a somewhat shorter duration, from A.D. 1150 to 1250; however, it was the only whiteware produced during the Valdez phase (A.D. 1100-1225) and production continued into the Pot Creek (A.D. 1225-1260 or 1270) and Talpa (A.D. 1260 or 1270-1350) phases (Crown 1990; Levine 1994). Production of Taos Gray began at A.D. 1100 and may have continued into the eighteenth century.

Surface treatment data were not recorded on the brown ware sherds. These may represent post-1500 American Indian (e.g. Uncompahgre Brown Ware or Northern Rio Grande Historic Plainware) or possibly Hispano use of the region.

LA145337 (AR-03-02-04-00409)

No. of Components:	1
Site Type:	Open camp
Cultural Affiliation:	Anasazi
Temporal Period:	Developmental to Classic (A.D. 1100 to 1600, possibly later)
Previously Recorded:	1975 (LA145337 and LA145338 now combined)
Prior NRHP Status:	Potential (Needs Data)
NRHP Recommendation:	Eligible
Artifacts Collected:	Yes; CN2096
Topographic Location:	Ridge; hill slope; hilltop
Vegetation:	Moderately dense pinion and fir forest with low oak brush and a light understory of bunch grasses and forbs.
Elevation:	7960 to 8080 ft
Depositional Context:	Alluvial; colluvial
Dimension and Area:	200 x 190 m; 24,847 sq m
Ground Visibility:	10-70%

LA145337 was first recorded in 1975 by archaeologists with the Carson National Forest but a record was never submitted to the ARMS database. The site file in the ARMS database states the records for this site were discovered during the Forest Service Concordance Project of 2003-2004 and it was during this project that an LA number at ARMS was assigned. According to this record, many sites discovered during the Concordance Project were not associated with any reports. Another site from the same project, LA145338, was also identified during the fieldwork in 2017 and it was determined that these two sites overlap and should be documented as one. Thus, what was LA145338 is now all recorded as LA145337. Both sites were initially identified by Herold (1968:23, Fig. 2) but were not documented in the ARMS database.

This site is located on the west facing slope of a southwest to northeast trending finger ridge of the west side of Miranda Valley (figure 3.2). Intermittent drainages bound the site 100 m to the south and 495 m to the north with Arroyo Miranda 65 m to the east. A generally north to south running two-track road parallels the Serena land grant boundary fence which cuts through the entire length of the eastern site boundary. Another north to south two-track road is located 75 m to the west and cuts through the southern artifact concentration and a midden feature.

The 1975 recording for LA145337 documents a limited activity area with lithic materials and ceramics, with a cultural classification of the Pueblo III period, presumably based on ceramic styles. The 1975 record for LA145338 documents a habitation site consisting of one pithouse along with lithic and ceramic artifacts, also dating to the Pueblo III period. Both forms indicate damage from bulldozing of the road. The location of these roughly correspond to what the PCRG recording documents as Artifact Concentration 1.

The site has two distinct artifact concentrations consisting of ceramic sherds, flaking debris, stone tools, and ground stone. Concentration one (AC1) is associated with a pithouse (Feature 1) and a midden (Feature 2), while concentration two is associated with another pithouse (Feature 3). A source of tool-quality rhyolite is also present at the site. The rhyolite grades from purple to red, is very siliceous, with large phenocrysts and gray to black inclusions.

An inventory of lithic materials from a sample area measuring 40 by 27 m was taken in AC1 (the hashed area shown in figure 3.2). Nine stone tools were recorded in this area, including five projectile point fragments, three obsidian arrow points, one chert projectile point tip, and four scrapers. Three of the projectile points are side-notched arrow points; two are made from obsidian and one is a white chert. Another point is a fragmented obsidian base that is

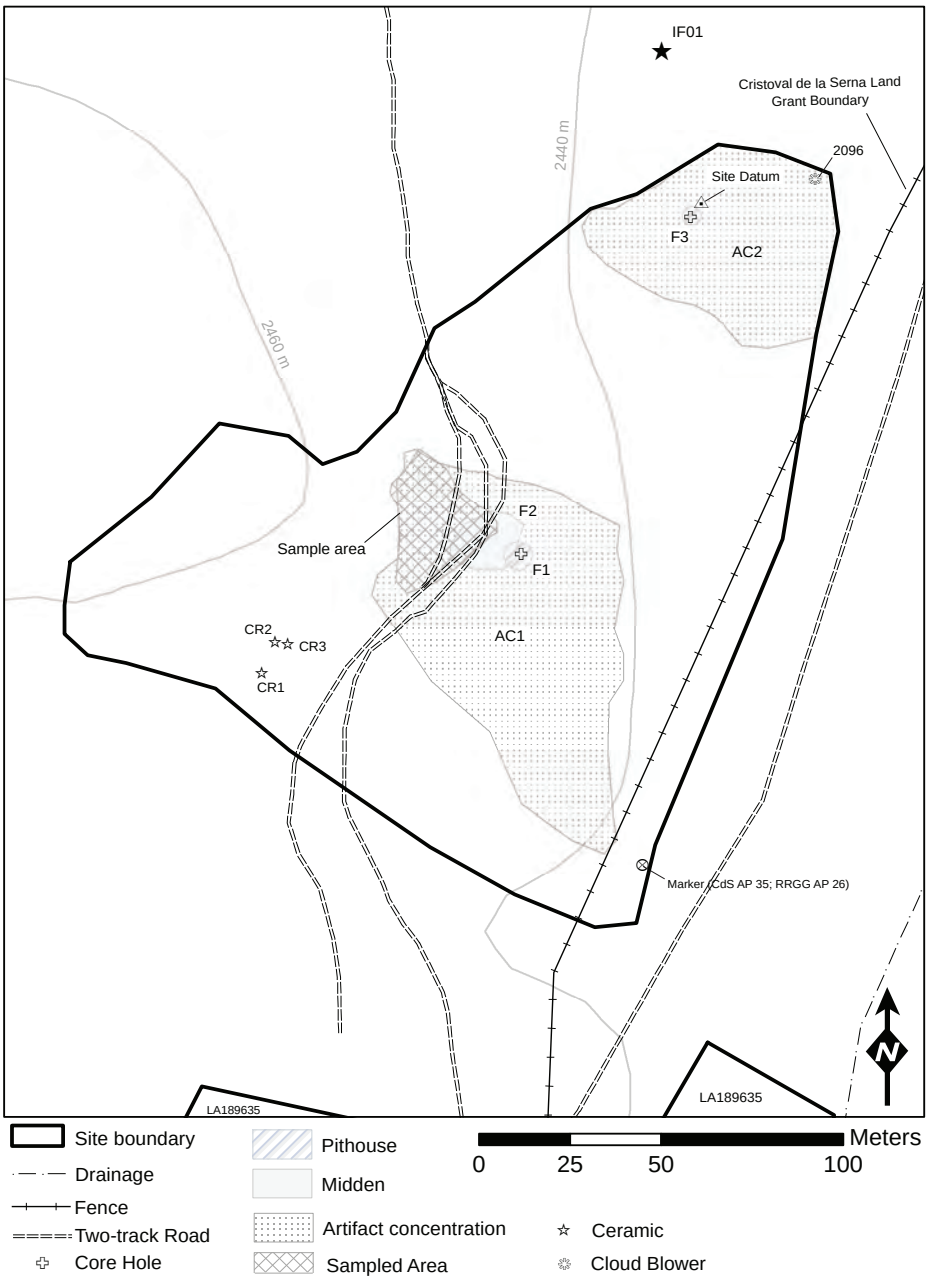

Figure 3.2. Sketch map of LA145337.

too incomplete to be identified. The last projectile fragment is the distal end of what is likely an arrow point, but it is too incomplete to identify. The sample area also includes 252 pieces of debitage, dominated by the local rhyolite (n=148) but other materials including chert, chalcedony, obsidian, and basalt are also present.

Artifact Concentration 2 (AC2) is located at the north end of the site where a 55 by 70 m area was defined to represent the extent with the densest concentration of artifacts. A total number of artifacts was not tallied in this area, but a qualitative assessment revealed a dense scatter of ceramic sherds and flaking debris, mostly chert and the local rhyolite.

The site also contains a large pottery assemblage comprised almost exclusively of Taos Black-on-White bowl and jar sherds and Taos Gray (Plain and Incised) body sherds. Although these specimens were not tallied, several hundred sherds are likely present in the surface assemblage. One edge-ground disc made from a Taos Black-on-White bowl sherd was documented (figure 3.3). A straight, "cloud blower"

Taos grayware pipe was collected (catalog number 2096) from Artifact Concentration 2 on the north end of the site (figure 3.4). The pipe is at least 50 percent complete and has no decorative elements. The pipe hole appears to have been formed around a stick (that would have burned up when fired), and a subsidiary stick impression shows it was pushed into the clay but didn't penetrate all the way through. Part of the proximal end of the bowl is preserved, distal end is broken away.

A small pinch-pot or practice piece made from coarse brown paste was also documented in the northern artifact concentration (figure 3.5). The age or cultural affiliation of this specimen is not known; however, its location within the site suggests that it may date to the Valdez phase (A.D. 1100-1225).

Six sherds that postdate the Valdez phase were documented on the southern edge of the site, including two Cimarron Micaceous sherds (one rim with a flat, sanded lip and one body) and four glaze ware sherds (one rim and three bases). The glaze ware rim exhibits white to gray slip over a sand-tempered red-brown paste (figure 3.6). The rim is thickened below the lip. Runny glaze paint is visible on the interior, but a specific motif is not evident. This rim may represent a Glaze E or Glaze F vessel. One of the three base sherds exhibits small patches of runny glaze. All three base sherds are relatively thick and flat.

Sherds assigned to Wilson's (2007) "runny glaze body" sorting category (unidentified Glaze E or Glaze F) date to between A.D. 1515 and 1700. OSA (2019a) dates Glaze E to between A.D. 1515 and 1650 and Glaze F to between A.D. 1640 and 1720. Cimarron Micaceous is dated to between A.D. 1750 and 1920 (OSA 2019b).

Feature 1 is a circular pithouse depression approximately 4 to 5 m in diameter. Coring demonstrated cultural deposits are at least 114 cm below the surface. The feature is located within AC1, the southern artifact concentration. Adjacent to the feature is a midden (Feature 2) with deposits about 15 to 20 cm thick that include several dumps of burned rock. A road has cut through part of the midden and exposed materials, which are now eroding out of the side of the bank.

Feature 3 is another circular pit house feature located at the north edge of the site on the end of a narrow ridge (figure 3.7). Coring demonstrated buried cultural materials to at least 124 cm below the surface. Surface expression of the feature is muted but cut into the slope on the west. Feature 3 is surrounded by a

Figure 3.3. Edge-ground ceramic disc from LA145337.

Figure 3.4. Cloud blower fragment (CN2096) from LA145337.

Figure 3.5. Small pinch-pot or practice piece from LA145337.

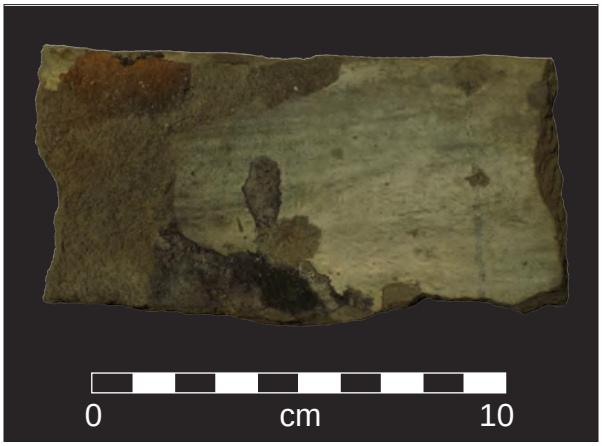

Figure 3.6. Glaze ware rim sherd from LA145337.

Figure 3.7. Overview of Feature 3 at LA145337. View to the southeast, scale in background is 109 cm.

duff-covered slope and ridge making the boundary difficult to discern. Most artifacts are downslope to the south, east, and north, encircling the nose of the slope.

LA189635 (AR-03-02-04-00410)

No. of Components:	2
Site Type:	Trail Traces
Cultural Affiliation:	Unknown Aboriginal; Hispanic and Anglo-Euroamerican
Temporal Period:	Unspecific Historic; Mexican/ Santa Fe Trail to WWII (A.D. 1821 to 1945)
NRHP Recommendation:	Eligible (criteria A and D)
Artifacts Collected:	Yes
Topographic Location:	Flood plain/valley
Vegetation:	Open pine forest with an understory of oak brush, short grasses and forbs and a grassy meadow with tall vegetation.
Elevation:	7960 to 8120 ft
Depositional Context:	Alluvial; colluvial
Dimension and Area:	500 m x 138 m; 42,267 sq m
Ground Visibility:	25-75%

LA189635 consists of five metal detection areas with a dense scattering of historic artifacts and 10 trail traces (LN1-LN9) that generally parallel the Serna land grant boundary fence (figure 3.8). LA193583 overlaps a portion of the western site boundary. Arroyo Miranda is just west of the site and a two-track road with multiple spurs goes through the middle of the site boundary.

The broad open meadow is thought to be one of two potential areas that are believed to be the campsite that de Vargas used on his 1692 route between Picuris and Taos. Based on Hawk's (2005-2011:83) research and the de Vargas journals, "the campsite is listed as being four leagues from each pueblo" which on modern maps would be "in a high flat series of meadows on the Taos side of the Picuris divide". The other potential area for this campsite is what is now recorded as LA189640. Using this research, the field investigation attempted to recover artifacts that could be associated with the de Vargas camp using intensive metal detector survey.

Ten trail traces or swales were documented at LA189635 (table 3.2). Eight of the ten trail segments (LN1 to LN7, including LN2a) are either in or partially overlap one of the metal detection areas (Block E).

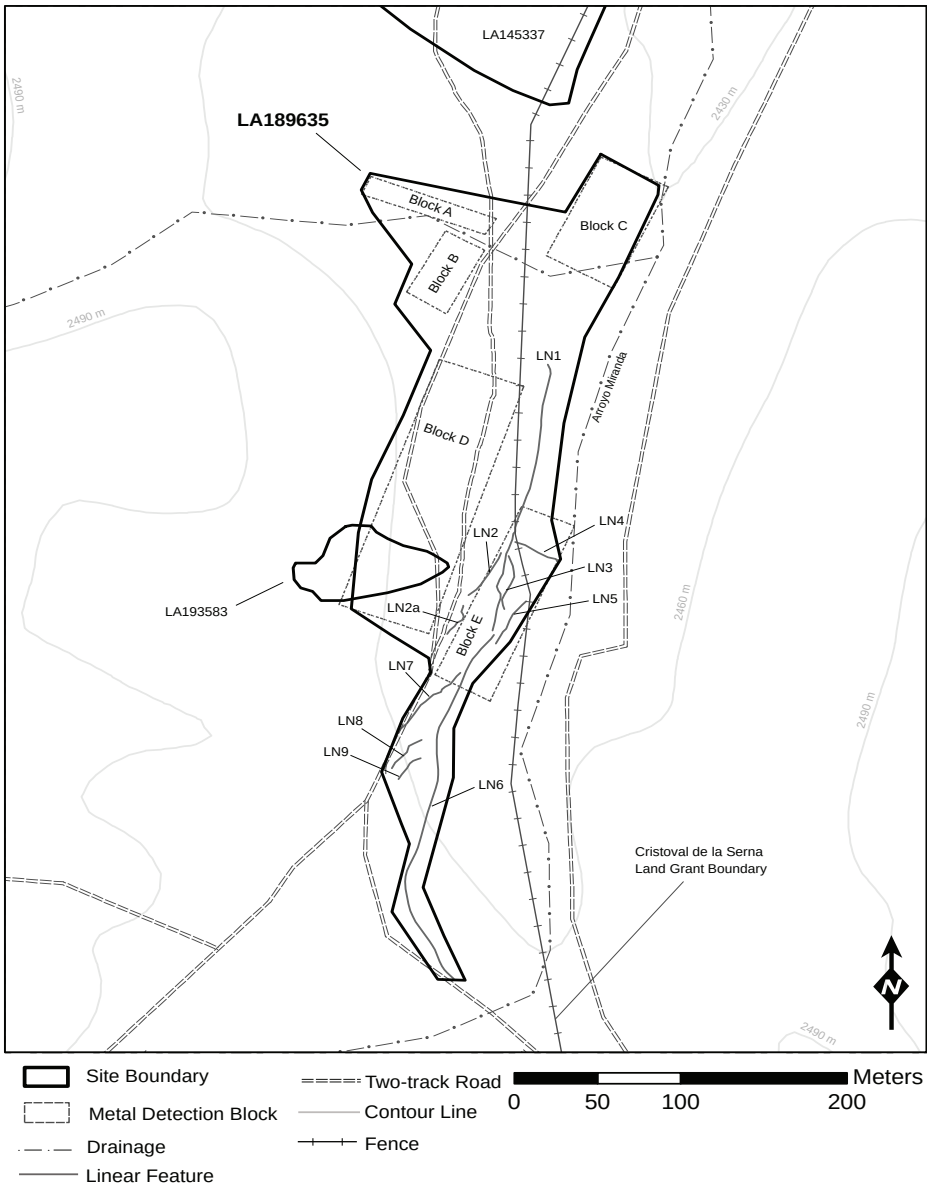

Figure 3.8. Sketch map of LA189635.

LN1 is the northern most swale at the site and is about 180 m (591 ft) long. The northern portion of LN1 is relatively flat, becoming more noticeable after about 20 m, simultaneously narrowing in width from 3 m to 2 m (10 ft to 6.5 ft). Moderate water erosion has disturbed the area, likely deepening the swale which varies in depth between 5 to 10 cm (2 to 4 in). The segment closely boundary fence for 110 m from the north until it cuts through to the southwest extending another 70 m further upslope. Just south of where LN1 crosses the fence, a survey marker (CdS AP 34; RRGG AP 27) was recorded. The marker, which is a brass cap installed during the 1962 Carson National Forest survey, mark the angle points (AP) of the 1894 surveys for the Cristobal de la Serna and Rancho del Rio Grande grants, respectively. About 9 m after the fence, the swale breaks off into two more segments, LN2 to the west, and LN3 to the east (figure 3.9); LN1 was determined to be the main segment. The three swales are surrounded by large juniper trees at the area of convergence. LN1 continues further south past this point for another 50 m.

LN2 diverges west off LN1 and continues upslope to the south-southwest for about 35 m. Moderate water erosion and rodent activity have disturbed the area, likely deepening the swale which at its deepest point is roughly 20 cm (8 in) below the adjacent ground surface. The segment is narrow, ranging from

Table 3.2. Line segment dimensions at LA189635.

Line ID	Length (ft)	Width (ft)	Depth (in)
LN1	591	7 to 10	2 to 4
LN2	115	3 to 6.5	4 to 8
LN2a	75	3 to 6.5	4 to 8
LN3	121	6.5 to 10	1 to 3
LN4	98	5	20 to 24
LN5	112	10	20
LN6	804	6.5	59
LN7	184	10	4
LN8	89	3 to 6.5	39
LN9	66	10 to 13	1 to 3

Figure 3.9. Convergence of LN1 (center), LN2 (right), and LN3 (left) at LA189635. View to the south.

1 to 2 m (3 to 6.5 ft), widening slightly at the deepest point and then flattening out to a depth around 10 cm (4 in). The southern end of the swale veers slightly more west, meeting up with the jeep trail and coming to an end. A short spur begins just 7 m south of LN2, continuing for 23 m (75 ft) before trailing off. This spur (LN2a) was not recorded separately but rather included as a small segment of LN2.

LN3 diverges east off LN1 extending south for 37 m (121 ft). The swale varies in width between 2 and 3 m (6.5 to 10 ft) and is about 2 to 7 cm deep (1 to 3 in). Well defined tire tracks cut through the segment disturbing the area, retaining only limited visibility of the swale. LN3 parallels the boundary fence to the west.

LN4 is a swale located just north of the convergence of LN1, LN2 and LN3, perpendicular to LN1. The swale begins on the east side of the surveyor's fence and extends southeast towards the Arroyo Miranda. Vegetation is thick towards the arroyo with tall grasses extending into a meadow area. Roughly 10 m south of the starting point is a survey marker (CdS AP34; RRGG AP 27) located along the fence. The swale is visible for 30 m (98 ft) with a narrow width of about 1.5 m (5 ft). Water erosion has disturbed the area, possibly impacting the depth of the swale which at its deepest is about 50 to 60 cm (20 to 24 in) below the surrounding ground surface.

LN5 is a deep swale on the west side of the boundary fence, paralleling LN1 and LN6 to the west for 34 m (112 ft). The width is consistently 3 m (10 ft) with an average depth of about 50 cm (20 in) below the surrounding ground surface. LN5 is in an open meadow of tall grasses bordered by open forest.

LN6 begins just 2 m south of LN1, likely an extension that continues for 245 m (804 ft) before abruptly stopping at a two-track road (figure 3.10). There is a slight break where the swale is undetectable for about 15 m before visibility improves. Evidence of elk disturbance is present in the shallower areas of the segment, with other areas likely disturbed by water creating a depth of about 150 cm (59 in), and averages about 2 m (6.5 ft) in width. Three short segments, LN7, LN8, and LN9, branch off LN6 to the west.

LN7 is a swale segment branching off to the west of LN6 continuing 56 m (184 ft) southwest until converging with the jeep trail. The swale is 3 m (10 ft) wide and a shallow depth averaging about 10 cm (4 in). LN7 cuts through several large juniper trees before merging with LN6 on the northern end.

LN8 is a short, 1 m (39 in) deep swale that parallels LN7 to the north, and LN9 to the south (figure 3.11). The swale is 1 to 2 m (3 to 6.5 ft) wide and located just upslope from a drainage. Large pinion trees have

Figure 3.10. View from the southern end of LN6, looking northwest, at LA189635.

Figure 3.11. View from the northern end of LN8, looking southwest, at LA189635.

Figure 3.12. Representative overview of the metal detection blocks at LA189635.

grown in multiple areas of the swale causing ground disturbance. The northeast end is only 9 m short of connecting with LN6. LN8 is visible for 27 m (89 ft) before trailing off into the two-track road.

LN9 begins 7 m south of LN8, running parallel for 20 m (66 ft). The swale is shallow, between about 2 to 7 cm (1 to 3 in) and has a width ranging from 3 to 4 m (10 to 13 ft).

Systematic metal detection was carried out in five separate areas of the site, labeled Blocks A through E (figure 3.12). Artifacts on and below the surface were identified with metal detectors and collected based on possible association with the time-period of the Old Spanish Trail. Artifacts below the surface were excavated using small garden shovels and ¼" screens to sift through the dirt. Table 3.3 summarizes the collected artifacts and the date range for each. Twenty-seven of these artifacts, noted in the table, were sent to Charles Haecker for additional analysis.

Block A, at the northwest edge of the site contained a small scatter of eight artifacts within an 80 by 12 m area. Artifact styles are variable and are not related to any one function or theme, which is also reflected in the broad date range from the nineteenth century through the 1940s. One artifact of note (CN2080) is a .50 caliber bullet that dates to the Civil War era.

Block B, just south of Block A, also has a scatter of metal artifacts. These include two tinklers, catalog numbers 2069 and 2070 (figure 3.13) which are likely related to American Indian occupation of the area. Block B also has American-made cast iron boot spur jingles iron that date between A.D. 1850 and the early 1900s. Other artifacts date from roughly the middle nineteenth to twentieth centuries.

Block C contained the densest scatter of artifacts. The block is located at the northern most end of the site along the Arroyo Miranda to the east. Most of the artifacts are concentrated to the north, thinning out further south towards a drainage. Association of artifacts vary, including domestic items such as cut nails, a table knife, , hole-in-cap can, and cut metal; horse tack including a horseshoe and nails, and a chinch ring; and miscellaneous industrial items such as chain links, a pipe, and wrought iron fragments. Two centerfire cartridges were also recorded one with the head stamp "WRA. Co .38 W.C.F." made by Winchester Repeating Arms Company that dates to sometime after A.D. 1885. The other head stamp is "REM-UMC" followed by the numbers 38.55. These cartridges were produced by Remington-Union Metallic Cartridge Co. after the UMC and Remington merger in 1912. Along with buried metal artifacts, a concentration of early twentieth century glass was identified on the surface at the northwest edge of the block. Distribution of the artifacts is random with no concentrations of similar items identified.

Block D is the largest of the five blocks. Metal artifacts within this block were mostly associated with domestic occupation including cut nails, a hole-in-cap can, and personal adornment such as buttons, a shoe nail, and two cufflinks. The two buttons, catalogs 2043 and 2047, are both of English manufacture and represent the oldest non-American Indian artifacts recovered from the site. Their manufacture dates to

Table 3.3. Collected artifacts from LA189635.

Catalog Number	Block	Artifact Description	Date Range
2076[a]	A	Cast iron, unknown function	19th century
2077[a]	A	Livestock hobble (minus leather straps), homemade	19th century
2078	A	Iron strap	Statehood to WWII (A.D. 1912 to 1945)
2079[a]	A	Button, 3-piece, steel back and eye with brass front; front design: CONES BOSS with railroad lantern; work jacket button	ca. A.D. 1890 to 1910+
2080[a]	A	.50 caliber rifle or carbine bullet, fired; Civil War era	ca. A.D. 1860-1870+
2081[a]	A	Tarp hook for a canvas wagon cover	19th century
2082	A	Threaded rod with square nut	Statehood to WWII (A.D. 1912 to 1945)
2068[a]	B	Spur jingles (coscojos), cast iron, low end American type	ca. A.D. 1850 to 1900+
2069	B	Iron tinkler	A.D. 1650s to 1880s
2070	B	Brass tinkler	A.D. 1650s to 1880s
2071[a]	B	4-hole button, stamped sheet iron, 11/16-inch diameter; trouser fly or suspender button	ca. A.D. 1850-1900+
2072	B	Shoe nail	U.S. Territorial to WWII (A.D. 1846 to 1945)
2073	B	Cut nail	U.S. Territorial (A.D. 1846-1912)
2074	B	Cut nail	U.S. Territorial (A.D. 1846-1912)
2002[a]	C	Table knife, steel, medium size	ca. A.D. 1850 to 1910
2004[a]	C	Wrought iron strap, hand forged, fits with 2005, unknown function	18th to 19th century
2005[a]	C	Wrought iron strap, hand forged, fits with 2004, unknown function	18th to 19th century
2006	C	Iron spout, flattened, with lead solder	U.S. Territorial (A.D. 1846-1912)
2007	C	Iron spike, manufactured	Statehood to WWII (A.D. 1912-1945)
2008	C	Horseshoe nail	U.S. Territorial to Recent (A.D. 1846 to Present)
2009	C	Iron fragment, likely from industrial equipment	Statehood to WWII (A.D. 1912-1945)
2010	C	Forged iron fragment	U.S. Territorial to WWII (A.D. 1846 to 1945)
2011	C	Spare chain link	Statehood to Recent (A.D. 1912 to Present)
2012	C	Unknown iron wagon or machine part, possibly forged; identical to CN2021	Mexican/Santa Fe Trail (A.D. 1821 to 1846)
2013	C	Barrel strap	Statehood to WWII (A.D. 1912-1945)
2014	C	Barrel strap	Statehood to WWII (A.D. 1912-1945)
2015	C	Horseshoe nail	U.S. Territorial to Recent (A.D. 1846 to Present)
2016	C	Modified can fragment, possible scrap from tinkler manufacture	U.S. Territorial to Statehood (A.D. 1846 to 1912)
2017	C	Modified can fragment, possible scrap from tinkler manufacture	U.S. Territorial to Statehood (A.D. 1846 to 1912)
2018	C	Hobnail (boot nail)	U.S. Territorial to WWII (A.D. 1846 to 1945)
2019	C	Wrought iron, unknown function	Statehood to WWII (A.D. 1912-1945)
2020	C	Cinch ring/horse tack	U.S. Territorial to WWII (A.D. 1846 to 1945)
2021	C	Unknown iron wagon or machine part, possibly forged; identical to CN2021	Mexican/Santa Fe Trail (A.D. 1821 to 1846)
2022	C	Tack nail	Statehood to Recent (A.D. 1912 to Present)
2023	C	Cast iron fragment, unknown function	Statehood to Recent (A.D. 1912 to Present)
2024	C	Cut nail	Statehood to Recent (A.D. 1912 to Present)
2025	C	Hole-in-cap can fragment	Mexican/Santa Fe Trail to U.S. Territorial (A.D. 1821 to 1912)

Table 3.3 continued.

Catalog Number	Block	Artifact Description	Date Range
2026[a]	C	Cartridge case, headstamp: WRA Co 38 W.C.F.; carbine	Post- A.D. 1885
2027[a]	C	Cartridge case headstamp: REM UMC 38.55; rifle	Post-A.D. 1912
2028	C	Horseshoe nail	U.S. Territorial to Recent (A.D. 1846 to Present)
2029	C	Threaded rod or bolt with square nut	Statehood to WWII (A.D. 1912-1945)
2030	C	Iron fragment, possibly hand forged	Mexican/Santa Fe Trail to U.S. Territorial (A.D. 1821 to 1912)
2031	C	Threaded cast iron pipe elbow	Statehood to Recent (A.D. 1912 to Present)
2032	C	Horseshoe nail	U.S. Territorial to Recent (A.D. 1846 to Present)
2033	C	Chain link	Statehood to Recent (A.D. 1912 to Present)
2034[a]	C	Horseshoe, machine-made, worn calks, hand-forged toe reinforcement, narrow-webbed, US-manufactured	Post-A.D. 1840
2049	D	Brass washer	Statehood to Recent (A.D. 1912 to Present)
2042	D	Wrought iron fragment	Statehood to WWII (A.D. 1912 to 1945)
2043[a]	D	Brass coat button, English manufacture, foot on eye in boss, spun back	ca. A.D. 1750 to 1820+
2044	D	Iron tinkler	A.D. 1650s to 1880s
2045[a]	D	Cuff link, lozenge shape	ca. 1890 to 1910
2046	D	Horseshoe nail	U.S. Territorial to Recent (A.D. 1846 to Present)
2047[a]	D	Brass coat button, English manufacture, foot on eye in boss, spun back, Back mark: GILT with floral sprig	ca. A.D. 1750 to 1820+
2048	D	Shoe nail	U.S. Territorial to WWII (A.D. 1846 to 1945)
2050[a]	D	Horseshoe nail tip	ca. 1840 to 1900+
2051[a]	D	Pocket knife, 3 blades, brass shield decoration inset	ca. 1850 to 1900+
2052[a]	D	Cuff link, lozenge shape, "Victorian scroll" design	Ca. 1890-1910
2053	D	Washer	Statehood to Recent (A.D. 1912 to Present)
2054[a]	D	Rifle ball, .50 caliber, fired, mold cast, with sprue	ca. 1800-1850
2055[a]	D	Chain link fragment, wrought iron, both ends chiseled	19th to 20th century
2056	D	Retaining pin	Statehood to Recent (A.D. 1912 to Present)
2057[a]	D	Scatter shot, fired, approx. .30 caliber	19th to 20th century
2058	D	Brad or wire	U.S. Territorial to Recent (A.D. 1846 to Present)
2059	D	Bolt with square head	Statehood to Recent (A.D. 1912 to Present)
2060[a]	D	Harness snap	ca. A.D. 1850 to 1900+
2061	D	Hole-in-top can with scored strip opening that broke and can was knife-opened	A.D. 1900 to 1990
2062	D	Iron scrap	Statehood to Recent (A.D. 1912 to Present)
2063	D	Tarp grommet	WWII to Recent (1945 to Present)
2064[a]	D	Tobacco pouch tab	1867 to 1910+
2065	D	Cut metal, possibly from projectile point manufacture	A.D. 1650s to Statehood (1912)
2066	D	Cut nail	U.S. Territorial (A.D. 1846-1912)
2067	D	Brad or wire	U.S. Territorial to Recent (A.D. 1846 to Present)
2075[a]	D	.38 caliber pistol bullet, fired	Post-A.D. 1875
2038	E	Hole-in-cap can fragment	Mexican/Santa Fe Trail to U.S. Territorial (A.D. 1821 to 1912)
2036	E	Wire nail	Statehood to Recent (A.D. 1912 to Present)

Table 3.3. continued.

Catalog Number	Block	Artifact Description	Date Range
2037	E	Hooked iron fragment, like an S-hook	Statehood to Recent (A.D. 1912 to Present)
2039	E	1902 US Liberty Nickel	A.D. 1902
2040 [a]	E	Lead sheet, pounded; possibly from a Civil War-era bullet as suggested by parallel rings on one side of the sheet	Mid-19th century
2041	E	Wrought iron spike	Statehood to WWII (A.D. 1912 to 1945)
2035 [a]	n/a	Possible wagon step plate, wrought iron, hand-forged	19th century

[a]Artifacts analyzed by Charles Haecker.

Figure 3.13. Tinkler artifacts from LA189635.

between A.D. 1750 and 1820 but could have been lost at the site post-manufacture. One tinkler (CN2044), shown in figure 3.13, and two lead balls were also recovered. The tinklers are thought to relate to American Indian occupation in the area. In addition to the domestic artifacts, a large scatter of industrial materials was uncovered including miscellaneous iron fragments, a chain link fragment, wire, and bolts.

Block E at the southeast end of the site, overlaps many of the linear described earlier for this site. Block E contained a small scatter of six artifacts in a 124 x 36 m area including one wire nail, a United States Liberty Nickel from 1902, a piece of flattened lead that might be from a Civil War-era bullet, and two iron fragments.

Collectively, the artifacts show a diverse and long use of this area. There is no one main theme represented by the assemblage. Some are clearly related to domestic debris and personal adornment, while others show a potentially long and protracted use by pack animals such as horses or mules. None of the artifacts can be definitively linked to the Vargas camp. Some do potentially date to the period of significance for the Old Spanish Trail, although they also cannot be definitively linked to this use.

LA189636 (AR-03-02-04-00411)

No. of Components:	2
Site Type:	Trail traces; Culturally Modified Tree
Cultural Affiliation:	Hispanic and Anglo-Euroamerican
Temporal Period:	Mexican/Santa Fe Trail to WWII (A.D. 1821 to 1945)
NRHP Recommendation:	Eligible (criteria A and D)
Artifacts Collected:	No
Topographic Location:	Flood plain/valley
Vegetation:	Open pine forest with an understory of oak brush, short grasses and forbs.
Elevation:	8280 to 8320 ft
Depositional Context:	Alluvial
Dimension and Area:	155 m x 25 m; 2,705 sq m
Ground Visibility:	0-50%

LA189636 consists of three trail trace segments (LN1-LN3) generally paralleling the Serna land grant boundary fence (figure 3.14). The site also includes one culturally modified tree.

LN1 is a swale that runs along an open east facing slope for approximately 132 m (432 ft; table 3.4). Erosion has cut through some areas likely attributing to the greater depth than the other segments. LN1 parallels the Serna land grant boundary fence for about 95 m (310 ft) from north to south before cutting further to the east and continuing for another 35 m (115 ft). The south end of LN1 disappears to the southeast with multiple short spurs extending to the south and southwest and paralleling the fence

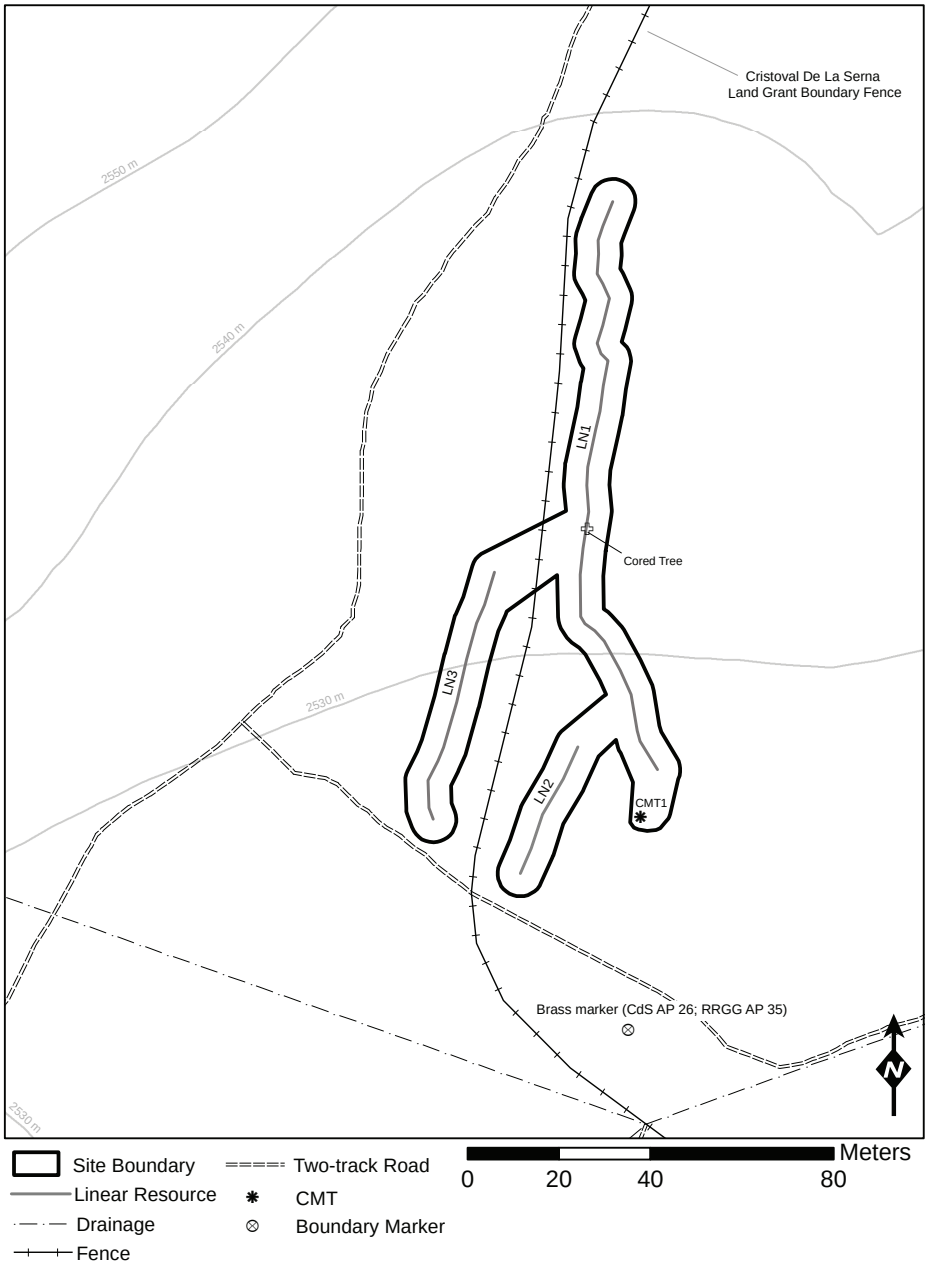

Figure 3.14. Sketch map of LA189636.

Table 3.4. Line segment dimensions at LA189636.

Line ID	Length (ft)	Width (ft)	Depth (in)
LN1	432	12	8 to 20
LN2	100	-	20
LN3	185	7	4 to 8

down to the meadow area. A series of drainages flow approximately 75 m to the south in an open meadow.

An unmodified ponderosa pine tree is located 10 m south of the identifiable end point of LN1 (figure 3.15). A core sample of this tree was taken for dendrochronological analysis. The analysis, conducted by Peter Brown of Rocky Mountain Tree Ring Research, shows an estimated pith date of A.D. 1871. This indicates the trail segment was no longer used as of 1871 or possibly earlier.

LN2 is a short swale segment southwest of LN1. The swale parallels the Serna land grant boundary fence which is approximately 15 m west of the swale. LN2 is heavily eroded with a depth of 50 cm (20 in) although no evidence of recent running water was

Figure 3.15. Overview of LN1 at LA189636. The large ponderosa pine in the foreground sits in the middle of the trail and was cored for dendrochronological analysis.

Figure 3.16. Overview of CMT1 at LA189636.

found given the substantial accumulation of duff. A minimally defined two-track is located 9 m to the south with a series of drainages 45 m south flowing through a marshy open meadow. The swale segment runs north to south for about 30 m (100 ft) before extending into the open meadow area to the south and disappearing.

LN3 is a narrow swale running parallel to the Serna land grant boundary fence which is located approximately 12 m to the east. The segment is 40 m west of LN1 and 30 m west of LN2. LN3 is the only swale in the site located on the west side of the fence. The average width of the swale is 2 m (6.5 ft) with a depth extending from 10 to 20 cm (4 to 8 in). A well-defined two-track road is located 35 m to the west and a series of drainages flow approximately 55 m to the south through a marshy open meadow. LN3 continues for 56 m (183 ft) before two-track depressions cut through the south end and the swale is no longer visible.

CMT1 consists of one scar with two visible axe cuts facing northwest towards the Serna land grant boundary fence (figure 3.16). The scar is located 28 cm up from the base of the tree and measures 65 cm long and 7 cm wide. The tree is in good condition, but significant regrowth has occurred covering most of the scar. The function of the scar is unknown due this regrowth. The proximity to newly recorded swales and the presence of axe marks indicates the scar was likely a blaze or trail marker.

A core sample was taken to the right of the scar for dendrochronological analysis by Peter Brown of Rocky Mountain Tree Ring Research. The analysis produced an estimated pith date of A.D 1843. The surface of the scar is heavily eroded and an exact date could not be measured but the dendrochronological analysis indicates the scar occurred after A.D. 1890.

LA189637 (AR-03-02-04-00412)

No. of Components:	1
Site Type:	Trail traces
Cultural Affiliation:	Hispanic and Anglo-Euroamerican
Temporal Period:	Mexican/Santa Fe Trail to WWII (A.D. 1821 to 1945)
NRHP Recommendation:	Eligible (criteria A and D)
Artifacts Collected:	No
Topographic Location:	Flood plain/valley
Vegetation:	Open pinion, ponderosa, and fir forest with an understory of oak brush and small grasses and forbs.
Elevation:	8360 to 8440 ft
Depositional Context:	Alluvial
Dimension and Area:	188 m x 22 m; 3,981 sq m
Ground Visibility:	76-99%

LA189637 consists of one trail trace (LN1) (figure 3.17). LN1 is a swale running parallel to the west side of the Serna land grant boundary fence 20 m to the east. The swale runs along a 10 to 15-degree slope for 117 m (384 ft), bordered by drainages about 70 m to the east and west. LN1 is a slight depression becoming more indistinct to the north as it nears the fence.

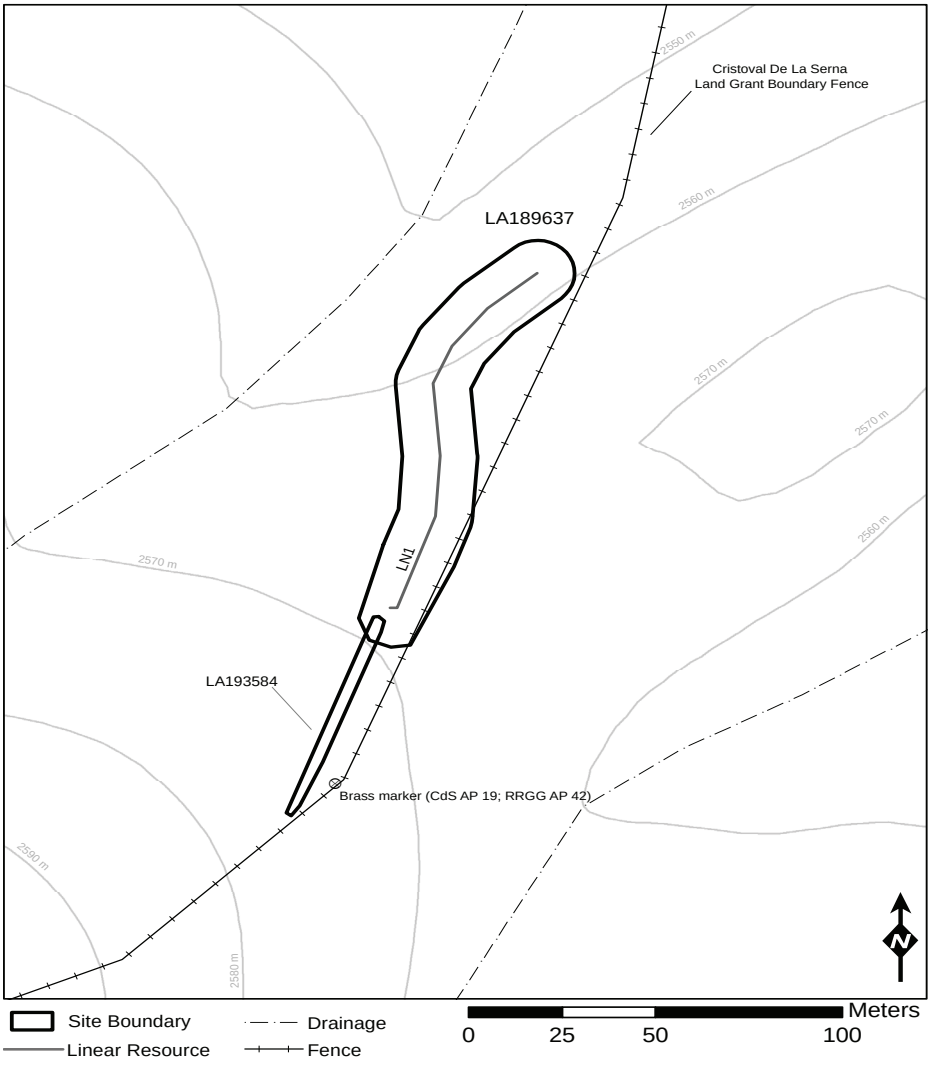

Figure 3.17. Sketch map of LA189637.

A survey marker (CdS AP 19; RRGG AP42) sits along the fence 55 m to the south. The marker, which is a brass cap installed during the 1962 Carson National Forest survey, mark the angle points (AP) of the 1894 surveys for the Cristobal de la Serna and Rancho del Rio Grande grants, respectively. Site LA193584, a prehistoric artifact scatter, starts approximately 10 m south of the southern end of LN1.

LA189638 (AR-03-02-04-00413)

No. of Components:	1
Site Type:	Trail traces
Cultural Affiliation:	Hispanic and Anglo-Euroamerican
Temporal Period:	Mexican/Santa Fe Trail to WWII (A.D. 1821 to 1945)
NRHP Recommendation:	Eligible (criteria A and D)
Artifacts Collected:	No
Topographic Location:	Flood plain/valley; hillslope
Vegetation:	Open pinion, ponderosa, and juniper forest with an understory of pine seedlings and small grasses and forbs.
Elevation:	7880 to 7960 ft
Depositional Context:	Colluvial
Dimension and Area:	535 m x 30 m; 11,190 sq m
Ground Visibility:	51-75%

LA189638 consists of three trail traces (LN1, LN2a, LN2b) that generally parallel the land grant boundary fence (figure 3.18).

LN1 is the northernmost trail segment at LA189638. LN1 is a 295 m (968 ft) long trail segment

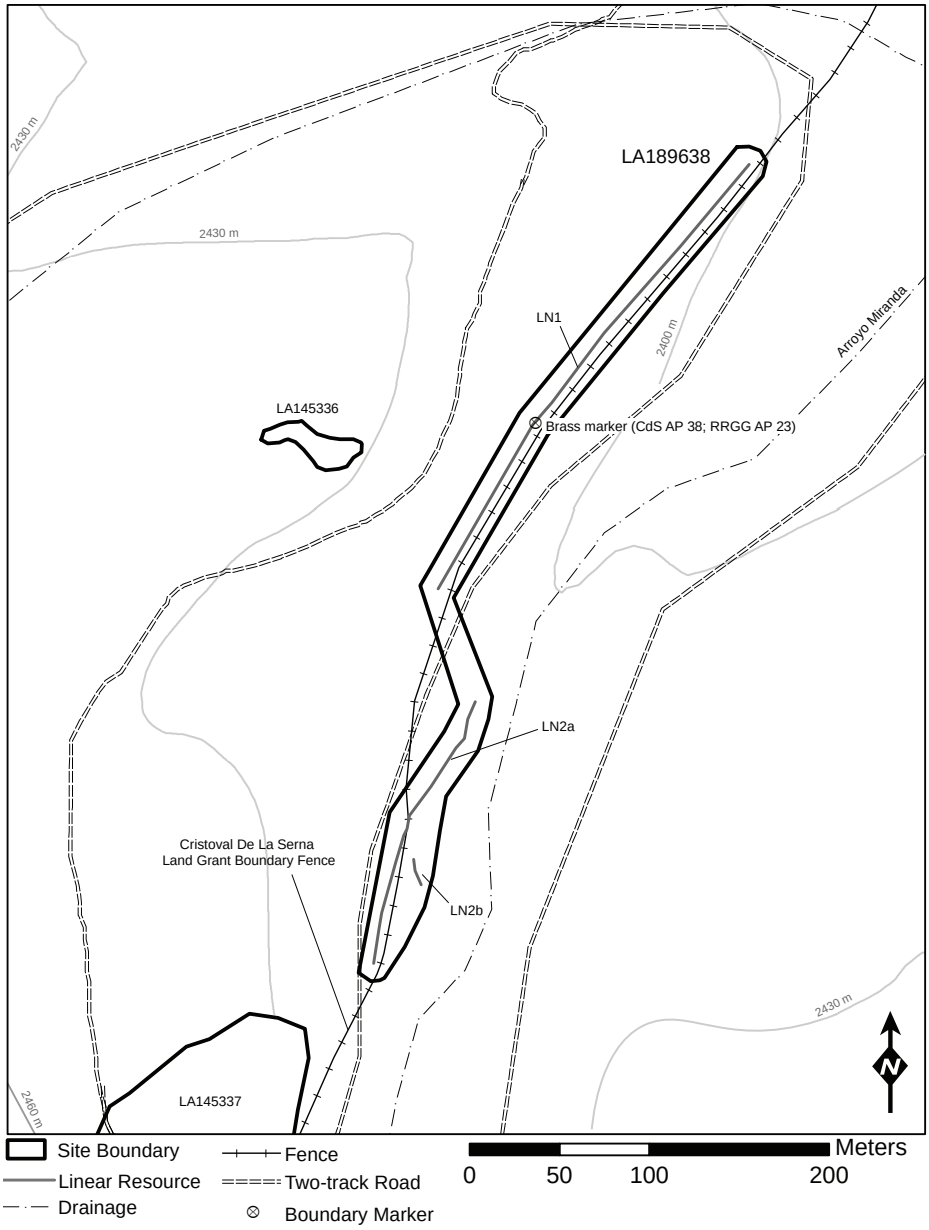

Figure 3.18. Sketch Map of LA189638.

that runs northeast to southwest along the west edge of Miranda Valley (table 3.5). The trail segment is just off the valley bottom and traverses the toe and southeast-facing edge of a northeast-trending finger ridge. The land grant boundary fence is adjacent to the trail on the downslope side. The trail segment parallels a two-track road located 20 to 50 m down slope to the east; Arroyo Miranda is about 100 m to the east. The trail is visible as a flattened bench about 3 m (10 ft) wide that follows the slope contour. The cut in the slope along the western edge of the trail ranges from about 10 to 20 cm (4 to 8 in). The western slope steepens as the segment continues north, reaching a depth of about 28 in. The northern end of the trail segment becomes indistinct where it descends the toe of the ridge and meets the jeep road. At the southern end of the segment, a drainage flowing east off the

Table 3.5. Line segment dimensions at LA189638.

Line ID	Length (ft)	Width (ft)	Depth (in)
LN1	968	10	4 to 28
LN2a	525	13	4 to 40
LN2b	49	-	-

valley wall likely destroyed traces of the trail and the segment ends. The swale becomes less defined as the fence crosses the jeep trial to the north of the site.

A brass marker from the 1962 survey located near the midpoint of LN1 marks the 38th direction change in the Cristobal de la Serna boundary survey and the 23rd change in the Rancho del Rio Grande survey from 1894.

LN2a is a more deeply incised swale that runs through the southern part of the site boundary for approximately 160 m (525 ft). The northern half of LN2a is on the east side of the land grant boundary fence. The northern end of the segment begins as a wide, straight-walled and flat-bottomed swale that is approximately 4 m (13 ft) wide and up to 1 m (3 ft) deep (figure 3.19). A deep swale continues to the northeast but may be more affected by erosion and was not recorded as part of this segment. To the south, the trail trace becomes narrower and shallower with more sloping walls. Near the segment midpoint, the trail crosses the boundary fence and become less distinct. The southern half of the trail segment is visible as a flat area traversing the slope contour on the west edge of the narrow floodplain. The southern half of the swale ranges from about 10 to 30 cm (4 to 12 in) in depth and about 2 m (6.5 ft) wide. The segment is bordered to the west by a two-track road and to the east by Arroyo Miranda. The swale runs perpendicular to the east-flowing, intermittent drainages flowing off the slopes that make up the west wall of Miranda Valley. The swale bottom is buried beneath a dense coverage of pine duff suggesting it is not an erosional channel that has been incised by flowing water.

Figure 3.19. Overview of LN2a at LA189638 showing the deeper cut and steep walls.

The third trail trace at LA189638 is a short swale segment (LN2b) east of LN2a that runs northwest to southeast for about 15 m (49 ft). The swale has sloping sides and moderate depth like LN2a. This segment is located about 7 m east of the land grant fence and 40 m west of Arroyo Miranda.

LA189639 (AR-03-02-04-00414)

No. of Components:	1
Site Type:	Trail traces
Cultural Affiliation:	Hispanic and Anglo-Euroamerican
Temporal Period:	Mexican/Santa Fe Trail to WWII (A.D. 1821 to 1945)
NRHP Recommendation:	Eligible (criteria A and D)
Artifacts Collected:	No
Topographic Location:	Flood plain/valley
Vegetation:	Open ponderosa, pinion, fir, and juniper forest with low grasses and forbs.
Elevation:	7760 to 7680 ft
Depositional Context:	Alluvial
Dimension and Area:	505 m x 30 m; 12,075 sq m
Ground Visibility:	51-75%

LA189639 consists of six trail segments (LN1, LN2a-b, LN3 to LN6) that were identified after reconnaissance inventory surrounding Hawk's (2005-2011) GPS points 657 to 659 and 674 to 675 (figure 3.20). The trail segments—visible as swales of varying length and depth—are all along the west side of Arroyo Miranda and mostly parallel the Serna grant boundary fence. The segments are discontinuous and include three spurs from what appears to be the main trail (table 3.6).

LN1, 2a, 4, and 5 follow the contour of the east-facing slope at the west edge of the narrow valley. The breaks between the segments are indistinct portions of the trail that may have been impacted by ephemeral drainages flowing east into Arroyo Miranda.

LN1 is the northmost segment. It first becomes visible on the south bank of an arroyo at the northern end of the site boundary. The swale becomes more distinct as the trail goes southeast and south averaging about 2 to 3 m (6.5 to 10 ft) in width with sloping walls that create a swale up to 30 cm in depth. The path and swale are visible through the piñon juniper forest. After about 35 m (115 ft) it passes to the east side of the boundary fence and parallels the fence for another 65 m (213 ft).

The northern end of LN2a and a short spur (LN2b)

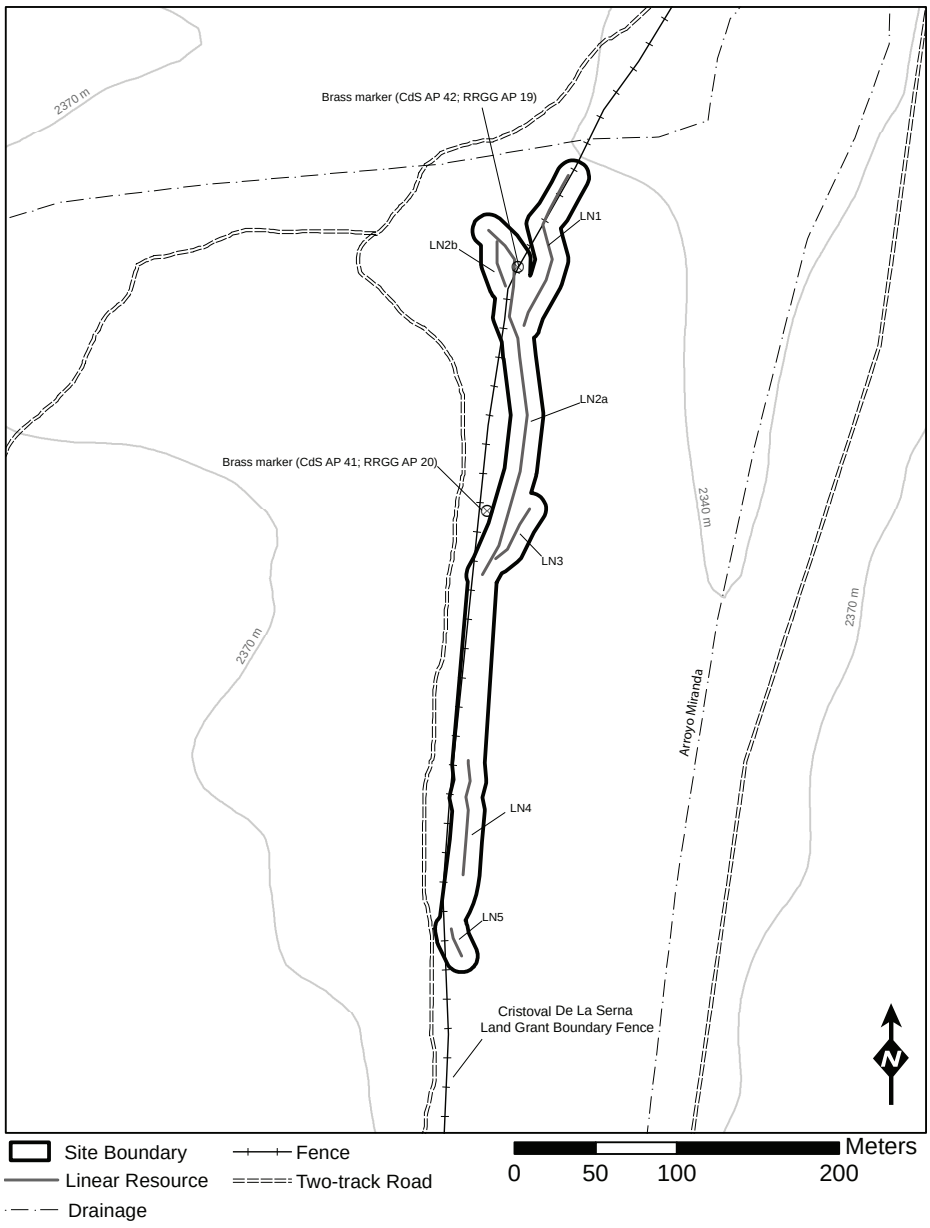

Figure 3.20. Sketch map of LA189639.

Table 3.6. Line segment dimensions at LA189639.

Line ID	Length (ft)	Width (ft)	Depth (in)
LN1	332	6.5 to 10	-
LN2a	740	10 to 16	20 to 40
LN2b	98	-	8
LN3	125	-	-
LN4	230	5 to 10	4
LN5	59	-	-

parallel LN1 for a short distance. At the northern end it begins on the west side of the boundary fence then immediately splits into two swales (figure 3.21). LN2b is a 30 m (98 ft) long spur that either becomes indistinct or merges back into LN2a. LN2a then crosses under the fence then continues south. LN2a is a large swale that runs south to north for about 225 m (740 ft) with an average width of 5 m (16 ft) and depth of 50 to 100 cm (20 to 40 in), narrowing towards the north to about 3 m (10 ft) with a shallower depth of 20 cm (8 in). The segment runs along the slope, paralleling a two-track road located 40 m to the west and the Arroyo Miranda 150 m to the east. LN2a is visible for approximately 180 m before crossing the Serna land grant boundary fence to the west and continuing for another 45 m before erosion and disturbance make

Figure 3.21. Intersection of LN2a and 2b at LA189639.

it difficult to define. LN2a is located on a generally north facing slope west of the Arroyo Miranda.

A brass cap survey marker (CdS AP 42; RRGG AP 19) is located 2 m east of the swale along the fence. The marker, which is a brass cap installed during the 1962 Carson National Forest survey, mark the angle points (AP) of the 1894 surveys for the Cristobal de la Serna and Rancho del Rio Grande grants, respectively. The northern section of LN2a on the western side of the fence branches off into multiple segments with drainage-like characteristics although no recent water is visible. The series of intersecting segments follow the grant boundary fence creating a braided network of multiple routes. The swales are up to 20 cm (8 in) deep, likely due to erosion and disturbance. These smaller branches were not individually recorded due to the erosional environment although they may represent swales rather than drainages. One of the larger swales, LN2b, was recorded to the west of LN2a.

LN3 is a short segment branching off to the east of LN2. The segment runs parallel to the southern end of LN2a. A two-track road is located 35 m to the west with the Arroyo Miranda 135 m to the east, and the Serna land grant boundary fence about 20 m upslope. The visibility of LN3 diminishes after approximately 38 m (125 ft).

LN4 begins 10 m east of the Serna land grant boundary fence, running parallel to a two-track road 25 m to the west and the Arroyo Miranda 135 m to the east. The swale runs along a north trending slope with an average width of 3 m (10 ft) and is about 10 cm (4 in) deep (figure 3.22). The segment pinches to a width of 1.5 m (5 ft) in some areas of denser vegetation. Approximately 30 m north from the south end, circular depressions are cut into the trail with a large pile of sediment further north, indicating possible ground modification and disturbance. The swale runs 70 m (230 ft) north to south until a break in the fence where vehicles have created a two-track trail from the west cuts off the visible segment. This point was determined as the end point as heavy disturbance prohibited any further evidence of the

Figure 3.22. Overview of LN4 at LA189639.

swale. The surrounding area of LN4 consists of heavy duff, tree fall, and saw cut tree stumps.

LN5 is the southernmost swale of LA189639 running parallel to a two-track road 20 m west and the Arroyo Miranda 125 m east. The Serna land grant boundary fence is located 6 m to the west upslope of the swale segment. About 5 m south of the north end, the swale diverges slightly more east away from the fence. The visible segment of LN5 runs 18 m (59 ft) along a north trending slope until the surrounding landscape flattens out to the north and the segment disappears as it nears the fence and two-track road.

LN189640 (AR-03-02-04-00415)

No. of Components:	2
Site Type:	Open camp; Historic artifact scatter
Cultural Affiliation:	Anasazi; Unknown Historic
Temporal Period:	A.D.1100 to 1700s; U.S. Territorial to WWII (A.D. 1846 to 1945)
NRHP Recommendation:	Not Eligible
Artifacts Collected:	Yes
Topographic Location:	Flood plain/valley
Vegetation:	Open meadow lined by ponderosa and pinion forest with tall grasses.
Elevation:	7800 to 7840 ft
Depositional Context:	Alluvial
Dimension and Area:	87 m x 50 m; 3,692 sq m
Ground Visibility:	51-75%

LA189640 is a multicomponent site consisting mostly of historic artifacts scattered across a fairly confined area (figure 3.23). The site is in an open meadow about 10 m west of Arroyo Miranda. The Serna land grant boundary fence is about 50 m east of the site. An area about 100 m wide and 200 m long was gridded out at the site to conduct systematic metal detecting. A site boundary was established based on the distribution of artifacts from the metal detection area.

The broad open meadow is thought to be one of two potential areas that are believed to be the campsite that de Vargas used on his 1692 route between Picuris and Taos. Based on Hawk's (2005-2011:83) research and the de Vargas journals, "the campsite is listed as being four leagues from each pueblo" which on modern maps would be "in a high flat series of meadows on the Taos side of the Picuris divide". The other potential area for this campsite is what is now recorded as LA189635. Using this research, the field investigation attempted to recover artifacts that could be associated with the de Vargas camp using intensive metal detector survey.

The site surface has been heavily disturbed and modified by use; there does not appear to be much post-occupation disturbance. The disturbance appears mainly to be from equipment or machinery being dragged across the surface, or perhaps emplaced in certain areas. This has created a hummocky and lumpy surface across much of the site area.

Over 100 historic artifacts are at the site; thirteen artifacts, comprising a representative sample of the assemblage, were collected and are summarized in table 3.7. Artifacts are mostly surficial, with some buried up to 15 cm below the surface.

Nearly all the artifacts are associated with some type of industrial use. Most are metal, some of which is identifiable but much of it is metal bits and scraps. There are multiple machinery parts, a few of which were collected (catalogs 2088 and 2089), along with cut nails, spikes, washers, and chain pieces. Four artifacts were sent to Charles Haecker for further analysis and identification. These include catalogs 2086, 2090, 2091, and 2093. As noted at the beginning of chapter 3, these artifacts were stolen after his analysis and are no longer part of the collection. The other nine collected artifacts are still with the collection.

The artifacts indicate a use sometime between the late nineteenth and early twentieth centuries; none date to the potential de Vargas camp. The exact function of the site is not known; however, the lack of domestic debris clearly indicates the use was for some type of industrial work. It is possibly associated with one of the many past logging episodes in the area. There are also multiple abandoned vehicles in the drainage southwest of the site. These, while not recorded, all date between the 1920s and 1940s. It is not known if they are associated with the site.

A single Taos Gray body sherd was also documented at site LA189640. The sherd lacked decorative modification. Production of Taos Gray began at A.D. 1100 and may have continued into the eighteenth century (Levine 1994). No other prehistoric artifacts were observed at the site.

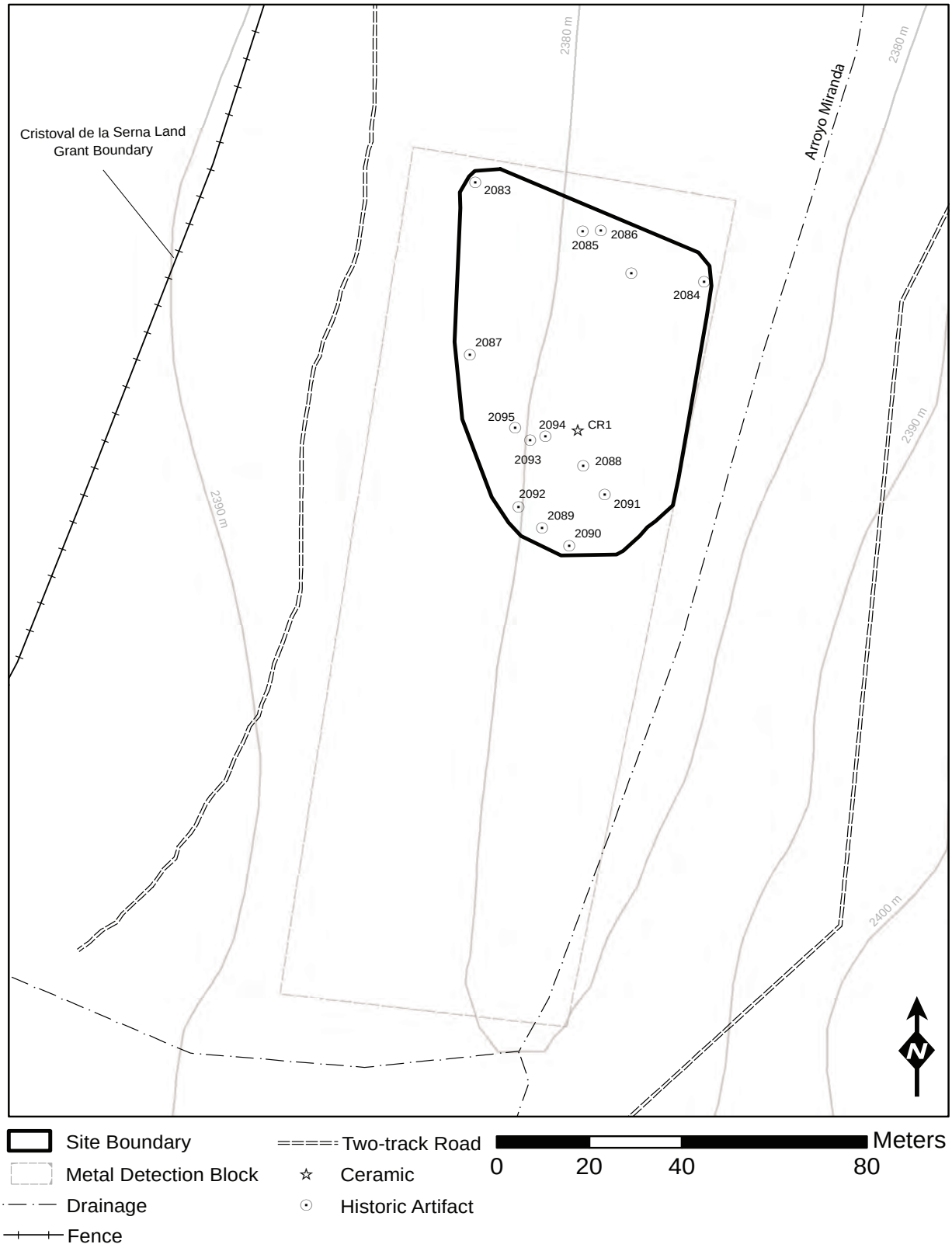

Figure 3.23. Sketch map of LA189640.

Table 3.7. Collected artifacts from LA189640.

Catalog Number	Artifact description	Date Range
2083	Horseshoe nail	U.S. Territorial to Recent (A.D. 1846 to Present)
2084	Three chain links	Statehood to Recent (A.D. 1912 to Present)
2085	Horseshoe nail	U.S. Territorial to Recent (A.D. 1846 to Present)
2086[a]	Horseshoe, wrought iron, hand forged, narrow webbed, calks present	19th century
2087	Spare chain link	Statehood to Recent (A.D. 1912 to Present)
2088	Machinery part-unknown	Statehood to WWII (A.D. 1912-1945)
2089	Machinery parts-unknown	Statehood to WWII (A.D. 1912-1945)
2090[a]	Cartridge case, headstamp: WRA Co .45 COLT	A.D. 1873 to 1900+
2091[a]	Round stock, wrought iron, hammered, both ends chisel cut; possibly scrap; function unknown	19th century
2093[a]	2-hole button, stamped sheet iron; trouser fly button	A.D. 1850 to 1900+
2094	Tie spike, to short for rail, likely to hold small cart track or secure machinery	Statehood to WWII (A.D. 1912-1945)
2095	Washer	Statehood to WWII (A.D. 1912-1945)

[a]Artifacts analyzed by Charles Haecker.

LA189641 (AR-03-02-04-00416)

No. of Components:	2
Site Type:	Trail traces; CMT; open lithic; artifact scatter
Cultural Affiliation:	American Indian; Hispanic and Anglo-Euroamerican
Temporal Period:	Late Archaic; Mexican/Santa Fe Trail to WWII (A.D. 1821 to 1945)
NRHP Recommendation:	Eligible (criteria A and D)
Artifacts Collected:	Yes
Topographic Location:	Flood plain/valley; hill slope
Vegetation:	Open ponderosa, pinion, and fir forest with an understory of low grasses and forbs.
Elevation:	8320 to 8240 ft
Depositional Context:	Alluvial
Dimension and Area:	588 m x 30 m; 21,135 sq m
Ground Visibility:	51-75%

LA189641 is a multicomponent site consisting of five linear features (LN1-LN5), four culturally modified trees (CMT1-CMT4), sparsely scattered historic artifacts, and an artifact concentration (AC1) consisting of lithics and historic artifacts (figure 3.24).

LN1 is the northern most swale at site LA189641, ranging in width between 2 to 3 m (7 to 10 ft) and extending 100 m (328 ft) to the southeast along a northeast-facing slope (table 3.8). The swale parallels the west side of the Serna land grant boundary fence. The southern end of the trail veers more directly east following the contours of the slope until a large drainage to the east narrows and the swale is lost (figure 3.25). Animal trails and tree cutting have disturbed the surrounding ground surface.

LN2 is a short swale that parallels the Serna land grant boundary fence located 40 m to the west. The segment runs along a 15-degree slope for 20 m (66 ft) varying in depth from 20 cm (8 in) at the north end to 50 cm (20 in) at the south. The swale sits on the eastern edge of a drainage with a two-track road 16 m to the south. Approximately 15 m to the west of LN2 is a brass cap survey marker (CdS AP 31; RRGG AP 30). The marker, which is a brass cap installed during the 1962 Carson National Forest survey, mark the angle points (AP) of the 1894 surveys for the Cristobal de la Serna and Rancho del Rio Grande grants, respectively.

LN3 is located 30 m south of LN2, lining the eastern edge of a large drainage on a southeast facing slope. The width varies between 2 to 3 m (7 to 10 ft) with a total visible length of about 90 m (295 ft). A two-track road is located approximately 30 m to the east, with the Serna land grant boundary fence 20 m west. The northern segment of LN3 is moderately affected by water erosion evident by sediment pushed up on either side of the trail (figure 3.26). Some shallow erosional channels have washed out part of the trail; however, the segment continues past the channels. Fallen and cut trees begin to obstruct the swale to the south until it is no longer visible.

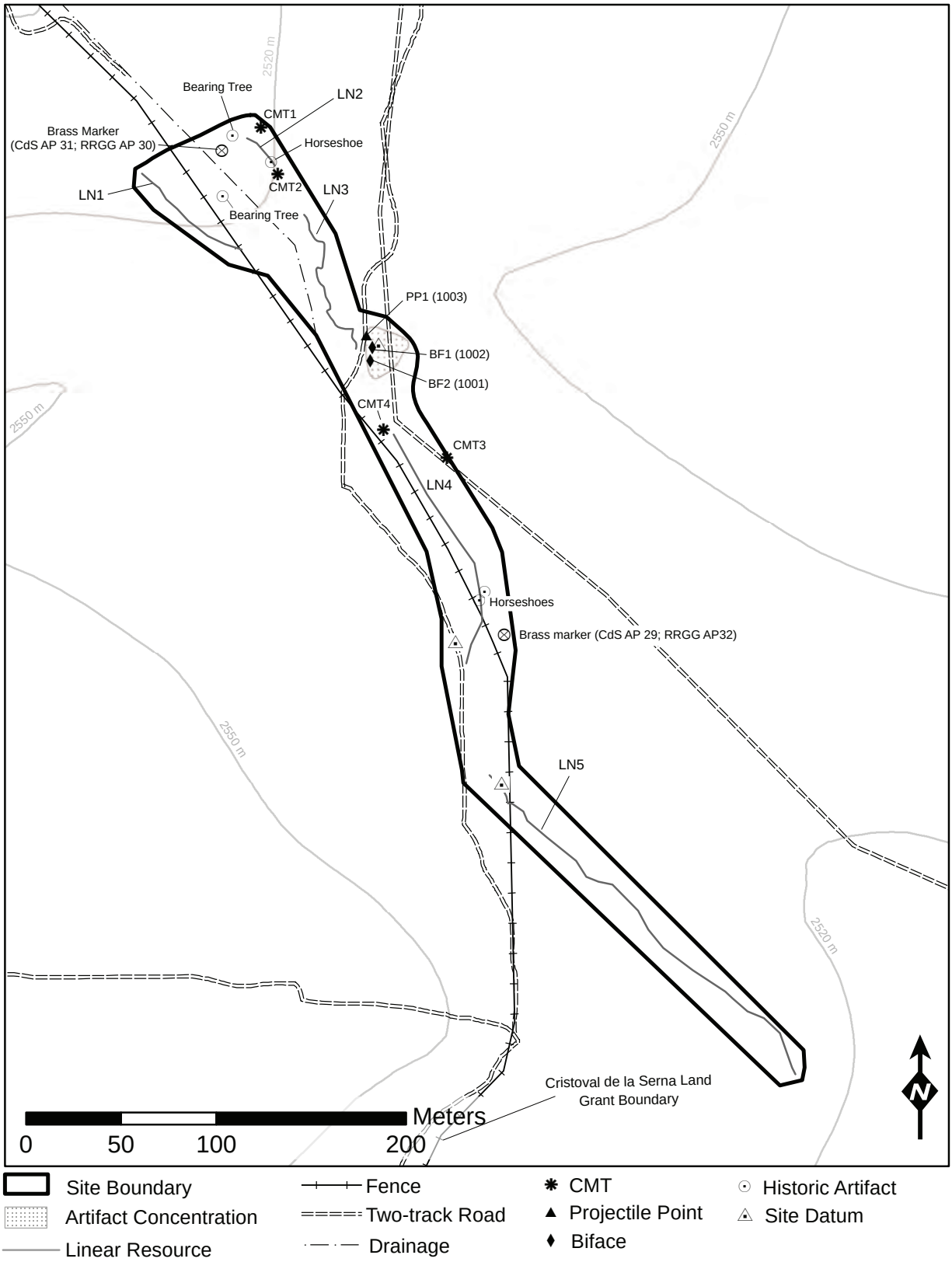

Figure 3.24. Sketch map of LA189641.

Table 3.8. Line segment dimensions at LA189641.

Line ID	Length (ft)	Width (ft)	Depth (in)
LN1	328	7 to 10	-
LN2	66	-	8 to 20
LN3	295	7 to 10	-
LN4	443	5 to 10	-
LN5	765	7 to 10	0 to 12

Figure 3.25. Overview of LN1 at LA189641 as it goes up the slope.

Figure 3.26. View of the north end of LN3 at LA189641.

LN4 is the fourth swale located within LA189641, closely paralleling the Serna land grant boundary to the west. The segment begins just south of a two-track road to the east and continues 135 m (443 ft) southeast ranging in width from 1.5 m (5 ft) at the start and expanding to about 3 m (10 ft) over the length of the segment. The segment cuts further southwest after 110 m (361 ft) from the north and crosses the boundary fence, continuing for another 25 m (82 ft) before being cut off by a north to south running two-track road. A brass cap survey marker (CdS AP29; RRGG AP 32) is located 16 m south of the segments change of direction on the east side of the fence.

LN5 is the southernmost swale and parallels an adjacent two-track and drainage to the east. The swale begins downslope of the western two-track, varying in width from 2 to 3 m (7 to 10 ft). Depth of the surrounding slope is varied, ranging from almost perpendicular to about 30 cm (12 in) above the swale. After about 20 m (66 ft) to the south, the segment cuts further east crossing the Serna land grant boundary fence and continuing for another 213 m (699 ft), diverging as far as 130 m form the fence. The swale is relatively flat and becomes more ephemeral towards the southern end with drainages to the east and south. LN5 ends abruptly at a tall berm built into the center of the swale.

In addition to the artifact concentration, two datum tags, 112 and 113, were placed within the site boundary at the south end of LN4, and the north end of LN5, both newly recorded linear features. A total of three survey markers from a 1962 survey were located and mapped on the site sketch map.

A 27 by 23 m boundary was identified as an artifact concentration (AC1 on figure 3.24) in the northern portion of the site and a metal datum tag, marked 111, was nailed to a tree. The concentration consists of three stone tools that were all collected (figure 3.27), one black chert flake, one basalt flake, and approximately 50 historic artifacts. Historic artifacts within the concentration consist of modern sanitary cans, solder dot cans embossed with "punch here", clear, brown, green, and cobalt glass fragments, white and green milk glass, wagon hub cap parts, plate glass, meat tins and a crushed lard bucket. The area has been heavily disturbed due modern recreation, surface deflation, and a two-track road that cuts through the eastern portion.

The stone tools include one obsidian projectile point (CN1003; figure 3.27[b]), one obsidian late-stage biface (CN1002; figure 3.27[c]), and one basalt late-stage biface (CN1001; figure 3.27[a]), all located along the western edge of the boundary. CN1001 is made from a basalt flake, with multiple flake scars on the dorsal surface and flaking along both margins. The opposite surface, what was the ventral, exhibits very little flaking on the face but does have some flaking along both margins. The shape and size suggest it was intended to be a projectile point but was likely

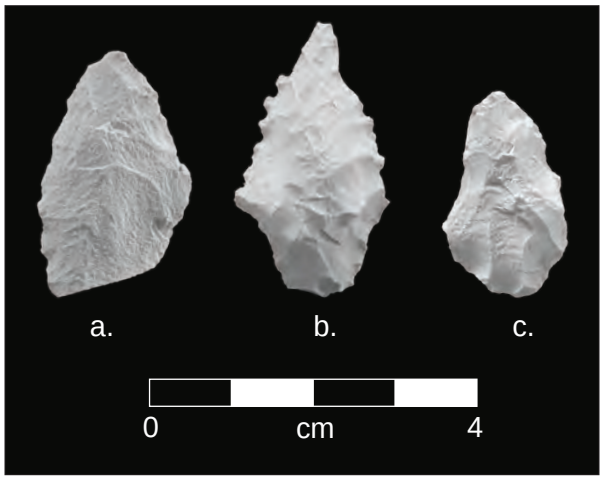

Figure 3.27. Collected stone tools from LA189641.

discarded after a transverse fracture on the proximal end before it could be finished. CN1002 is another unfinished biface fragment. It has flaking along both margins but a relatively thick cross-section. There does not appear to be use-wear along any of the margins. The function of this tool is unknown.

CN1003 is a mostly complete obsidian stemmed projectile point. The base is flat to slightly rounded, with one shoulder more prominent than the other. One blade margin is deeply serrated while the other has some serration though less pronounced than the other. The tip is slightly blunted, with what appears to be an impact fracture near the top of the blade margin that has less pronounced serration. The size and morphology of the point are similar to Augustin points noted by Chapin (2005:139-140). Chapin notes in his description of Augustin points that Irwin-Williams (1973) includes this type with the En Medio Complex for the illustrated examples but with the Armijo Phase in her summary chart. Chapin (2005:140) suggests a date range between 2000 and 3500 BP, placing it between the Middle to Late Archaic periods. Aside from the three collected artifacts and two additional flakes, no other prehistoric artifacts were documented at this site.

Other historic artifacts and features are scattered across the site, outside of the concentration, and include bearing trees and horseshoes. One horseshoe is located on the west side of LN2, and two more on either side of LN4. The two bearing trees are in the northern end of the site. The first tree is about 7 m northwest of LN2 with a piece of tin dated 1962 nailed into the base. The second bearing tree is located 30 m south of the first in between LN1 and LN2. Both are associated with the 1960s Carson National Forest survey.

Four culturally modified trees (CMT1-CMT4) were documented within the site boundary. CMT1 consists of a scar located 44 cm from the tree base, with the engraving "RRGGAP31B1" vertically down the scar. The scar faces the Serna land grant boundary fence to the west. Based on information from Corky Hawk, RRGG refers to the Rio Rancho del Rio Grande Grant of 1795, and AP31 B1 refers to a specific bearing. CMT1 was determined a bearing tree based on the engraving, and likely associated with trail use.

A moderate amount of regrowth has covered the scar and is beginning to cover the engraving. The current scar size is 96 cm long and 8 cm wide. Based on regrowth, an estimated 40 percent of the original scar is currently visible. No damage to the scar or tree was observed, although with the considerable amount of regrowth, the scar risks being completely overgrown. Because of the tree's condition, there is potential for a dendrochronological analysis.

CMT2 consists of a scar with "B(?)II" engraved along the center. The scar begins 40 cm from the base of the tree and measures 48 cm long and 5 cm wide. Considerable regrowth has covered much of the scar with only about 10 to 20 percent still visible (figure 3.28). The engravings are like the bearings on CMT1; however, with the amount of regrowth present it is difficult to accurately identify the trees function.

CMT3 is an approximately 15 m tall ponderosa with two scars. Scar 1 is on the north-facing side and scar two on the opposite, south-facing side. Scar 1 can be seen from the nearby two-track road and faces almost directly north. Regrowth has completely

Figure 3.28. Overview of CMT2 at LA189641.

covered the scar leaving its original function unknown.

Scar 2 has several axe cuts on the upper half of the scar. The axe cuts intrude deep into the tree relative to the substantial regrowth, extending as far as 20 cm from the regrowth into the center of the tree. The scar extends all the way to the base of the tree, although the first axe cut is located 31 cm from the ground surface. The tree is cut very deep horizontally at 61 cm up from the base. This deep cut might have been an attempt at chopping down the original tree, prior to regrowth. The scar is currently in good shape although heavy ant activity may soon affect the condition. The deep cuts located on the top half of the scar appear to be in better shape than the below half, suggesting that these higher cuts may have occurred after the lower, initial cuts.

CMT4 is located just southwest of a two-track road with a scar facing north. The tree is in good condition with a small, completely overgrown scar 103 cm up from the base. Due to total obstruction from regrowth, the function of the scar is unknown.

LA189642 (AR-03-02-04-00417)

No. of Components:	2
Site Type:	CMT; Trail traces
Cultural Affiliation:	Unknown Aboriginal; Hispanic and Anglo-Euroamerican
Temporal Period:	Unspecific Historic; Mexican/ Santa Fe Trail to WWII (A.D. 1821 to 1945)
NRHP Recommendation:	Eligible (Criteria A and D)
Artifacts Collected:	No
Topographic Location:	Flood plain/valley; hill slope
Vegetation:	Open ponderosa, pinion, and fir forest with an understory of low grasses and forbs.
Elevation:	8280 to 8320 ft
Depositional Context:	Alluvial
Dimension and Area:	240 m x 25 m; 3,658 sq m
Ground Visibility:	51-75%

LA189642 is a newly recorded site consisting of two possible trail segments (LN1, LN2), and three culturally modified trees (CMT1-CMT3) (figure 3.29).

LN1 is the northernmost swale at site LA189642 and parallels the western side of the Serna land grant boundary fence. LN1 is about 2 m (6.5 ft) in width and ranges from 10 to 20 cm (4 to 8 in) in depth (table 3.9). A small spur is located to the west of the segment towards the bottom of the slope although it was not recorded as it disperses rather quickly. Heavy duff and treefall have obstructed much of the area making it difficult to follow the segment. The swale crosses the fence after about 82 m (269 ft) from the north, continuing for another 23 m (75 ft) south before it is no longer visible. A 1962 brass survey marker (Cds AP 25; RRGG AP36) is located at the fence to the north of LN1 at the approximate midpoint of the swale. The marker, which is a brass cap installed during the 1962 Carson National Forest survey, mark the angle points (AP) of the 1894 surveys for the Cristobal de la Serna and Rancho del Rio Grande grants, respectively.

LN2 is the southernmost swale of site LA189642 traversing the slope and running almost perpendicular to the Serna land grant boundary fence (figure 3.30). The swale is about 2 m (6.5 ft) wide with a depth ranging from 20 to 30 cm (8 to 12 in). Deadfall and cut stump disturbance could suggest the swale was used as a logging road at some point in the past. A two-track road parallels the southern portion of the swale for about 20 m. The swale crosses the fence after about 50 m (164 ft) from the north end and continues south for another 30 m (98 ft) before it is no longer visible. A brass cap survey marker from the 1962 Carson National Forest Survey is along the fence about 30 m north of LN2.

CMT1 is a ponderosa pine with one scar located 50 cm up from the base of the tree (figure 3.31). The scar faces southwest towards the land grant boundary fence. Regrowth, which is about 5 cm thick, has covered much of the original scar which now measures 69 cm tall and 6 cm wide. No axe marks are visible, and the scar is characteristic of cambium peels used to harvest the inner bark of trees. The scar and tree are both in good condition and would be a good candidate for dendrochronological analysis.

CMT2 is a ponderosa pine with a scar on the northwest facing side of the tree (figure 3.32). The tree is in a partially cleared area within an open ponderosa and young fir forest; heavy duff accumulation is present. The scar is located 49 cm from the base of the tree and measures 92 cm tall and 11 cm wide.

Table 3.9. Line segment dimensions at LA189642.

Line ID	Length (ft)	Width (ft)	Depth (in)
LN1	344	6.5	4 to 8
LN2	262	6.5	8 to 12

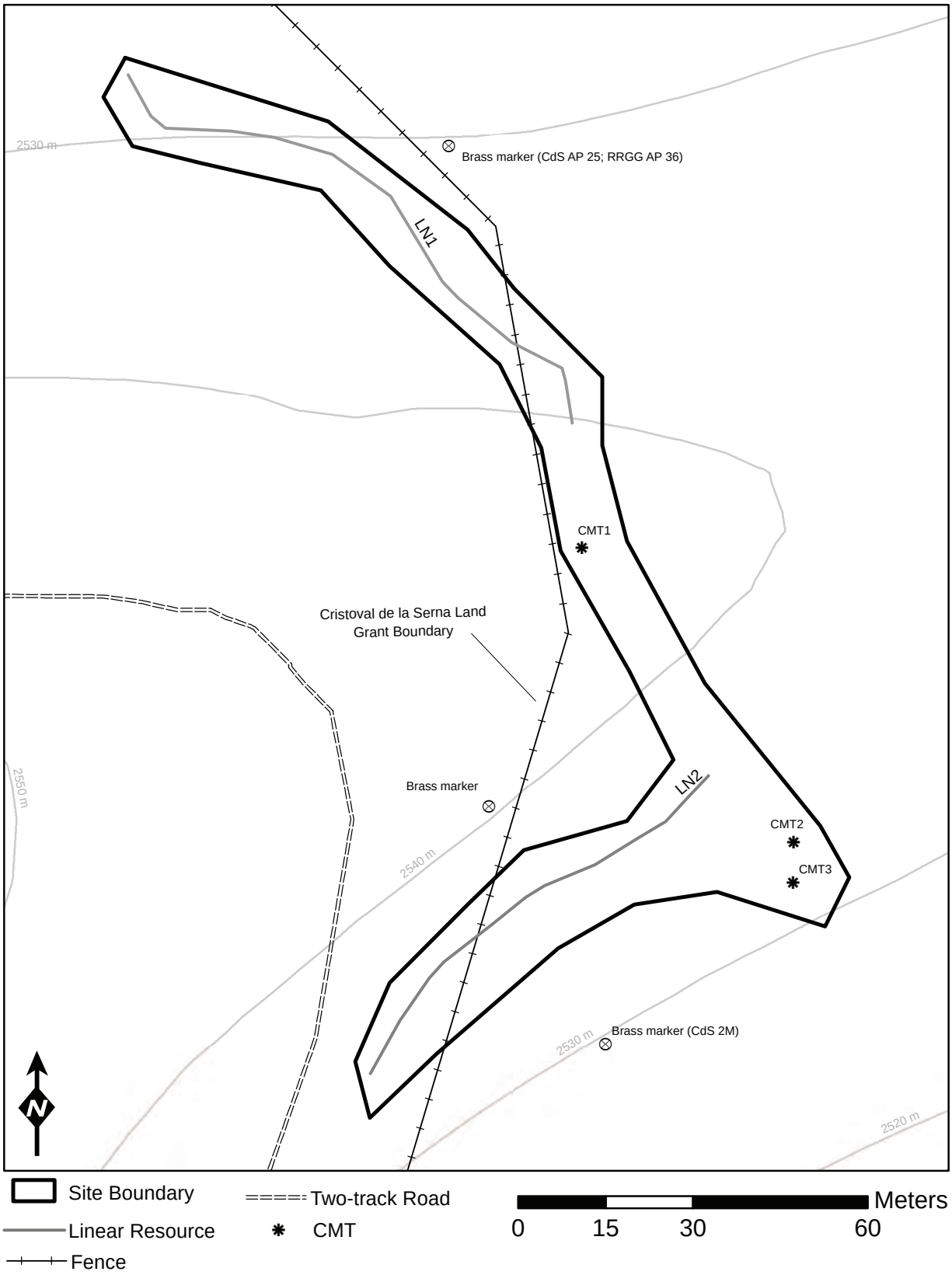

Figure 3.29. Sketch map of LA189642.

Figure 3.30. Overview of the southern end of LN2, looking north, at LA189642.

Figure 3.32. Overview of CMT2 at LA189642.

Figure 3.31. Overview of CMT1 at LA189642.

Figure 3.33. Overview of CMT3 at LA189642.

Significant regrowth has covered much of the original scar with an estimated 20 percent currently visible. The scar is characteristic of a cambium peel to harvest the inner bark of trees. Four axe marks are located along the right edge of the peel, suggesting the scar could have been further altered after the initial cambium peel. The scar is in good condition and the tree is generally healthy, making it another good candidate for dendrochronological analysis.

CMT3 is another modified ponderosa with a large scar beginning 40 cm up from the base of the tree (figure 3.33). The scar measures 120 cm tall and 45 cm wide and wraps around the entire southwest facing side of the tree. The scar remains exposed with regrowth up to 10 cm thick in some areas, on all sides. Prior to the regrowth, the scar likely took up most of the original tree trunk. No regrowth has occurred on the face of the scar which is splintering and in poor condition. The scar is characteristic of a cambium peel which were used to harvest the inner bark of the tree. The tree is generally healthy and seems to have recovered well from the large peel.

LA193570 (AR-03-02-04-00418)

No. of Components:	1
Site Type:	Open camp
Cultural Affiliation:	Pueblo, Apache, or Hispanic
Temporal Period:	Unspecified, post-A.D. 1500
NRHP Recommendation:	Not Eligible
Artifacts Collected:	No
Topographic Location:	Valley bottom
Vegetation:	Pinyon and juniper trees with and understory of low sage, prickly pear cactus, and bunch grasses.
Elevation:	7320 ft.
Depositional Context:	Residual; aeolian
Dimension and Area:	32 m x 16 m; 411 sq m
Ground Visibility:	60-75%

LA193570 is an American Indian artifact scatter located in the valley bottom on the west side of Arroyo Miranda. A barb wire fence that marks the boundary of the Serna land grant cuts across the western edge of the site. The site sits at a bend in Arroyo Miranda

which bounds the site to the east and north. A two-track road that parallels the site's western boundary to the west. The northern end of LA193579, a site with 13 linear swale traces, overlaps the western half of LA193570. Cultural materials sit at the surface on residual sediment with no potential for intact, subsurface cultural levels.

The artifact assemblage is concentrated on the east side of the fence and consists of two bifaces and 23 pieces of debitage (tables 3.10 and 3.11). One ceramic sherd is also present. One biface is an incomplete fragment of Polvadera Peak obsidian. The second biface is a large basalt lanceolate tool with a straight base and a random flaking pattern. Neither are diagnostic of any temporal period.

A single unidentified micaceous ware body sherd was documented at site LA193570. The sherd's exterior is eroded and exposes a brown paste with fine, well-sorted temper. The interior surface is gray and exhibits fine horizontal striations. Micaceous wares first appeared in the Taos District in the sixteenth century and production continues to the present. Farther south along the Rio Grande and in the Chama River valley pottery exhibiting micaceous slips appeared about A.D. 1450 (Wilson 2007). Micaceous wares were produced by Pueblo, Apachean, and Hispano potters (Eiselt 2012; Eiselt and Darling 2012; Wilson 2007).

Table 3.10. Debitage from LA193570.

Material	G0	G1	G2	Total
Chert	2	1	-	3
Chalcedony	-	2	-	2
Rhyolite	2	3	-	5
Obsidian	-	4	2	6
Fine-grain volcanic	1	5	1	7
Total	5	15	3	23

Table 3.11. Metric data on chipped stone tools from LA193570.

		Measurements (mm)		
Artifact ID	Material	Length	Width	Thickness
BF1	Obsidian	8	20	2
BF2	Basalt	52	20	2

LA193571 (AR-03-02-04-00419)

No. of Components:	1-2
Site Type:	Open lithic
Cultural Affiliation:	American Indian
Temporal Period:	Middle to Late Archaic (3000 B.C. to A.D. 200)
NRHP Recommendation:	Not Eligible
Artifacts Collected:	No
Topographic Location:	Low ridge
Vegetation:	Sparse pinyon juniper woodland with low sage, prickly pear cactus, and bunch grasses.
Elevation:	7360 ft.
Depositional Context:	Residual; aeolian
Dimension and Area:	92 m x 52 m; 3813 sq m
Ground Visibility:	60-75%

LA193571 is a Middle to Late Archaic American Indian lithic scatter located on a broad, low ridge on the west side of Arroyo Miranda and at the northern base of the steep slopes that make up the west side of the Miranda Valley. A two-track road that parallels the western boundary of the site is about 60 m to the west. Artifacts at the site rest on the surface of residual sediment with no potential for intact, subsurface cultural levels.

Chipped stone tools and flaking debris are spread sparsely across the site area and include three projectile points, three bifaces, and 31 flakes. The first projectile point (PP1), shown in figure 3.34[a], is a stemmed to corner-notched obsidian dart point with a straight base that is slightly expanding (table 3.12). The ends of both tangs are broken. The point style is similar in some ways to En Medio dart points described by Chapin (2005:141-142) which date to around 2800 to 1600 years ago, or roughly the Late Archaic period.

The second projectile point (PP2), shown in figure 3.34[b], is the base of an obsidian dart point. It has straight edges, a deeply concave base and sharply pointed tangs. Morphologically, the point is similar to Moquino style points (Chapin 2005:137-139), or what are referred to further north as Mallory points (Miller 2017), which is part of the Middle Archaic McKean complex. Chapin notes, however, that large side-notched dart points have taken a variety of names in the northern southwest, including San Rafael Side-Notched and Sudden Side-Notched, among others. Regardless, it seems no matter the type name assigned, the examples of this style from datable contexts range

Figure 3.34. Selected projectile points from LA193571.

Table 3.12. Metric data on chipped stone tools from LA193571.

		Measurement (mm)		
Artifact ID	Material	Length	Width	Thickness
PP1	Obsidian	27	20	3
PP2	Obsidian	24	15	4
PP3	Obsidian	20	18	2
BF1	Rhyolite	45	25	5
BF2	Basalt	23	20	6

Table 3.13. Debitage from LA193571.

Material	G0	G1	G2	Total
Chert	2	7	2	11
Quartzite	2	-	-	2
Obsidian	4	-	1	5
Fine-grain volcanic	-	10	3	13
Total	8	17	6	31

between 4200 and 3200 years ago (Chapin 2005:139), or roughly the Middle Archaic.

The third projectile point (PP3) is a dart point with shallow sides notches, a rounded ear, and a concave base. One ear is missing, and the blade is heavily reworked. The point is too fragmentary to determine a type. All three projectile points appear to be made from Polvadera Peak obsidian.

BF1 is a bifacially thinned, rhyolite flake with a broken tip. BF2 is a basalt midsection. BF3 is a large triangular, Polvadera Peak obsidian blade with a missing tip. The site also has 31 flakes, which are dominated by fine-grain volcanic materials (table 3.13). Nine of these flakes retain cortex.

LA193572 (AR-03-02-04-00420)

No. of Components:	2
Site Type:	Open camp
Cultural Affiliation:	American Indian; Hispanic, Anglo-Euroamerican
Temporal Period:	A.D. 1100 – A.D.1350; U.S. Territorial to WWII (A.D. 1846 to 1945)
NRHP Recommendation:	Not eligible
Artifacts Collected:	No
Topographic Location:	Low ridge
Vegetation:	Sparse pinyon juniper woodland with low sage, prickly pear cactus, and bunch grasses.
Elevation:	7360 ft.
Depositional Context:	Residual; aeolian
Dimension and Area:	119 m x 67 m; 3155 sq m
Ground Visibility:	60-75%

LA193572 is a multicomponent site located on a broad, low ridge on the west side of Arroyo Miranda. Artifacts are spread across an area measuring about 119 m north to south and 67 m east to west. A two-track road bisects the site with artifacts concentrated primarily on the site's eastern half. No features were found and the cultural materials rest on deflated and eroded residual sediment with no potential for intact, buried cultural levels or datable features.

The American Indian component is spread sparsely across the site area and consists of two ceramic sherds, two bifaces, two core fragments, three utilized flakes, and one ground stone fragment. One biface (BF1) is a small gray chert fragment (table 3.14). It has a snap fracture on one end, and only one margin is intact. The other (BF2) is a fragment of basalt biface made

Table 3.14. Metric data on chipped stone tools from LA193572.

		Measurements (mm)		
Artifact ID	Material	Length	Width	Thickness
BF1	Gray chert	22	16	2
BF2	Fine-grain volcanic	19	8	5
C1	Fine-grain volcanic	70	53	38
CT1	Fine-grain volcanic	92	55	25
GS1	Granite	115	100	40

from a flake that is broken via a snap fracture. One face has multiple flake scars, including flaking along both margins. The opposite face shows minimal flaking, concentrated mainly along the margins, and retains much of the ventral surface from the original flake.

Both core fragments are made from a fine-grained volcanic material. One (CT1) has over 50 percent cortex remaining and appears to have flaking along one edge margin, perhaps from pounding or chopping. The other core (C1) has no cortex remaining and has flake removals from multiple directions. The ground stone is a hand stone fragment that is ground and has pecking on one facet. Two flake tools are made from a fine-grained volcanic material and the other is made from a gray chert. Two are size grade one and one is size grade zero.

The site also has 84 pieces of flaking debris (table 3.15). Debitage material is predominantly fine-grained volcanic material, but a range of material types are represented. Nearly 85 percent of the flaking debris is either size grades one or zero.

Two ceramic artifacts were documented at site LA193572, including a Taos Gray jar handle and a Santa Fe Black-on-White bowl rim. The jar handle is approximately 1 cm thick and 2.5 cm across at the upper attachment point. No plastic surface modifications were made. The carbon-painted rim exhibits groups of narrow parallel vertical and diagonal lines with a single horizontal framing line approximately 5 mm below the orifice. The bowl exterior is unslipped and rough.

Production of Taos Gray began at A.D. 1100 and may have continued into the eighteenth century (Levine 1994). Santa Fe Black-on-White first appeared in the Taos District at A.D. 1200 (Levine 1994; Wilson 2007). Production continued until A.D. 1350.

The historic component consists of two concentrations (H1, H2) of tin cans and a small amount of fragmented glass. H2 is a larger concentration and includes over 100 pieces of historic debris. Both are located near the southern end of the site and contain both hole-in-cap (solder dot), sanitary, and sardine cans. Glass fragments are clear, green, and milk glass were also identified. These debris piles are likely indicative of trash dumping in the late nineteenth to early twentieth centuries.

Table 3.15. Debitage from LA193572.

Material	G0	G1	G2	Total
Chert	4	5	-	9
Quartzite	1	-	1	2
Rhyolite	5	3	-	8
Obsidian	-	6	1	7
Fine-grain volcanic	3	32	23	58
Total	13	46	25	84

LA193573 (AR-03-02-04-00421)

No. of Components:	4
Site Type:	Open camp; Historic artifact scatter
Cultural Affiliation:	American Indian; Hispanic, Anglo-Euromerican
Temporal Period:	Middle to Late Archaic (3000 B.C. to A.D. 200); A.D. 1100 to 1350; A.D. 1620 to 1930; U.S. Territorial to WWII (A.D. 1846 to 1945)
NRHP Recommendation:	Needs Data
Artifacts Collected:	No
Topographic Location:	East-facing slope along the Miranda Arroyo
Vegetation:	Sparse pinyon juniper woodland with low sage, rabbitbrush, prickly pear cactus, and bunch grasses.
Elevation:	7460 ft
Depositional Context:	Residual; colluvial; alluvium
Dimension and Area:	507 m x 167 m; 75,458 sq m
Ground Visibility:	80%

LA193573 is a multicomponent site along the west side of Miranda Arroyo. Cultural materials are spread across an east-facing slope but are being redeposited down slope to the east by the many ephemeral drainages that cut through the site (figure 3.35). The site was initially recorded as four different sites which were later combined. The site is bounded to the east, west, and south by two-track roads. The site boundary was arbitrarily drawn to the west at a two-track road were cultural materials were less dense but still present (figure 3.36). The area to the west of the road was not sufficiently inventoried to determine a western boundary based on the extent of artifacts.

American Indian cultural materials include six projectile points (PP1 to PP6), fourteen bifaces (BF1 to BF14), seven cores (C1 to C7), two flake tools (FT1 and FT2), and 11 pottery sherds. There is also 244 pieces of debitage at the site. The chipped stone tools are summarized in table 3.16, with a discussion of selected tools below.

The first projectile point (PP1), shown in figure 3.37[f], is a large side-notched obsidian dart point

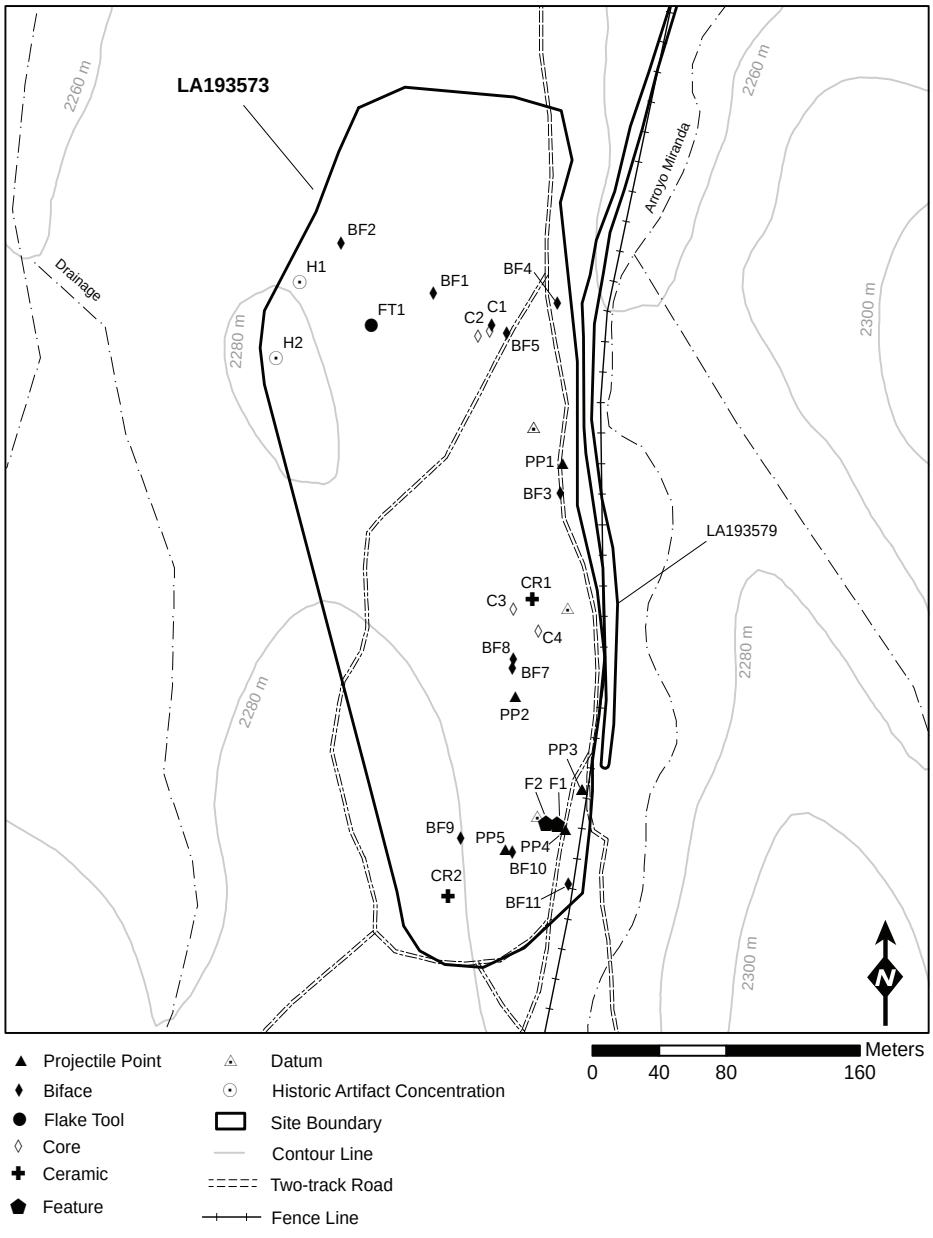

Figure 3.35. Sketch map of LA193573.

Figure 3.36. Representative overview of the site environment LA193573.

with prominent side-notches high up from the straight base. This point is made from a flake that is unifacially thinned and retouched on all ventral edges. The point style is similar to a few different regional types that Chapin (2005:135-141) discusses in more detail, including Armijo side-notched, Moquino side-notched, and in some ways the San Pedro type. It is most like the Moquino side-notched type, which Chapin (2005:137-139) notes encompasses point styles sometimes called Sudden side-notched. This type comes from the Great Basin and is perhaps not the most relevant for the northern Southwest and suggests Moquino is the most useful type name as it is "culturally neutral and geographically relevant" (Chapin 2005:139). A broad date range is represented

Table 3.16. Summary of chipped stone tools from LA193573.

Artifact ID	Description	Material
PP1	Large, complete side-notched dart point	Obsidian
PP2	Large corner-notched point base fragment	Obsidian
PP3	Side-notched dart point with expanding convex to straight base	Obsidian
PP4	Heavily fragmented corner-notched point	Basalt
PP5	Complete side-notched dart point with shallow notches and expanding base	Yellow chert
PP6	Contracting stemmed dart point with broken tip that has been reworked	Black chert
BF1	Small obsidian mid-stage fragment	Obsidian
BF2	Nearly complete drill with a broken base and crushing on the tip	Gray chert
BF3	Mid-stage fragment with broken distal end	Basalt
BF4	Late-stage mid-section fragment	Obsidian
BF5	Early-stage midsection fragment	White chert
BF6	Incomplete drill, tip broken	Obsidian
BF7	Mid-stage fragment	Obsidian
BF8	Small fragment, likely from a hafted drill	Obsidian
BF9	Mid-stage complete biface with rounded base	Gray chert
BF10	Mid-stage, triangular shape with a broken distal end	Basalt
BF11	Complete early stage	Gray chert
BF12	Early stage fragment	Gray chert
BF13	Early stage fragment	Black chert
BF14	Complete early stage	Yellow Chert
C1	Multi-directional core fragment flake scars	Rhyolite
C2	Core fragment with three flake scars	Gray chert
C3	Core tool, five flake scars with retouch along two edges	Basalt
C4	Core or tested cobble with three flake scars	Basalt
C5	Exhausted core with eight flake scars	Black chert
C6	Core fragment	Rhyolite
C7	Multi-directional core with five flake scars	Rhyolite
FT1	Flake tool with retouch on both margins	Gray chert
FT2	Flake tool with retouch along one margin	Black chert

by all three types, from roughly 4200 years ago for the early range of Moquino side-notched to about 2000 years ago for the San Pedro type, placing it somewhere from the Middle to Late Archaic periods.

Another obsidian point (PP2), shown in figure 3.37[a] is a base fragment of a large corner-notched dart point that is missing both ears and most of the blade. The stem has straight lateral edges with a straight to slightly concave base. The fragmentary nature of this point makes it difficult to confidently classify to a type. However, it is similar in many ways to En Medio points, which Chapin (2005:141-143) describes as highly variable but encompass most corner-notched dart point varieties. He suggests a range from about 1600 to 2800 years ago that was initially proposed by Irwin-Williams (1973).

The last obsidian point from LA193573 (PP3) is a dart point fragment with an expanding base that is slightly convex to straight. The point is missing both ears and most of the blade and is reworked along one edge. It is too fragmentary to assign to a specific type but has features that indicate it likely dates to the Middle to Late Archaic. One other point (PP4) is too fragmented to assign a type or even suggest an age

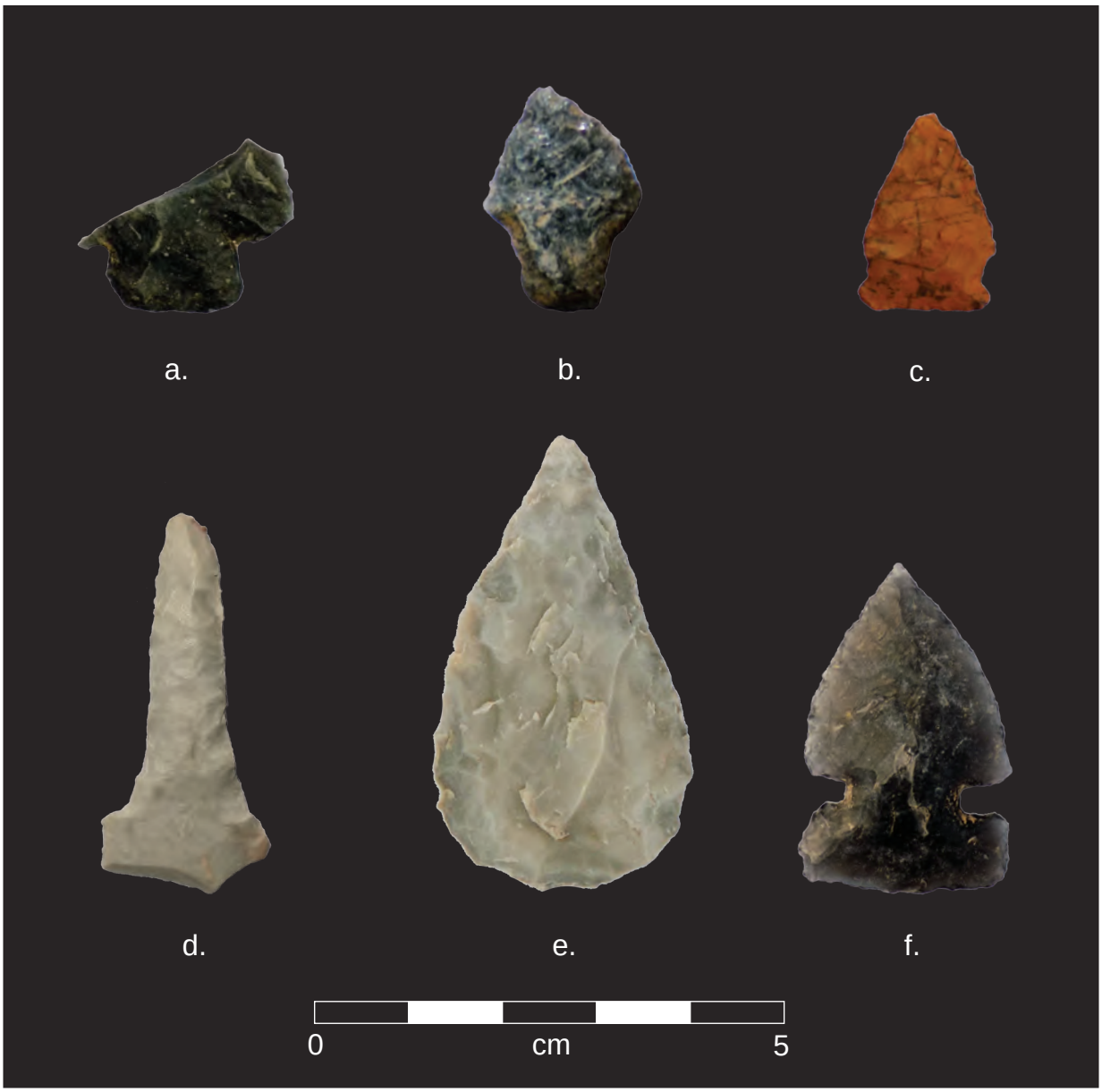

Figure 3.37. Selected stone tools from LA193573.

range beyond falling somewhere between the Middle Archaic to Late Prehistoric. It is a small fragment of a basalt corner-notched point with one notch and a small portion of the blade intact.

There are two chert projectile points. One (PP5) is shown in figure 3.37[c] and is a complete yellow to orange chert dart point. It has shallow side-notches, and a straight, expanding base. There appears to be an impact fracture that has removed a small portion of the distal end. The point style is most similar the San Pedro type that Chapin (2005:140-141) describes but notes that the difference between Armijo side-notched points and San Pedro is not clearly defined. A range of 3500 to 2000 years ago, or roughly the Late Archaic, is suggested for San Pedro points.

The last projectile point from LA193573 (PP6) is shown in figure 3.37[b]. It is a medium-sized dart point with a short contracting stem. The base is slightly rounded, and both shoulders are broken. The distal end is also broken and has been reworked. The point is similar to the Augustin type, which Chapin (2005:140) suggests dates to between 3500 and 2000 years ago, or roughly the Middle to Late Archaic.

Most of the bifaces are incomplete fragments made from various materials and are at different stages. Two notable examples include a nearly complete drill (BF2) and a complete late stage biface (BF9), both shown in figure 3.37[d] and 3.X[e], respectively. The drill is made from a gray chert flake that is unifacially thinned and bifacially flaked along both lateral edges. The base of the tool is broken and there is crushing on the distal end. Biface 9 is a complete, late stage gray chert biface with a rounded base and asymmetrical sides. No use-wear is present on either margin.

A total of 244 flakes were identified at LA193573 (table 3.17). Chert and basalt are the predominant flake materials. Nearly 90 percent of the flakes are either size grades zero or one. Forty-three flakes retain cortex.

Table 3.17. Debitage from LA193573.

Material	G0	G1	G2	G3	Total
Chert	32	42	8	-	82
Chalcedony	2	11	-	-	13
Quartzite	2	-	-	-	2
Rhyolite	21	6	-	-	27
Obsidian	10	33	5	-	48
Basalt	17	41	13	1	72
Total	84	133	26	1	244

Eleven ceramic artifacts were observed at site LA193573. The total includes five Taos Gray body sherds, one Taos Gray Plain rim sherd, one Taos Black-on-White body sherd, two indeterminate whiteware body sherds, one Cimarron Micaceous rim, and one possible Tewa Red body sherd.

The Taos Black-on-White bowl sherd exhibits a solid filled area and a group of framed, parallel diagonal lines. The Taos Gray Plain rim is everted and undecorated. One of the two indeterminate whiteware sherds exhibits two small patches of what may be carbon-painted decoration; however, the patches are too amorphous to positively identify as design motifs. The lip of the Cimarron Micaceous jar rim sherd is flat and sanded and the exterior exhibits a red ochre slip or wash. The possible Tewa Red (Northern Rio Grande Historic Plainware) body sherd exhibits a polished reddish-brown slip on the exterior and a gray slip on the interior. The paste is buff and the vessel wall is thick. Both Wilson (2007) and OSA (2019c) note problems in the identification of historic plainware types, including Tewa Red.

Production of Taos Gray, including vessels with undecorated rims, began at A.D. 1100 and may have continued into the eighteenth century (Levine 1994). Taos Black-on-White was produced between A.D. 1100 and 1350 (Levine 1994). Oppelt (2002) suggests a somewhat shorter duration, from A.D. 1150 to 1250; however, it was the only whiteware produced during the Valdez phase (A.D. 1100-1225) and production continued into the Pot Creek (A.D. 1225-1260 or 1270) and Talpa (A.D. 1260 or 1270-1350) phases (Crown 1990; Levine 1994). Cimarron Micaceous is dated to between A.D. 1750 and 1920 (OSA 2019b). Tewa Red vessels were produced between A.D. 1620 and 1930 (OSA 2019c); Wilson (2007) suggests that the type was abundant between A.D. 1650 and 1760.

The site also includes historic domestic and industrial debris which are concentrated in three areas of the site (H1 to H3). These historic artifact clusters consist primarily of cans, fragmented glass and porcelain, and car parts. Cans present include hole-in-cap (solder dot), sanitary, coffee, sardine, and other food cans. Other metal debris includes a cooking pot, metal pipe, an exhaust pipe and hub cap, wire, a wheel, and other unidentifiable metal fragments. Glass fragments include clear, amethyst, aqua, green, and opaque white bottle or jar glass. Flat window glass fragments are also present as are a small number of decorated porcelain fragments. These artifacts suggest an age between the late nineteenth to

the mid-twentieth centuries, and likely multiple uses during the historic period. The cultural affiliation of these artifacts is unknown.

Two areas of cultural staining were also identified in the southeastern area of the site. It is unclear which component of the site they are associated with. Feature 1 (F1) is an approximately 50 cm long by 30 cm wide area of charcoal staining visible in the east-facing road cut bank. No artifacts were identified but large pieces of charcoal and burned wood suggest this may be a modern burn. Feature 2 (F2) is immediately west of F1 and is about 45 cm in diameter. It consists of charcoal stained sandy sediment and one fire-altered rock. No cultural materials were visible within the feature but chipped stone tools and flaking debris are present in the vicinity of the charcoal stain. Historic artifacts are present at the site and trash burning is known to have occurred in the area; however, the concentrated areas of historic debris are located at the northern end of the site, a considerable distance from the burned areas.

LA193574 (AR-03-02-04-00422)

No. of Components:	1
Site Type:	Open lithic
Cultural Affiliation:	American Indian
Temporal Period:	Unknown Prehistoric
NRHP Recommendation:	Not eligible
Artifacts Collected:	No
Topographic Location:	Toe of a low finger ridge
Vegetation:	Moderately dense pinyon juniper woodland with understory of prickly pear cactus, rabbitbrush, and bunch grasses.
Elevation:	7400 ft.
Depositional Context:	Residual; aeolian
Dimension and Area:	17 m x 13 m; 133 sq m
Ground Visibility:	70-80%

LA193574 is a small lithic scatter that sits at the toe of a low finger ridge west of Arroyo Miranda. A two-track road is approximately 50 m west of the site.

The artifact assemblage consists of one flake tool, four utilized flakes, and thirty-two pieces of debitage. The flake tool is a white and gray chert flake with patterned retouch on one margin. All four flakes with evidence of use wear are rhyolite. Debitage is predominately rhyolite with three flakes of a fine-grain volcanic material (table 3.18). The rhyolite flakes likely represent a single reduction episode. Most are angular fragments and just one has cortex. No diagnostic artifacts or other dateable materials were found.

Table 3.18. Debitage from LA193574.

Material	G0	G1	G2	Total
Rhyolite	21	7	1	29
Fine-grain volcanic	1	2	-	3
Total	22	9	1	32

LA193575 (AR-03-02-04-00423)

No. of Components:	1
Site Type:	Open lithic
Cultural Affiliation:	American Indian
Temporal Period:	Unknown Prehistoric
NRHP Recommendation:	Not eligible
Artifacts Collected:	No
Topographic Location:	East-facing slope
Vegetation:	Moderately dense pinyon juniper woodland with understory of prickly pear cactus, rabbitbrush, and bunch grasses.
Elevation:	7360 ft.
Depositional Context:	Residual; aeolian
Dimension and Area:	22 m x 27 m; 391 sq m
Ground Visibility:	60-70%

LA193575 is a small lithic scatter spread sparsely across a slightly east-facing slope. The site is about 20 m west of the land grant boundary fence.

The artifact assemblage includes one rhyolite core with flake scars on three facets, two utilized flakes, and four pieces of debitage. One utilized flake (UF1) is a large white quartz flake with probable chopping or scraping use wear on the distal end. The other utilized flake is made from a caramel-colored chert with use-wear along one margin. Debitage includes three size grade zero flakes, and size grade one flake; none retain cortex. Two of the flakes are a fine-grain volcanic material and two are the caramel chert. No diagnostic artifacts or other dateable materials were found.

LA193576 (AR-03-02-04-00424)

No. of Components:	3
Site Type:	Open camp
Cultural Affiliation:	American Indian; Unknown Historic
Temporal Period:	Middle Archaic (3000 to 1800 B.C.); A.D. 1100 to 1350; A.D. 1620 to present
NRHP Recommendation:	Not eligible
Artifacts Collected:	No
Topographic Location:	West bank of the Arroyo Miranda
Vegetation:	Moderately dense pinyon juniper woodland with an understory of low sagebrush, prickly pear cactus, rabbitbrush, and bunch grasses.
Elevation:	7360 ft.
Depositional Context:	Residual; alluvial; aeolian
Dimension and Area:	60 m x 67 m; 3321 sq m
Ground Visibility:	60-75%

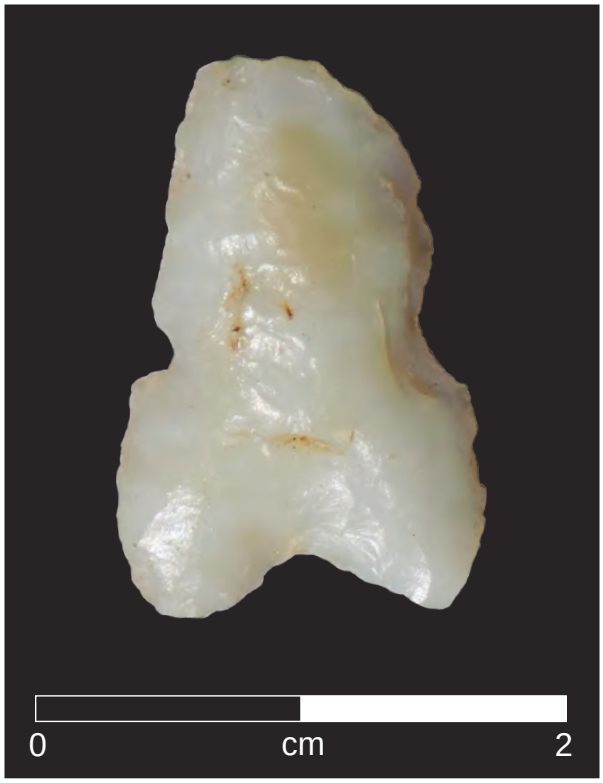

Figure 3.38. Archaic projectile point from LA193576.

LA193576 is a multicomponent site spread across an area on the west bank of Arroyo Miranda. The Serna grant boundary fence cuts through the west side of the site. Cultural material is concentrated on the east side of the fence.

The American Indian artifact assemblage includes flaking debris, one nearly complete projectile point (PP1), two bifaces (BF1, BF2), one ground stone fragment (GS1), and one flake tool (table 3.19). There are also 29 ceramic sherds in the assemblage.

The projectile point is a white chert dart point with shallow side-notches high up from the bifurcated base (figure 3.38). The distal end has been heavily reworked; this modification is also seen on one of the lateral margins. Morphologically, the point resembles Moquino style points (Chapin 2005:137-139), or what are referred to further north as Mallory points (Miller 2017), which is part of the Middle Archaic McKean complex. Chapin notes that large side-notched dart points have taken a variety of names in the northern southwest, including San Rafael Side-Notched and Sudden Side-Notched, among others. Moquino points from datable contexts range between 4200 and 3200 years ago (Chapin 2005:139), or roughly the Middle Archaic.

Table 3.19. Metric data on chipped stone tools from LA193576.

		Measurements (mm)		
Artifact ID	Material	Length	Width	Thickness
PP1	White chert	22	11	2
BF1	Basalt	36	38	7
BF2	Gray chert	30	22	4
GS1	Granite	110	100	35

The first biface (BF1) is an incomplete basalt biface that is triangular in shape and is retouched along one edge. The other biface (BF2) is an incomplete gray chert biface with bifacial retouch on one margin. The ground stone fragment is a broken granite hand stone that has moderate to heavy polish on one face. The flake tool is a size grade one rhyolite flake with evidence of use wear on at least one edge.

The assemblage also includes 24 pieces of flaking debris, scattered around the site. Flakes are from various stages of reduction and represent multiple material types (table 3.20). The assemblage is dominated by size grade zero and one flakes.

A total of 29 ceramic sherds were observed at site LA193576. These include two Santa Fe Black-on-White bowl sherds, six Taos Black-on-White bowl sherds, one indeterminate whiteware bowl sherd, one unidentified micaceous ware sherd, and 19 possible

Table 3.20. Debitage from LA193576.

Material	G0	G1	G2	Total
Chert	4	2	-	6
Chalcedony	-	1	-	1
Rhyolite	5	4	-	9
Obsidian	1	1	2	4
Fine-grain volcanic	2	2	-	4
Total	12	10	2	24

Tewa Red (Northern Rio Grande Historic Plainware) sherds.

One of the Santa Fe Black-on-White rims exhibits three horizontal bands immediately below the rim. The other exhibits a single horizontal band. The Taos Black-on-White sherds include at least three from a single vessel. A thick horizontal band occurs about 1 cm below the rim. The remainder of the decoration consists of filled areas and thick bands. The micaceous ware sherd cannot be identified from the available data; however, it may represent a Cimarron Micaceous jar. The 19 possible Northern Rio Grande Historic Plainware sherds include a jar rim with an everted lip and a polished reddish-tan slipped exterior (figure 3.39). The interior is burnished. The vessel walls are thick, and the paste is buff colored. Temper is well-sorted and fine. This specimen exhibits some but not all of the characteristics of Tewa Red vessels (OSA 2019c; Wilson 2007). Whether all 19 sherds represent a single vessel is unknown.

Figure 3.39. Northern Rio Grande Historic Plainware jar rim sherd from LA193576.

The Taos Black-on-White sherds, micaceous ware sherd, and 19 Northern Rio Grande Historic Plainware occur in a single concentration on the site's southern edge (CR4).

Santa Fe Black-on-White first appeared in the Taos District at A.D. 1200 (Levine 1994; Wilson 2007). Production continued until A.D. 1350. Taos Black-on-White was produced between A.D. 1100 and 1350 (Levine 1994). Oppelt (2002) suggests a somewhat shorter duration, from A.D. 1150 to 1250; however, it was the only whiteware produced during the Valdez phase (A.D. 1100-1225) and production continued into the Pot Creek (A.D. 1225-1260 or 1270) and Talpa (A.D. 1260 or 1270-1350) phases (Crown 1990; Levine 1994). Micaceous wares first appeared in the Taos District in the sixteenth century and production continues to the present. Farther south along the Rio Grande and in the Chama River valley micaceous wares appeared about A.D. 1300. Micaceous wares were produced by Pueblo, Apachean, and Hispano potters (Eiselt 2012; Eiselt and Darling 2012; Wilson 2007). Tewa Red vessels were produced between A.D. 1620 and 1930 (OSA 2019c); Wilson (2007) suggests that the type was abundant between A.D. 1650 and 1760.

The artifact assemblage also includes one mule shoe fragment. The age and cultural affiliation of this artifact is unknown.

LA193577 (AR-03-02-04-00425)

No. of Components:	1
Site Type:	Open lithic
Cultural Affiliation:	American Indian
Temporal Period:	Unknown Prehistoric
NRHP Recommendation:	Not eligible
Date Recorded	September 8, 2018
Artifacts Collected:	No
Topographic Location:	Low ridge
Vegetation:	Moderately dense pinyon juniper woodland with an understory of low sagebrush, prickly pear cactus, rabbitbrush, and bunch grasses.
Elevation:	7340 ft.
Depositional Context:	Residual; aeolian
Dimension and Area:	57 m x 27 m; 1422 sq m
Ground Visibility:	60-75%

LA193577 is a sparse American Indian site located on a long, low ridge on the west side of Arroyo Miranda. A two-track road borders the site to the west. Ground visibility was 60 to 75 percent at the time of inventory.

Cultural materials include nineteen flakes (table 3.21), five bifaces (BF1 to BF5), and one flake tool (FT1). The chipped stone tools are all summarized in table 3.22. None are diagnostic of any cultural or temporal affiliation. Four of the bifaces are fragmentary pieces of mid- to late-stage bifaces. The other (BF5) is the midsection of a drill. The tip and base are both snapped off. The tool assemblage also includes a size grade zero flake with some evidence of use along one margin. No diagnostic artifacts or datable features were found. Cultural materials rest on residual sediment with no potential for buried, intact cultural levels or features.

Table 3.21. Debitage from LA193577.

Material	G0	G1	G2	Total
Chert	2	5	-	7
Obsidian	-	5	4	9
Fine-grain volcanic	-	2	1	3
Total	2	12	5	19

LA193578 (AR-03-02-04-00426)

No. of Components:	2
Site Type:	Open camp
Cultural Affiliation:	American Indian
Temporal Period:	Late Archaic (1800 B.C. to A.D. 200); A.D. 1000 to 1350
NRHP Recommendation:	Not eligible
Artifacts Collected:	No
Topographic Location:	Low bench
Vegetation:	Moderately dense pinyon juniper woodland with an understory of low sagebrush, prickly pear cactus, rabbitbrush, and bunch grasses.
Elevation:	ft.
Depositional Context:	Residual; aeolian
Dimension and Area:	94 m x 67 m; 5204 sq m
Ground Visibility:	60-75%

LA193578 is a broad, sparse American Indian artifact scatter on a low bench on the west bank of Arroyo Miranda. The site is at the base of the steep slopes that make up the west site of the narrow Miranda Valley. A barbed wire fence marking the Serna land grant boundary runs north to south through the east end of the site. Most of the cultural materials are on the west side of the fence.

The artifact assemblage twenty-two pieces of debitage, one projectile point (PP1), two bifaces (BF1, BF2), two flake tools, and one ground stone fragment (table 3.23). There are also 20 ceramic sherds in the assemblage. Chipped stone tools and flakes are spread across the site area; ceramic sherds are concentrated along the eastern site boundary and are being displaced down slope into the drainage.

The projectile point is a basalt corner-notched dart point midsection. The base is snapped off at the notches, which are relatively shallow, and the distal end appears to have broken from an impact fracture. The missing base makes assigning a type somewhat difficult. The hafting width of about 85 mm suggests a dart point. En Medio points, as described by Chapin (2005:141-143), are a similar size and are corner-notched and is likely the best corollary given the available data. En Medio points are perhaps the most well-dated Archaic types from northwestern New Mexico and ranges between 2800 and 1600 years ago.

Both bifaces are incomplete basalt tools with triangular blades and snap fractures at the base. The flake tools are both size grade zero rhyolite flakes with some retouch on one margin. The ground stone fragment is a fragment of a sandstone grinding slab. One face has heavy pecking and grinding. Debitage materials include an even mix of chert, rhyolite, fine-grained volcanic materials, obsidian, and chalcedony (table 3.24). At least three of the obsidian flakes are from the Polvadera Peak source. Only four flakes retain cortex.

Twenty ceramic sherds were observed at site LA193578, including 11 Taos Black-on-White bowl sherds, one Kwahe'e Black-on-White jar sherd, two indeterminate whiteware sherds, and six Taos Gray rim or body sherds. Most of the Taos Black-on-White sherds exhibit framed decorative zones infilled with hatching; one exhibits an alternately filled checkerboard pattern. The Kwahe'e Black-on-White jar sherd exhibits an opposing filled triangle design executed in mineral paint fired to brown and lacks exterior slip. The difficulty of differentiating Kwahe'e Black-on-White from Taos Black-on-white is widely recognized (Levine 1994). However, the lack of exterior slip and the poor firing of the mineral paint suggests that the specimen from site LA193578 represents a Kwahe'e Black-on-White vessel (Wilson

Table 3.22. Summary and metric data on chipped stone tools from LA193577.

			Measurements (mm)		
Artifact ID	Artifact Description	Material	Length	Width	Thickness
BF1	Late-stage midsection	Obsidian	26	25	4
BF2	Mid-stage with distal end snap	White to pink chalcedony	30	20	7
BF3	Late-stage distal end	Obsidian	15	15	4
BF4	Mid-stage midsection	Fine-grain volcanic	27	23	3
DR1	Drill midsection	White to gray chert	31	11	5
FT1	Drill or graver tip on flake	Obsidian	30	15	3

Table 3.23. Metric data for stone tools from LA193578.

		Measurements (mm)		
Artifact ID	Material	Length	Width	Thickness
PP1	Basalt	15	12	3
BF1	Basalt	62	22	4
BF2	Basalt	61	28	7
GS1	Sandstone	112	52	22

Table 3.24. Debitage from LA193578.

Material	G0	G1	G2	Total
Chert	2	4	-	6
Chalcedony	-	1	-	1
Rhyolite	4	2	-	6
Obsidian	-	4	1	5
Fine-grain volcanic	2	2	-	4
Total	8	13	1	22

2007). If so, this sherd may represent a downriver trade ware. None of the Taos Gray specimens exhibit incising or other plastic surface modifications; at least two rims were documented.

Fifteen of the 20 sherds occurred in a single concentration in the southeast corner of the site. This includes 10 Taos Black-on-White bowl sherds, four Taos Gray rim or body sherds, and the Kwahe'e Black-on-White jar sherd.

Taos Black-on-White was produced between A.D. 1100 and 1350 (Levine 1994). Oppelt (2002) suggests a somewhat shorter duration, from A.D. 1150 to 1250; however, it was the only whiteware produced during the Valdez phase (A.D. 1100-1225) and production continued into the Pot Creek (A.D. 1225-1260 or 1270) and Talpa (A.D. 1260 or 1270-1350) phases (Crown 1990; Levine 1994). Wilson (2007) attributes the production of Kwahe'e Black-on-White to between A.D. 1050 and 1250, while OSA (2019d) suggests dates between A.D. 1000 and 1225. Production of Taos Gray, including vessels with undecorated rims, began at A.D. 1100 and may have continued into the eighteenth century (Levine 1994).

LA193579 (AR-03-02-04-00427)

No. of Components:	1
Site Type:	Trail traces
Cultural Affiliation:	Hispanic and Anglo-Euroamerican
Temporal Period:	Mexican/Santa Fe Trail to WWII (A.D. 1821 to 1945)
NRHP Recommendation:	Eligible (criteria A and D)
Date Recorded	September 7, 2018
Artifacts Collected:	No
Topographic Location:	Flood plain/valley
Vegetation:	Moderately dense pinyon juniper woodland with sparse understory of low sage, prickly pear cactus, and bunch grasses.
Elevation:	7350 ft.
Depositional Context:	Alluvial
Dimension and Area:	1205 x 5; 8045 sq m
Ground Visibility:	75%

LA193579 is a linear resource that encompasses 13 swale segments (LN1 to LN13) along the west side of Arroyo Miranda (figure 3.40). The site boundary encompasses the 13 segments as well as areas between the identified segments where no trail traces could be clearly identified. The identified segments are individual swales of varying length and depth and do not follow a continuous line. The swales run generally parallel to the land grant boundary fence at the northern end of the Miranda Valley. Most are also eroded by ephemeral drainages that run parallel to Arroyo Miranda unlike the many small tributary drainages that run west to east flowing into Arroyo Miranda. The linear resource intersects four American Indian sites; however, even where individual swales

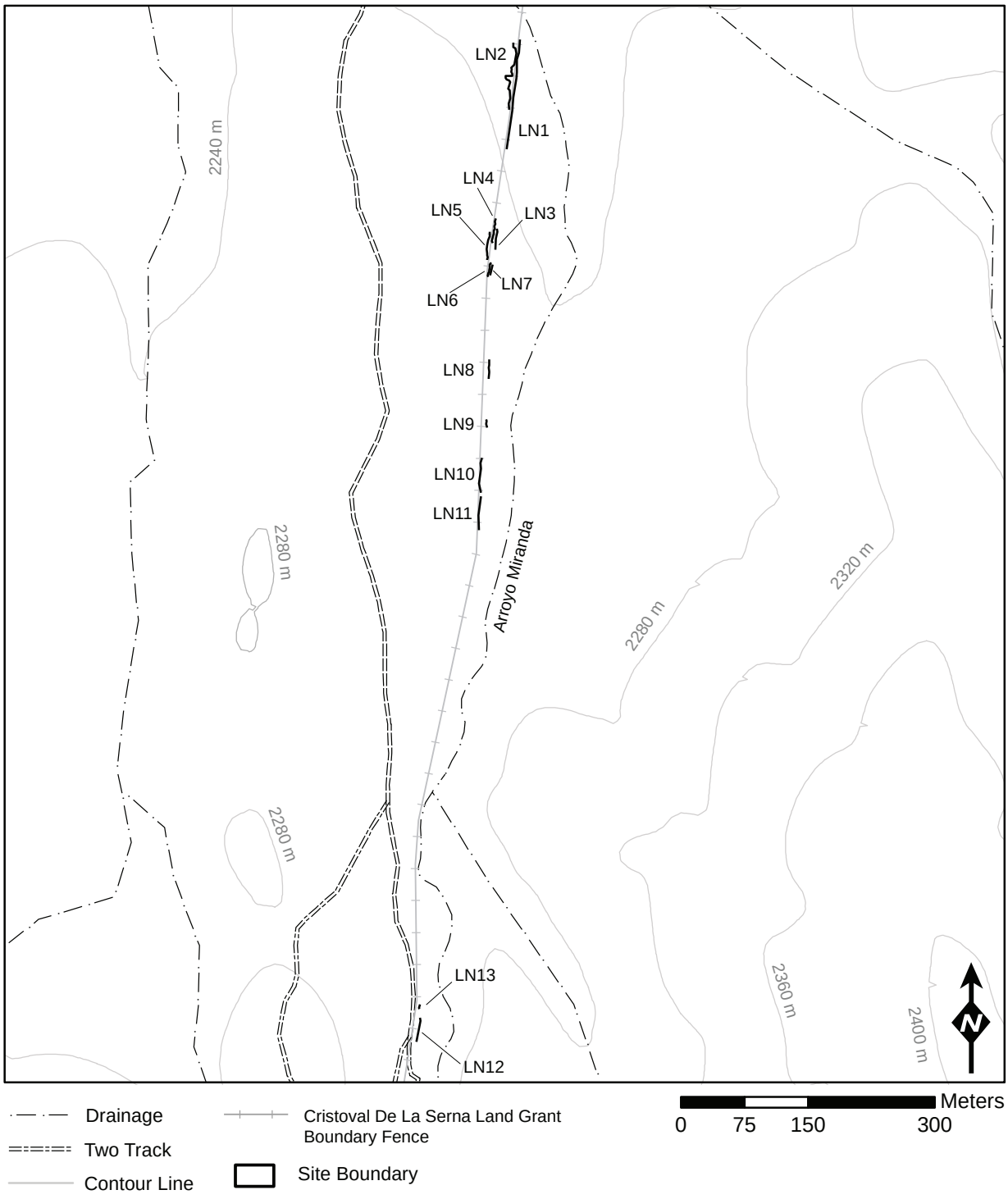

Figure 3.40. Sketch map of LA193579.

were found within those site boundaries, they were recorded with LA193579 rather than as features within an American Indian site.

LN1 and LN2 run parallel to one another at the northern end of the site boundary. LN1 is on the east side of the fence while LN2 is on the west side. LN1 is approximately 130 m (427 ft) long, .5 m (1.5 ft) wide and 5 cm (2 in) deep (table 3.25). LN2 is about 94

Table 3.25. Line segment dimensions at LA193579.

Line ID	Length (ft)	Width (ft)	Depth (in)
LN1	427	1.5	2
LN2	308	1.5	10 to 40
LN3	7	3 to 6.5	Variable, up to 30
LN4	98	3 to 6.5	Variable, up to 30
LN5	112	3 to 6.5	Variable, up to 30
LN6	50	3 to 6.5	Variable, up to 30
LN7	50	3 to 6.5	Variable, up to 30
LN8	75	5	4 to 6
LN9	36	5	4 to 6
LN10	138	5	20
LN11	131	3 to 5	2 to 10
LN12	92	3 to 5	2 to 10 (heavily eroded)
LN13	20	3 to 5	2 to 10

m (308 ft) long, 0.5 m (1.5 ft) wide and over 1 m (40 in) deep in places. LN2 has clearly been deepened by water erosion. LN3 through LN7 are clustered south of LN1 and LN2. They range in length from 2 to 34 m (7 to 112 ft). They range between 1 to 2 m (3 to 6.5 ft) in width and are varied in depth because of natural erosion, some are as deep as 75 cm (30 in).

To the south, LN8 and LN9 parallel the east side of the fence running north to south for about 23 m (75 ft) and 11 m (36 ft), respectively. LN8 and LN9 are 10 to 15 cm (4 to 6 in) in depth and about 1.5 m (5 ft) wide.

LN10 meanders along both the east and west side of the fence for about 42 m (138 ft). The swale is about .5 m (20 in) deep and 1.5 m (5 ft) wide and had water in it at the time of inventory. LN11 to LN13 are at the southern end of the site boundary. LN11 is on the west side of the land grant boundary fence; LN12 and LN13 are on the east side. They vary in length from 6 to 40 m (20 to 131 ft) and range between 5 and 25 cm (2 to 10 in) in depth. All are about 1 to 1.5 m (3 to 5 ft) in width.

LA193580 (AR-03-02-04-00428)

No. of Components:	1
Site Type:	Trail traces
Cultural Affiliation:	Hispanic and Anglo-Euroamerican
Temporal Period:	Mexican/Santa Fe Trail to WWII (A.D. 1821 to 1945)
NRHP Recommendation:	Eligible (criteria A and D)
Artifacts Collected:	No
Topographic Location:	Hill slope, hilltop
Vegetation:	Ponderosa pine and fir forest, understory of scrub oak, low sage, grasses, and forbs.
Elevation:	8530 ft.
Depositional Context:	Residual; colluvial; alluvial
Dimension and Area:	1390 m x 4 m; 8331 sq m
Ground Visibility:	50-60%

LA193580 is a newly recorded linear resource that climbs to the northeast up a steep west-facing slope of Telephone Canyon (figure 3.41). The trail segments then traverse a broad ridge at times paralleling a two-track road which is about 100 to 200 m west of the trail segments. The recorded segments total is 1390 m (4560 ft) in length and mainly travels through ponderosa pine and fir forest. Two short intervals of the trail became indistinct and were not mapped but they clearly are connected segments.

At its southern end, the recorded trail segment becomes distinct to the northeast of a ditch that runs perpendicular to the trail near the base of the slope on the east side of Telephone Canyon. As the trail ascends the 10 to 15-degree slope, it is generally visible as a shallow swale that ranges between 1 to 2 m (3-6.5 ft) in width and is between 5 to 20 cm (2 to 4 in) deep.

The trail uses short switchbacks to climb the slope and is dug into the slope contour in some places. At times, the swale becomes less distinct but can still be detected as an opening in the tree cover or as a line of rocks that may have been cleared from the main trail. Shorter, less distinct, swales parallel the main trail at times suggesting that horses or pack trains using the trail may have spread out on broader benches then

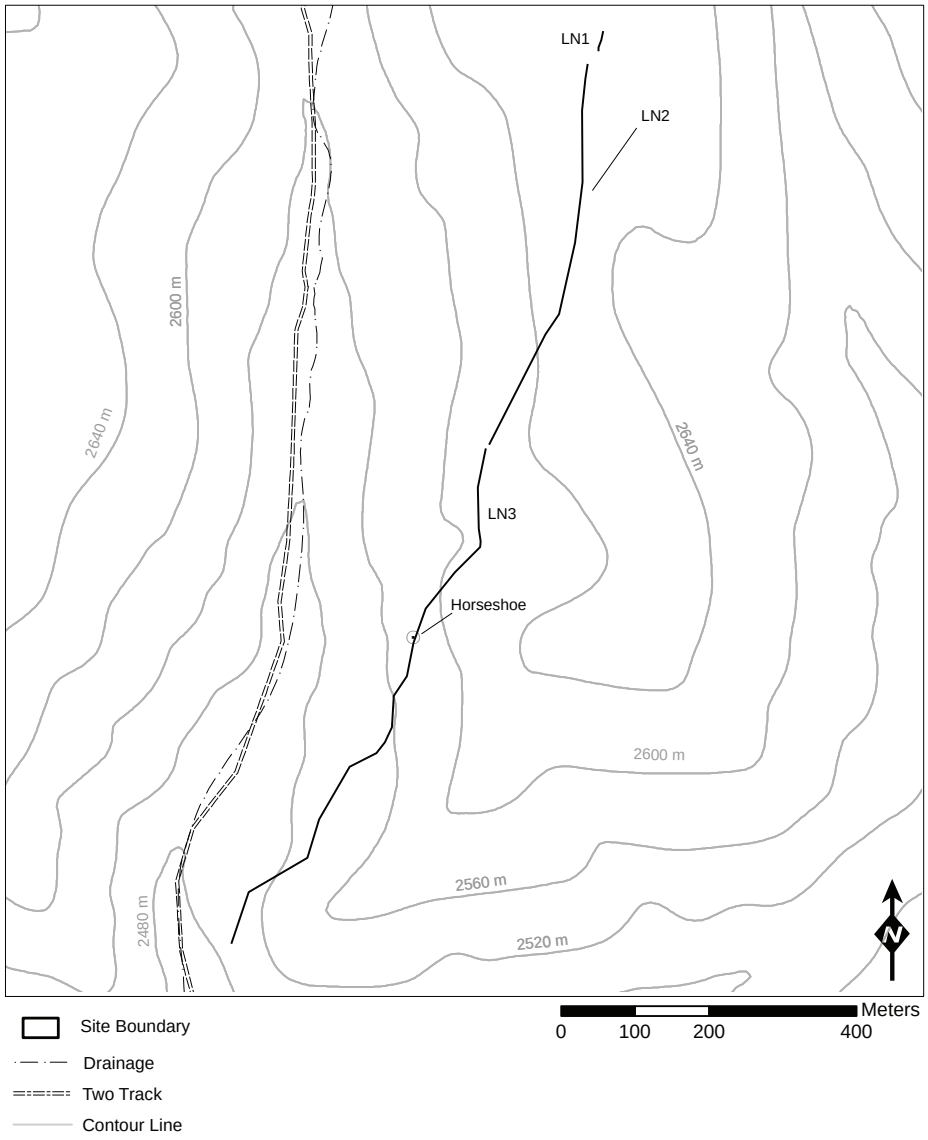

Figure 3.41. Sketch map of LA193580.

traveled single file when the slope constricted travel to a narrower path. The trail turns more directly north as it crests the ridge top. At its intersection with a two-track road, several short spurs running parallel to the road are visible before the trail becomes indistinct. Traces of the trail on the ridge may have been obliterated by the two-track road. One horseshoe of an unknown age was found on the trail.

LA193581 (AR-03-02-04-00429)

No. of Components:	1
Site Type:	Culturally modified tree
Cultural Affiliation:	Unknown
Temporal Period:	Likely U.S. Territorial to WWII (A.D. 1846 to 1945)
NRHP Recommendation:	Needs Data
Artifacts Collected:	No
Topographic Location:	East-facing slope
Vegetation:	Ponderosa and fir trees with scrub oak and grasses
Elevation:	8800 ft.
Depositional Context:	Residual; colluvial; alluvial
Dimension and Area:	5 m x 5 m; 25 sq m
Ground Visibility:	60%

LA193581 is one culturally modified tree (CMT) that is on a steep, east-facing slope above a deep drainage and on the eastern edge of a two-track road. The CMT

is a ponderosa tree that stands approximately 35 m tall and has a diameter at breast height of about 57 cm.

The modification consists of peeling and axe cuts that has removed the outer bark (figure 3.42). It is possibly a peel to retrieve cambium; however, it lacks the classic hallmarks of a cambium peel. There are several axe cuts along the edge of the scar, with wound wood having grown over a portion of the axe cuts, suggesting they are old but perhaps not older than 50-100 years. The axe cuts and modifications are more likely from the harvesting of fatwood, or pitch wood, which can be used as a fire starter. It is also possible it originally was a cambium peel scar that was later modified and harvested for fatwood.

The peeled area is about 98 cm long and 33 cm wide and is on the southwest to west side of the tree which is visible from the two-track road. At least six clearly defined axe cuts are identified on the scar face. A moderate amount of regrowth has occurred on either side of the scar. The tree is healthy, and the scar is in fair condition. No artifacts or features were found in association with this CMT.

Figure 3.42. Overview of CMT at LA193581.

LA193583 (AR-03-02-04-00430)

No. of Components:	1
Site Type:	Open Camp
Cultural Affiliation:	Anasazi
Temporal Period:	Developmental to Classic (A.D. 1100 to 1300)
NRHP Recommendation:	Needs Data (criterion D)
Artifacts Collected:	No
Topographic Location:	Flood plain/valley
Vegetation:	Open pine forest with an understory of oak brush, short grasses and forbs and a grassy meadow with tall vegetation.
Elevation:	8070 ft
Depositional Context:	Alluvial; colluvial
Dimension and Area:	48 m x 93 m; 42,267 sq m
Ground Visibility:	25-75%

LA193583 is a prehistoric site that partially overlaps the central, western boundary of LA189635 in one of the metal detecting blocks. The site consists of lithics, ground stone, ceramics, and a rhyolite procurement area. A possible thermal feature was also recorded.

Unmodified rhyolite occurs in a secondary deposit consisting of cobbles and boulders that outcrops on the nose of an east-facing ridge on the west end of the site. Rhyolite cobbles appear to be concentrated in the lower part of the cobble and boulder deposit. The deposit may originate in a very coarse loosely cemented conglomerate, no exposure of bedrock is visible. The rhyolite is very siliceous, maroon in color with large gray phenocrysts, similar to the rhyolite found at LA14337. A small amount of gray rhyolite with large phenocrysts also occurs in the cobble/boulder deposit but it is lower quality than the maroon variety.

Artifacts consist primarily of tested cobbles, cores, decortication flakes, and hard-hammer initial reduction flakes. Several patterned and unpatterned milling stone fragments are present with one unifacial hand stone also present. The site also has one chalcedony side-notched arrow point (figure 3.43). A portion of the base is snapped off and the distal end is broken from what appears to be an impact fracture. This point style dates to roughly post-A.D. 1000.

Approximately 20 pottery sherds were also observed at site LA193583. The observed assemblage consisted of Taos Gray body and neck sherds (one of which exhibited incising) and whiteware jar sherds lacking decorative elements. No sherds representing bowls were observed. All of the ceramic specimens

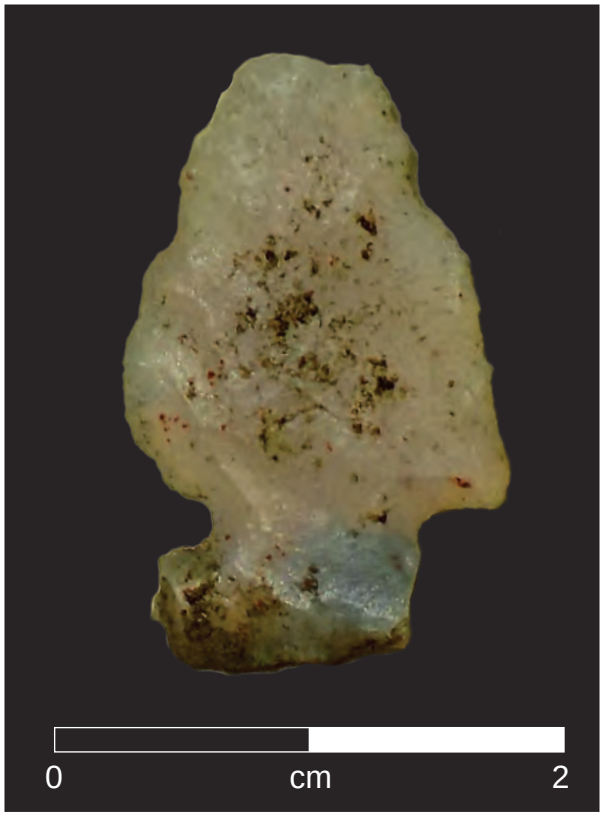

Figure 3.43. Side-notched arrow point from LA193583.

were located on the eastern end of the site. Whitewares postdate A.D. 1100 in the Taos District. Taos Gray Incised was produced between A.D. 1100 and 1300 (Levine 1994; Oppelt 2002). Production of other varieties of Taos Gray may have continued into the eighteenth century.

LA193583 also contains a possible deflated hearth feature. The feature is approximately 70 cm in diameter and is located on the northeast edge of the concentration. The feature consists of a cluster of 5 to 10 cm cobbles including several rhyolite tested cobbles, one of which appears to be heat fractured. No charcoal stained sediment was visible.

LA193584 (AR-03-02-04-00431)

No. of Components:	1
Site Type:	Open camp
Cultural Affiliation:	American Indian
Temporal Period:	Late Archaic (1800 B.C. to A.D. 200)
NRHP Recommendation:	Not Eligible
Artifacts Collected:	No
Topographic Location:	Flood plain/valley
Vegetation:	Open pinion, ponderosa, and fir forest with an understory of oak brush and small grasses and forbs.
Elevation:	8435 ft
Depositional Context:	Alluvial
Dimension and Area:	65 m x 2 m; 130 sq m
Ground Visibility:	76-99%

LA193584 is a small prehistoric site that partially overlaps the southern boundary of LA189637. The site consists of a small lithic and ground stone scatter distributed along a two-track road with artifacts redeposited down slope.

Artifacts documented include one projectile point fragment, two ground stone fragments, three obsidian flakes, one obsidian flake tool, one black chert flake, and one chert core with some cortex. The two ground stone pieces are brown sandstone that refit into a complete hand stone (figure 3.44). One face has heavy grinding and pecking, and the edges have been shaped. The hand stone is an atypical shape, with the long axis concave while the short axis is convex.

The projectile point is the midsection of a corner-notched dart point. The base has snapped off via an end-shock fracture; the distal end is also missing likely from the same impact fracture. Both corner tangs are also missing, but the preserved notches indicate the point fragment is almost certainly a Late Archaic (En Medio) corner-notched dart point. En Medio points, as described by Chapin (2005:141-143), are perhaps the most well-dated Archaic types from northwestern New Mexico and ranges between 2800 and 1600 years ago.

Figure 3.44. Hand stone from LA193584 in cross-section view.

HCPI46300 (AR-03-02-04-00432)

No. of Components:	1
Site Type:	Acequia (Ditch)
Cultural Affiliation:	Unknown Historic
Temporal Period:	Unknown Historic
NRHP Recommendation:	Not eligible
Date Recorded	September 5, 2018
Artifacts Collected:	No
Topographic Location:	Base of a ridge
Vegetation:	Ponderosa pine, fir, pinyon pine, juniper trees, dense understory of shrub oak and grasses.
Elevation:	8100 ft.
Depositional Context:	Colluvial
Dimension and Area:	81 m x 5 m; 405 sq m
Ground Visibility:	Less than 50%

HCPI46300 is an unnamed ditch that runs generally northwest to southeast following the contour of the slope near the base of the ridge that makes up the east side of Telephone Canyon. The shallow earthen ditch flows from the mouth of the Telephone Canyon drainage along a southwest-facing slope toward Osha Canyon (figure 3.45). The entire ditch was not recorded due to lack of time in the field, but the ditch extends in both directions from the recorded segment.

The documented segment measures approximately 81 m long, 0.8 m to 1.5 m wide, and ranges between 20 to 40 cm deep. The site boundary encompasses a 5 m buffer surrounding the resource segment. The ditch is excavated into the slope with the spoil dirt placed along the southwest edge. The berm is approximately .5 m in width and about 10 to 15 cm high. There was no water in the ditch at the time of the inventory and it does not appear to be in use. Small trees and other vegetation are growing at the bottom. The ditch is unlined, and no associated features or artifacts were found.

Isolated Occurrences

Six isolated occurrences were documented during the project. Each is briefly summarized in table 3.26. Three of the resources (IOPG1, IOPG2, and IOPG4) have diagnostic artifacts; the other three are Unknown

Figure 3.45. Overview of ditch at HCPI46300, looking to the southeast.

Table 3.26. Isolated occurrences recorded during the project.

Isolate No.	Description	Temporal Affiliation
IOPG1	One obsidian Middle Archaic projectile point and two flakes	3000 to 1800 B.C.
IOPG2	One eroded whiteware sherd	Post-A.D. 1100
IOPG3	One non-cortical Pedernal chert G0 flake	Unknown Prehistoric
IOPG4	One obsidian projectile point	A.D. 1200 to 1600
IOPG5	Ten flakes (Obsidian: 4 G1, 1 G2; Fine-grained volcanic: 2 G0, 2 G2; Brown chert: 1 G0)	Unknown Prehistoric
IOPG6	One chert biface fragment	Unknown Prehistoric

Prehistoric. All are recommended not eligible for the National Register.

The projectile point from IOPG1 has a bifurcated base and shallow side-notches. The distal end has been heavily reworked. Morphologically, the point resembles Moquino style points (Chapin 2005:137-139), or what are referred to further north as Mallory points (Miller 2017), which is part of the Middle Archaic McKean complex. Chapin notes that large side-notched dart points have taken a variety of names in the northern southwest, including San Rafael Side-Notched and Sudden Side-Notched, among others. Moquino points from datable contexts range between 4200 and 3200 years ago (Chapin 2005:139), or roughly the Middle Archaic.

The other projectile point, IOPG4, is just the distal portion with a snapped base. Without the base it is difficult to determine a type but based on the size and morphology it is likely from an arrow point. The notches are not preserved but the tangs indicate it is a corner-notched point, which would roughly date between about A.D. 250 and 1100. It is also possible it could be a corner-notched dart point, similar to the En Medio complex, which Chapin (2005:141-142) which date to around 2800 to 1600 years ago, or roughly the Late Archaic period.

The other diagnostic isolated occurrence is IOPG2. It consists of an eroded whiteware sherd. The specimen likely represents a portion of the base of a large jar or olla. Whitewares postdate A.D. 1100 in the Taos District (Levine 1994).

4

Summary and Conclusions

Christopher M. Johnston and Mark D. Mitchell

The 2017 and 2018 PCRG Miranda Valley project is one of the few archaeological research surveys conducted there and the first to focus specifically on historic trails. The project's primary goal was to identify and document historic trail segments, including those that may represent Old Spanish Trail-era use of the valley. The fieldwork built on research conducted by the Taos County Historical Society (TCHS) (Hawk 2005-2011). Especially important for PCRG's fieldwork was TCHS researchers' recognition that land grant boundaries were defined by segments of the Camino Real—segments that later became parts of the OST—and therefore that land grant survey markers could be used as proxies for the location of the trail. Hawk and his colleagues located and documented cairns, as well as more recent brass caps, that mark the western boundary of the Rancho del Rio Grande Grant, which followed the Camino Real and OST through the Miranda Valley. PCRG used the TCHS spatial data and notes to plan and execute the project described in this report.

However, archaeological documentation of historic trails is more complex than simply finding trail ruts on the ground. The Miranda Valley has been used as a travel corridor for millennia. PCRG's data shows that American Indians visited the valley for at least 4,000 years, and perhaps longer. Frequent travel through the valley began before the Spanish *entrada* and Spanish colonists and captains regularly used the route in the seventeenth and eighteenth centuries. Even after the Mexican period and the heyday of the OST in the 1830s and 1840s, use continued for local travel. In the twentieth century the valley witnessed timber cutting and recreational use.

This repeated occupation and use of the Miranda Valley over a long period has created a diverse and sometimes complex archaeological record.

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This chapter summarizes PCRG's findings from two field seasons of work in the valley. The first section summarizes trail-related findings, noting the different types of trail traces present in the valley and discussing issues arising from the documentation of historic trail segments. The next section summarizes the diverse and long American Indian use of the valley, highlighting potential shifts in land use strategies over time. The final two sections present recommendations for the National Register of Historic Places (NRHP) eligibility of the documented sites and directions for future research.

Historic Trails in the Miranda Valley

It is a commonplace to say—contrary to the romantic brand conjured by John C. Frémont—that the OST was neither old nor Spanish. Along most of the trail's length that correction holds true. But the Miranda Valley is, along with other segments in northern New Mexico, an exception. There, trail traces dating to the sixteenth and seventeenth centuries or earlier are overlaid by traces dating to the eighteenth, nineteenth, and twentieth centuries. In such a setting it is challenging, and perhaps impossible, to definitively associate a particular trail trace to a particular time period. However, the valley's constrained topography ensures that the most recent uses are better represented on the modern ground surface than the oldest uses.

PCRG identified over thirty different historic trail segments spread among nine different sites. The sites span the entire project area and occur in a variety of topographic settings from ridge tops and hillslopes to the valley bottom and stream crossings. Additionally, the trail segments take on a variety of morphologies which represent multiple modes of transportation.

A general pattern of trail morphology is evident in the valley. Figure 4.1 shows the variations among trail segments documented during the project that illustrates this general pattern. On steeper slopes, trails tend to braid out as people sought the best available tread up a slope or created new treads as older ones became too eroded (figure 4.1[a]). These trails are cut into side-slopes, they are often very subtle, and are generally narrow (figure 4.1[b]).

In flatter, open areas, trail segments are represented by broad swales. They often are paired and are flat-bottomed with narrow sections of intact surface between them (figure 4.1[c]). Near water crossings or on approaches to gaps between ridges, multiple trail segments converge forming deeper swales (figure 4.1[d]). All four of these types are most likely caused by pack animals and human foot traffic. All are too narrow for vehicles such as wagons or carts.

A fifth type was also identified during the project. These are generally wider than the other four and have flat bottoms (figure 4.1[e]). Many are incised two to three feet into the surrounding landscape. These segments are created from wheeled vehicles like wagons pulled by draught animals. The combination of the wheels and hooves flattens out the trail bottom rather than creating ruts, indicating these roads were last used by wagons or other animal-pulled vehicles. As noted in chapter 2, two-track roads created by recent vehicles were not recorded as trail segments during the project.

This diverse trail morphology indicates that trail segments identified in the Miranda Valley represent multiple use episodes; none can be definitively associated with the OST even though archival data clearly indicate the OST traversed the Miranda Valley. Numerous swales are superimposed due to topographic constraints and likely many uses overlap one another and thus most of the swales that are visible today reflect post-OST use. This includes trails that were modified to accommodate wagons and livestock, as well as later commercial uses such as logging. In addition to the trail segments that were obviously wagon routes, other data collected during the field investigation support this later use.

Many of the observed historic artifacts date to the late nineteenth or early twentieth centuries, after the period of significance for the OST. Only a small sample of artifacts dates to the trail era, and most of those have broader temporal ranges that extend beyond the 1840s making it impossible to definitively link them to the OST.

The tree-ring core from a tree growing in the middle of a trail segment at LA189636 also suggests a later use of the trail. The tree has an estimated pith date of A.D. 1871, indicating that the trail segment fell out of use sometime before this. It is possible that the last use of this segment was during the period of the OST; however, given the dense tree growth in the area it is probable the trail continued to be used until shortly before 1871. Additionally, Hawk (2005-2011:90-92) notes that Colonel Sterling Price likely used the route through Miranda Valley in January 1847. Price led 479 men plus four artillery pieces and wagons from Santa Fe to put down a revolt at Taos Pueblo. It is likely although not certain that Price traversed the Miranda Valley.

Figure 4.1. Five trail segments in the Miranda Valley. (A: LA189641; B: LA189638; C: LA189639; D: LA189639; E: LA189638.)

There is no doubt that the OST came through the Miranda Valley. However, subsequent modifications and continued after 1848 has obscured, modified, or destroyed most direct links to the OST. However, the significance of this dynamic network of trails and use in the Miranda Valley extends beyond the OST.

Vargas and the Paraje de Miranda

Prior research has shown that the Miranda Valley was likely used by Don Diego de Vargas in the 1690s (Hawk 2005-2011: 82-88). The first trip, during the Reconquest in 1692, was intended to pressure the northern Pueblos to submit to the Spanish crown.

Vargas' description of his route from Picuris Pueblo to Taos Pueblo, including a measured distance of eight leagues (about 27.5 miles), closely corresponds to the geography of the Miranda Valley. Vargas mentions that a campsite used on this trip was four leagues from each pueblo, which would place it somewhere in the vicinity of two open meadows on the Taos side of the Cuesta del Aire or low pass in the Picuris Mountains, near the head of Arroyo Miranda. Both are ideal locations for a large camp. Blumenschein (1968) called the southernmost the Paraje de Miranda and associates it with Vargas.

Guided by Hawk's research, PCRG conducted intensive metal detector surveys at what is now defined as site LA189635. The site yielded a large metal artifact assemblage representing a diverse set of activities (see chapter 3 for a complete inventory and discussion of this site). The oldest artifacts are brass and iron tinklers, which are believed to be related to American Indian rather than Spanish use of the area. A few other artifacts, including two brass coat buttons, may date to the OST era, or perhaps even earlier. None of the artifacts, however, can be linked to Vargas's camp. This certainly does not disqualify the Paraje de Miranda as the location of the Vargas camp. In fact, the dense artifact assemblage indicates the area is one of the few ideal camp spots along the Miranda Valley road and was extensively used for hundreds or even thousands of years.

Another interesting observation from this area is the distribution of metal artifacts in what are now tree-covered areas southwest of the Paraje de Miranda proper (in the Blocks B and D metal detection areas shown in figure 3.8). Dendrochronology on two trees from LA189636, about 2 km south of the Paraje de Miranda, date to the late nineteenth century. Trees in the area southwest of the Paraje de Miranda meadow may be slightly older, but still likely would date to the early- to mid-nineteenth century, long after Vargas camped in the area. This shows a significant shift in vegetation over time, or perhaps an increase in vegetation after the valley ceased to be intensively used. The metal artifact concentration in the now densely tree-covered area was once open and represented a suitable camp. Perhaps not coincidentally, the oldest artifacts recovered from the site, including the tinklers and brass buttons, come from Blocks B and D in the trees. Future work at this site and others in the valley should consider expanding the survey area beyond the open montane meadows.

Prior Documentation of the Camino Real in the Miranda Valley

Two Laboratory of Anthropology site numbers previously have been assigned to the OST (or Camino Real) through the project area described in this report. LA145318 and LA145319 were assigned in 1989 to document putative trail segments within the current project area. A third number, LA145317, was assigned to a section of trail south of the valley and outside the project area. Merlan and others (2011:64-65) summarizes the history of these site records, which were initially prepared for a nomination to the NRHP; however, none of the properties were listed.

The PCRG fieldwork identified important differences between the earlier recordings and what is currently present on the modern ground surface. It appears that the initial recordings represent a Forest Service road on the east side of Arroyo Miranda (LA145319) and another recent road in the bottom of an unnamed tributary of Osha Canyon (LA145318). Neither follows grant boundary markers that TCHS researchers interpreted as the route of the Camino Real or OST. Perhaps significantly, topographic maps of the area label the locations of the 1989 sites as routes of the Camino Real, but this likely is an error on the part of the map makers.

In 2017, the research team recognized that lidar data would be valuable for documenting trail segments, especially more ephemeral swales. The research team acquired lidar data prior to the 2018 survey and those data proved crucial. Figure 4.2 illustrates bare-earth surface models derived from lidar data that show the trail segments documented by PCRG as well as the 1989 trail segments. The surface models clearly show linear features that PCRG identified in the field as historic trail segments. By contrast, the 1989 sites are clearly two-track road segments. Other recent two-track road are also visible in the surface models. Historic trail segments tend to be straighter, an attribute which could be used to help identify possible trails using only lidar data. In any case, PCRG's research shows that, when combined with suitable ground-truthing, analysis of surface models derived from lidar data can be invaluable for identifying and documenting historic trails.

Although the OST was more than a single track, and a variety of factors affected specific route choices, the preponderance of evidence—including archival, archaeological, and remote sensing data—shows that the 1989 recordings are probably in error. As Merlan

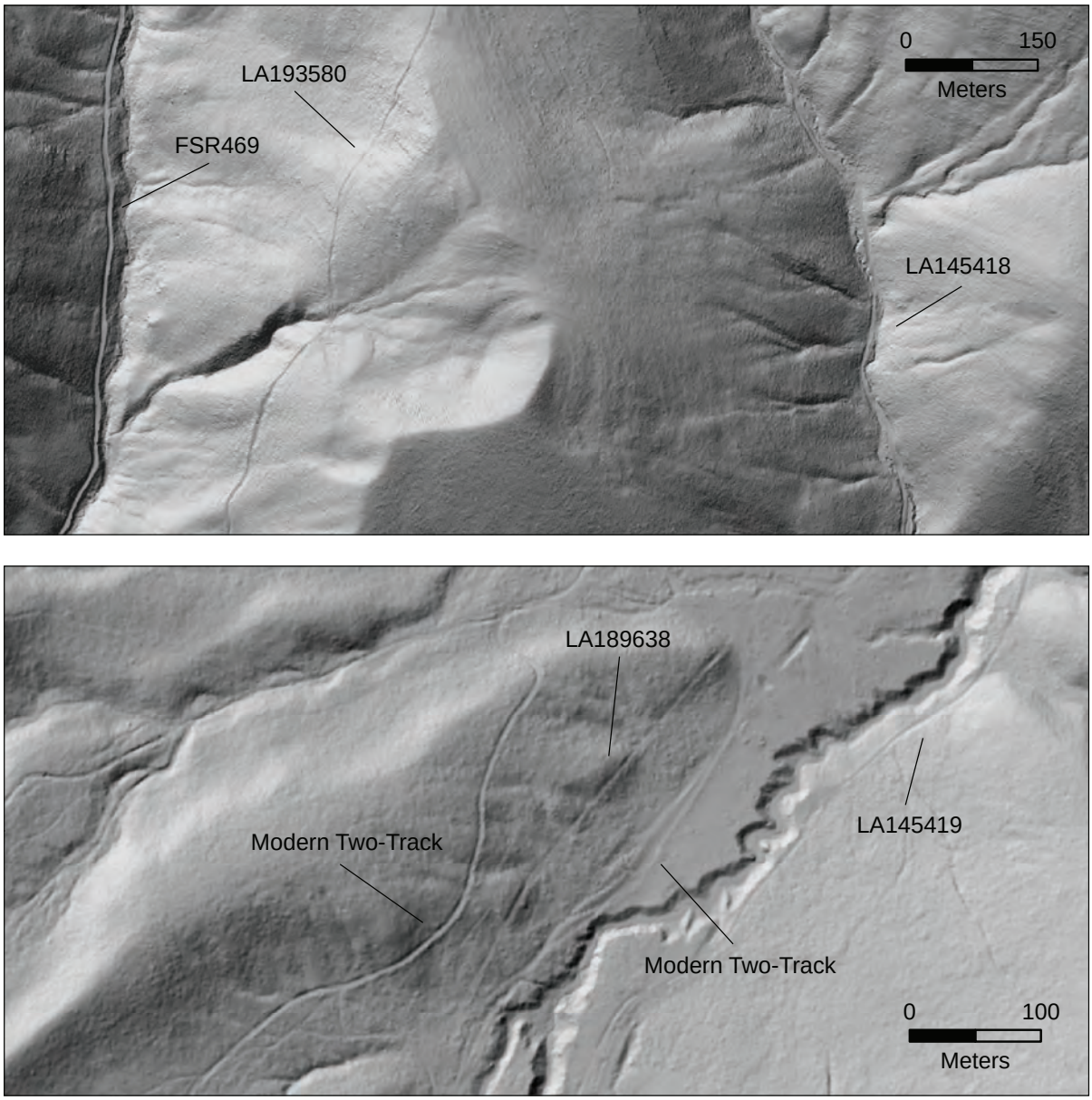

Figure 4.2. Hillshaded bare-earth surface models of two sections of the PCRG project area. The upper view shows the ridge between Telephone Canyon and an unnamed tributary of Osha Canyon. The lower view shows a portion on the upper section of the Miranda Valley.

and others (2011:65) note, the trail can only truly be defined by field survey, implemented in the context of specific criteria for defining what can and cannot plausibly represent a historic trail. PCRG's research further demonstrates that the historic trail network through the valley is much more complex than a single route.

American Indian Use of the Miranda Valley

Although the primary purpose of this project was to document historic trails, other archaeological resources were recorded as they were encountered. The documented sites reveal several clear patterns of land use over a period of some 4,000 years. Prior to the PCRG fieldwork, only ten sites with prehistoric components had been recorded in the Miranda Valley (see table 1.2 in chapter 1 for a complete list).

The 2017 and 2018 fieldwork documented 15 sites with prehistoric components, more than doubling the inventory of known sites. These sites represent a range of activities, from hunting and procurement of plant resources, to farming and habitation. There is also evidence of lithic raw material procurement at several sites. Regionally, procurement of siliceous rhyolite is not well documented. More could be done to understand this activity, particularly as rhyolite is not common in the area.

None of the previously recorded sites in the valley contained Archaic components. By contrast, six sites and two isolated occurrences documented in 2017 and 2018 contain Archaic-age artifacts (figure 4.3). All of these contain projectile points that date to the Middle and Late Archaic. Nearly all the identifiable Archaic projectile points are fragments, and most appear to have impact fractures.

The most abundant Archaic point style is the Moquino point which dates to between 4,200 and 3,200 years ago (Chapin 2005:137-139). Another common point style observed during the project was the En Medio point, which Chapin (2005:141-142) dates to around 2,800 to 1,600 years ago. Together, these two styles alone show continued use throughout the Middle and Late Archaic from about 4,200 years ago until about 1,600 years ago.

Although it is a limited sample, the fragmented

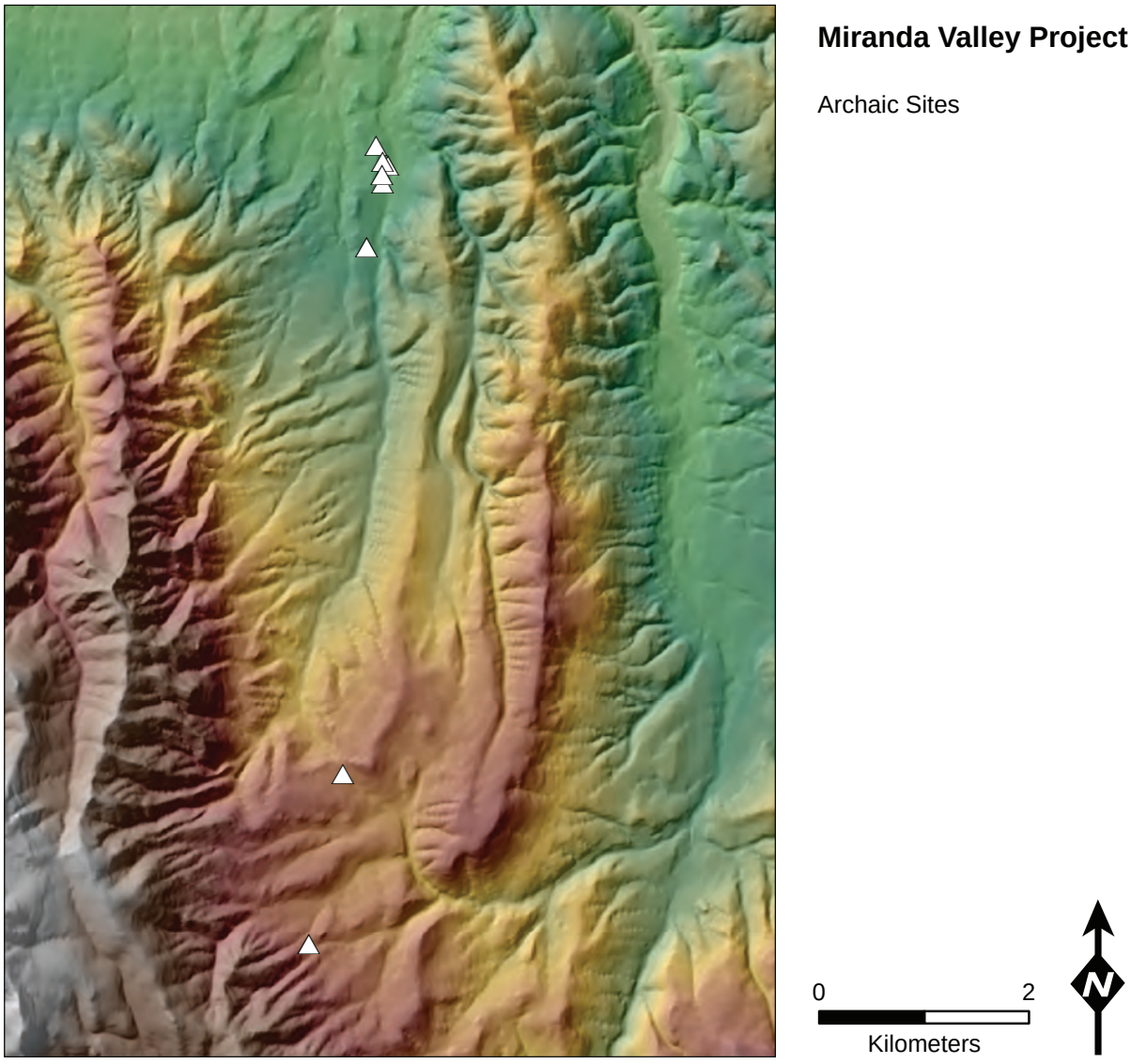

Figure 4.3. Map showing the distribution of sites with Archaic artifacts in the Miranda Valley.

nature of many of the Archaic points indicates an emphasis on hunting. Only a limited number of ground stone tools were found at sites containing Archaic points, further highlighting the likely emphasis on hunting in the valley as opposed to other resource procurement strategies.

The emphasis on hunting during the Archaic contrasts sharply with the evidence from later sites. Only two arrow points were observed during the field investigations, including one at an isolated occurrence. The shift in land use strategies from the Archaic to the Pueblo periods warrants further investigation and more detailed analysis. However, the rather extensive pottery assemblage observed during the fieldwork along with feature data from LA145337 does offer some reason to believe that the change is real.

Site LA145337, which was originally identified by Herold (1968) and now includes what had been site LA145338, is a high elevation Valdez phase occupation with two pithouses and an associated midden feature. Given the presence of this full range of features and domestic debris, the site is clearly not a field house. Instead, it more likely represents a farmstead. The presence of a large spring, which during the fieldwork was active, may have aided the agricultural production and in fact may be the reason that the location was selected. Given the clear focus on farming during this period, it is likely that hunting was probably only an encounter-based system rather than a coordinated or targeted endeavor.

Ceramic evidence points primarily to two periods of American Indian occupation of the Miranda Valley (figure 4.4). A majority of the pottery that PCRG documented in 2017 and 2018 dates to the Valdez phase (table 4.1). Apart from three Santa Fe Black-on-White bowl rims, the decorated white ware assemblage consists entirely of Taos Black-on-White. Although production of Taos Black-on-White continued into the Pot Creek phase, the absence of Taos Gray Corrugated variety sherds in the observed collection argues against a significant Pot Creek phase use of the Miranda Valley. This pattern—a spatially extensive Valdez phase occupation and a lack of Pot Creek phase occupation—supports the previously identified regional settlement pattern that argues for population aggregation out of widely distributed Valdez phase farmsteads and hamlets into fewer but larger Pot Creek phase pueblos.

A second period of American Indian occupation of the Miranda Valley is represented by a small number of micaceous ware, glaze ware, and historic plain ware sherds. Micaceous ware sherds occur at four sites, historic plain ware sherds occur at two sites, and glaze ware sherds occur at one site. Together, these specimens point to post-A.D. 1600 use of the valley. The glaze ware sherds from LA145337 likely were produced between A.D. 1515 and 1720. Cimarron Micaceous, the only identified micaceous type, was produced between A.D. 1750 and 1920. Tewa Red (Northern Rio Grande Historic Plain Ware) was produced primarily between A.D. 1650 and 1760.

Notably absent from the ceramic inventory are sherds dating to the late Coalition and Rio Grande Classic. This suggests only limited use of the valley, either as a transportation corridor or for resource procurement, between the early Coalition and the arrival of the Spanish.

The earlier period of American Indian occupation represented by Valdez phase ceramics included habitation sites, special-use sites, and limited activity sites. The later period included only limited activity sites. This comparatively ephemeral occupancy may indicate that the Miranda Valley was used primarily as a travel corridor after A.D. 1600.

In addition to the pottery assemblage, metal artifacts that post-date A.D. 1600 corroborate American Indian use of the valley. These primarily come from LA189635, the Paraje de Miranda, and include cut metal that appears to either be for projectile point or tinkler manufacture. Brass and iron tinklers were also documented. Although ephemeral, the trail routes used by Vargas, by OST traders, and others, almost certainly followed routes first established by American Indians.

Eligibility Recommendations

While this project was not tied to a specific undertaking or potential impacts, cultural resources were evaluated for their eligibility to be included on the National Register of Historic Places (NRHP). To be recommended as eligible for inclusion on the NRHP, resources must maintain aspects of their integrity relative to location, setting, design, materials, workmanship, feeling, and association, and meet one or more of the following criteria:

A) Associated with events that have made a significant contribution to the broad pattern of our history.
B) Associated with the lives of persons significant in our past.

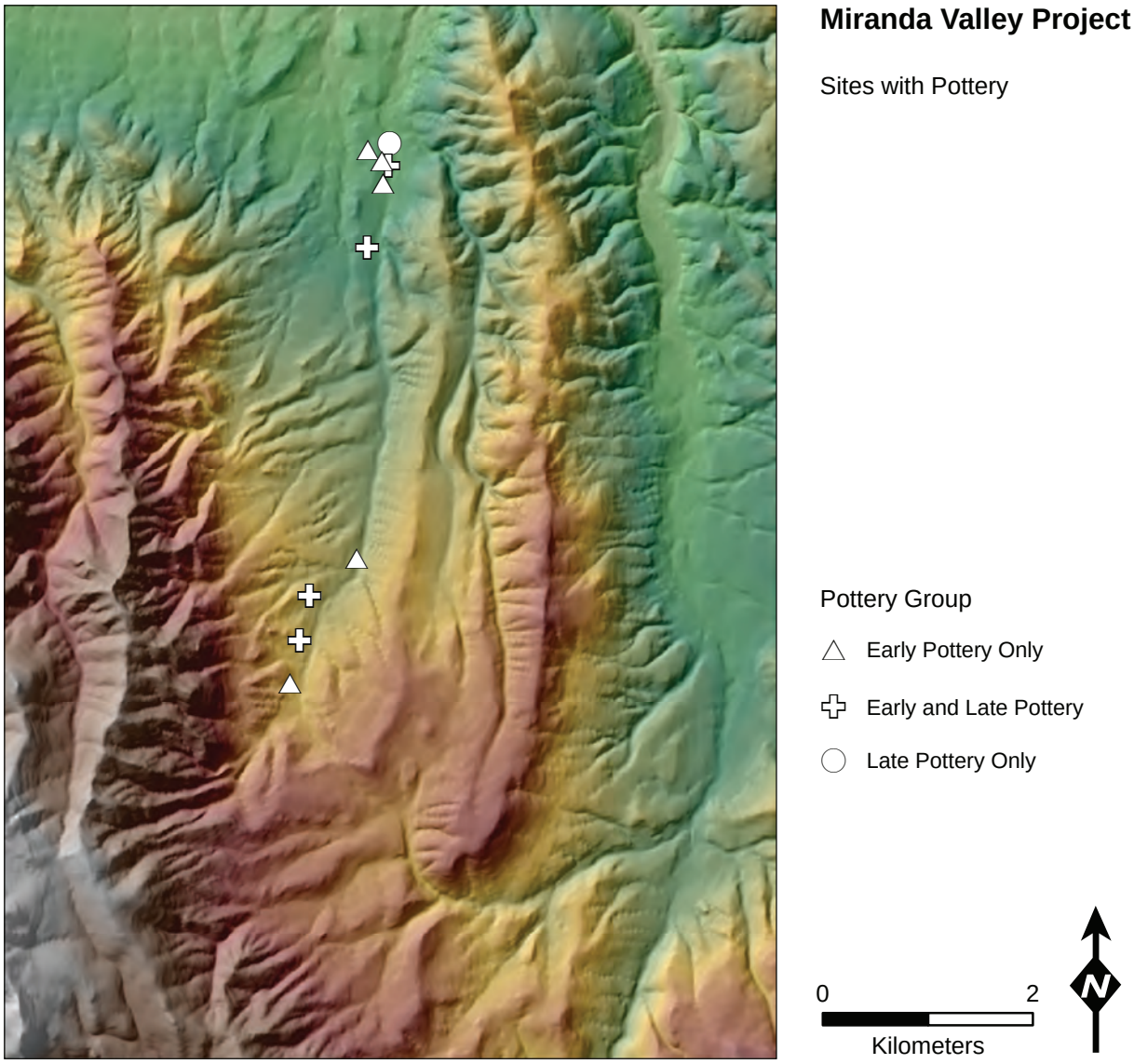

Figure 4.4. Map showing the distribution of sites with ceramic artifacts in the Miranda Valley.

C) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.
D) Has yielded, or may be likely to yield, information important in history or prehistory.

Resources that do not meet one or more of these criteria are recommended as not eligible for inclusion on the NRHP. Cultural resources may be recommended as needing additional data, meaning that further work is necessary at a site to properly evaluate NRHP eligibility.

The field investigations documented 25 sites and six isolated occurrences, all of which are described in chapter 3. The six isolated occurrences are not eligible for the NRHP. Of the 25 sites, 10 are recommended as eligible for the NRHP, three are recommended as needing additional data, and 12 are recommended as not eligible. This section provides the basis of the recommendation for each site, beginning with eligible sites.

Table 4.1. Summary of pottery data.

Resource Number	Pottery Type	Vessel Form	Vessel Part	Count
LA145336	Taos Black-on-White	Bowl and Jar	Multiple	14
	Taos Gray	Jar	Not determined	1
	Unidentified brown ware	Jar?	Not determined	2
LA145337	Taos Black-on-White	Bowl and Jar	Multiple	Not tallied
	Taos Black-on-White	Worked Sherd	n/a	1
	Taos Gray	Jar	Multiple	Not tallied
	Taos Gray Plain	Pipe	Complete	1
	Unidentified brown ware	Pinch Pot	Rim and body	1
	Cimarron Micaceous	Jar	Rim	1
	Cimarron Micaceous	Jar	Body	1
	Glaze E or F	Bowl	Rim	1
	Runny glaze body	Bowl	Base	3
LA189640	Taos Gray	Jar	Body	1
LA193570	Unidentified micaceous ware	Jar	Body	1
LA193572	Taos Black-on-White	Bowl	Rim	1
	Taos Gray	Jar	Handle	1
LA193573	Taos Black-on-White	Bowl	Body	1
	Indeterminate whiteware	Bowl	Body	2
	Taos Gray Plain	Jar	Rim	1
	Taos Gray	Jar	Body	4
	Taos Gray	Jar	Base	1
	Cimarron Micaceous	Jar	Rim	1
	Northern Rio Grande Historic Plainware (Tewa Red?)	Jar	Body	1
LA193576	Santa Fe Black-on-White	Bowl	Rim	2
	Taos Black-on-White	Bowl	Rim or body	6
	Indeterminate whiteware	Bowl	Body	1
	Northern Rio Grande Historic Plainware (Tewa Red?)	Jar	Rim or body	19
	Unidentified micaceous ware	Jar?	Body	1
LA193578	Taos Black-on-White	Bowl	Body	11
	Kwahe'e Black-on-White	Jar	Body	1
	Indeterminate whiteware	Bowl?	Body	1
	Indeterminate whiteware	Jar?	Body	1
	Taos Gray	Jar	Rim	1
	Taos Gray	Jar	Body	1
	Taos Gray	Jar	Rim or body	4
LA193583	Taos Gray Incised	Jar	Neck	1
	Taos Gray	Jar	Body	Not tallied
	Indeterminate whiteware	Jar	Body	Not tallied
IF-PG2	Indeterminate whiteware	Jar	Base	1

Eligible Sites

Ten sites recorded during the two field investigations are recommended as eligible. Nine are trail segments associated with the OST or historic transportation in the Miranda Valley. The other site is a high elevation farming hamlet with multiple pithouses and other features, that dates to the Valdez phase.

LA145337 (AR-03-02-04-00409)

LA145337 was first recorded in 1975 by archaeologists with the Carson National Forest but a record was never submitted to the ARMS database. Another site from the same project, LA145338, was also identified during the fieldwork in 2017 and it was determined that these two sites overlap and should be documented

as one. Thus, what was LA145338 is now all recorded as LA145337. Both sites were initially identified by Herold (1968:23, Fig. 2) but were not documented in the ARMS database. The site contains a dense artifact scatter and three features, including two pithouses and one midden deposit that has partially eroded out of a roadcut from a modern two-track. The pithouses each have over 1 m of intact, buried deposits. The site is recommended as eligible for the NRHP under criteria D because it has the potential to yield important information about Valdez phase archaeology in the Miranda Valley and surrounding areas.

LA189635 (AR-03-02-04-00410)

LA189635 consists of five metal detection areas with a dense scattering of historic artifacts and 10 trail traces (LN1-LN9) in and near a broad, open meadow. This area is thought to be a potential spot for a de Vargas campsite between Picuris and Taos in 1692. The site is recommended as eligible for the NRHP under criteria A because it is believed to be a segment of the Old Spanish Trail through the Miranda Valley and thus is associated with events that have made a significant contribution to several aspects of the history of the American west. These include exploration, commerce, immigration, settlement, and military expeditions and travel. The site is also eligible under criteria D because it has the potential to yield additional important information about the use of the trail. No artifacts were observed that can be directly dated to the de Vargas camp but additional work, including additional metal detector surveys, could yield additional materials that might related to the 1692 occupation.

LA189636 (AR-03-02-04-00411)

LA189636 consists of three trail trace segments (LN1-LN3) and one culturally modified tree. The site is recommended as eligible for the NRHP under criteria A because it is believed to be a segment of the Old Spanish Trail through the Miranda Valley and thus is associated with events that have made a significant contribution to several aspects of the history of the American west. These include exploration, commerce, immigration, settlement, and military expeditions and travel. The site is also eligible under criteria D because it has the potential to yield additional important information about the use of the trail.

LA189637 (AR-03-02-04-00412)

LA189637 consists of one trail trace segment. The site is recommended as eligible for the NRHP under criteria A because it is believed to be a segment of the Old Spanish Trail through the Miranda Valley and thus is associated with events that have made a significant contribution to several aspects of the history of the American west. These include exploration, commerce, immigration, settlement, and military expeditions and travel. The site is also eligible under criteria D because it has the potential to yield additional important information about the use of the trail.

LA189638 (AR-03-02-04-00413)

LA189638 consists of three trail traces (LN1, LN2a, LN2b). The site is recommended as eligible for the NRHP under criteria A because it is believed to be a segment of the Old Spanish Trail through the Miranda Valley and thus is associated with events that have made a significant contribution to several aspects of the history of the American west. These include exploration, commerce, immigration, settlement, and military expeditions and travel. The site is also eligible under criteria D because it has the potential to yield additional important information about the use of the trail.

LA189639 (AR-03-02-04-00414)

LA189639 consists of six trail segments (LN1, LN2a-b, LN3 to LN6). The site is recommended as eligible for the NRHP under criteria A because it is believed to be a segment of the Old Spanish Trail through the Miranda Valley and thus is associated with events that have made a significant contribution to several aspects of the history of the American west. These include exploration, commerce, immigration, settlement, and military expeditions and travel. The site is also eligible under criteria D because it has the potential to yield additional important information about the use of the trail.

LA189641 (AR-03-02-04-00416)

LA189641 is a multicomponent site consisting of five linear features (LN1-LN5), four culturally modified trees (CMT1-CMT4), sparsely scattered historic artifacts, and an artifact concentration (AC1)

consisting of lithics and historic artifacts. The site is recommended as eligible for the NRHP under criteria A because it is believed to be a segment of the Old Spanish Trail through the Miranda Valley and thus is associated with events that have made a significant contribution to several aspects of the history of the American west. These include exploration, commerce, immigration, settlement, and military expeditions and travel. The site is also eligible under criteria D because it has the potential to yield additional important information about the use of the trail. The prehistoric component of the site is not considered to be contributing to the eligibility recommendation.

LA189642 (AR-03-02-04-00417)

LA189642 is a newly recorded site consisting of two possible trail segments (LN1, LN2), and three culturally modified trees (CMT1-CMT3). The site is recommended as eligible for the NRHP under criteria A because it is believed to be a segment of the Old Spanish Trail through the Miranda Valley and thus is associated with events that have made a significant contribution to several aspects of the history of the American west. These include exploration, commerce, immigration, settlement, and military expeditions and travel. The site is also eligible under criteria D because it has the potential to yield additional important information about the use of the trail.

LA193579 (AR-03-02-04-00427)

LA193579 is a linear resource that encompasses 13 swale segments (LN1 to LN13). The site is recommended as eligible for the NRHP under criteria A because it is believed to be a segment of the Old Spanish Trail through the Miranda Valley and thus is associated with events that have made a significant contribution to several aspects of the history of the American west. These include exploration, commerce, immigration, settlement, and military expeditions and travel. The site is also eligible under criteria D because it has the potential to yield additional important information about the use of the trail.

LA193580 (AR-03-02-04-00428)

LA193580 is a long trail segment that climbs to the northeast up a steep west-facing slope of Telephone Canyon. The site is recommended as eligible for the NRHP under criteria A because it is believed to be a segment of the Old Spanish Trail through the Miranda Valley and thus is associated with events that have made a significant contribution to several aspects of the history of the American west. These include exploration, commerce, immigration, settlement, and military expeditions and travel. The site is also eligible under criteria D because it has the potential to yield additional important information about the use of the trail.

Needs Data Sites

Three sites were recorded during the field investigations that require additional data before an eligibility recommendation can be made. These include one multicomponent site where only the prehistoric component is recommended as needing data (the historic component is not considered to be contributing to possible eligibility for the NRHP); a site with one culturally modified tree; and a prehistoric open camp site.

LA193573 (AR-03-02-04—00421)

LA193573 is a multicomponent site along the west side of Miranda Arroyo. The site includes a dense scatter of chipped stone artifacts and pottery, along with two features that have dark, charcoal stained sediment and one fire altered rock. Salvage of these features was beyond the scope of this project and additional work will be needed to determine their age and function. For this reason, the site is recommended as needing additional data before a recommendation of eligibility can be determined. Much of the site is deflated and eroded with American Indian cultural materials confined to the surface; however, two areas of cultural staining were found in the southeastern portion of the site in the road cut bank which suggests aeolian sediments of unknown depth may preserve intact features that could yield datable materials associated with American Indian chronology or subsistence in the Miranda Valley. The historic component is not considered to be contributing to the needs data recommendation.

LA193581 (AR-03-02-04-00429)

LA193581 is one culturally modified tree (CMT) that is on a steep, east-facing slope above a deep drainage and on the eastern edge of a two-track road. The CMT is a ponderosa tree that stands approximately 35 m

tall and has a diameter at breast height of about 57 cm. The exact function and age of the peel is unknown and needs further study and dendrochronology before an eligibility recommendation can be made.

LA193583 (AR-03-02-04-00430)

LA193583 is a prehistoric site that partially overlaps the central, western boundary of LA189635 in one of the metal detecting blocks. The site consists of lithics, ground stone, ceramics, and a rhyolite procurement area. A possible thermal feature was also recorded. The feature is approximately 70 cm in diameter and is located on the northeast edge of the concentration. The feature consists of a cluster of 5 to 10 cm cobbles including several rhyolite tested cobbles, one of which appears to be heat fractured. No charcoal stained sediment was visible. Additional work, including salvage of any feature fill, is needed before an eligibility recommendation can be made.

Not Eligible Sites

Twelve sites were recorded during the field investigations that are recommended as not eligible for the NRHP. Most of these sites have artifacts resting on the surface with no potential for buried cultural deposits.

LA145336 (AR-03-02-04-00408)

LA145336 is an American Indian artifact scatter and was first documented in 1975 by archaeologists with the Carson National Forest but a record was never submitted to the ARMS database. The initial recording documented the presence of one pithouse which was not observed during the 2017 recording. No features were found and cultural materials rest at the surface on residual sediment with no potential for intact, subsurface cultural levels that could yield additional information relating to American Indian use of the area. This site is recommended as not eligible for the NRHP.

LA189640 (AR-03-02-04-00415)

LA189640 is a multicomponent site consisting mostly of historic artifacts scattered across a fairly confined area within a broad, open meadow. The broad open meadow is thought to be one of two potential areas that are believed to be the campsite that de Vargas used on his 1692 route between Picuris and Taos. However, no artifacts were observed which date to this period and instead nearly all date to a late nineteenth to mid-twentieth century occupation, likely related to one of the many logging episodes in the Miranda Valley. The artifacts, many of which were documented during intensive metal detector survey, all sit at or just below the surface. There is no potential for additional information to be learned at this site and thus it is recommended at not eligible for the NRHP.

LA193570 (AR-03-02-04-00418)

LA193570 is an American Indian artifact scatter located in the valley bottom on the west side of Arroyo Miranda. No features were found and cultural materials rest at the surface on residual sediment with no potential for intact, subsurface cultural levels that could yield additional information relating to American Indian use of the area. This site is recommended as not eligible for the NRHP.

LA193571 (AR-03-02-04-00419)

LA193571 is an American Indian lithic scatter located on a broad, low ridge on the west side of Arroyo Miranda and at the northern base of the steep slopes that make up the west side of the Miranda Valley. No features that could yield additional materials relating to chronology, subsistence, or other activities important to regional archaeology were found. Cultural materials rest at the surface on residual sediment with no potential for intact, subsurface cultural levels. This site is recommended as not eligible for the NRHP.

LA193572 (AR-03-02-04-00420)

LA193572 is a multicomponent site located on a broad, low ridge on the west side of Arroyo Miranda. No features were found and the cultural materials rest on deflated and eroded residual sediment with no potential for intact, buried cultural levels or datable features. This site is recommended as not eligible for the NRHP.

LA193574 (AR-03-02-04-00422)

LA193574 is a small lithic scatter that sits at the toe of a low finger ridge west of Arroyo Miranda. No diagnostic artifacts or other dateable materials were

found. The site rests on rocky residual sediment with no potential for subsurface cultural levels or features that could provide additional information relating to local or regional archaeology. The site is recommended as not eligible for the NRHP.

LA193575 (AR-03-02-04-00423)

LA193575 is a small lithic scatter spread sparsely across a slightly east-facing slope. No diagnostic artifacts or other dateable materials were found. The site rests on rocky residual sediment with no potential for subsurface cultural levels or features that could provide additional information relating to local or regional archaeology. The site is recommended as not eligible for the NRHP.

LA193576 (AR-03-02-04-00424)

LA193576 is a multicomponent site spread across an area on the west bank of Arroyo Miranda. No features were found and the cultural materials rest on deflated and eroded residual sediment with no potential for intact, buried cultural levels or datable features. This site is recommended as not eligible for the NRHP.

LA193577 (AR-03-02-04-00425)

LA193577 is a sparse American Indian lithic scatter located on a long, low ridge on the west side of Arroyo Miranda. No diagnostic artifacts or other dateable materials were found. The site rests on rocky residual sediment with no potential for subsurface cultural levels or features that could provide additional information relating to local or regional archaeology. The site is recommended as not eligible for the NRHP.

LA193578 (AR-03-02-04-00426)

LA193578 is a broad, sparse American Indian artifact scatter on a low bench on the west bank of Arroyo Miranda. No features were found and the cultural materials rest on deflated and eroded residual sediment with no potential for intact, buried cultural levels or datable features. This site is recommended as not eligible for the NRHP.

LA193584 (AR-03-02-04-00431)

LA193584 is a small prehistoric site that partially overlaps the southern boundary of LA189637. The site consists of a small lithic and ground stone scatter distributed along a two-track road with artifacts redeposited down slope. No features were found and the cultural materials rest on deflated and eroded residual sediment with no potential for intact, buried cultural levels or datable features. This site is recommended as not eligible for the NRHP.

HCPI46300 (AR-03-02-04-00432)

HCPI46300 is an unnamed ditch that runs generally northwest to southeast following the contour of the slope near the base of the ridge that makes up the east side of Telephone Canyon. The ditech does not appear to be maintained or in use. The ditch may be associated with early irrigation for agriculture in the area; however, it is a simple field ditch with no associated features or artifacts and exhibits no unique construction or design elements. This recording has exhausted its potential to contribute information relating to local irrigation and agriculture. The site is recommended as not eligible for the NRHP.

Future Research

The research presented in this report sets the stage for additional work in the Miranda Valley. Prior to this work, no Archaic occupations had been documented in the valley. Now, seven different localities have evidence for Middle and Late Archaic use of the area. Additional survey and documentation would likely prove productive and contribute to a broader understanding of this poorly understood period.

Site LA145337, the Valdez phase site with two pithouses, has great potential to provide additional information on later American Indian use of the valley. The two pithouses contain over 1 m of intact buried deposits. The site is believed to be a farmstead and additional work, including targeted excavations, would add to the Valdez phase literature for the region. This work, and other work with post-Archaic sites, would also help clarify the observed change in land use strategies over time.

There is also great potential to document additional historic trail segments in the Miranda Valley. Future survey for trails should combine the "boundless" survey method used in 2017 with the full-coverage pedestrian survey method used in 2018. As the research presented here has shown, the trails are not one continuous route but rather a complex network of swales and treads that require flexible methods like

the boundless survey. However, capturing the full suite of trail traces likely will require full coverage of designated valley sections. Focused recording of individual swales, using a form such as the one shown in figure 2.2 and a set of clearly defined swale attributes, is crucial for isolating trail segments from surface features unrelated to historic transportation.

References Cited

Baugh, Timothy G., and Fred W. Nelson
1987 New Mexico Obsidian Sources and Exchange on the Southern Plains. *Journal of Field Archaeology* 14:313-329.

Bevilacqua, Chris M., and Steven Dominguez
2011 Environment. In *Draft Archeology of Great Sand Dunes National Park and Preserve Alamosa and Saguache Counties, Colorado*, edited by Chris M. Bevilacqua, Robert G. Wunderlich, Jr., Marilyn A. Martorano, and Eric M. Hendrickson, pp. 42-62. RMC Consultants, Inc., Wheat Ridge, Colorado. Submitted to the National Park Service, Denver.

Black, Kevin D.
1991 Archaic Continuity in the Colorado Rockies: The Mountain Tradition. *Plains Anthropologist* 36(133):1-29.
2000 Lithic Sources in the Rocky Mountains of Colorado. In *Intermountain Archaeology*, edited by David B. Madsen and Michael D. Metcalf, pp. 132-147. Anthropological Papers No. 122. University of Utah Press, Salt Lake City.
2007 *An Archaeological Inventory in the Pike's Stockade Area, Conejos County, Colorado*. Colorado Historical Society, Office of the State Archaeologist of Colorado, Program for Avocational Archaeological Certification, Denver.

Blumenschein, Helen
1968 Historic Roads and Trails to Taos. *El Palacio* 75(1):9–19.

Boyer, Jeffrey L.
2008 North People and South People: Ethnohistorical and Archaeological Evidence for the Origins and Organization of Taos Pueblo. In *Chasing Chaco and the Southwest: Papers in Honor of Frances Joan Mathien*, edited by Regge Wiseman, T. O'Laughlin, C. Snow, and C. Travis, pp. 19-35. Papers 34. Archaeological Society of New Mexico, Albuquerque.

Boyer, Jeffrey L., James L. Moore, Daisy F. Levine, Linda Mick-O'Hara, and Mollie S. Toll
1994 *Studying the Taos Frontier: The Pot Creek Data Recovery Project.* Archaeology Notes 68. Museum of New Mexico, Office of Archaeological Studies, Santa Fe.

Boyer, Jeffrey L., James L. Moore, and Lisa A. Ooten
2001 Volcanic Chipped Stone Quarries: A Preliminary Investigation of Major Material Sources on the Taos Plateau. In *Chipped Stone Material Procurement and Use: Data Recovery Investigations Along NM 522, Taos County, New Mexico*, edited by Jeffrey L. Boyer and James L. Moore, pp. 99-118. Archaeology Notes 292. Museum of New Mexico, Office of Archaeological Studies, Santa Fe.

Bradley, Bruce A.
2010 Paleoindian Flaked Stone Technology in the Plains and in the Rockies. In *Prehistoric Hunters of the High Plains and Rockies*, 3rd ed., edited by Marcel Kornfeld, George C. Frison, and Mary Lou Larson, pp. 463-497. Left Coast Press, Walnut Creek, California.

Bureau of Land Management and National Park Service (BLM and NPS)
2017 *Old Spanish National Historic Trail Comprehensive Administrative Strategy.* Electronic document, https://parkplanning.nps.gov/document.cfm?parkID=454&projectID=12591&documentID=83540, accessed August 13, 2019.

Cappa, James A., and Chester A. Wallace
2007 *Geology and Mineral Resources of Saguache County, Colorado.* Resource Series 44. Department of Natural Resources, Colorado Geological Survey, Denver.

Chapin, Charles E.
1979 Evolution of the Rio Grande Rift: A Summary. In *Rio Grande Rift: Tectonics and Magmatism*, edited by Robert E. Riecker, pp. 1-6. Special Publications Series 14. American Geophysical Union, Washington, D.C.

Chapin, Nicholas M.
2005 Hunter-Gatherer Technological Organization: The Archaic Period in Northern New Mexico. Unpublished Ph.D. dissertation, Department of Anthropology, University of New Mexico, Albuquerque.

Colville, Ruth Marie
1996 *La Vereda: A Trail through Time.* San Luis Historical Society, Alamosa, Colorado.

Cordell, Linda S.
1979 *A Cultural Resources Overview of the Middle Rio Grande Valley, New Mexico.* U.S. Forest Service, Southwestern Region, Albuquerque, and Bureau of Land Management, New Mexico State Office, Santa Fe.

Corral, Patricia G.
1996 Bark Substance Utilization in the Warm Springs Area: A Northern New Mexico Example. Unpublished Master's thesis, Department of Behavioral Sciences, New Mexico Highlands University, Las Vegas, New Mexico.

Crown, Patricia L.
1990 The Chronology of the Taos Area Anasazi. In *Clues to the Past: Papers in Honor of William M. Sundt*, edited by Meliha S. Duran and David T. Kirkpatrick, pp. 63-74. Papers 16. Archaeological Society of New Mexico, Albuquerque.
1991 Evaluating the Construction Sequence and Population of Pot Creek Pueblo, Northern New Mexico. *American Antiquity* 56(2):291-314.

Dixon, Hobart N.
1971 Flora of the San Luis Valley. In *Guidebook of the San Luis Basin, Colorado*, edited by H. L. James, pp. 133-136. Fall Field Conference Guidebook 22. New Mexico Geological Society.

Eiselt, B. Sunday
2009 The Jicarilla Apaches and the Archaeology of the Taos Region. In *Between the Mountains, Beyond the Mountains: Papers in Honor of Paul R. Williams*, edited by Emily J. Brown, Karen Armstrong, David M. Brugge, and Carol J. Condie, pp. 57-70. Papers 35. Archaeological Society of New Mexico, Albuquerque.
2012 *Becoming White Clay: A History and Archaeology of Jicarilla Apache Enclavement*. University of Utah Press, Salt Lake City.

Eiselt, B. Sunday, and J. Andrew Darling
2012 Vecino Economics: Gendered Economy and Micaceous Pottery Consumption in Nineteenth Century Northern New Mexico. *American Antiquity* 77(3):424-448.

Federal Interagency Council on the National Trails System
2017 The National Trails System Memorandum of Understanding. Electronic document, https://www.nps.gov/subjects/nationaltrailssystem/upload/National_Trails_System_MOU_2017-2027.pdf, accessed September 22, 2019.

Fowles, Severin M.
2005 Historical Contingency and the Prehistoric Foundations of Moiety Organization Among the Eastern Pueblos. *Journal of Anthropological Research* 61:25-52.
2009 The Enshrined Pueblo: Villagescape and Cosmos in the Northern Rio Grande. *American Antiquity* 74(3):448-466.

Fowles, Severin M., Jimmy Arterberry, Heather Atherton, and Lindsay Montgomery
2017 Comanche New Mexico: The Eighteenth Century. In *New Mexico and the Pimería Alta: The Colonial Period in the American Southwest*, edited by John G. Douglass and William M. Graves, pp. 157-186. University of Colorado Press.

Frison, George C.
1992 The Foothills-Mountains and the Open Plains: The Dichotomy in Paleoindian Subsistence Strategies Between Two Ecosystems. In *Ice Age Hunters of the Rockies*, edited by Dennis J. Stanford and Jane S. Day, pp. 323-342. University Press of Colorado, Boulder.

Geib, Phil R., and Edward A. Jolie
2018 The Rise of Broad-Spectrum Foraging on the Colorado Plateau during the Early Holocene. In *The Archaic Southwest: Foragers in an Arid Land*, edited by Bradley J. Vierra, pp. 189-214. University of Utah Press, Salt Lake City.

Girard, Jeffrey S.
1986 *Summary of the 1986 SMU Archaeological Field School Survey*. Southern Methodist University, Fort Burgwin Research Center, Taos, New Mexico.
1988 *Investigations at Archaeological Sites in the Carson National Forest, Taos County, New Mexico*. Southern Methodist University, Fort Burgwin Research Center, Taos, New Mexico.

Glascock, Michael D., Raymond Kunselman, and Daniel Wolfman
1999 Intrasource Chemical Differentiation of Obsidian in the Jemez Mountains and Taos Valley Plateau, New Mexico. *Journal of Archaeological Science* 26:861-868.

Green, Ernestene L.
1976 *Valdez Phase Occupation Near Taos, New Mexico.* Publication 10. Southern Methodist University, Fort Burgwin Research Center, Dallas, Texas.

Hafen, LeRoy R., and Ann W. Hafen
1993 [1954] *Old Spanish Trail: Santa Fe to Los Angeles*. University of Nebraska Press, Lincoln.

Haecker, Charles M., Douglas D. Scott, and Patrick Severts
2019 Metal Detection, An Essential Remote Sensing Approach for Historical Archaeologists. *Reviews in Colorado Archaeology* 2(Article 1):1-17.

Hawk, Charles C.
2005-2011 Caminos Antiguos: Historic Trails into Taos Valley. Manuscript on file, Carson National Forest Supervisor's Office, Taos, New Mexico. Taos County Historical Society, Taos, New Mexico.
2009 Caminos Antiguos: Historic Trails, Archaeology and History in Taos. In ***Between the Mountains, Beyond the Mountains: Papers in Honor of Paul R. Williams***, edited by Emily J. Brown, Karen Armstrong, David M. Brugge, and Carol J. Condie, pp. 81-94. Papers 35. Archaeological Society of New Mexico, Albuquerque.

Hendrickson, Eric, Marilyn A. Martorano, Robert G. Wunderlich, Jr., and Susan East
2011 ***A Class III Cultural Resource Inventory of Old Spanish National Historic Trail Segments, Baca Mountain Tract and Old Cochetopa Pass, Saguache County, Colorado***. Project C10.018.116. RMC Consultants, Inc., Wheat Ridge, Colorado. Submitted to AECOM, Fort Collins, Colorado.

Herold, Laurance C., and Ralph A. Luebben
1968 ***Papers on Taos Archaeology***. Publication 7. Fort Burgwin Research Center, Taos, New Mexico.

Hoefer, Ted, III
1999a Archaic Stage. In ***Colorado Prehistory: A Context for the Rio Grande River Basin,*** edited by Marilyn A. Martorano, Ted Hoefer III, Margaret A. Jodry, Vince Spero, and Melissa L. Taylor, pp. 115-128. Colorado Council of Professional Archaeologists, Denver.
1999b Modern Environment. In ***Colorado Prehistory: A Context for the Rio Grande River Basin***, edited by Marilyn A. Martorano, Ted Hoefer III, Margaret A. Jodry, Vince Spero, and Melissa L. Taylor, pp. 6-11. Colorado Council of Professional Archaeologists, Denver.

Holliday, Vance T., Natalie Martinez-Taguena, D. Shane Miller, Ismael Sanchez-Morales, Christopher W. Merriman, Allison Harvey, Rafael Cruz, Alberto Pena, and John Seebach
2017 Plainview/Belen in the Rio Grande Basin of New Mexico, Trans-Pecos Texas, and Chihuahua. In ***Plainview: The Enigmatic Paleoindian Artifact Style of the Great Plains***, edited by Vance T. Holliday, Eileen Johnson, and Ruthann Knudson, pp. 189-207. University of Utah Press, Salt Lake City.

Huckell, Bruce B.
1996 The Archaic Prehistory of the North American Southwest. ***Journal of World Prehistory*** 10(3):305-373.

Irwin-Williams, Cynthia
1973 ***The Oshara Tradition: Origins of Anasazi Culture***. Contributions in Anthropology Vol. 5, No. 1. Paleoindian Institute, Eastern New Mexico University, Portales.

Jodry, Margaret A.
1999a Paleoindian Stage. In ***Colorado Prehistory: A Context for the Rio Grande Basin***, edited by Marilyn A. Martorano, Ted Hoefer, III, Margaret A. Jodry, Vince Spero, and Melissa L. Taylor, pp. 45-114. Colorado Council of Professional Archaeologists, Denver.
1999b Paleoindian Stage Paleoecological Records. In ***Colorado Prehistory: A Context for the Rio Grande Basin***, edited by Marilyn A. Martorano, Ted Hoefer III, Margaret A. Jodry, Vince Spero, and Melissa L. Taylor, pp. 12-26. Colorado Council of Professional Archaeologists, Denver.

Judge, W. James
1973 ***Paleoindian Occupation of the Central Rio Grande Valley in New Mexico.*** University of New Mexico Press, Albuquerque.

Kellogg, Karl S., Ralph R. Shroba, Chester A. Ruleman, Robert G. Bohannon, William C. McIntosh, Wayne R. Premo, Michael A. Cosca, Richard J. Moscati, and Theodore R. Brandt
2017 ***Geologic Map of the Upper Arkansas River Valley Region, North-Central Colorado***. Scientific Investigations Map 3382. U.S. Geological Survey, Reston, Virginia. [https://doi.org/10.3133/sim3382]

Kessler, Ron
1998 ***Old Spanish Trail North Branch and Its Travelers***. Sunstone Press, Santa Fe.

Kornfeld, Marcel, George C. Frison, and Mary Lou Larson
2010 ***Prehistoric Hunter-Gatherers of the High Plains and Rockies***. 3rd ed. Left Coast Press, Walnut Creek, California.

Larson, Jill E.
2008 A Floristic Inventory of Vascular Plants of the Carson National Forest and Vicinity, North-Central New Mexico. Unpublished Master's thesis, Department of Botany, University of Wyoming, Laramie.

Lecompte, Janet
1978 ***Pueblo, Hardscabble, Greenhorn: Society***

on the High Plains, 1832-1856. University of Oklahoma Press, Norman.

Levine, Daisy F.
1994 Ceramic Analysis. In *Studying the Taos Frontier: The Pot Creek Data Recovery Project*, edited by Jeffrey L. Boyer, James L. Moore, Daisy F. Levine, Linda Mick-O'Hara, and Mollie S. Toll, pp. 339-366. Archaeology Notes 68. Museum of New Mexico, Office of Archaeological Studies, Santa Fe.

Herold, Laurance C.
1968 An Archaeological-Geographical Survey of the Rio Grande de Ranchos. In *Papers on Taos Archaeology*, edited by Laurance C. Herold and Ralph A. Luebben, pp. 9-42. Publication 7. Fort Burgwin Research Center, Taos, New Mexico.

Manley, Kim
1979 Structure and Stratigraphy of the Española Basin, Rio Grande Rift, New Mexico. In *Rio Grande Rift: Tectonics and Magmatism*, edited by Robert E. Riecker, pp. 71-86. Special Publications Series 14. American Geophysical Union, Washington, D.C.

Martorano, Marilyn A.
2011 Culturally Modified Trees. In *Draft Archeology of Great Sand Dunes National Park and Preserve Alamosa and Saguache Counties, Colorado*, edited by Chris M. Bevilacqua, Robert G. Wunderlich, Jr., Marilyn A. Martorano, and Eric M. Hendrickson, pp. 156-185. RMC Consultants, Inc., Wheat Ridge, Colorado. Submitted to the National Park Service, Denver.

Martorano, Marilyn A., Ted Hoefer III, Margaret A. Jodry, Vince Spero, and Melissa L. Taylor
1999 *Colorado Prehistory: A Context for the Rio Grande River Basin*. Colorado Council of Professional Archaeologists, Denver.

McCalpin, James P.
1996 General Geology of the Northern San Luis Valley, Colorado. In *Geologic Excursions to the Rocky Mountains and Beyond*, edited by Ren A. Thompson, Mark R. Hudson, and C. L. Pillmore. Field Trip Guidebook for the 1996 Annual Geological Society of America Meeting. Special Publication 44. Colorado Geological Survey, Denver.

Merlan, Thomas, Michael P. Marshall, and John Roney
2011 *The Old Spanish Trail: Exploration, Trade, Colonization, and War*. AG-9702-P-10-0011. Merlan Associates, LLC. Submitted to the Carson National Forest, Taos, New Mexico.

Metcalf, Michael D.
2011 Revised Model of the Archaic-Paleoindian Transition and the Archaic Era Occupation of the Pipeline Corridor. In *Synthesis of Archaeological Data Compiled for the Piceance Basin Expansion, Rockies Express Pipeline, and Uinta Basin Lateral Projects, Volume 2: Moffat and Rio Blanco Counties, Colorado, and Sweetwater County, Wyoming*, edited by Michael D. Metcalf and Alan D. Reed, pp. 123-166. Metcalf Archaeological Consultants, Inc. Submitted to Wyoming Interstate Company, LLC Colorado Springs, Colorado.

Miller, Mark E.
2017 Stone Weaponry, Stone Tools, and Debitage at the Scoggin Site. In *Middle Plains Archaic Bison Hunting in Southcentral Wyoming: Revisiting the Scoggin Site*, edited by Mark E. Miller and William E. Scoggin, pp. 374-396. Memoir 45, Plains Anthropologist.

Mitchell, Mark D.
2012 *High-Altitude Archaeology in the Uncompahgre Wilderness*. Research Contribution 87. Paleocultural Research Group, Broomfield, Colorado. Submitted to History Colorado, State Historical Fund, Denver, and the Grand Mesa, Uncompahgre, and Gunnison National Forests, Delta, Colorado.
2017 Introduction. In *Archaeology of the Upper Crossing Stone Enclosures, Saguache County, Colorado,* edited by Mark D. Mitchell and Carl R. Falk, pp. 1-28. Research Contribution 99, Archaeological Investigations in the San Luis Valley 3. Paleocultural Research Group, Broomfield, Colorado.

Mitchell, Mark D., and Angie Krall
In Press American Indian Lifeways in the San Luis Valley. In *The Geology, Ecology, and Human History of the San Luis Valley*, edited by Jared M. Beeton, Charles N. Saenz, and Benjamin James Waddell. University Press of Colorado, Boulder.

National Park Service (NPS)
2001 *National Historic Trail Feasibility Study and Environmental Assessment: Old Spanish Trail*. Electronic document, https://parkplanning.nps.gov/document.cfm?parkID=454&projectID=12591&documentID=38207, accessed August 13, 2019.

Oppelt, Norman T.
2002 *List of Southwestern Pottery, Types and*

Wares. Oppelt Publications, Greeley, CO.

Oregon-California Trails Association
2014 *Mapping Emigrant Trails Manual*. 5th ed. Mapping and Marking Committee. Oregon-California Trails Association, Independence, Missouri.

OSA (Office of Archaeological Studies Pottery Typology Project)
2019a Pecos Valley Glaze Ware. Electronic document, http://ceramics.nmarchaeology.org/typology/ware?p=82, accessed November 18, 2019.
2019b Cimarron Micaceous. Electronic document, http://ceramics.nmarchaeology.org/typology/type?p=467, accessed November 18, 2019.
2019c Tewa Red. Electronic document, http://ceramics.nmarchaeology.org/typology/type?p=229, accessed November 21, 2019.
2019d Kwahe'e Black-on-White. Electronic document, http://ceramics.nmarchaeology.org/typology/type?p=233, accessed November 22, 2019.

Palmer, Gabrielle G. (Compiler)
1993 *El Camino Real de Tierra Adentro*. Cultural Resources Series 11. Bureau of Land Management, New Mexico State Office, Santa Fe.

Palmer, Gabrielle G., and Stephen L. Fosberg (Compliers)
1999 *El Camino Real de Tierra Adentro, Volume Two*. Cultural Resources Series 13. Bureau of Land Management, New Mexico State Office, Santa Fe.

Pitblado, Bonnie L.
1998 Peak to Peak in Paleoindian Time: Occupation of Southwest Colorado. *Plains Anthropologist* 43(166):333-348.
2003 *Late Paleoindian Occupation of the Southern Rocky Mountains*. University Press of Colorado, Boulder.

Poling, Susan A., and Alan R. Kasdan
2001 *Treaty of Guadalupe Hidalgo: Definition and List of Community Land Grants in New Mexico*. Report to Congressional Requesters 01-051. General Accounting Office, Washington, D.C.

Reed, Alan D., and Michael D. Metcalf
1999 *Colorado Prehistory: A Context for the Northern Colorado River Basin*. Colorado Council of Professional Archaeologists, Denver.

Riley, Carroll L.
1995 *Rio del Norte: People of the Upper Rio Grande from Earliest Times to the Pueblo Revolt*. University of Utah Press, Salt Lake City.

Scurlock, Dan
1998 *From the Rio to the Sierra: An Environmental History of the Middle Rio Grande Basin*. General Technical Report RMRS-GTR-5. U.S. Forest Service, Rocky Mountain Research Station, Fort Collins, Colorado.

Shackley, M. Steven
2005 *Obsidian*. University Press of Arizona, Tucson.
2011 Sources of Archaeological Dacite in Northern New Mexico. *Journal of Archaeological Science* 38:1001-1007.
2013 The Geochemistry and Archaeological Petrology of Volcanic Raw Materials in Northern New Mexico: Obsidian and Dacite Sources in Upland and Lowland Contexts. In *From Mountaintop to Valley Bottom: Understanding Past Land Use in the Northern Rio Grande Valley, New Mexico*, edited by Bradley J. Vierra, pp. 17-32. University of Utah Press, Salt Lake City.

Sheppard, Paul R., Andrew C. Comrie, Gregory D. Packin, Kurt Angersbach, and Malcolm K. Hughes
1999 *The Climate of the Southwest*. CLIMAS Report Series CL1-99. Institute for the Study of Plant Earth, University of Arizona, Tucson.

Spero, Vince, and Ted Hoefer III
1999 Distribution and Sources of Lithic Material in the Rio Grande Basin. In *Colorado Prehistory: A Context for the Rio Grande River Basin*, edited by Marilyn A. Martorano, Ted Hoefer III, Margaret A. Jodry, Vince Spero, and Melissa L. Taylor, pp. 186-191. Colorado Council of Professional Archaeologists, Denver.

Spicer, Edward H.
1962 *Cycles of Conquest: The Impact of Spain, Mexico, and the United States on the Indians of the Southwest, 1533-1960*. University of Arizona Press, Tucson.

Spielmann, Katherine A.
1991 *Interdependence in the Prehistoric Southwest*. Garland Publishing, New York.

Stiger, Mark
2001 *Hunter-Gatherer Archaeology of the Colorado High Country*. University Press of Colorado, Boulder.
2006 A Folsom Structure in the Colorado Mountains. *American Antiquity* 71(2):321-351.

Stanford, Dennis J.
1999 Paleoindian Archaeology and Late Pleistocene Environments in the Plains and

Southwestern United States. In *Ice Age Peoples of North America: Environments, Origins, and Adaptations*, edited by Robson Bonnichsen and Karen L. Turnmire, pp. 281-339. Center for the Study of the First Americans, Oregon State University Press, Corvallis.

Stuart, David E., and Rory P. Gauthier
1988 [1981] *Prehistoric New Mexico: Background for Survey.* University of New Mexico Press, Albuquerque.

Vierra, Bradley J. (editor)
2013 *From Mountaintop to Valley Bottom: Understanding Past Land Use in the Northern Rio Grande Valley, New Mexico*. University of Utah Press, Salt Lake City.

Vierra, Bradley J.
2013 Introduction. In *From Mountaintop to Valley Bottom: Understanding Past Land Use in the Northern Rio Grande Valley, New Mexico*, edited by Bradley J. Vierra, pp. 1-14. University of Utah Press, Salt Lake City.
2016 Coping with Change: Stone Tool Production and Procurement in the Northern Rio Grande Valley During the Prehispanic and Historic Periods. In *History and Archaeology—Connecting the Dots: Papers in Honor of David H. Snow*, edited by Emily J. Brown, Carol J. Condie, and Helen K. Crotty, pp. 263-268. Papers 42. Archaeological Society of New Mexico, Albuquerque.

Vierra, Bradley J., Richard I. Ford, and Stephen S. Post
2018 Archaic Foragers of the Northern Rio Grande. In *The Archaic Southwest: Foragers in an Arid Land*, edited by Bradley J. Vierra, pp. 235-253. University of Utah Press, Salt Lake City.

Vierra, Bradley J., Margaret A. Jodry, M. Steven Shackley, and Michael J. Dilley
2012 Late Paleoindian and Early Archaic Foragers in the Northern Southwest. In *From the Pleistocene to the Holocene: Human Organization and Cultural Transformations in Prehistoric North America,* edited by C. Britt Bousman and Bradley J. Vierra, pp. 171-195. Anthropology Series 17. Texas A&M University Press, College Station.

Vierra, Bradley J., and Maxine E. McBrinn
2016 Resistant Foragers: Foraging and Maize Cultivation in the Northern Rio Grande Valley. In *Late Holocene Research on Foragers and Farmers in the Desert West*, edited by Barbara Roth and Maxine E. McBrinn, pp. 58-77. University of Utah Press, Salt Lake City.

Western Regional Climate Center
2019 Western U.S. Climate Historical Summaries. Electronic document, http://www.wrcc.dri.edu/Climsum.html, accessed September 29, 2019.

Wetherington, Ronald K.
1968 *Excavations at Pot Creek Pueblo*. Publication 6. Fort Burgwin Research Center, Taos, New Mexico.

Wilson, Gordon P.
2007 *Guide to Ceramic Identification: Northern Rio Grande Valley and Galisteo Basin to AD 1700.* Second edition. Technical Series Bulletin 12. Laboratory of Anthropology, Santa Fe, New Mexico.

Woosley, Anne I, and Bart Olinger
1990 Ethnicity and the Production of Micaceous Ware in the Taos Valley. In *Clues to the Past: Papers in Honor of William M. Sundt*, edited by Meliha S. Duran and David T. Kirkpatrick, pp. 351-373. Papers 16. Archaeological Society of New Mexico, Albuquerque.

Appendix 1:
Isolated Occurrences

Table A1.1. Isolated occurrences from the 2017 and 2018 field investigations. UTM coordinates are in the NAD83 datum.

Isolate No.	Description	Temporal Affiliation	UTMe	UTMn

Confidential Site Location Data
Not For Public Distribution

Appendix 2:
Resource Locations

Confidential Site Location Data
Not For Public Distribution

Confidential Site Location Data
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Confidential Site Location Data
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