UTE ETHNOGRAPHIC AND ETHNOBOTANICAL RESEARCH IN THE BONITA PEAK MINING DISTRICT

Prepared by Sean O'Meara, Maren P. Hopkins, Michael C. Spears, and T. J. Ferguson

Anthropological Research, LLC

UTE ETHNOGRAPHIC AND ETHNOBOTANICAL RESEARCH IN THE BONITA PEAK MINING DISTRICT

Prepared by
Sean O'Meara, Maren P. Hopkins, Michael C. Spears, and T. J. Ferguson

UTE ETHNOGRAPHIC AND ETHNOBOTANICAL RESEARCH IN THE BONITA PEAK MINING DISTRICT

Prepared by

Sean O'Meara, Maren P. Hopkins, Michael C. Spears, and T. J. Ferguson

Anthropological Research, LLC

6655 W. Sweetwater Dr.
Tucson, Arizona
85745

Prepared for

Southern Ute Indian Tribe
PO Box 737
Ignacio, Colorado
81137

April 30, 2021

Exterior Front Cover:
View of the Animas River from the Durango and Silverton Narrow Gauge Railroad. Photograph by Sean O'Meara, October 16, 2019. Terry Knight in the BPMD study area. Photograph by Michael Spears, August 20, 2019. Cover design by Jacquelyn Dominguez, Statistical Research, Inc., Tucson, Arizona.

Exterior Back Cover:
View of the San Juan Mountains near the Gold King Mine in Colorado. Photograph by Maren Hopkins, August 19, 2019. Cassandra Atencio in the BPMD study area. Photograph by Maren Hopkins, August 19, 2019. Alden Naranjo in the BPMD study area. Photograph by Maren Hopkins, August 20, 2019. Cover design by Jacquelyn Dominguez, Statistical Research, Inc., Tucson, Arizona.

Interior Front Cover Top:
Research participants in the BPMD study area. Front row from the left to right: Erwin Taylor, Alfred Wall, Jr., Terry Knight, and Maren Hopkins. Back row from left to right: Alden Naranjo, Jr., Garrett Briggs, Cassandra Atencio, Kathryn Jacket, T. J. Ferguson, Michael Spears, Elizabeth Francisco, William Widener, Forrest Vaughan, and Laverna Summa. Photograph by Maren Hopkins, August 20, 2019.

Interior Front Cover Bottom:
The San Juan Mountains of Colorado in the BPMD study area. Photograph by Maren Hopkins, August 20, 2019.

Interior Back Cover Top:
Research participants in front of the Durango & Silverton Narrow Gauge Railroad. Front row from the left to right: Laverna Summa, Helen Munoz, Alfred Wall, Jr., and Emily Whiteman. Back row from left to right: Shawn Kelley, Sean O'Meara, William Widener, Michael Spears, Ernest Pinnecoose, T. J. Ferguson, Mark Wing, and Maren Hopkins. Photograph by Maren Hopkins, October 16, 2019.

Interior Back Cover Bottom:
Animas River looking south from Baker's Bridge. Photograph by Sean O'Meara, October 17, 2019.

IN MEMORIAM

Alden Burch Naranjo, Jr.
Southern Ute Indian Tribe
1941–2020

Stories are passed along by grandparents, and each family has a version of history. History includes personal life experiences of those elders that shared, and we relate to the past through their stories.

[Alden Naranjo, Jr., 2019]

Photo on previous page:
Alden Naranjo, Jr., in the San Juan Mountains of Colorado during a research session for the Ute ethnographic and ethnobotanical study of the Bonita Peak Mining District. Photograph by Maren Hopkins, August 21, 2019.

Executive Summary

The Southern Ute Indian Tribe's Cultural Preservation Department and NAGPRA Office collaborated with Anthropological Research, LLC, on Ute ethnographic and ethnobotanical research in the Bonita Peak Mining District (BPMD). This work was funded by the Environmental Protection Agency (EPA) through the Environmental Programs Division as part of the Water Infrastructure Improvements for the Nation (WIIN) Act. This study will inform the EPA's environmental remedial investigations to assess any threats to Ute people and their culture that were incurred as a result of the Gold King Mine Spill of 2015 in the BPMD. The spill produced a high volume of heavy metal contaminants into the Animas River watershed. At the request of the Southern Ute Indian Tribe, this research included input from all three Ute tribes: Southern Ute Indian Tribe, Ute Mountain Ute Tribe, and the Ute Indian Tribe of the Uintah and Ouray Reservation, due to their shared concern and historical connections to the region. Research efforts for this study included two field trips to the BPMD area, interviews, and work sessions with Southern Ute and Ute Mountain Ute tribal members. Due to restrictions and safety concerns related to the COVID-19 pandemic, meetings and review sessions were conducted virtually in 2020 and 2021. A total of 20 Southern Ute and Ute Mountain Ute tribal members participated in the research. The Ute Indian Tribe contributed to the study through previously documented information and a review of the study findings.

The study primarily focused on Ute plant use and traditional knowledge about the environment. The Southern Ute Indian Tribe Cultural Preservation Department requested a comprehensive review of all previously recorded Ute traditional-use plant species. Through interviews, fieldwork, and archival research, 202 traditional-use plant species were documented with 40 of those plant species observed during fieldwork. Of these plants, 21 species were recommended for further toxicological study by the EPA to assess the risk to Southern Ute tribal members who harvest and use these plants from the BPMD and the Animas River watershed.

The study also documented other Ute traditional resources related to the Ute cultural landscape. Trail systems, 55 animal species, 20 types of water-related resources, 11 minerals, 33 landforms and place names, and 36 Ute terms related to the sky and constellations were documented. While not the focus of this study, each of these categories are connected to Ute plant harvesting practices and traditional use of the BPMD. Many Ute tribal members continue to visit the BPMD and the study area on a regular basis to hunt, visit cultural sites, collect wild plants, and teach tribal youth about Ute culture. This study also contextualized the aboriginal, historic, and contemporary developments of the BPMD. Ute traditional lifeways, historical developments (encroachment, treaties, and the reservation system, land loss), and perspectives on traditional land management are summarized in this report.

Ute participants stressed that the impacts from the Gold King mine spill of 2015 directly relates to the period of non-Native encroachment that began more than two centuries prior. Violence, loss of land, environmental degradation, removal from aboriginal areas, and the associated impacts to health, language, customs, and sovereignty over their sacred landscape are all part of the lasting legacy of the mining that occurred in the BPMD. In spite of this, Ute people continue to view the mountainous regions of Colorado as their sacred landscape. As a Southern Ute-led study, this project serves as a model for future tribally directed research.

Acknowledgments

This study would not have been possible without the many Ute tribal elders, past and present, whose words and histories are presented in this report. We would like to extend a special note of thanks to tribal participants who contributed directly to this project, lending their time, expertise, and humor while sharing parts of their personal, family, and tribal histories. As they often remind us, their elders' words and deeds continue to guide the present generation, and this work seeks to preserve that information for generations to come.

In the course of this study, we were always reminded how fortunate we are to have had the opportunity to document some of the Ute history and contemporary Ute connections to this extraordinary landscape. We have gained a deeper appreciation for the San Juan Mountains and the Animas River watershed, and we hope that this report helps all readers better understand how these areas are integral in Ute history and culture.

The COVID-19 pandemic reminds us of the urgent nature of our work in historic preservation. The lived experiences of our elders cannot be replicated, and we are eternally grateful for the time we have had with those we have lost. We hope that this work demonstrates the value of engaging with elders in the places that are most significant to them, and preserving their stories as they see fit for future generations.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE

Introduction

THE PURPOSE OF this study was to identify culturally important plants and other resources that may have been compromised by long-term mining and reclamation in the Bonita Peak Mining District (BPMD), especially the resources that may have been impacted by the 2015 Gold King Mine spill. This study was advocated for by the Southern Ute Indian Tribe to assess the cultural and health implications of traditional resources that were affected by the Bonita Peak Mine Spill in 2015. Although the Environmental Protection Agency (EPA) was already tasked with completing a remedial investigation that involves collecting data to determine the condition of an affected site, the nature of the hazard, the risk to human health and the environment, and the treatability of contamination. Due to the location of the spill within ancestral Ute territory, the area protected under the Brunot Agreement and its direct impact on the Animas River watershed, the Southern Ute Indian Tribe requested the evaluation of potential impacts to cultural resources that continue to be used by tribal members. In order to address the concerns of the Southern Ute Indian Tribe, Anthropological Research, LLC (Anthropological Research) worked with cultural preservation representatives from the Southern Ute Tribe's NAGPRA Office to develop a research strategy to identify research goals. As a result, an ethnographic and ethnobotanical study was developed for the BPMD and the surrounding area (Figure 1.1).

The research approach was designed to identify and document Ute cultural and environmental concerns within BPMD in order to evaluate potential impacts to Ute lifeways and assist EPA in its remedial investigation of the area. The assessment of potential impacts to Ute lifeways was conducted through interviews with tribal elders who possess familial, tribal, and personal knowledge of the area, as well as through extensive archival research. Through this well-rounded approach, information about various topics was gathered including information about Ute trails; Ute relations with various groups during the European and Euro-American occupation, as well as with the US federal government; and how Ute language, lifeways, and spiritual cosmology persist and are tied to plants, animals, seasonality, and high-mountain landscapes. In order to document resources that are connected to but not immediately located within the BPMD, the study area was expanded to 50 miles around the BPMD boundary.

The BMPD falls within the traditional ancestral homelands of multiple Ute bands that were separated into separate federally recognized Indian tribes, with reservation lands in Colorado, Utah, and New Mexico (Figure 1.2). As a result, all three Ute Indian tribes participated in the research, including the Southern Ute Indian Tribe, Ute Mountain Ute Tribe, and the Ute Indian Tribe of the Uintah and Ouray Reservation (Ute Indian Tribe). Although their ancestors were forceably removed from the region through deceptive practices and unfulfilled promises, Ute people retain deep cultural and historical connections to the San Juan Mountains of Colorado including the BPMD area.

Ute tribal members continue to visit their ancestral lands. The continued use of the San Juan Mountains and areas within BPMD plays a critical role in the perpetuation of traditional knowledge transmission. Tribal members return on a regular basis to hunt, visit cultural sites, collect wild plants, and teach tribal youth about Ute culture through oral histories and cultural teachings.

Tribal members today know and understand the land, archaeology, history, and natural resources of this region through traditional cultural knowledge that has been passed down through generations. This knowledge and understanding is augmented with personal experiences and documented

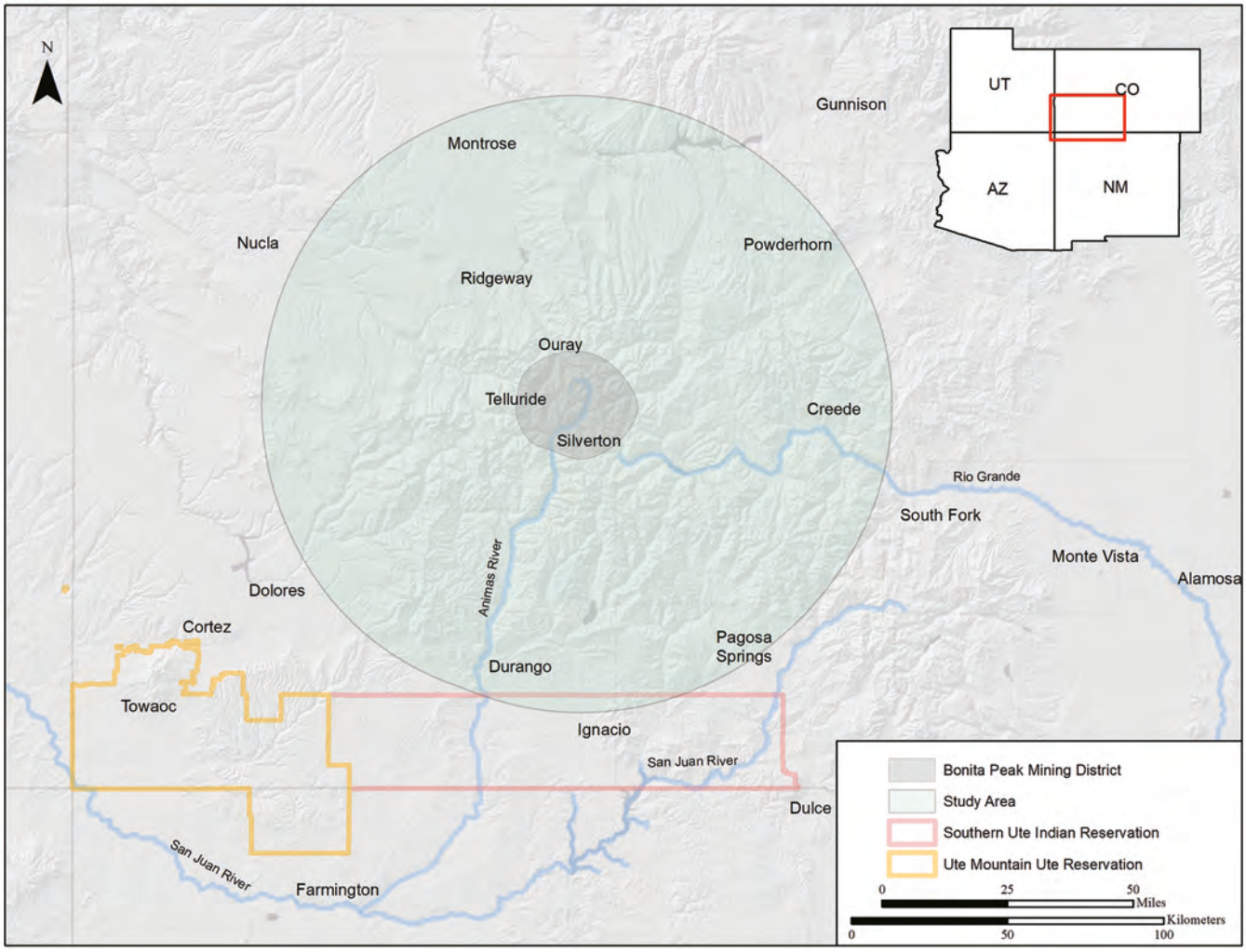

Figure 1.1. Bonita Peak Mining District with 50-mile buffer included in the study area.

history about the area. Harm caused to the land and resources of this region has an inherently adverse cultural effect on the Ute people. As Betsy Chapoose, Director of the Cultural Rights and Protection Office of the Ute Indian Tribe put it, these landscapes are the source of every component of Ute culture including language, songs, stories, knowledge of plants, animals, seasons, ceremonies, and lifeways and the impacts of the spill in this area transcend basic environmental concerns and affect Ute people spiritually and culturally.

PROJECT BACKGROUND

The area forming the BPMD saw a high concentration of Anglo-American mining activities spanning the mid-19th century through the twentieth century. The district encompasses 35 mines, seven tunnels, four tailings impoundments, and two study areas where additional information is needed to evaluate environmental concerns. The BPMD encompasses historical and ongoing releases of water from mining operations in Mineral Creek, Cement Creek, and Upper Animas Creek, all of which flow into the Animas River near Silverton, Colorado. The Gold King Mine is located within the BPMD near Silverton, Colorado. Remediation activities in the upper Animas River watershed focusing on reducing the environmental impacts of inactive mines increased during the 1990s. On August 5, 2015, the EPA was conducting an investigation of the Gold King Mine to monitor the release of water from the mine, treat mine water, and plan further mine remediation (US Bureau of Reclamation 2015:35–60; Thayer and Thayer 2018). A project to drain water from the Gold King Level 7 adit was started but the EPA and its contractor misjudged the level of water in the mine tunnel. During the excavation needed to install a drainage pipe,

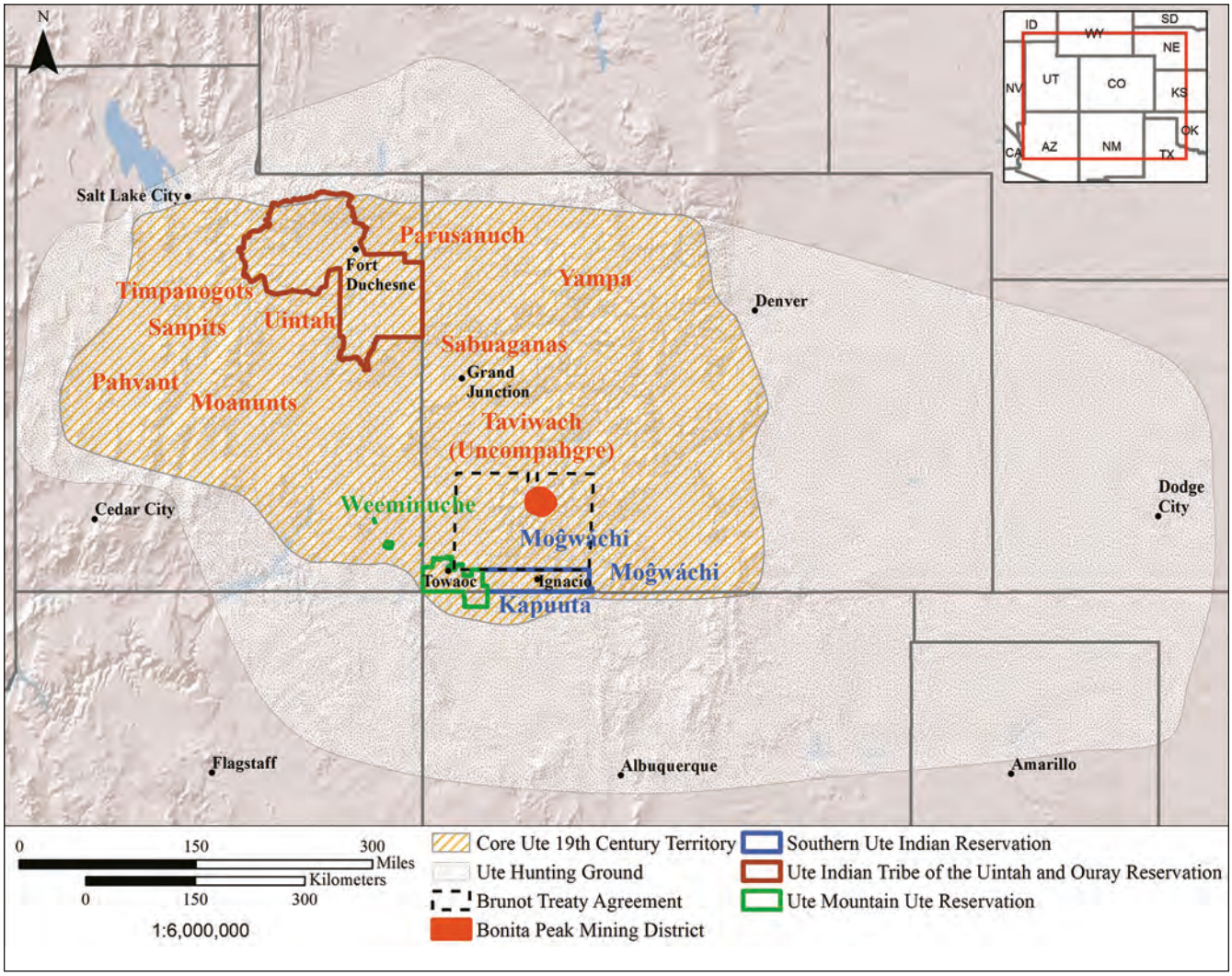

Figure 1.2. Ute band territories following the removal of the Moǧwächi and Kapuuta bands in 1868 in relation to contemporary Ute reservations (after Callaway others 1986; Jefferson and others 1972).

pressurized water in the mine tunnel sprung a leak. This led to the uncontrolled release of about three million gallons of contaminated water into Cement Creek, a tributary of the Animas River. This release temporarily turned the Animas River a mustard-yellow color for a period of six days (Figure 1.3). The spill received national attention and affected multiple tribal communities along the Animas and San Juan watersheds.

News of the 2015 spill and remediation efforts was communicated to community members in part through the *Southern Ute Drum* (Smith 2016a, 2016b, and 2017; Toledo 2016) and community meetings held by the Southern Ute Indian Tribe's Environmental Programs Division on November 16, 2016. The BPMD became a Superfund site on September 9, 2016 (EPA 2017). In 2017, BPMD was added to the EPA's National Priorities List (NPL), requiring the EPA to provide intense and immediate attention in assessing and mitigating the short- and long-term effects of the spill. The Southern Ute Indian Tribe was notified about mitigation funds by the EPA in 2017. As news circulated among the tribal communities, the Southern Ute NAGPRA Office and Environmental Protection Department discussed additional opportunities to evaluate the scope of spill's impact in regard to cultural resources within the Brunot Agreement area. Through the urging of the Southern Ute Indian Tribe, the Environmental Programs Division applied for funding under the Water Infrastructure Improvements for the Nation (WIIN) act to document cultural concerns related to the spill.

A central goal of this research was to develop a list of plants within the BPMD that Ute people harvest, consume,

Figure 1.3. The contamination plume flowing southward and mixing with the blue waters of the Animas River on the southern end of the Southern Ute Reservation. Photograph by Environmental Programs Division of the Southern Ute Indian Tribe, August 2015.

or interact with so the EPA can determine if heavy metals and other contaminants associated with mine drainage pose a health risk to Ute people. Beyond gathering data to assist the EPA, the Southern Ute NAGPRA Office directed this study to result in a valuable heritage resource for use by current and future generations of the three Ute tribes and to support future heritage preservation projects. In order to capture the broad scope of Ute knowledge, history, and traditional cultural practices associated with the BPMD, a modified cultural landscape approach was used. This resulted in the establishment of a 50-mile buffer around the BPMD (see Figure 1.1).

METHODOLOGY

The research methods used for this project were developed in collaboration with the Southern Ute NAGPRA Office. Of particular interest to the Southern Ute Indian Tribe was the development of a study that included the perspectives of all three Ute tribes, ethnographic fieldwork and interviews in the study area during all four seasons of the year, and a comprehensive literature review of previously documented Ute traditional-use resources. Research activities for this project involved several components, including: (1) the preparation of a Quality Assurance Project Plan (QAPP), (2) archival research, (3) ethnographic field visits, interviews, and work sessions with tribal members, and (4) a report review session with project participants. Anthropological Research worked closely with the Southern Ute NAGPRA Office to schedule site visits, select project participants, and determine when and how to modify project methods, as needed. Key research personnel included: T. J. Ferguson, Maren Hopkins, Sean O'Meara, Michael Spears, and Shawn Kelley from Anthropological Research, William Widener of GeoSystems Analysis, Cassandra Atencio and Garrett Briggs of the Southern Ute Cultural Preservation Department NAGPRA Office, and Terry Knight and Nichol Shurack of the Ute Mountain Ute Tribal Historic Preservation Office (Table 1.1). Forrest Vaughan and Alexandra Ratcliff of the Environmental Programs Division of the Southern Ute Indian Tribe oversaw the project and acted as liaisons between the research team and the EPA.

Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) was required for this project by the EPA to outline data-collection procedures and ensure that project requirements were met (EPA 2002). The QAPP was completed on November 13, 2018, and it was updated on November 22, 2019.

Table 1.1. Key Research Personnel

Name	*Affiliation*	*Role*
T. J. Ferguson	Anthropological Research	Principal Investigator
Maren Hopkins	Anthropological Research	Project Manager; Researcher
Sean O'Meara	Anthropological Research	Researcher
Michael Spears	Anthropological Research	Researcher
Shawn Kelley	Anthropological Research	Researcher
William Widener	GeoSystems Analysis	Plant Biologist
Cassandra Atencio	Southern Ute Cultural Preservation Department	Staff
Garrett Briggs	Southern Ute Cultural Preservation Department	Staff
Nichol Shurack	Ute Mountain Ute Tribal Historic Preservation Office	Staff
Terry Knight	Ute Mountain Ute Tribal Historic Preservation Office	THPO

Archival Research

Extensive archival research was conducted for this project to collect information about Ute history and land use in the BPMD study area. Anthropological Research reviewed archival materials at the Southern Ute Cultural Preservation Department and Southern Ute Museum and Cultural Center in Ignacio, Colorado; the Ute Mountain Ute Tribe Tribal Historic Preservation Office in Towaoc, Colorado; the Ute Indian Museum in Montrose, Colorado; and the San Juan County Historical Museum in Silverton, Colorado.

Online databases were extensively researched during this project. These databases include AnthroSource, the Bibliography of Native North Americans, JSTOR, the Native American Ethnobotany Database, the University of Utah's Doris Duke Oral History Collection, and the Rocky Mountain Online Archive (RMOA). Anthropological Research also used an extensive in-house digital library, which contains resources relevant to Ute culture and history including sources from the Smithsonian's National Archives and National Anthropological Archives. Digitized historical newspapers at the Colorado Historic Newspaper Collection provided a wealth of information about Ute history in the BPMD study area. The Ute Indian Tribe also provided digital resources containing ethnobotanical information specific to the bands associated with their tribe.

Finally, Anthropological Research coordinated with archaeologists from San Juan National Forest (SJNF) and the Bureau of Land Management (BLM) Gunnison Field Office to identify published literature and archival materials relevant to the current study. Archaeological reports, archaeological site forms, and environmental reports have been obtained for use in the project.

Ethnographic Fieldwork, Interviews, and Work Sessions

At the request of the Southern Ute NAGPRA Office, the original plan of work for this study included fieldwork to the BPMD during the spring, summer, and fall in order to assess plants during the three growing and harvest seasons. They requested that interviews with tribal elders occur during the winter months, in order to adhere to traditional practices. Due to heavy snowfall and adverse weather conditions in the BPMD study area during the spring of 2019, the work plan had to be modified to include a combination of fieldwork and work sessions at tribal offices.

During the summer and fall of 2019, the research team visited 10 locations within the BPMD (Table 1.2 and Figure 1.4), as well as other locations within the broader study area. The goals of the research were to identify Ute traditional-plant collection areas and other natural resources to elicit information about Ute culture, history, and land use in the study area. Between three and six researchers from Anthropological Research were present for each session. Ethnographic and ethnobotanical information was documented using handwritten notes, photographs, and digital audio recorders.

The Southern Ute NAGPRA Office solicited input and participation from the community through notices in the *Southern Ute Drum*, a presentation to the Elder's Group, and through follow up calls with people recommended to participate in the project. Twenty members from the Southern Ute Indian and Ute Mountain Ute tribes participated in the research for this project (Figure 1.5; Figure 1.6; Table 1.3). All tribal research participants signed informed consent forms at the beginning of each research session to

Table 1.2. Research Stops Made During Fieldwork

No.	*Research Stop*	*Date of Visit*
1	Gold King Mine overlook	8/19/2019
2	Molas Lake	8/20/2019
3	Maggie's Gulch	8/20/2019
4	Cement Creek, plant identification	8/21/2019
5	Gold King Mine Level 7 overlook	10/15/2019; 10/17/2019
6	Gladstone	10/15/2019
7	Velocity Basin	10/15/2019
8	Animas River	10/16/2019
9	Iron Fen	10/15/2019
10	Baker's Bridge	10/17/2019

document their understanding of project goals and their willingness to participate in the research. Study updates were also provided to the community in 2019 (*Southern Ute Drum* 2019).

The study team attempted to involve members of the Ute Indian Tribe; however, due to scheduling conflicts they were unable to participate in fieldwork. Plans for Anthropological Research staff to travel to Fort Duchesne, Utah, to conduct interviews with tribal members were disrupted by the COVID-19 pandemic, and travel and work restrictions precluded that research from happening. Ute Indian Tribe perspectives were researched in depth in the literature review and they are included in this report. The Ute Indian Tribe Director of the Cultural Rights and Protection Office met virtually with Anthropological Research staff on September 30, 2020, to provide preliminary feedback.

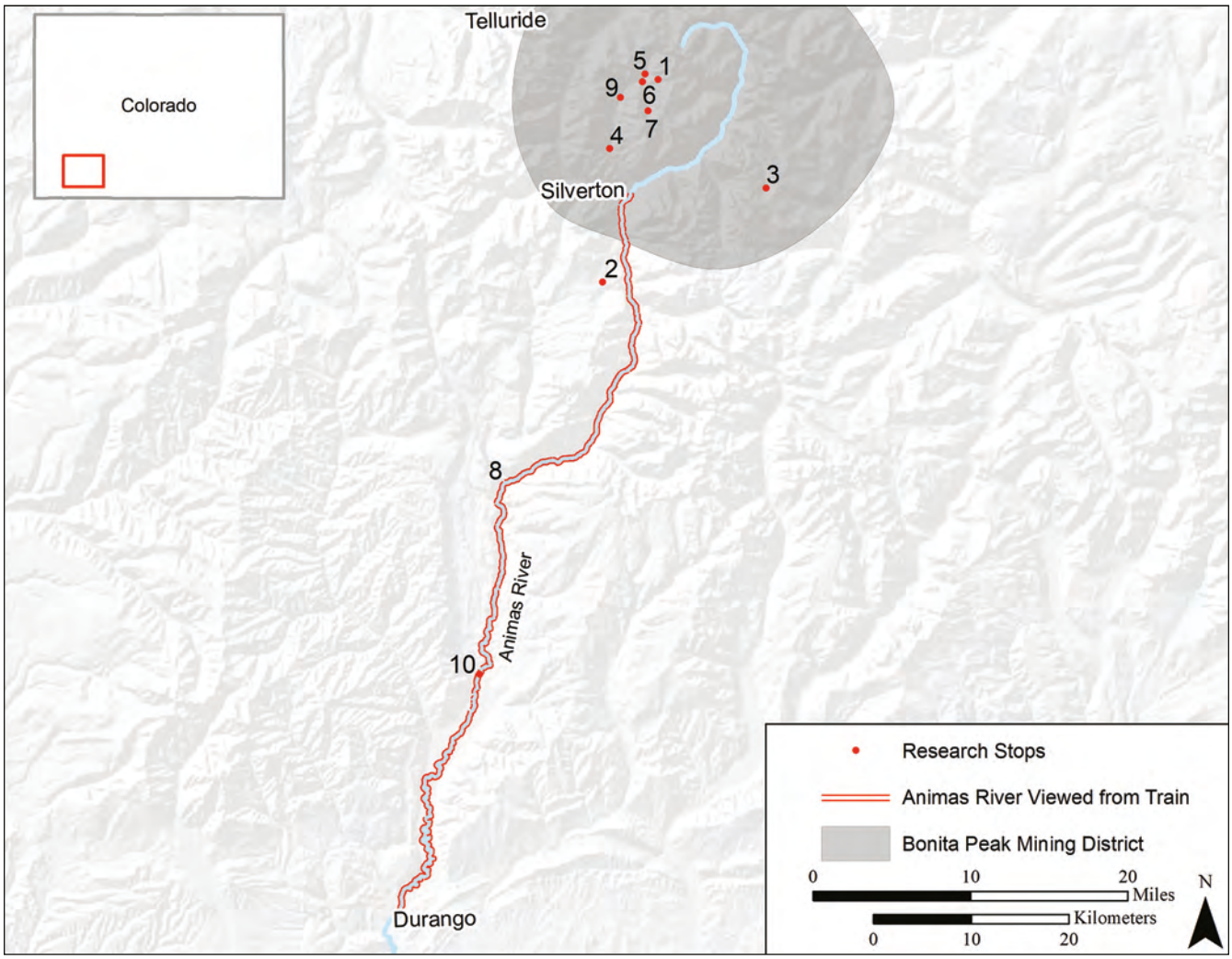

Figure 1.4. Research stops made during fieldwork.

Figure 1.5. Work session at Southern Ute Indian Tribe, with Alden Naranjo, Jr. (center-right) pointing out Ute use areas on a map to Michael C. Spears (right), Garrett Briggs (center-left), and Shawn Kelley (left). Photograph by T. J. Ferguson, March 18, 2019.

Figure 1.6. Research Participants in the BPMD study area. Clockwise from left to right: Forrest Vaughan, William Widener, Alden Naranjo, Kathryn Jacket, Terry Knight, Garrett Briggs, and Michael Spears. Photograph by Maren Hopkins, August 20, 2019.

Table 1.3. Ute Research Participants

Name	*Age*	*Tribe*	*Participation Date(s)*
Alden Naranjo, Jr.	79	S. Ute	3/12/2019; 3/15/2019; 8/19/2019–8/21/2019
Erwin Taylor	80	S. Ute	3/12/2019; 3/15/2019; 8/19/2019–8/21/2019
Arlene A. Millich	–	S. Ute	3/12/2019
Ernest Pinnecoose	–	S. Ute	3/12/2019; 10/15/2019–10/17/2019
Elsie Redd	–	S. Ute	3/12/2019
Hanley Frost, Sr.	–	S. Ute	3/12/2019
Linda Baker	–	S. Ute	10/15/2019–10/17/2019
Cassandra Atencio	55	S. Ute	3/12/2019; 8/19/2019–8/21/2019
Edward. B. Box, III	52	S. Ute	3/15/2019
Garrett Briggs	34	S. Ute	3/12/2019; 8/19/2019–8/21/2019; 10/15/2019–10/17/2019
Micah Odoms	–	S. Ute	3/12/2019
Xavier Watts	–	S. Ute	3/12/2019
Moav Berry	–	S. Ute	3/12/2019
Emily Whiteman	74	Ute M.	10/15/2019–10/17/2019
Alfred Wall, Jr.	73	Ute M.	3/13/2019; 8/19/2019–8/21/2019; 10/15/2019–10/17/2019
Laverna Summa	73	Ute M.	8/19/2019–8/21/2019; 10/15/2019–10/17/2019
Helen Munoz	71	Ute M.	3/13/2019; 3/14/2019; 10/15/2019–10/17/2019
Terry Knight	70	Ute M.	3/13/2019; 8/19/2019–8/21/2019
Kathryn Jacket	70	Ute M.	3/13/2019; 8/19/2019–8/21/2019
Mark Wing	–	Ute M.	10/15/2019–10/17/2019
Betsy Chapoose	60	N. Ute	9/30/2020 (virtual meeting)

Winter Work Session

From March 12 to 15, 2019, Anthropological Research conducted a work session with the Southern Ute and Ute Mountain Ute tribal members (Figure 1.5). The work took place at tribal offices in Ignacio and Towaoc, Colorado, respectively, and included interviews, mapping activities, plant identification activities, and archival research. Twelve people from the Southern Ute Indian and Ute Mountain Ute tribes took place in the interviews and activities. In addition, Anthropological Research and the Southern Ute Cultural Preservation Department presented information about the project to the Southern Ute Indian Tribe Elder's Group at their monthly Sip, Chat, and Chew meeting on March 15, 2019, which was attended by 33 people.

Summer Field Session

From August 19 to 21, 2019, the research team conducted fieldwork in the BPMD study area with four Southern Ute tribal members and four Ute Mountain Ute tribal members (Table 1.3; Figure 1.6). Research stops included a visit to an overlook of the Gold King Mine, Cement Creek, Molas Lake, and Maggie's Gulch (Figure 1.4, Table 1.2) Elizabeth Francisco, the BLM archaeologist from the Gunnison Field Office, accompanied the group on August 20, 2019, to Molas Lake and Maggie's Gulch to discuss Ute archaeological sites identified in those areas. On August 21, 2019, the group visited the Ute Indian Museum in Montrose, Colorado, where they had a lengthy discussion about Ute history and plant use that included a tour of the museum's ethnobotanical garden.

Fall Field Session

From October 15 to 17, 2019, the research team conducted fieldwork in the BPMD study area with three Southern Ute tribal members and five Ute Mountain Ute tribal members (Table 1.3; Figure 1.4). Elizabeth Francisco, the BLM archaeologist from the Gunnison Field Office, accompanied the group on October 15, 2019, to Gladstone and the Velocity Basin to discuss Ute history and archaeological sites in that area. On October 16, 2019, the group rode the

Durango and Silverton Narrow Gauge Railroad Train from Silverton to Durango to view and discuss the plant diversity and water quality along the Animas River.

Spring Field Session

Due to adverse weather during the spring of 2019 and travel restrictions imposed by the COVID-19 pandemic that began in the spring of 2020, the fourth session was not completed. Travel restrictions imposed by the COVID-19 pandemic remained in effect through the completion of the study. Follow up meetings occurred virtually through Zoom, email, and conference calls.

Report Review Session

Several virtual review meetings were held following the completion of the two draft reports to discuss the accuracy of the report's contents and to identify concerns and discuss the inclusion or removal of culturally sensitive information. The Southern Ute NAGPRA Office participated in review sessions on September 8, 2020, January 27, 2021, and February 12, 2021. Individual review sessions were held with tribal participants on Februrary 18, 23, and 26, and March 5, 2021. After reviewing their tribe's contributions to the report, the Ute Mountain Ute Tribe's Tribal Historic Preservation Office provided their comments over the phone on March 5, 2021, and Ute Indian Tribe's Cultural Rights and Protection Office provided their feedback via email on March 3, 2021.

REPORT OVERVIEW

This report contains seven chapters. Following this introductory chapter, Chapter 2 provides an overview of the Bonita Peak environmental setting. Chapter 2 orient the reader to the geology, plants, and water resources of the BMPD study area, and situate human land use of the San Juan Mountains within an ecological context. Chapter 3 reviews Ute history and culture across a broad scale of time and space, including specific connections to the BMPD study area up to the present day. Chapter 4 describes the Ute cultural landscape and how Ute cosmology and traditional lifeways are related to the traditional use of the natural environment. Chapter 5 inventories the plants in the BMPD that are traditionally used by the Ute people including summaries of ethnographic information identified for each plant species. Chapter 6 summarizes other significant traditional-use resources identified during the project by Ute research participants. Finally, Chapter 7 reviews Ute attitudes about the Gold King Mine spill and the remedial investigation and offers recommendations for the EPA to consider going forward.

Table 1.4. Summary of Ute Plant Use

Traditional Use	*Number Species*	*Percentage*
Edible	79	41%
Medicinal	51	26%
Unspecified	43	23%
Ceremonial	19	9%
Basketry materials	15	8%
Utilitarian	15	8%
Shelter	7	3%
Weaponry	6	3%
Fuel (firewood)	5	2%
Hygienic purposes	4	2%
Poisonous and avoided	2	1%
Animal feed	2	1%
Trail markers	1	1%
Insect repellent	1	<1%
Toy	1	<1%

During the study, 202 plant species used by Ute people were identified. Although 162 plant species were identified only through legacy data and interviews, 40 species were observed during fieldwork. Many of these plants are used for more than one purpose. The diversity of uses is shown in Table 1.4. Additional plants were identified that require further research to determine their significance to Ute people. Since the project was developed around a holistic approach, other resources considered culturally important were also recorded, such as animals, minerals, water resources, and landforms.

Ute terms are referenced throughout this report. While attempts have been made to standardize Ute orthography, differences in dialect and spelling remain. The Southern Ute Indian Tribe presently uses the linguistic research of Thomas Givón (2011, 2013a, and 2013b) as the official orthography of the tribe, but this work does not reflect the linguistic variation among the three Ute tribes. When the tribal origin of a Ute term is known, the Ute term is accompanied by a superscript with the following abbreviations: Southern Ute Indian Tribe=$^{(S)}$, Ute Indian Tribe=$^{(N)}$, and Ute Mountain Ute Tribe=$^{(M)}$. Ute terms originating from two bands of the Ute Indian Tribe are abbreviated here as White River Band=$^{(W)}$ and Uncompahgre Band=$^{(U)}$. Ute language terms used in this report thus reflect the orthography used at the time in which the information was collected. The terms documented during the fieldwork for our study were provided by tribal participants.

CHAPTER TWO

Bonita Peak Environmental Setting

UTE PEOPLE HAVE been inextricably tied to the mountainous landscapes of Colorado since the time of their creation. The San Juan Mountains, a high and rugged mountain range within the Southern Rocky Mountains, are the largest mountain range by area in the state of Colorado. Tribal representatives noted that the alpine environment and terrain of the BPMD are characteristic of the places where the Ute Bear Dance originated and was regularly traversed as part of Ute seasonal rounds. The high peaks of the San Juan Mountains also call to mind the mountain tops that Ute people were placed upon at the time of their creation.

The San Juan Mountains host some of the tallest mountains in the contiguous United States, with 28 peaks above 9,000 feet and 13 peaks above 14,000 feet. The mountain range is home to a diverse set of plant and animal communities that vary by elevation and other environmental factors. The Rio Grande and tributaries of the San Juan, Animas, Dolores, and Gunnison rivers have their headwaters in the mountain range, providing water for vast areas of the southwestern United States and northern Mexico.

The geologic events that formed the San Juan Mountains over tens of millions of years created a distinct set of geological properties that include substantial mineral deposits. The discovery of these mineral deposits by Euro-Americans created a rush of development and mining in the late nineteenth and early twentieth centuries. The mining industry has largely gone dormant, and the San Juans have become a significant tourism destination, known for alpine beauty, historic sites, and a variety of outdoor recreation opportunities. Today, much of the region is under the jurisdiction of the US Forest Service and the Bureau of Land Management, with small mountain towns dotting the alpine valleys. Farming, ranching, and timber operations also continue.

GEOLOGICAL HISTORY OF THE SAN JUAN MOUNTAINS

Geologist refer to the period of mountain building in western North America as the Laramide orogeny, which occurred from 70 to 50 million years ago. The process is described as a "compressional tectonic event that resulted in thrust faulting, crustal thickening, and mountain uplift across portions of western North America" (Blair and Gillam 2011:62). This geologic event caused the broad coastal plain that covered southwest Colorado to give way to the San Juan Uplift, which is centered southeast of Silverton, and created adjacent troughs to the south, including the San Juan Basin. An erosional cycle that followed the San Juan Uplift removed sediment, exposing the new rock formations, and transforming the region into an environment that geologists think consisted of rolling hills and deeply incised valleys (Blair and Gillam 2011:62–63).

Beginning 35 million years ago, magma pierced the crust of the earth northeast of the San Juan Mountains, near the modern town of Saguache. Volcanic centers began to form, and volcanic activity slowly occurred to the south and west, in what is today the San Juan Mountains. These eruptions developed over 20 andesitic composite volcanoes, creating the San Juan Volcanic Field. These volcanos deposited large amounts of andesitic rocks across the region, creating a landscape that would have looked similar to the modern Cascade Mountains in the northwest United States (Blair and Gillam 2011:63).

Around 30 million years ago, the volcanic eruptions began to create large calderas that often were tens of kilometers in diameter. The eruptions in this phase of volcanic activity ejected materials that blanketed thousands of

square kilometers, creating a widespread volcanic plateau. The region would have had rolling topography with scatter caldera depressions (Blair and Gillam 2011:63–64).

Approximately 25 million years ago, the volcanic field within the San Juan Mountains region was subjected to an alternating pattern of erosion and lava flows. This period also saw the initial development of the Rio Grande Rift east of the San Juan Mountains. The lava flows largely ceased by 15 million years ago, and the area was characterized by moderate erosion for the next 10 million years. Between 5 million and 2.6 million years ago, uplift and block faulting accelerated (Blair and Gillam 2011:64–66).

The abundant ore deposits in the western San Juan Mountains contain gold, lead, copper, and zinc. These minerals were deposited near the surface during the doming and collapse of large volcanic calderas including the Silverton and Lake City calderas. The doming and collapse was accompanied by faulting insedimentary rocks,which allowed the slow upward migration of mineral-laden waters that contained precious metals leached from surrounding rocks. Near the earth's surface, cooler temperatures and lower pressures caused minerals within the solution to separate and move into veins along the side of the faults, where they then altered the surrounding host rock. Subsequent ore deposition bound the veins together with the surrounding rock, and further faulting of the bedrock often shattered the veins. As a result, the ore veins are heterogeneous, often following fault lines. They vary based on the surrounding host rock (Fetchenier 1996:80–81).

Beginning around 5 million years ago, the earth began to cool, initiating the repeated glaciation of the San Juan Mountains that began 800,000 years ago. At the height of the last glacial expansion, which occurred 22,000 to 20,000 years ago, the San Juan Mountains contained a vast ice field that stretched for 1,900 square miles (5,000 square kilometers) with intermittent exposed mountaintops. This period of glaciation developed the prominent mountain peaks and cirque basins that are prominent features of the modern San Juans. The western San Juan Mountains experienced significant glacial erosion "as gravity pulled massive tongues of ice down existing river valleys, glacial loads of pulverized rock ground down bedrock and over-deepened valleys to form U-shaped canyons" (Blair and Gillam 2011:68). In general, glacial retreat began around 20,000 years ago and continued for as much as 10,000 years. Evidence from the Animas Valley Glacier, however, indicates that glacial retreat began there around 19,400 years ago and ended 12,300 years ago, when the ice field disappeared (Blair and Gillam 2011:72). Over the last 12,000 years, the San Juan Mountains have continued to evolve geomorphologically in the form of the movement of rock glaciers (slow moving glacial remnants buried under their own debris), landslides, and erosion associated with the fire regime (Blair and Gillam 2011:74).

Since the forced removal of the Utes nearly 150 years ago, major impacts to the mountain range have occurred that have drastically altered parts of the landscape. Blair and Gillam (2011:74) write that:

> The impact of human activity, both directly and indirectly, on the San Juan landscape is inescapable, although systematic documentation is lacking. In the last 150 years, the invasion of gold seekers, farmers and ranchers, developers, recreational enthusiasts, and second-home owners have created roads, towns, dams, mines, and mine waste. (More than 1,500 mine workings have been documented in San Juan County.) Mining activity in the late 1800s and early 1900s accounted for surges of sediment at 50 to 4,7000 times pre-mining rates in some places. … In the Upper Animas Valley, between Howardsville and the old town of Eureka, sediment surges have increased channel braiding and added heavy metals to floodplain deposits.

VEGETATION OF THE SAN JUAN MOUNTAINS

The San Juan Mountains encompass a range of vegetative communities that can be described in a variety of ways. Floyd-Hanna and others (1996), Jamieson and others (1996), and Minckley and Brown (1994b) categorize the communities by elevation and keynote species type. Through analysis of satellite imagery, the LANDFIRE Program, co-managed by the US Forest Service and the Department of Interior, has identified 62 vegetation types in the Animas River watershed. Ute tribal representatives have stated that a wholistic view of plant communities that considers Ute cultural beliefs and practices is useful when considering land habitats. Figure 2.1 illustrates plant communities within the Animas River Watershed, derived from the LANDFIRE Program geospatial data and refined using a wholistic view of the landscape.

The lowest elevations are represented in Figure 2.1 as intermountain and semi-desert areas. These are dry areas and south-facing lower elevation slopes where Ute traditional-use plants such as prickly pear (*Opuntia* spp.), Indian ricegrass (*Achnatherum hymenoides*), sages (*Artemisia* spp.), paintbrush (*Castilleja* spp.), mountain mahogany (*Cercocarpus montanus*), junipers (*Juniperus* spp.), currants (*Ribes* spp.), and yucca (*Yucca* spp.) are usually found. Floyd-Hanna and others (1996:144–145) describe these areas in part as greasewood-shadscale shrub-steppe and Great

Basin sagebrush shrub-steppe. The greasewood-shadscale shrub-steppe community inhabits low-elevation valleys in poorly drained saline soils that are dominated by greasewood (*Sarcobatus vermiculatus*) and shadscale (*Atriplex confertifolia*). The Great Basin sagebrush shrub-steppe is present in low-lying well-drained soils and is dominated by big sagebrush (*Artemisia tridentata*), blue gramma grass (*Bouteloua gracilis*), galleta grass (*Pleuraphis jamesii*), and a variety of forbs.

Riparian areas are representative of the key vegetation community for this study and are hosts to a wide range of Ute traditional-use plants. These include chokecherry (*Prunus virginiana*), narrowleaf cottonwood (*Populus angustifolia*), cattail (*Typha* spp.), mint (*Mentha arvensis*), horsetails (*Equisetum* spp.), wild rose (*Rosa* spp.), and other water-loving plants. Minckley and Brown (1994b:240) describe these areas as montane riparian communities along perennial streams between 4,000 and 7,000 feet. They note that these are often covered in "canyon bottom forest," which is generally composed of narrowleaf cottonwood, bigtooth maple (*Acer grandidentatum*), box elder (*Acer negundo*), alder (*Alnus oblongifolia*), and willows (*Salix* spp.). A variety of shrubs also make up an important aspect of montane streamsides, which also contain trees, shrubs, and grasses from adjacent montane vegetation communities. According to Minckley and Brown (1994a:237), subalpine perennial streams and other aquatic areas are often flanked by varieties of shrub willow (*Salix* spp.), as well as other scrub including red elderberry (*Sambucus racemosa*), gooseberry (*Ribes* spp.), and raspberry (*Rubus* spp.). The riparian areas may have a few trees that have germinated from surrounding vegetation communities.

Because of the homogenous qualities of piñon-juniper woodlands and savannas, they are included in their own category (Figure 2.1). Pine nuts are an invaluable and treasured traditional staple food for Utes and these forests are usually mixed with open clearings of arid native grasses and shrubs and stands of larger Rocky Mountain juniper (*Juniperus scopulorum*). This community also includes Gambel oak (*Quercus gambelii*), a significant traditional-use plant. Floyd-Hanna and others (1996:146–148) describe these communities as dominant within the southwestern United States between 5,000 and 7,750 feet, including the foothills of the San Juan Mountains. In the lower portion of this zone, piñon (*Pinus edulis*) shares canopy dominance with the Utah juniper (*Juniperus osteosperma*), while at higher elevations the Utah juniper is replaced by the Rocky Mountain juniper (*Juniperus scopulorum*). Juniper trees have expanded into adjacent grasslands over the last century due to overgrazing, droughts, and fire suppression.

Two forest communities are represented in Figure 2.1: aspen forests and mixed montane forests and woodlands. Because a single plant can create a large stand of trees, quaking aspen (*Populous tremuloides*) communities are often homogenous, with a mixed understory of wildflowers, ferns (bracken), and grasses, as well as some Ute traditional-use foods such as raspberries (*Rubus ideaus*) and thimble berries (*Rubus parviflorus*). Most notable is the presence of oshá (*Ligusticum porteri*), which can be found growing under aspens at forest edges.

Floyd-Hanna and others (1996:149–153) classify these edge areas, which occur between 6,000 and 9,500 feet, as a mixed mountain shrub community, consisting of woody plants generally under 16 feet in height. There are close to 50 species within this community,which is a mixture of species from adjacent communities. Most mixed mountane-shrub communities are found on steep or moderate slopes. Biologists consider the mixed mountain shrub community to represent a stage of recovery in areas that have been disturbed by fire or other disruptions, destined for replacement by woodland or forest communities given enough undisturbed time.

Mixed montane forests and woodlands refers to communities where Douglas fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), and other conifers are found. These are the placeswhere Utes peeled ponderosa pine and accessed a large array of traditional-use plants. Floyd-Hanna and others (1996:154) defined these middle elevation zones as areas between the semiarid foothills and the moist forests of the high mountains. They note that ponderosa pine was heavily logged in southwestern Colorado during the late nineteenth and early twentieth centuries. As a result, most of the ponderosa pine forests present in the San Juan Mountains today date to the early twentieth century. According to Jamieson and others (1996:160), mixed conifer forests are also incorporated in this category. Trees in these forests include ponderosa pine (*Pinus ponderosa*), southwestern white pine (*Pinus strobiformis*), Douglas fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), corkbark fir (*Abies lasiocarpa* var. arizonica), blue spruce (*Picea pungens*), and Engelmann spruce (*Picea engelmannii*). The dominant species within a given stand of this community depends on the soils and other environmental factors.

Due to fire suppression since the late 1800s, the structure of mixed-conifer forests has not fundamentally changed. The forests are naturally dense and large-scale crown fires were part of the normal fire pattern. The lack of fires over the last century, however, has created a more homogeneous forest that lacks diversity in stand age and structure. This makes the mixed-conifer forests less resilient to fire and

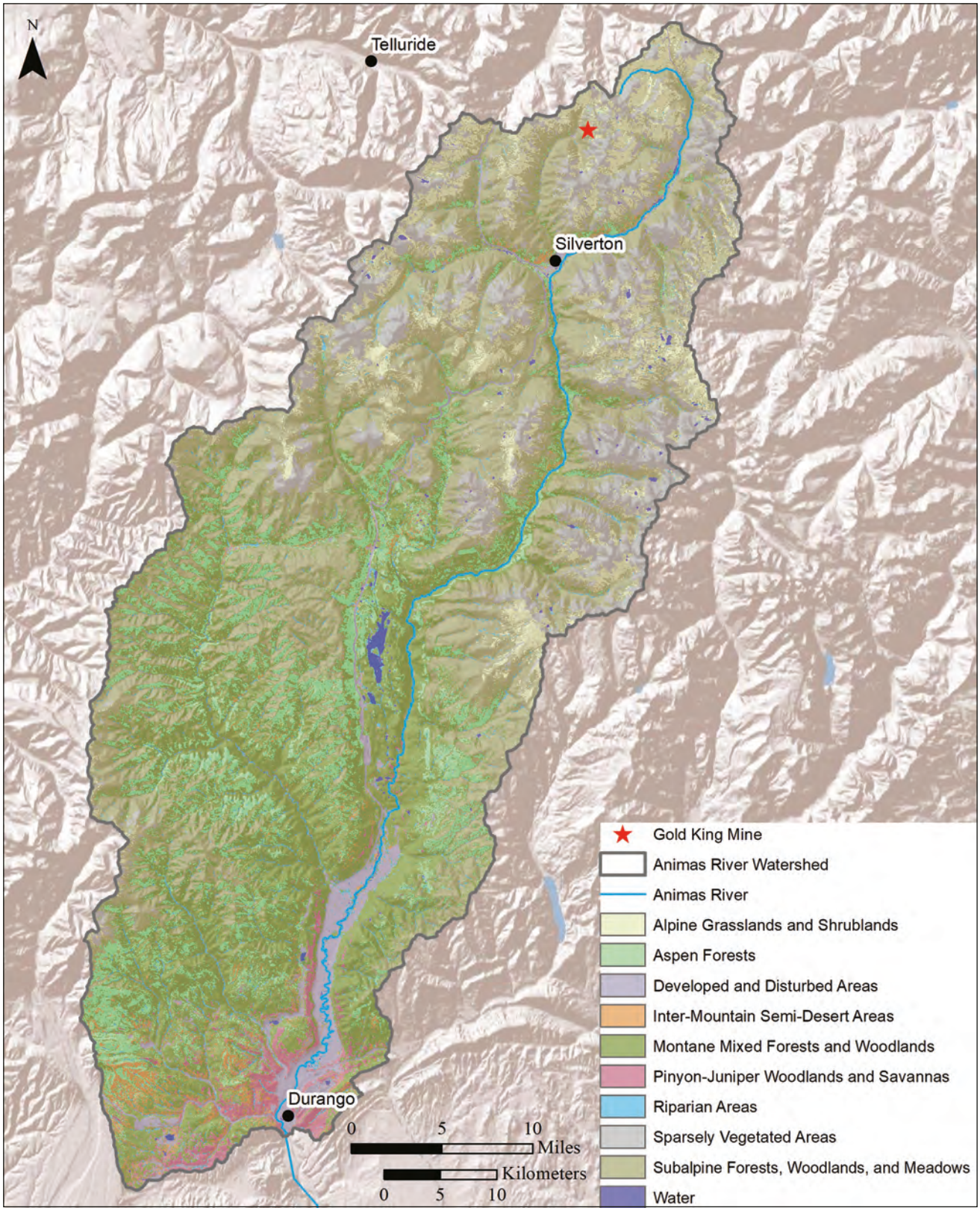

Figure 2.1. Vegetative communities of the Animas River watershed based on existing vegetation type data developed by the LANDFIRE Program.

more vulnerable to insect and disease outbreaks (Korb and Wu 2011:166–167).

The fire regime and, by extension, the health and nature of ponderosa pine forests have changed significantly over the last century. In the past, ponderosa pine forests with an understory of Gambel oak were well adapted to frequent, light surface fires that occurred in intervals of 3 to 11 years. Most fires were small and patchy; more large-scale surface fires happened approximately every dozen years. The large-scale surface fires could burn through thousands of acres but rarely became crown fires because of the open-stand structure of ponderosa pine forests. The large-scale surface fires ended in the late nineteenth century when fire exclusion policies were implemented to protect Euro-American settlement and livestock grazing. (Korb and Wu 2011:157–158).

By 1880, the San Juan Mountains had become chronically overgrazed by sheep and cattle. This killed or stunted the grasses and forbs that had previously provided fuel for the surface fires. Compounding this, land managing agencies adopted a policy of fire suppression in the early twentieth century. As a result, the previously open stands of ponderosa pine were infilled with herbaceous cover, trees, and shrubs. Today, the open stands of ponderosa pine have largely been replaced with a closed-canopy forest that lacks herbaceous understories. The understory is dominated by Gambel oak, which acts as a "ladder fuel" in the dense ponderosa pine stands, enabling surface fires to spread from the ground into the crowns of overstory trees. As a result, the low-severity surface-fire regime of the ponderosa forest is being replaced by a regime of high-severity crown fires. The high-severity crown fires that now spread through ponderosa pine forests can kill 50 to 100 percent of the trees and shrubs (Korb and Wu 2011:159).

The subalpine forests, woodlands, and meadows occur between 9,500 and roughly 11,000 feet. These areas support many valued Ute traditional-use plant species that are stunted due to the extreme elevation and weather conditions. Jamieson and others (1996:160) note that most of the tree species in the mixed-conifer community cannot survive at these elevations. Willows (*Salix* spp.) and occasional stands of oshá (*Ligusticum porteri*) can be found on sunny slopes where ample water is present. The spruce-fir forest community found in subalpine areas is dominated by Engelmann spruce (*Picea engelmannii*) and corkbark fir (*Abies lasiocarpa var.* arizonica). Historically, the spruce-fir forest fire regime consisted of infrequent, high-severity crown fires. These forests burned infrequently because of their wet environment; when lightning strike fires started, they rarely grew to a significant size. Major fires occurred every 200 or more years and would kill nearly all trees within a burn area, resetting the spruce-fir stands to the beginning of their growth process. Spruce-fir and cold-weather mixed-conifer forests still appear to be within their average fire interval of 200 or more years, but fire suppression and climate change may impact these ecological zones by decreasing landscape diversity and the ability of plants to fend off insect epidemics (Korb and Wu 2011:167–168).

Alpine grassland and shrublands communities (areas above 11,000 feet) are host to a variety of stunted alpine grasslands, tussock, and moss. These areas are too high in elevation to support the growth of trees, and most plants within the communities are low herbaceous plants and small woody shrubs. These communities favor slow-growing, persistent perennial plants that may take several years to establish during the short growing season. The most common form of these communities is an alpine meadow, which can grow as a lush carpet of flowers and forbs during the short summer (Jamieson and others 1996:169, 170, 172).

At the uppermost elevations in the San Juan Mountains are treeless alpine vegetation communities and are categorized in Figure 2.1 as sparsely vegetated. These areas are covered in scree; they serve other purposes in Ute culture.

ECOLOGICAL REGIONS OF THE BPMD

As defined by Chapman and others (2006), ecological regions are determined by multiple factors including the geology, vegetation, climate, soils, land use, wildlife, and hydrology of a given geographical area. Ecological regions are used by land managers and government agencies, including the EPA, to understand, evaluate, and create management plans that address site-specific variables. The EPA Level IV Ecoregions Map of Colorado (Chapman and others 2006) shows that the BPMD study area encompasses three Level IV ecological regions, which are further classified into 15 sub-ecoregions (Table 2.1; Figure 2.2). The majority of lands in the project area and the entire BPMD are classified as the Southern Rockies Ecoregion 21. The western periphery of the study area, as well as the area south and east of Durango along the Animas River towards Ignacio, is classified by the EPA as the Colorado Plateaus Ecoregion 20. The far eastern portion of the study area that includes the Rio Grande and the western extent of the San Luis Valley is classified by the EPA as the Arizona/New Mexico Plateau Ecoregion 22.

WATER IN THE SAN JUAN MOUNTAINS

The San Juan Mountains aquifer is heterogenous because of the region's complex geologic structure, but it appears

Table 2.1. Classification of EPA Sub-ecoregions.

No.	*Sub-Region*	*Region*
20a	Monticello-Cortez Uplands and Sagebrush Valleys	Colorado Plateaus Ecoregion 20
20b	Shale Deserts and Sedimentary Basins	Colorado Plateaus Ecoregion 20
20c	Semiarid Benchlands and Canyonlands	Colorado Plateaus Ecoregion 20
21a	Alpine Zone	Southern Rockies Ecoregion 21
21b	Crystalline Subalpine Forests	Southern Rockies Ecoregion 21
21c	Crystalline Mid-Elevation Forests	Southern Rockies Ecoregion 21
21d	Foothill Shrublands	Southern Rockies Ecoregion 21
21e	Sedimentary Subalpine Forests	Southern Rockies Ecoregion 21
21f	Sedimentary Mid-Elevation Forests	Southern Rockies Ecoregion 21
21g	Volcanic Subalpine Forests	Southern Rockies Ecoregion 21
21h	Volcanic Mid-Elevation Forests	Southern Rockies Ecoregion 21
21i	Sagebrush Parks	Southern Rockies Ecoregion 21
21j	Grassland Parks	Southern Rockies Ecoregion 21
22a	San Luis Shrublands and Hills	AZ/NM Plateau Ecoregion 22
22b	San Luis Alluvial Flats and Wetlands	AZ/NM Plateau Ecoregion 22

to be well-connected regionally and has significant depth. Evidence from springs and streams indicates that the water table of the aquifer reaches even the highest elevations in the San Juan Mountains. Estimates have suggested that groundwater discharge into all the major streams in the San Juan Mountains is approximately 150 billion gallons of water per year, which is roughly 3.5 years worth of water for the city of Denver, Colorado, as of the year 2000. The surface and groundwater discharge from the San Juan Mountains likely helps to recharge groundwater in the surrounding San Luis, San Juan, San Miguel, Uncompahgre, and Gunnison basins (Caine and Wilson 2011:94–95).

There are approximately 630 bodies of water in the San Juan Mountains. Many of the natural lakes in the San Juan Mountains are the result of glacial activity that created depressions or dammed valleys. Some lakes, such as Little Molas, result from water dissolving limestone bedrock. The alpine and sub-alpine lakes within the San Juan Mountains are generally nutrient-poor and contain less biological diversity than lower-elevation bodies of water. Fish were often not supported in high-elevation bodies of water but many previously fishless lakes in the San Juan Mountains have been stocked with trout over the last century. Many bodies of water contain significant amounts of mercury, which occurs naturally, comes from mining activity, or is deposited as atmospheric pollution from coal-fired power plants in the Four Corners. Mercury levels have significantly increased since the 1960s, indicating that atmospheric deposition from coal-fired plants is a major source of the element (Nydick 2011:114, 123, 126).

Fens are the dominate type of wetland in the San Juan Mountains above 9,000 feet (2,700 m). Fens are distinctive in that they accumulate organic soil (peat) and are thus considered peatlands. Fens are supported by groundwater and develop soils because they are permanently saturated. The slow decomposition rate of the oxygen-free soils within the fens allows for the accumulation of organic materials. Fens began to form in the San Juan Mountains approximately 12,000 years ago when the mountain glaciers began to melt. Many fens in the San Juan Mountains are between 6,000 and 10,000 years old with 3 to 8 ft (.9–2.4 m) of soil depth. Soil in fens accumulates at a rate of approximately 8 inches per 1,000 years (Chimney and Cooper 2011:129–130). In highly mineralized areas of the San Juan Mountains, fens can have significant concentrations of iron and other metals and can leach significant amounts of heavy metals into surface water (Stanton and others 2007).

The surface water of the San Juan Mountains drains through numerous high-elevation streams that feed into several large rivers. Stream flow is most abundant during the period of snowmelt between April and July, and additional water is added by rain from July to September. On the eastern side of the continental divide the surface water drains into the Rio Grande, which has its headwaters in the

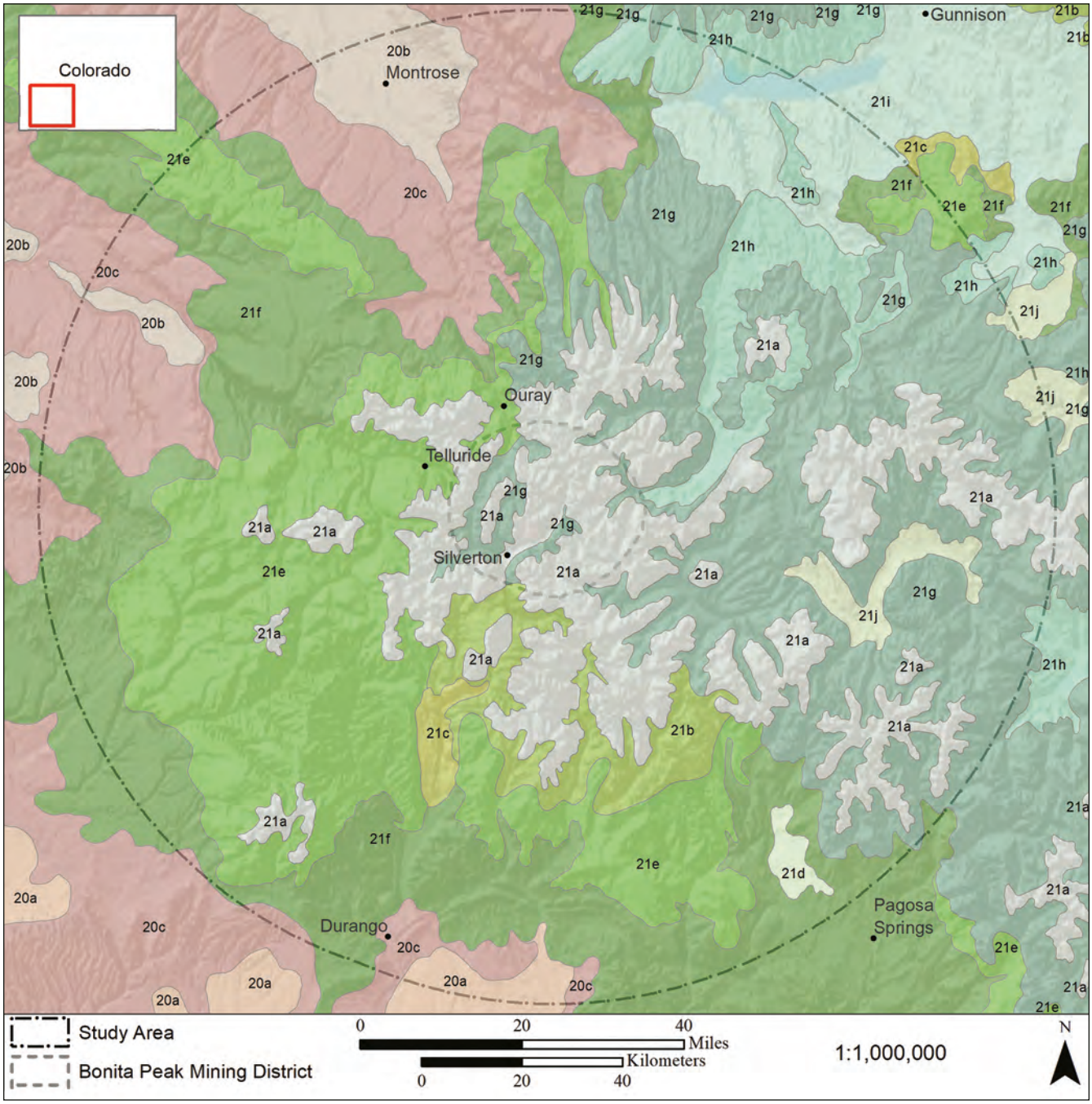

Figure 2.2. EPA sub-ecoregions of Colorado included in this study based on information from Chapman and others 2006.

mountain range. The Rio Grande then flows through New Mexico, Texas, and Mexico to enter the Gulf of Mexico. On the western side of the continental divide, the surface water drains into tributaries of the Dolores, Gunnison, and San Juan Rivers. These rivers all flow into the Colorado River, which weaves its way through Arizona, Nevada, and California before entering the Gulf of California in Mexico.

UPPER ANIMAS RIVER AND THE BONITA PEAK MINING DISTRICT

The Animas River is an important tributary of the San Juan River and remains one of the few undammed waterways in western Colorado. It originates in Animas Forks northeast of Silverton at 11,200 ft and flows south to Farmington, New Mexico, where it drains into the San Juan River. Along its course, the Animas River travels through high alpine to arid desert environments and supports a wide variety of riparian vegetation communities, The river serves as an important plant and animal habitat, a water source for agriculture and municipalities, and as a venue for recreational opportunities (Somers and Floyd-Hanna 1996:181, 187).

The BPMD, at the center of our study area, is within the upper Animas River watershed. The upper Animas River watershed includes the portion of the river from its headwaters down to the town of Silverton. The Animas River has two major tributaries, Cement Creek and Mineral Creek, which enter the river in Silverton. This portion of the watershed is composed entirely of alpine and subalpine habitats, ranging from 9,300 to 13,800 feet in elevation. There are three principal basins in the upper Animas River watershed: Cement Creek, Mineral Creek, and the upper Animas. These basins are generally steep and narrow glacial valleys that open into wider valleys such as the one where the town of Silverton is situated. The steep portions of the three basins have minimal vegetation, with sporadic spruce-fir forest and riparian vegetation in less steep areas (Von Guerard and others 2007:25).

Mining in the Upper Animas River Watershed

The upper Animas River watershed around Silverton, particularly along Cement and Mineral Creeks, was a highly active and productive part of mining of mineralized deposits in the San Juan Mountains. Ore containing precious metals was mined from faults along the southern edge of the Silverton Caldera (Fetchenier 1996:83). Production-scale mining took place over a 120-year period, from AD 1871 to 1991. The mining followed a boom-and-bust pattern, based on the price of metals. There were hundreds of mines and prospect pits were opened during that period, with an estimated total of 18.1 million tons of ore produced from those mines (Jones 2007).

Prospectors began exploring the San Juan Mountains for valuable minerals in the 1860s, and by 1872 their finds had created a small mining rush. In 1873, the Brunot Agreement was signed, which relinquished the San Juan Mountains from Ute exclusive ownership (discussed further in Chapter 3). Following the Brunot Agreement, Anglo-Americans could legally claim, purchase, and sell land within the San Juan Mountains, spurring development. A recession and lack of infrastructure limited development in the 1870s, however, making small prospecting operations more common than large mines (Ninnemann and Smith 2006:8, 10, 11–13).

Significant mining development occurred in 1882 after the cost of transporting ore to market was reduced when a spur of the Denver & Rio Grande Railroad reached Silverton. Short railroad spurs from Silverton to Gladstone, Red Mountain, and Animas Forks were added, linking these mineral-rich areas to the town (Ninnemann and Smith 2006:13–16). Ores were shipped by rail to Durango, where they were processed at the San Juan and New York Smelter (Jones 2007:55). Although mining during the early period of development (AD 1871–1889) was done by hand, the large mines of the period could still produce approximately 100 tons of ore per day.

Technological advances in the late-nineteenth and early twentieth centuries (AD 1890–1913) allowed mines to significantly increase their output, and large mines were able to produce 200 tons of ore per day. These advances included the construction of aerial tramways to transport ore and supplies to and from remote mine sites, the advent of the compressed-air powered machine-drills, and the incorporation of electricity into mining practices (Jones 2007:57). These advances were particularly significant for remote, high-altitude mines such as the Gold King and Sunnyside on upper Cement Creek, which both developed tram systems in the late-nineteenth century (Jones 2007:54, 58). The environmental impacts of mining increased during this period, particularly with increased milling at remote sites and the discharge of tailings directly into streams (Jones 2007:54, 57, 58, 61–63).

World War I created an increased demand for metals, and technological developments further mechanized the processes of mining and milling. The introduction of a new froth-floatation milling process allowed for the mechanized separation of ores. This significantly reduced the cost of processing. As a result, miners extracted larger amounts of lower-grade ore. (Jones 2007:65). In the 1910s, the

Sunnyside Mine became the most productive mine in the region, producing more than 600 tons of ore per day. The optimism of the early twentieth century was followed by a postwar recession from 1921 to 1922 that altered the character of mining in the San Juan Mountains. Many small and medium mines closed permanently, including the Gold King Mine in 1925. Larger mines, including the Sunnyside Mine, restarted when the national economy recovered but the local industry was, from that point forward, dominated by a few, large producers (Jones 2007:66).

Throughout the Great Depression, World War II, and the Korean War, the Shenandoah-Dives Mine and its associated Mayflower Mill was the main producer of ore in the San Juan Mountains. The Shenandoah-Dives Mine ceased production in 1953 (Jones 2007:70–72). In 1959, the Sunnyside Mine was reopened and the Gold King Mill level tunnel, later renamed the American tunnel, was widened and extended to reach the Sunnyside veins. This provided economical transportation of ore and drainage for the Sunnyside mine workings (Jones 2007:75). High-grade gold ore was discovered at the Sunnyside Mine in the 1970s, which allowed it to remain in operation until 1991, when the high-grade ore was exhausted and metal prices declined (Jones 2007:74–76). With the closure of the Sunnyside Mine, ore production in the San Juan Mountains became dormant.

Impacts from Mining in the Upper Animas River Watershed

As a result of the mining of highly mineralized deposits near its headwaters, the Animas River and its watershed were exposed to a variety of pollutants. Mining activities extracted significant quantities of ore and left numerous toxic tailings piles. The ore extraction and tailings contributed significantly to the level of heavy metals in the Animas River. In addition, naturally exposed ore deposits and iron bogs leached large amounts of heavy metals into the upper Animas River. Mineral Creek and Cement Creek, two important tributaries, contribute significant amounts of sulfuric acid to the Animas River, causing increased heavy metal volumes and lower pH values than normal. The negative impact of these tributaries can be seen for miles downstream, although the downstream tributaries help to dilute the toxicity of the water (Somers and Floyd-Hanna 1996:182–185).

Remediation activities in the upper Animas River watershed that focus on reducing the environmental impacts of inactive mines increased in the 1990s and are on-going. These efforts include the removal of tailings and mine dumps, the construction of hydrologic controls to prevent surface runoff, and the plugging of adits and portals. Although studies suggest that 90 percent of metal loads in surface water come from only 80 of the 5,300 mining sites in the upper Animas River watershed, remediation efforts have been slow. As of 2004, only approximately one-quarter of high priority sites for remediation had been remediated (Finger and others 2007:1069).

Gold King Mine Spill

The Gold King Mine has been subject to remediation efforts since 2008, following a slope failure of a waste-rock dump on Level 7 of the mine. In 2009, the Colorado Division of Mining and Safety installed a 2-foot-diameter drain pipe and an observation pipe above the drain in the collapsed Gold King Mine Level 7 New Adit in order to direct water seepage from the adit into a concrete flume (US Bureau of Reclamation 2015:27–35). Following five years of monitoring, the EPA requested that the Colorado Division of Mining and Safety reopen and stabilize the Level 7 New Adit. This work commenced on September 11, 2014, but was quickly stopped as seepage began flowing during soil removal. Temporary measures were conducted to contain the new seepage (US Bureau of Reclamation 2015:35–39).

In August 2015, excavations were restarted at the Gold King Mine Level 7 New Adit and the crew observed seepage similar to that observed in 2014. To safely contain the water within the Level 7 New Adit, the EPA devised a plan to excavate collapsed fill from the top of the adit opening, under the assumption that water levels had not risen to the adit roof. They would then insert a steel pipe at an angle into the top of the adit opening and insert it into the pool of water, from which they could safely pump the water from the adit for treatment (US Bureau of Reclamation 2015:46–50).

The EPA and its contractor began implementing the plan on August 5, 2015. As an excavator dug into the debris that was over-top the adit, water began to flow from the adit. The rate and size of this flow increased rapidly, and it quickly became a "blowout," with the uncontrolled release of yellow, metal-laden water from the adit. The water flowed into nearby Cement Creek, eventually entering the San Juan River from the Animas River, and ultimately making its way to Lake Powell (US Bureau of Reclamation 2015:52–60).

In total, approximately three million gallons of water from Gold King Mine Level 7 New Adit containing significant levels of cadmium, arsenic, iron, copper, aluminum, beryllium, and manganese entered Cement Creek. The water flowed from the Animas River (Figure 2.3) into the San Juan River. This caused numerous municipalities in Colorado, New Mexico, Utah, and the Navajo Nation to swiftly take action to protect their drinking water supplies (Finley and McGhee 2015; Turkewitz 2015). While metal levels in the

Figure 2.3. The contamination plume flowing southward through the Animas River along US 550 on the southern end of the Southern Ute Reservation. Photograph by the Environmental Programs Division of the Southern Ute Indian Tribe, August 2015.

Animas River returned to pre-spill levels by August 11, 2015, the EPA and other groups continue to investigate the potential long-term impacts of the Gold King Mine spill (Colorado Water Quality Control Division 2016).

On September 9, 2016, the EPA designated the Gold King Mine and 47 other mining-related sources of metal-laden water in the Upper Animas, Cement Creek, and Mineral Creek drainages as a Superfund site on the National Priorities List. The Superfund designation, which provides federal resources for cleanup, had been resisted by local residents and businesses for years, because they worried that the designation may hurt business. In 2016, the US Congress authorized appropriations of $4 million per year for four years (2017–2021) through the passage of the WIIN Act. This act funds a long-term water quality monitoring program for the San Juan watershed (EPA 2021). Since 2016, the EPA has been treating the discharged water of the Gold King Mine at a temporary treatment plant in Gladstone, as well as conducting monitoring programs, small-scale remediation, and a number of studies to better inform the large-scale remediation efforts to come (EPA 2020; Finley and McGhee 2015).

Monitoring remains ongoing and from 2016 to 2018, Mountain Studies Institute sampled 18 sub-basins in the tributary flows around Bonita Peak that contribute to Cement Creek and the Upper Animas River. It collected 600 samples from 132 seeps and springs and 31 draining mines. A large variability in water chemistry was observed across the study area. The study found that draining mines generally have larger metal loads than seeps and springs. The samples included a range of metals including aluminum (Al), cadmium (Cd), copper (Cu), iron (Fe), manganese (Mn), lead (Pb), zinc (Zn), sulfate ion (SO4) (Cowie and Roberts 2020).

CHAPTER THREE

Ute Cultural and Historical Overview

THE THREE UTE Indian reservations are presently located in southwestern Colorado and east-central Utah. These reservations cover only a small fraction of traditional Ute territory, which historically spanned across most of Utah and Colorado and portions of Arizona, New Mexico, Texas, Oklahoma, Kansas, and Wyoming (Figure 3.1). The BPMD and the Animas River watershed lie at the heart of this vast area. Historically, the Bonita Peak area was a crossroads for multiple Ute bands. It was an important seasonal residence, with abundant resources for hunting, plant gathering, and religious and spiritual wellbeing.

This chapter situates Ute culture and history within the geographical setting of the BPMD. The legacy of the Ute people in the San Juan Mountains of southwestern Colorado is engraved deeply onto the land, and it continues to grow as time passes. Although Ute occupation of this area has changed over time, the Bonita Peak landscape remains important to the Ute people. The Southern Ute Indian Tribe, Ute Mountain Ute Tribe, and Ute Indian Tribe all retain connections to the Bonita Peak area through their cultural history and cosmology, and this landscape continues to be a significant hunting, fishing, and plant-gathering place for Ute tribal members.

UTE ORIGINS AND SOCIAL STRUCTURE

Ute Creation stories are the foundation of Ute history and culture. They explain Ute origins, territoriality, and land use through time, and they are infused with the moral teachings and life principles that underscore Ute life. These stories define the spiritual and physical relationships of Ute Indians with all living elements. Ute creation and traveling stories are most often told during the winter months (Duncan 2003). While multiple versions of origin accounts exist, they all include the same basic elements. As Alden Naranjo, Jr., explained, "Stories are passed along by grandparents, and each family has a version of history. History includes personal life experiences of those elders that shared, and we related to the past through their stories." Mr. Naranjo added that "the Ute creation story tells us how we came to be here. It helps frame Ute lifeways into a deeper philosophical context."

The Utes refer to themselves as Núuchiu$^{(S)}$, "Ute-Indian people" (Callaway and others 1986:365), and a Ute individual is a Núuchi$\underline{\text{i}}^{(S)}$ Variations of this name include Nuche and Nuutsiyu, both of which have been translated as "Mountain People" (Burns 2003:16). The term for mountain, *káavi*$\underline{\text{i}}^{(S)}$, however is not part of these words, which suggests that Nuche and Nuutsiyu have been previously mistranslated. The Ute language is part of the Numic branch of the Uto-Aztecan language family. "Ute" is a term applied by Spanish explorers, originating from the term *quasuatas*, which the Spanish used to refer to all people residing in the lands between the Pueblo territory and the Shoshone (Givón 2011).

Ute Creation and Seasonal Rounds

Ute tribal representatives stated that the high mountain peaks in the San Juan Mountains and BPMD evoke memories about their creation story and that it is possible to feel the Creator's presence in these special places. Ute people were placed in the mountains at the time of their creation and so have maintained an unbroken connection to the mountains since time immemorial. The following is one version of the story as told by Alden Naranjo, Jr., and Monica Lujan (Naranjo and Lujan 2000:7–8):

> In the days even before the ancient times, only Sinawav, the Creator and Coyote inhabited the earth. They had

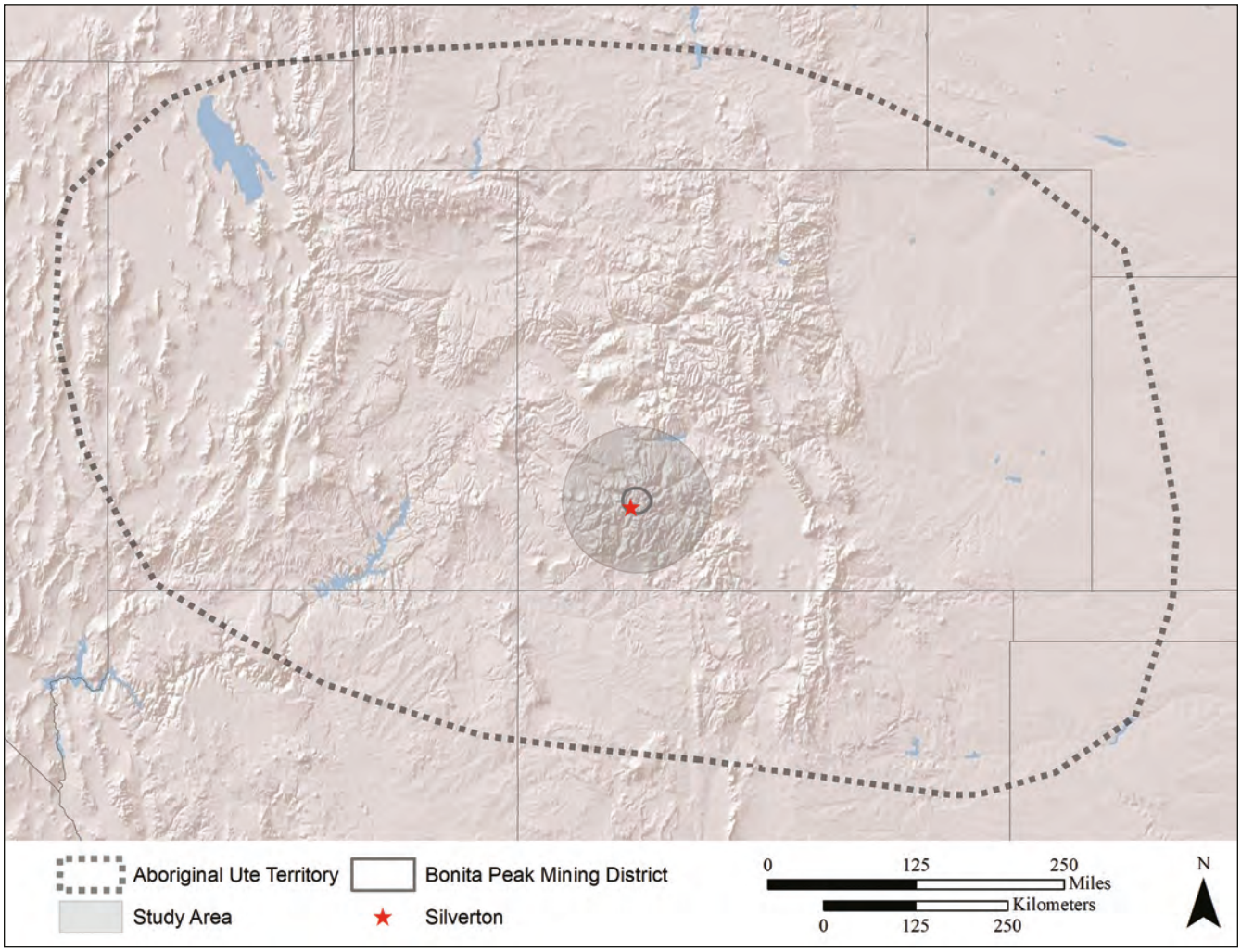

Figure 3.1. BPMD study area in relation to the Ute aboriginal territory.

come out of the light so long ago, that no one remembered when or how. The earth was young and the time had not come to increase the people. Sinawav gave a bag of sticks to Coyote and said, "Carry these over the far hills to the valleys beyond." He gave specific directions Coyote was to follow and told him what to do when he got there. "You must remember this great responsibility. The bag must not be opened under any circumstances until you reach the sacred grounds," he told him.

"What is this I carry?" asked Coyote.

"I will say no more. Now be about your task," Sinawav answered.

Coyote was young and foolish, consumed with curiosity. "What is this I carry?" he kept asking himself. As soon as he was over the first hill and out of sight he stopped. He was just going to peak in the bag. "That could hurt nothing," he thought. Just as he untied the bag and opened a small slit, they rushed for the opening. They were people. These people yelled and hollered in strange languages of all kinds. He tried to catch them and get them back into the bag. But they ran away in all different directions. From how full the bag was after he had gotten it closed, he could tell there was only a fraction of what he had started out with. He went to the sacred valley and dumped them out there. There was a small number of these people. But those few ones were the Utes, the real Utes from around here. Coyote then returned and told Sinawav that he had completed his task. Sinawav searched Coyote's face. "I know," Sinawav sighed. "You foolish thing. You do not know what a fearful thing you have done."

Coyote finally confessed. "I tried to catch them. I was frightened. They spoke in strange tongues that I couldn't understand."

> "Those you let escape will forever war with the chosen ones. They will be the tribes which will always be a thorn in the sides of the Utes," said Sinawav. "The Utes, even though they are few in number, will be the mightiest and most valiant of heart." Sinawav then cursed Coyote, "You are an irresponsible meddler. From this time on you are doomed to wander this earth on all fours forever as a night crawler.

At Rocky Mountain National Park, Ute Indian Tribe representative Venita Taveapont described feeling the presence of creation in the high mountain of Colorado:

> Last year when I first came to this country, Colorado, I was reminded of the story that we tell about the creation of Ute people where the creator had placed people in a bag. He cut up some sticks and he placed them in a bag and then Coyote, being the curious and mischievous person that he is, opened the bag and he let out a lot of people and they scattered over the world. But there were a few people that were left in the bag and those were the Utes. When the creator came back and he found those few people he placed them high in the mountain—high on the mountain tops. And when I came, I thought, 'Wow this must have been where he placed them.' Because to me it seemed like we were on the top of the world. And what a choice place to place people, because everything was here, that they needed to survive. The other thing is that there is such reverence, such a feeling of the ancestors being here and that you can't help but be in awe of their hardiness, their ability to survive, and to walk these mountains. Every year, every year they would come either to worship or to hunt and gather—this is the place that they held in high reverence. This is the beginning of the connection, this is the beginning of bringing back those traditional names, bringing back our traditional ways. And I think for too long that we've kind of held things back and we can't do that anymore. For our own people we need to have that reconnection, for our children, for our grandchildren, great grandchildren. We still need to have that connection and rebuilding that knowledge [Brunswig and others 2010:64].

Ute Social Structure

The Ute people were traditionally organized into small kin groups called bands. Population estimates in Ute territory range from 0.2 to 1 person per square mile, which is higher than most other Great Basin groups (Callaway and others 1986:352). Local groups generally consisted of 5 to 10 families, and each family shared a tipi (Figure 3.2; Figure 3.3). Larger groups ranged up to 20 to 40 families, depending on the availability of food to sustain the group. While some territoriality existed among Ute families, resources were considered communal (Burns 2003:27).

Ute oral traditions describe the seasonal mobility of families as a clockwise route around a central mountain. According to Burns (2003:4, 14), some Ute groups even took on the name of the mountains that their territories were centered upon. The mountain-centered seasonal round included the use of a variety of ecosystems, with dispersed winter camps at lower elevations and gatherings of groups at higher elevations during the summer (Burns 2003:15). For example, Spanish scribes from 1626 documented seasonal rounds of the Kapuuta(S) Utes south from the upper San Juan region in southwestern Colorado to the Pueblo of Jemez and Abiquiu in the Rio Grande region of New Mexico to trade and escape cold weather. In the springtime, the Kapuuta(S) Utes returned to the area around Ignacio and Pagosa Springs (Lister 2011:129).

The seasonal movements of bands were important to Ute subsistence and spirituality. The ceremonial calendar corresponded to the seasonal movements of groups, so certain events corresponded to the particular environment in which they would be held. For instance, summer ceremonies took place in high mountain settings, while fall events often took place in lower valley camps (Burns 2003:5). Ute families often traveled long distances to partake in a variety of gatherings with other Ute people including military campaigns, social gatherings, and religious events such as the Bear Dance that was performed each spring (Conetah 1982:21–22). During fieldwork for the current study, Alden Naranjo, Jr., explained the role of ceremonies and social gatherings in the seasonal mobility patterns of different families. He said:

> The bands were comprised of families and their leaders made decisions about where to camp over winter. And then in the spring, they'd hold the Bear Dances and council meetings, and they decided which families and which bands would be at certain areas during the summer time, in case there was sickness or raids, then they would know where groups were.

Mr. Naranjo, Jr., explained that leaders within bands were chosen based on their ability to effectively guide their group. Different Ute bands came together during the spring and summer and made plans collectively. Cassandra Atencio added that Ute bands were interconnected through marriage, and this was an important mechanism for Ute

Figure 3.2. Image of a Ute family group at a campsite. National Anthropological Archives, Smithsonian Institution.

Figure 3.3. Ute family in a shared tipi. Basin: Ute, BAE 4750(11), Box VII:3, National Anthropological Archives, Smithsonian Institution.

people to gain knowledge and information, and maintain alliances across their vast territory. She recalled that "the Bear Dance was different, it used to be in different places, and we intermarried during the Bear Dance and so you gain that information from the other bands. So, the intermingling between the bands allowed for that knowledge to be shared." Ms. Atencio emphasized that the tradition of intermarriage continues today, explaining that while both her parents were enrolled members of the Southern Ute Indian Tribe, one of her grandfathers on her maternal side had come from a Northern Ute band and received rations at Ignacio. He married and became an enrolled member of the Southern Ute Indian Tribe. The tradition of intermarriage and the ration and enrollment system enforced by the federal government are some of the reasons why it is important today to integrate cultural perspectives and histories from all three Ute tribes.

In addition to hunting, gathering, herding, and limited agriculture, some Ute bands raided Pueblo, Apache, Hopi, and Navajo communities to supplement their subsistence. There is evidence that the Utes began raiding prior to the adoption of the horse, and the practice became more frequent after the Utes acquired horses in the seventeenth century. Band identities also appear to have been strengthened as horses were integrated into Ute lifeways (Callaway and others 1986:339, 353).

By the nineteenth century, Ute society was comprised of about 11 bands (Burns 2003; Callaway and others 1986; Southern Ute Indian Tribe 2021). The bands were often named for a significant geographic feature within the band's territory or a significant resource that they harvested. Eastern bands include Moǧwáchi(S), Kapuuta(S), Weenuche (although the band is officially referred to as Weeminuche, Weenuche is the traditional name according to Ute Mountain Ute Tribe tribal representatives), Uncompahgre (sometimes called Tabeguache), Parianuche, and Yampa. Western bands include Uintah, Timpanogots, Pahvant, Sanpits, and Moanunts. Mobility among the bands was high, although in some band territories abundant resources supported year-round encampments (Callaway and others 1986:338–339; Conetah 1982:19–25). During research for the current project, Alden Naranjo, Jr., drew a map showing the overlapping territories of Ute bands (Figure 3.4). He explained that the maps made by historians are often inaccurate or incomplete, sometimes mis-plotting band areas.

The Yampa band territory included the White and Yampa river watersheds and mountainous areas of north-central Colorado. The Yampa regularly traveled into southern Wyoming and the plains of eastern Colorado and western Kansas to hunt. The Parianuche band, sometimes referred to as the Grand River band, traveled throughout mountainous areas of north-central Colorado, extending from the Denver area west across the Colorado Plateau into far eastern Utah. Parianuche and Yampa band territories merged over time and these bands are sometimes referred to collectively as the White River Utes. The Uncompahgre band, also called the Tabeguache band, was primarily located along the Gunnison and Uncompahgre rivers and in the high mountain areas of central Colorado, including the Elk Mountains and traveled to the east beyond the Front Range and to west into eastern Utah (Burns 2003; Callaway and others 1986).

The Uintah band extended from the Uinta Range of northeastern Utah south across the Tavaputs Plateau and west to the Strawberry River area. Timpanogots band territory encompassed Utah Lake, the Provo River, and surrounding areas within north-central Utah. The Sanpits band, also known as San Pitch, lived primarily within the Sanpete Valley and Sevier River Valley within west-central Utah. The Moanunts band ranged throughout the upper Sanpete Valley and Fish Lake areas of central Utah. The Pahvant lived in west-central Utah and south into the Sevier Lake region (Burns 2003; Conetah 1982:23–25; Southern Ute Indian Tribe 2021).

Collectively the Kapuuta(S) and Moǧwáchi(S) are often referred to as Southern Ute (Delaney 1974). The Kapuuta(S) ranged from the headwaters of the San Juan River to the Animas River, south of the Conejos River, and into the Sangre de Cristo Mountains. They occupied areas in the San Luis Valley in Colorado and around what are now the towns of Chama and Tierra Amarilla, New Mexico (Callaway and others 1986:339; Lister 2011:129). Moǧwáchi(S) territory covered eastern Colorado and extended south to Santa Fe, New Mexico (Bennett 1999:10) and beyond down to Tucumcari. The Weenuche band historically occupied the Four Corners region, spanning from southeastern Utah to southwestern Colorado, and into northwestern New Mexico. The Weenuche traditionally used the San Juan River Valley and its tributaries (Perlman 1998:12). They occupied all the small river valleys of southwestern Colorado and southeastern Utah and ranged into the San Juan Mountains near Telluride and Silverton, the Abajos, and the La Sal mountains (Jacobs 1992; McPherson 1992).

HISTORICAL DEVELOPMENTS

The Utes were mobile hunters and gatherers, who, early on, lived primarily in *ivikaṇi*(S) (stick lodges) (Figure 3.5). Ute historians note that Ute people obtained horses as early as the 1580s (Southern Ute Indian Tribe 2021) and Alden Naranjo, Jr., noted that the *ivikaṇi*(S) was replaced by *the*

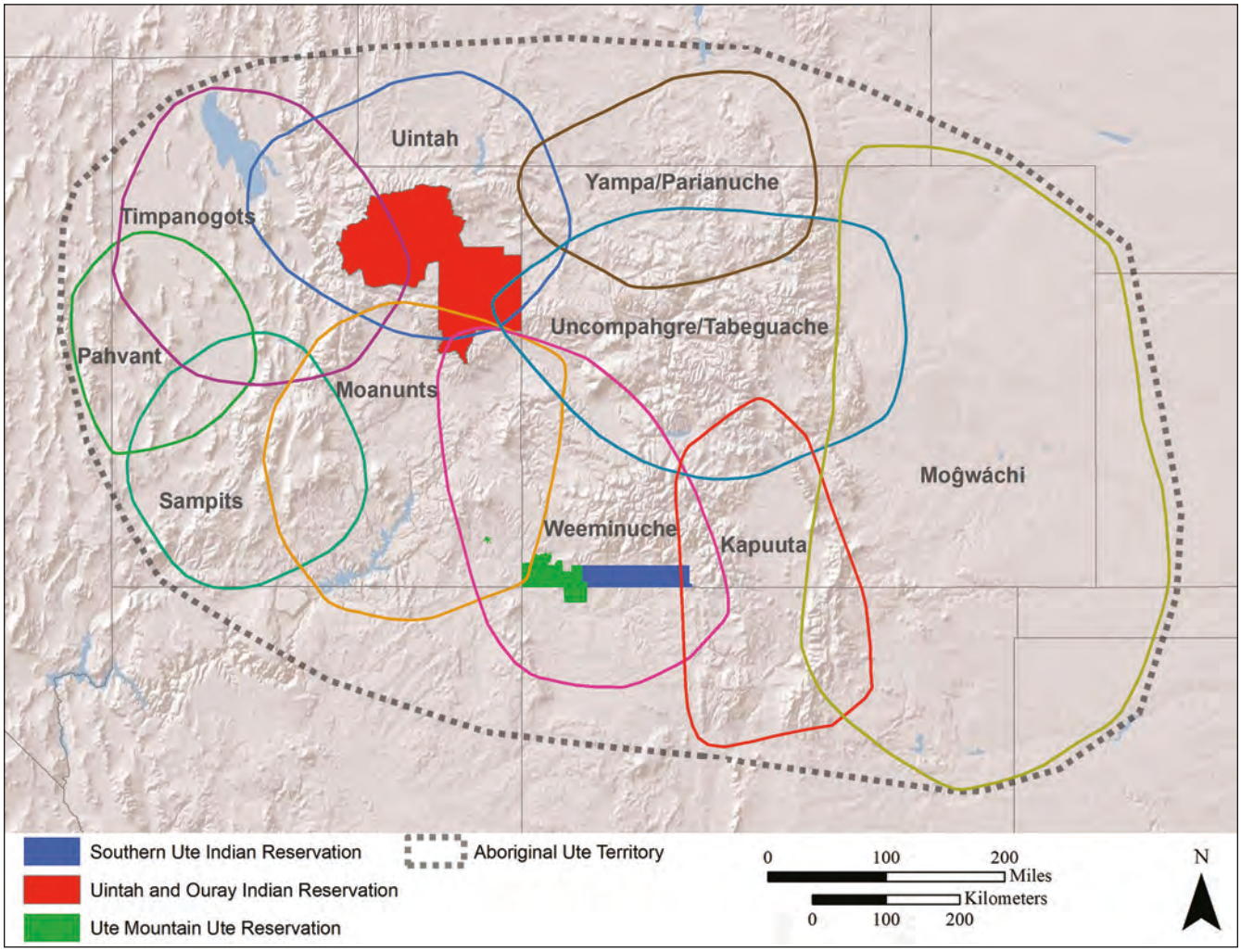

Figure 3.4. Ute territory during the early nineteenth century as mapped by Alden Naranjo, Jr., in 2019.

nuugani(S) (skin-covered tipis) following the wide adoption of the *kava*(S) (horse) by the mid-seventeenth century. The Utes occupied valley bottoms and mountainous areas according to the seasons, and they marked their territory with a regional network of trails. They relied on the land for their physical and spiritual sustenance. As mobile people, Ute ancestors left a light imprint on the ground; however, many of the places they held sacred are fixtures of the environment, including forests, valleys, springs, rivers, and mountaintops.

According to Ute oral traditions, the Ute people have resided in Colorado since time immemorial. Archaeological evidence of Ute history prior to the arrival of Europeans is sparse, in part due to their low impact and mobile lifeway. Despite Ute oral history, some archaeologists suggest that the Ute likely migrated southward through the Great Basin during the fifteenth and sixteenth centuries, settling throughout eastern Utah and western Colorado (Lister 2011:129). Other archaeologists believe the Utes entered western Colorado as early as AD 1100 (Madsen 1975; Reed 1988, 1994); however, these theories are contested by Ute people. Ute oral history is more closely supported by Buckles (1971:1349, 1357–1359) who suggests that Ute are connected to at least the Late Desert Culture (Archaic) period because between Desert Culture and Ute material culture and lifeways cannot readily be distinguished from one another (Cassells 1983:191; Brunswig and others 2010:57). By the sixteenth century, the Ute people traveled over a large territory that spanned from western Utah to eastern Colorado, and from southern Wyoming to northern Arizona and New Mexico (Callaway and others 1986). Groups of Utes made regular trips into the Great Plains to hunt and wage military campaigns against the Comanche, Kiowa, and Arapaho (Reed 1991:3).

Figure 3.5. Example of a traditional Ute *noa-ivikan* (stick lodge). Photograph by Hillers, Powell Expedition 1873. Catalog No. 1547. National Anthropological Archives, Smithsonian Institution.

The Utes were the primary Indigenous inhabitants of Colorado at the time of European contact. The date of the first direct encounter between the Utes and Spanish colonists and the nature of their early interactions are unknown because the early Spanish records from New Mexico were destroyed during the Pueblo Revolt of 1680. Some scholars believe that the Utes were likely in contact with Spaniards by at least the early 1600s (Callaway and others 1986:354).

Between approximately AD 1600 and 1775, the Utes developed an equestrian lifestyle, with influences from Plains groups and Spanish colonists. During this time, there was increased distinction and potential competition among bands (Baker 1993). After the Pueblo Revolt of 1680, some Navajos and members of Jemez Pueblo sought refuge in Ute territory. They coexisted with the Utes in southern Colorado for several decades, until the Navajos and Jemez returned to northern New Mexico in the mid-eighteenth century (Lister 2011:134). During that time, the Southern Ute bands were under increasing pressure as Plains tribes encroached on their hunting grounds (Callaway and others 1986:355). Between 1775 and early 1800s, horses were synonymous with Ute culture and trade with the Spanish colonists became more common. Raiding became a common subsistence strategy as competition with Plains groups increased (Callaway and others 1986:336). By 1776, Utes participated in regular trade and captive ransom fairs in northern New Mexico (Burns 2003:31).

In 1821, Mexico gained independence from Spain, thereby changing trade relationships and interactions between the Spanish and the Utes. Earlier, with the Louisiana Purchase in

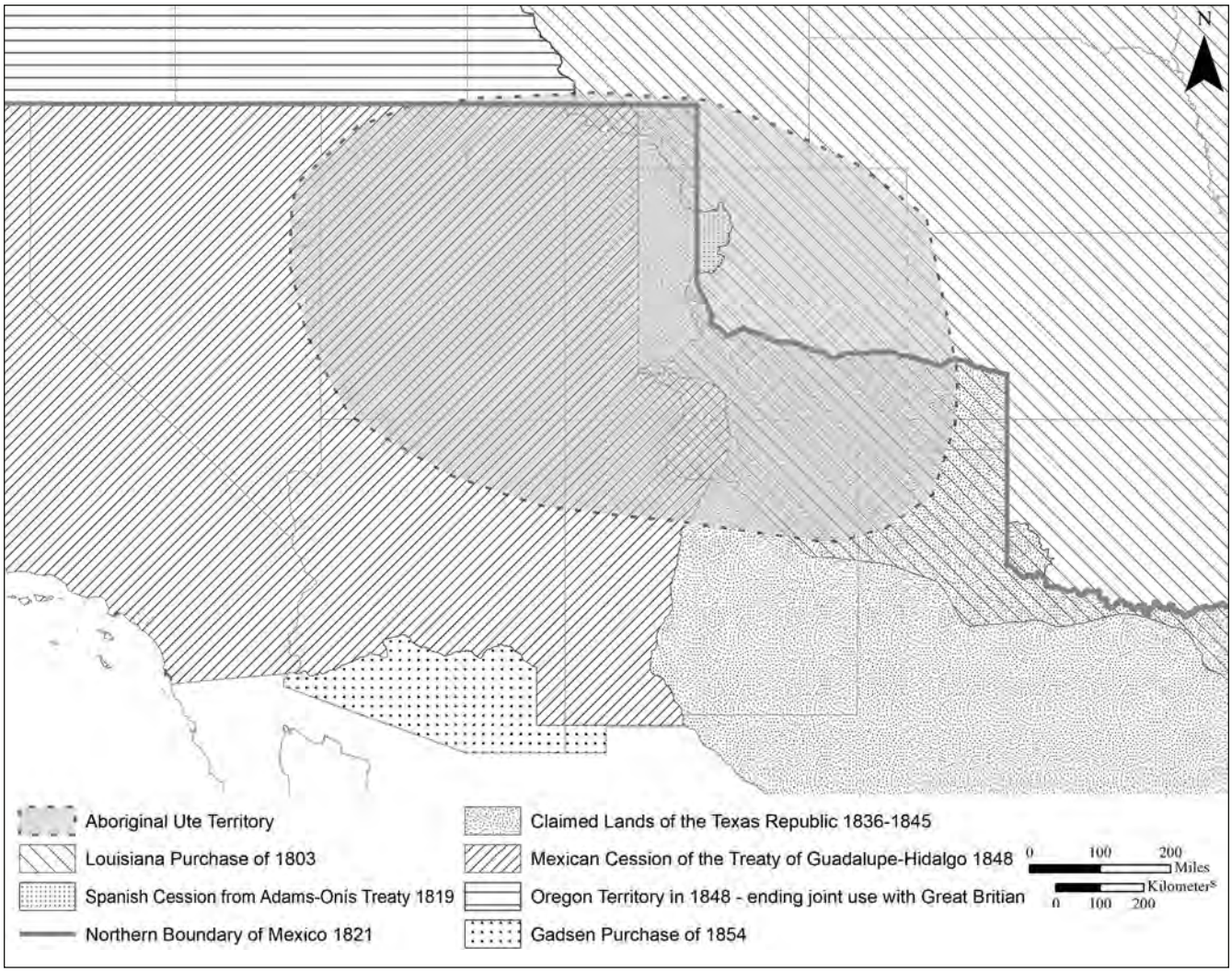

Figure 3.6. Geopolitical landscape of Ute territory after European arrival.

1803, the French sold their landholdings within Ute territory to the United States. Between 1821 and 1848, the majority of Ute lands were under Mexican rule, with a small area under dispute between Mexico and the Republic of Texas from 1836 to 1845. With the Treaty of Guadalupe Hidalgo in 1848, Ute territory became entirely under the jurisdiction of the United States (Figure 3.6).

In the early nineteenth century, the Cheyenne and Arapaho expanded their range into areas of Colorado that had traditionally been Ute territory, causing the Utes to retract into a smaller region (Figure 3.7). By the mid-nineteenth century, Ute control over their aboriginal territory was reduced and extended from around the Uintah Mountains and Yampa River on the north to the San Juan River on the south and from Sevier Lake on the west to the Front Range of the Rocky Mountains on the east.

US Government Influence on Ute Territory

From the 1850s to the 1870s, a surge of American settlement occurred in Ute territory, driven by mining, ranching, timbering, and railroading enterprises. This was enabled in part by the Treaty of Guadalupe Hidalgo of 1848, which opened up a vast area of the western United States that previously belonged to Mexico. The surge in settlement directly affected traditional Ute land use and mobility patterns (Burns 2003:5). This disruption of traditional lifeways caused conflict between Utes and Anglo settlers, which eventually led to the involvement of the US government, and decades of unrest between conflicting groups.

In 1850, the Treaty of Abiquiu (Treaty with the Utah, 1849) was ratified by the US Congress to maintain peace and amity between the Utes and the US government (Iden

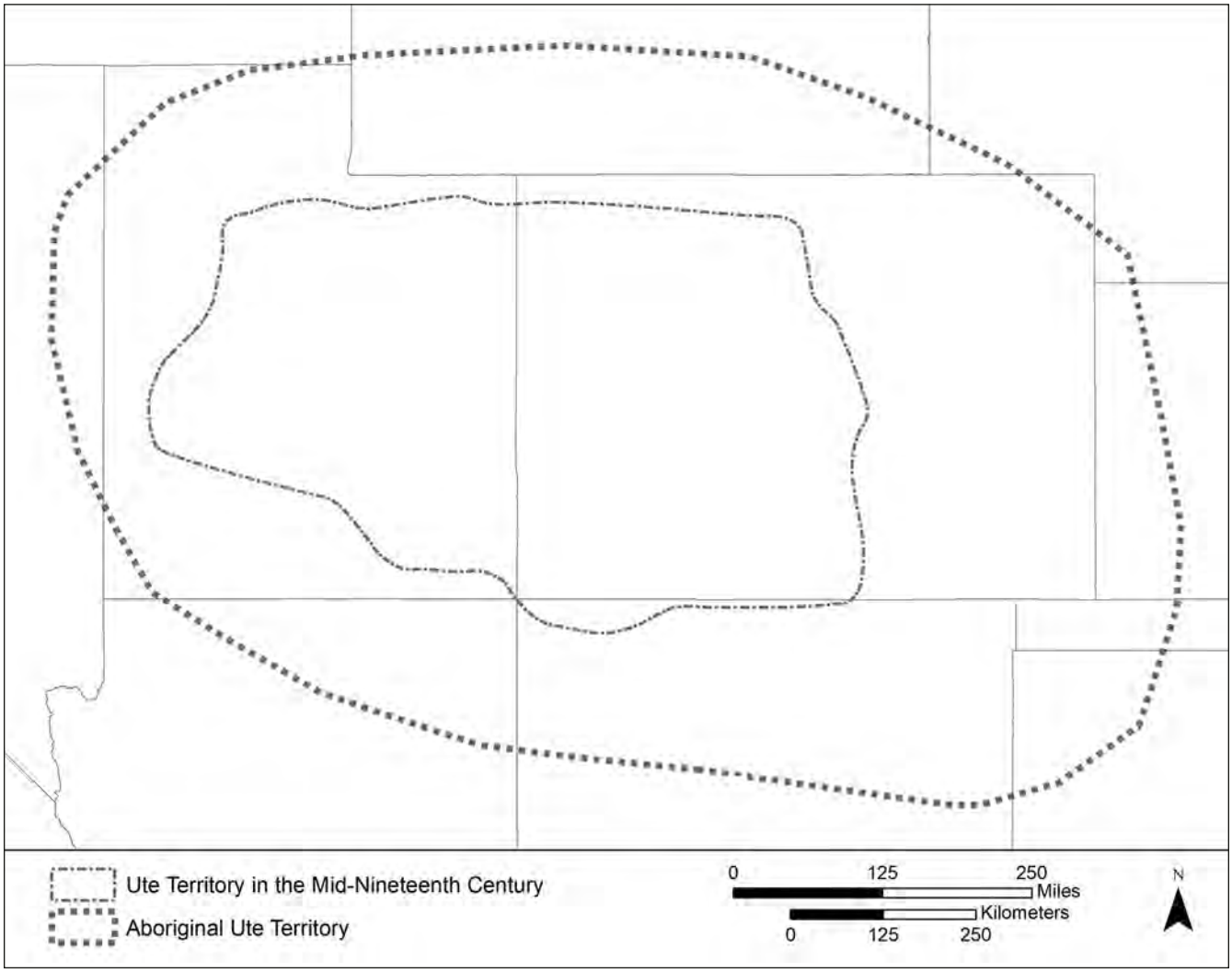

Figure 3.7. Ute territory in the nineteenth century (After Callaway and others 1986:337, Jefferson and others 1972:6).

1929:5). The treaty mandated that the United States had "lawful and exclusive jurisdiction over [the Utes] and the vast territory over which they hunted," which was then administered as part of the territory of New Mexico. In 1855, the governor of the Territory of New Mexico negotiated a land exchange with the Utes of approximately 2,000 square miles of land north of the San Juan River and east of the Animas River for the removal of Utes from New Mexico (Callaway and others 1986:355). However, the 1855 treaty was not signed by a majority of the Ute bands and was never ratified by Congress.

By 1860, prospectors had traveled into the Animas Valley and opened up mining claims on Ute lands (Jefferson and others 1972:22). These incursions resulted in clashes between the Utes and miners. As a result, a commission was formed in 1863 to negotiate with the Ute bands with the goal of obtaining title to some of their lands. A meeting was called at Conejos, Colorado. It was attended almost exclusively by members of the northern Tabeguache band (also called Uncompahgre). The lands of interest are described as follows (Figure 3.8):

> Beginning on the 37th degree of north latitude, at the eastern base of the Sierra Madre Mountain; running thence northerly with the base of the Rocky Mountains to the forty-first parallel of north latitude to its intersection with the summit of the Snow Range northwest of the North park; thence with the summit of the Snowy Range southerly to the Rabbit-Ear Mountains; thence southerly with the summit of said Rabbit-Ear Range of mountains, west of the Middle Park, to the Grand River; thence with the said Grand River to its

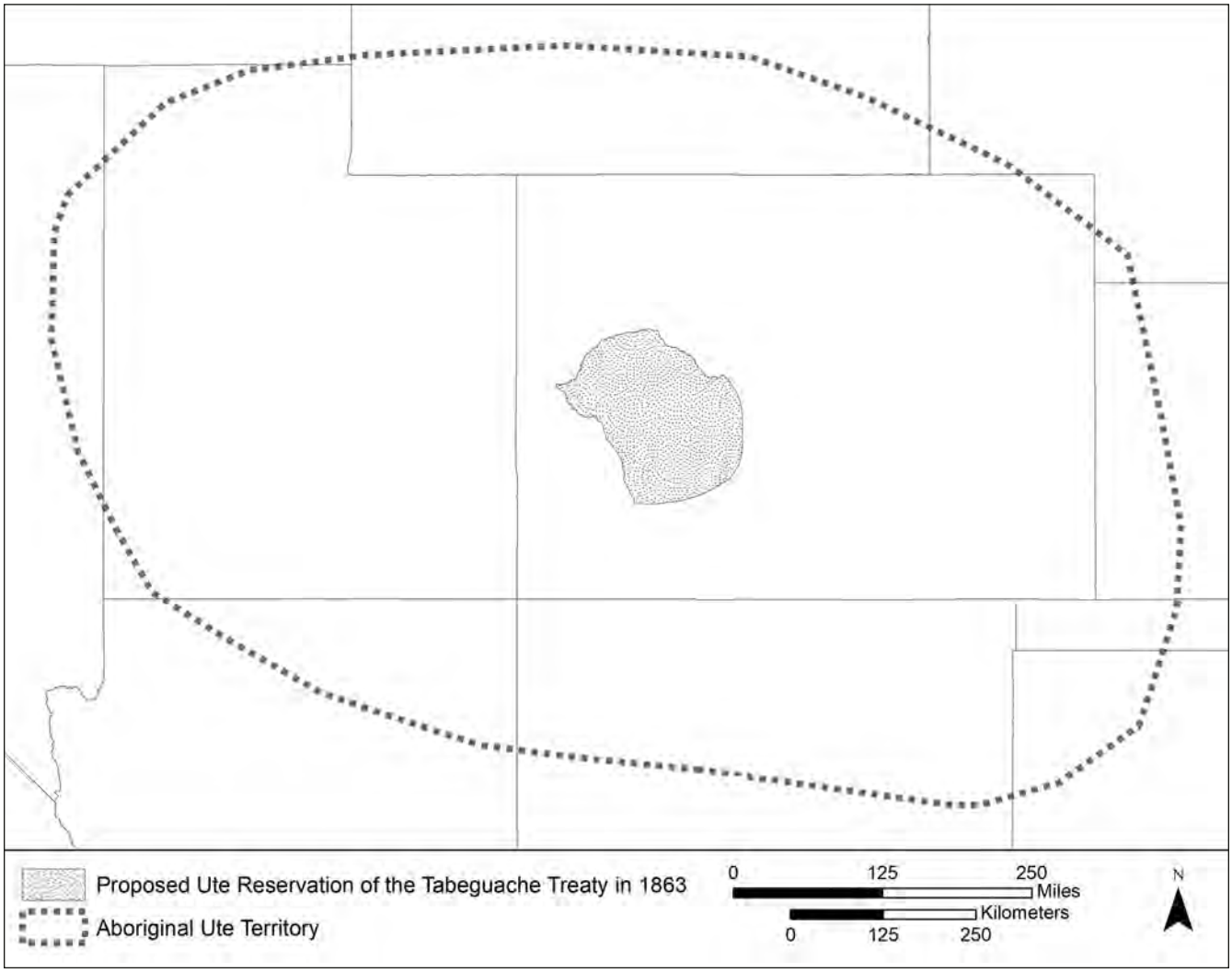

Figure 3.8. Reduction of Ute lands proposed under 1863 meeting.

> confluence with the Gunnison River; thence with the said Gunnison River to the mouth of the Uncompahgre River; thence with the said Uncompahgre River to its source in the summit of the Snowy Range, opposite the source of the Rio Grande del Norte; thence in a right line south of mountains, dividing the waters of the San Juan River from those of the Rio Grande del Norte; thence with the summit of said range southeasterly to the thirty-seventh parallel of north latitude; thence with the line of said parallel of latitude to the place of the beginning [Iden 1929:11–12].

The Tabeguache people who attended the Conejos meeting agreed to cede nearly all of the territory of interest, excluding the area bounded by the mouth of the Uncompahgre River, the Bunkara River, Roaring Fork River, and the mountain range that divides the Arkansas and Gunnison rivers. The treaty allowed the government to mine, construct military forts, and construct railroads and roads on Indian lands not ceded (Iden 1929:13). In exchange, the Tabeguache band received $10,000 worth of goods and provisions, a blacksmith shop, 150 head of cattle, and 1,000 head of sheep that were given to the band "chief."

Because the other Ute bands were largely excluded from the 1863 treaty negotiations, another treaty was negotiated to establish a Ute Reservation in 1868 (15 Stat. 619). The lands included in the reservation (Figure 3.9) are described as:

> Beginning at the Southern boundary of Colorado on the 107th meridian it went north on that meridian to a point 15 miles north of the 40th parallel and then west to the Colorado Territory boundary, then south to the southern

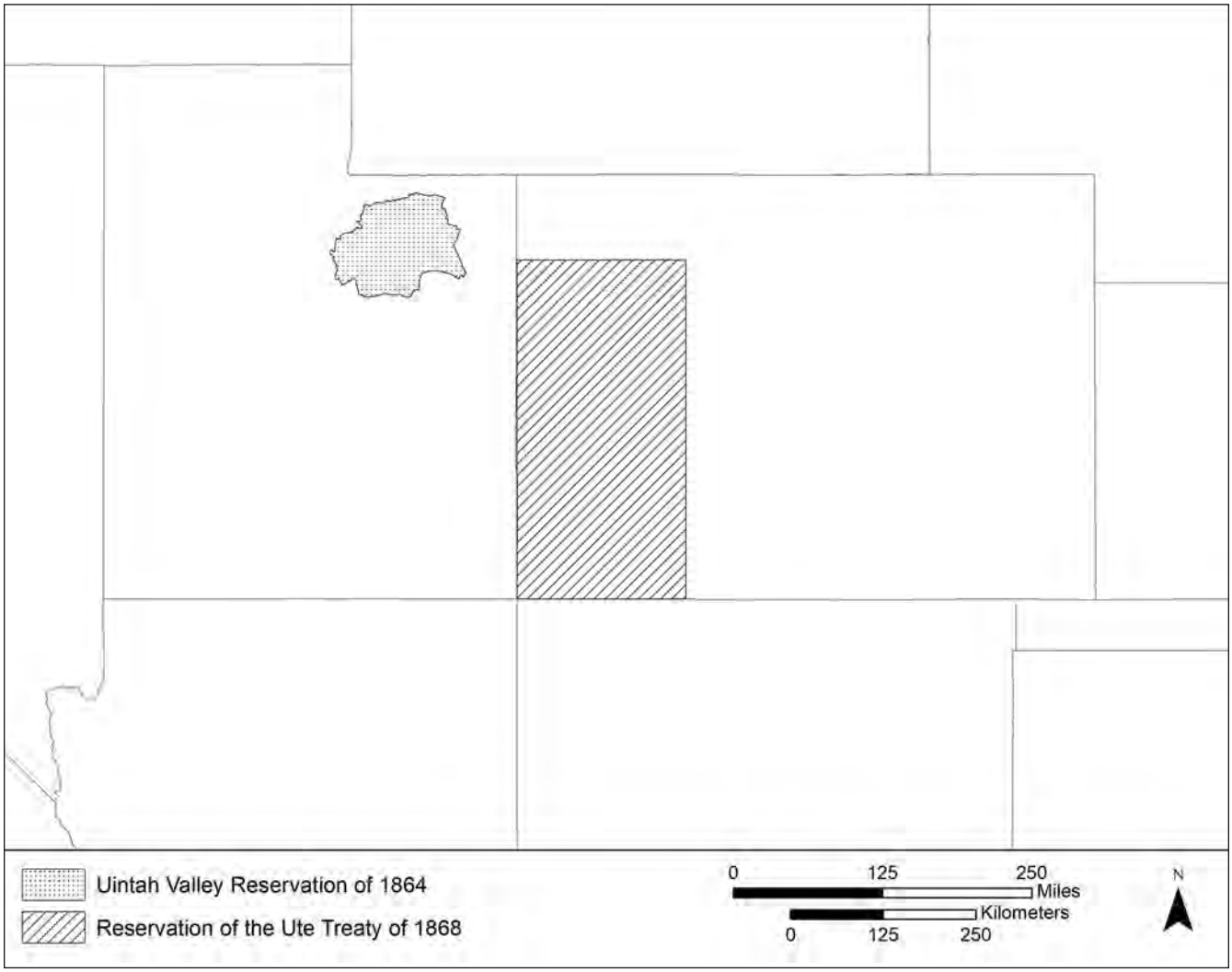

Figure 3.9. Ute lands as of 1868.

boundary following the southern boundary to the place of beginning. These boundaries embraced a territory estimated to be 15,120,000 square acres [Iden 1929:16].

Prior to 1868, Ute aboriginal territory in Colorado encompassed 56 million acres. After the treaty of 1868, Ute lands were reduced to 18 million acres. Responding to pressure from mining interests and the governor of Colorado, the US government negotiated the additional cession of 3,450,000 acres in the southern portion of Ute territory (Callaway and others 1986:355).

Under the terms of the 1868 Treaty with the Utes, two agencies were established. The northern agency was established on the White River to serve the Yampa, Grand River, and Uintah bands, while the southern agency was established on Los Pinos Creek in the Cochetopa Hills to serve the Tabeguache, Moǧwáchi(S), Weenuche, and Kapuuta(S) bands. The two agencies sought to distribute sheep, encourage agriculture, and educate Ute children (Lloyd 1932:15, 21).

In 1872, a meeting was called to discuss the cession of the southern portion of the Ute Reservation, clearing the way for mining and land development. Felix Brunot, who was appointed to the Ute commission, met with Uncompahgre (Tabeguache) band chief Ouray, who pledged to help with the land negotiations if the US government aided in the return of his son, who was captured by Lakota in battle years before. Negotiations began in September 1873; meanwhile, White settlers were mining on Ute lands without repercussions. The Utes also faced restrictions on their southern and eastern lands, with their 1868 reservation boundaries not being upheld. The land sought by the commission included 12 million acres along the Colorado and New Mexico border,

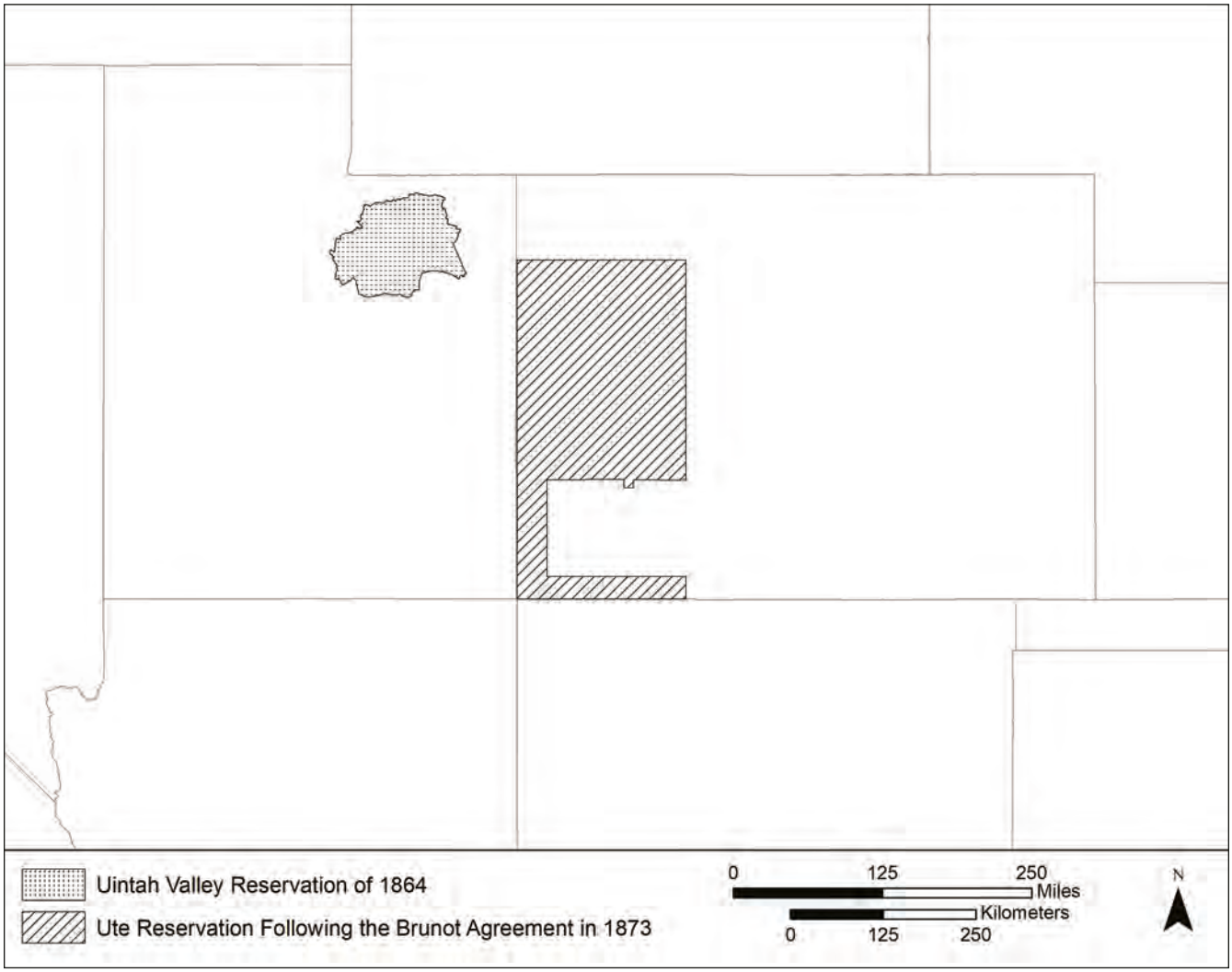

Figure 3.10. Ute lands following the Brunot Cession of 1874.

in what is now San Juan and Hinsdale counties and parts of La Plata, Archuleta, Mineral, Ouray, San Miguel, Dolores, and Montezuma counties. The Moĝwáchi(S), Kapuuta(S), and Weenuche bands, whose territory traditionally included the San Juan region, were especially affected by the incursions of non-Indian settlers (Borland 1951:1, 17, 24).

During the meetings, Brunot offered the Ute Bands $25,000 a year in perpetuity for their cession of the mountainous San Juan region on the southern part of their reservation (Borland 1951:29), The Utes who had convened for the negotiations resisted the commissioners. Eventually, however, Brunot persuaded the Utes present at the treaty council to sign an agreement to cede the following lands (Figure 3.10):

> Beginning at a point on the eastern boundary of said reservation fifteen miles due north from the southern boundary of the Territory of Colorado; thence north by a line parallel with the said western boundary to a point ten miles north of the point where said line intersects the 38th parallel of north latitude; thence east to the eastern boundary of the reservation; and thence south along said boundary to the place of the beginning [Iden 1929:40].

Despite resistance among some of the Utes, the "Brunot Agreement" (18 Stat. 36) was approved by the US Congress on April 29, 1874 (Borland 1951:33). By the time the Brunot Agreement was passed, 1,441 mining claims had been registered in the lands in question (Indian Claims Commission 1962:194). Ute leaders understood the land cession to encompass only mining regions, and they expected the miners would leave in the winters. Essentially, they believed that

mining would be limited to mountainous areas and that they would have continued access to the valleys (Burns 2003:33).

The Brunot Agreement did not end tensions between Utes and White settlers. For the White River Utes, the situation worsened when a newly appointed Indian Agent, Nathan Meeker, arrived at the White River Agency and, along with the assistance of military troops, began a cruel and forceful enforcement of assimilation. As tensions grew, the White River Utes reached a breaking point in the fall of 1878. On September 29, 1878, Utes opened fire on Major Thomas Thornburgh and his men, who were traveling from Fort Steele to protect the White River Agency. The attack, which took place at Milk Creek near the northern boundary of the reservation, was part of a synchronized effort on the part of the Utes. At the same time, Utes at the White River agency set fire to the buildings, killed Meeker and several other employees, and took women and children hostage. The battle at Milk Creek and the Meeker Incident led to immediate retaliation by the US Army. The State of Colorado began a campaign dubbed "The Utes Must Go." The governor of Colorado, Fred Pitkin, called for the removal of all Utes from the state, and the Colorado Legislature nearly passed a bill that would offer a 25-dollar bounty on Ute scalps (Decker 2004).

In 1879, the US Department of the Interior secretary convened a Peace Commission to facilitate negotiations between Ute leaders and the Commissioner of Indian Affairs. After the Meeker Incident, the US government wanted to consolidate all of the Ute bands. The idea was that the Utes would be served exclusively by the White River agency and they would cede the southern part of their reservation. After several rounds of negotiations, the Weenuche, Moĝwáchi(S), and Kapuuta(S) bands proposed that they would exchange the land desired by the US government for lands on the headwaters of the Piedra, San Juan, Navajo, Blanco, and Chama rivers. All parties agreed to this arrangement, and the Utes ceded 1,920,000 acres in exchange for lands around those rivers. The Kapuuta(S), Moĝwáchi(S), and Weenuche Utes subsequently moved to a 728,320-acre reservation in southwestern Colorado and were served by the Southern Ute agency in Ignacio. After the death of Chief Ouray in 1880, in 1882 the Tabeguache were forced to move to a new, much smaller reservation in Utah, along with the White River Utes (Iden 1929:52) (Figure 3.11).

The experience of removal from Colorado remains a painful memory among people of the Ute Indian Tribe and Betsy Chapoose noted that the gravity of loss of their homeland left the Utes in a total state of bereavement, with people wailing and cutting their own hair as they left Colorado. A review of archaeological features and historical newspapers show that despite the "removal" of Utes from most of their Colorado homelands in the nineteenth century, Utes continued to return to their aboriginal lands "well into the twentieth century" (Martin 2016:15). The Colorado Wickiup Project has documented aboriginal wooden features reliably dated as late as 1914 and 1915/1916. Historical newspaper accounts report almost annual Ute hunting forays into northwestern Colorado from 1881 to 1912, and a group of 800 Utes camped near Rangely, Colorado, in 1914. Martin (2016:15–16) concluded that: "Not only did a significant number of the people apparently never abandon their traditional home and remained off-reservation in western Colorado after the 1881 expulsion, but large numbers of [Ute Indian tribal members] returned to the area from the [Utah] reservations, either as temporary hunting parties or with intentions for a more permanent homecoming."

Increased mining and railroad construction continued in Southern Ute territory into the 1880s, drawing Hispanic settlers from New Mexico to southern Colorado where they established several settlements along the San Juan River. Government programs on the Southern Ute Reservation encouraged farming, allotting 160 acres to Ute families. "Unused" reservation lands (in the eyes of the government) totaling 523,079 acres were sold to Hispanic farmers and homesteaders, including the Animas Valley. By the late 1880s, despite local efforts to preserve land ownership among Ute and Hispanic farmers, Anglo homesteaders also settled in the area (Lister 2011:139–141). Fort Lewis, which was established at Pagosa Springs in 1878, was moved to the La Plata River drainage in 1881 in order to keep peace between the Southern Utes and encroaching settlers.

In 1887, the Dawes Severalty Act imposed a system of private property onto tribal lands by subdividing tribal communal lands into allotments for Native American heads-of-family and individuals (Barton and Barton 2001). Any lands remaining after allotments were assigned were considered surplus and were sold to non-Natives. As a result, around 85 percent of Southern Ute lands were declared "excess" by the federal government and were opened to White settlers in 1895. The Weenuche Utes viewed the Dawes Act as alien to their traditions. They resisted allotments and moved to the far western side of the reservation, separating themselves from the Kapuuta(S) and Moĝwáchi(S) bands. By the early 1900s, the Southern Ute Reservation was divided, and the Ute Mountain Ute Reservation was established for the Weenuche band (Potter 2020). In 1911, the US government took more than 52,000 acres of Southern Ute land to create Mesa Verde National Park (Sellars 2007). In exchange, the Ute Mountain Ute tribe was given some acreage along the northern boundary of their reservation.

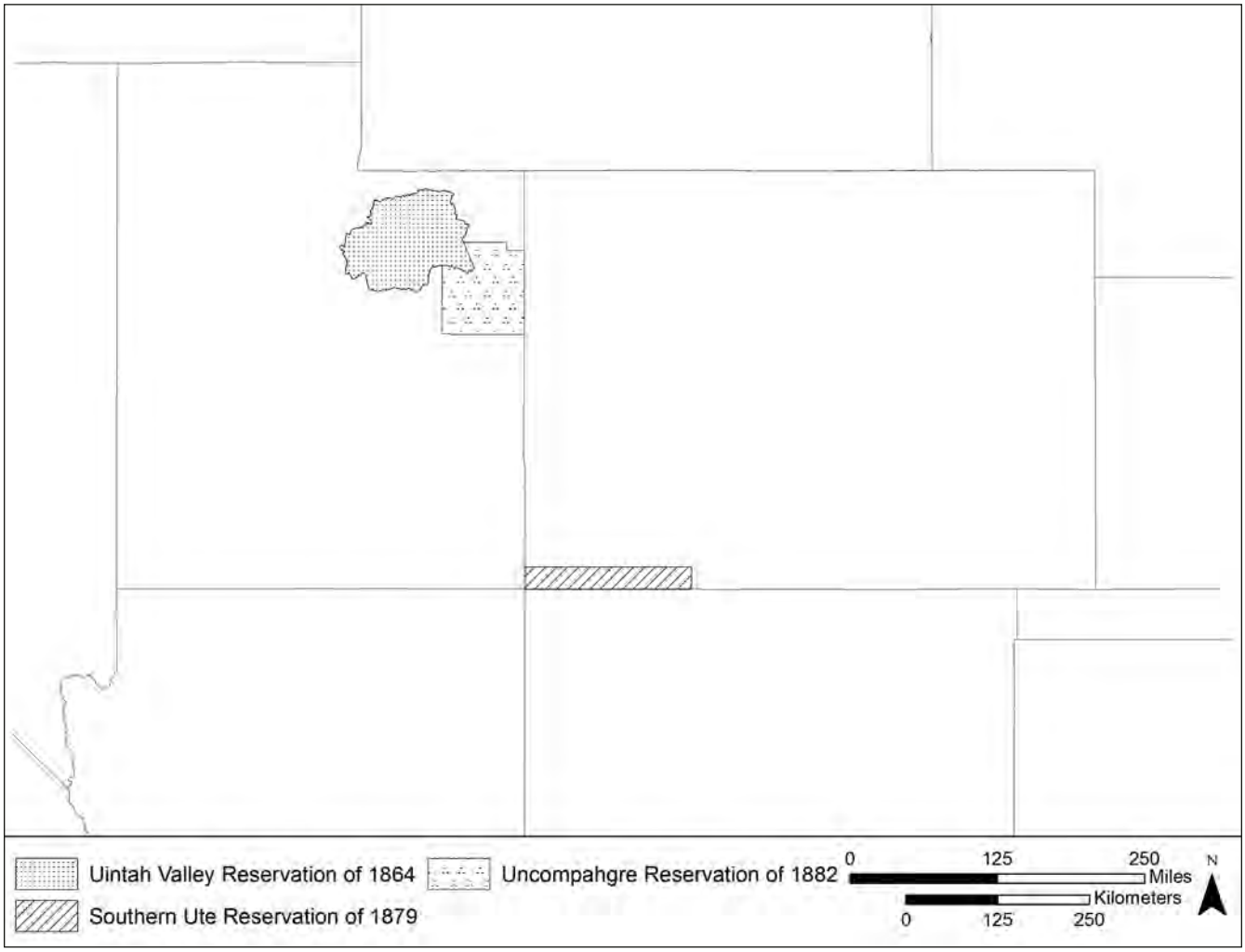

Figure 3.11. Ute lands as of 1882.

With the Indian Reorganization Act in 1934, tribes were allowed to consolidate Indian lands and acquire additional lands. Under these provisions, the Southern Ute Indian Tribe increased their land holdings to 304,700 acres by 1966, although ownership of Southern Ute and Ute Mountain Ute allotment lands continued to be reduced (Callaway and others 1986:356).

Contemporary Ute Tribes

Years of forced removal from their traditional lands were detrimental to the Utes as the land served as the basis for their culture, including religion, ceremony, and language (Burns 2003:15). In spite of the massive reduction in Ute land tenure over time, however, the Ute people still value their traditional homeland and they rely on it for physical and spiritual nourishment and education.

The United States separated the Ute bands into three federally recognized tribes: the Southern Ute Indian Tribe, the Ute Mountain Ute Tribe, and the Ute Indian Tribe of the Uintah and Ouray Reservation (Figure 3.12). The Southern Ute Indian Tribe has a reservation in southwestern Colorado, headquartered in the town of Ignacio. The Ute Mountain Ute Reservation spans portions of southwestern Colorado, northern New Mexico, and southeastern Utah. The tribe is headquartered in Towaoc, Colorado. The Ute Indian Tribe of the Uintah and Ouray Reservation is located in northeastern Utah and is headquartered in Fort Duchesne.

The Southern Ute Indian Tribe is made up predominately of members of the Kapuuta(S) and Moĝwáchi(S) bands; however, the reservation is within lands traditionally occupied by the Weenuche band. The Ute Mountain Ute Tribe is predominantly made up of members of the Weenuche band and includes members from the White Mesa Utes, whose

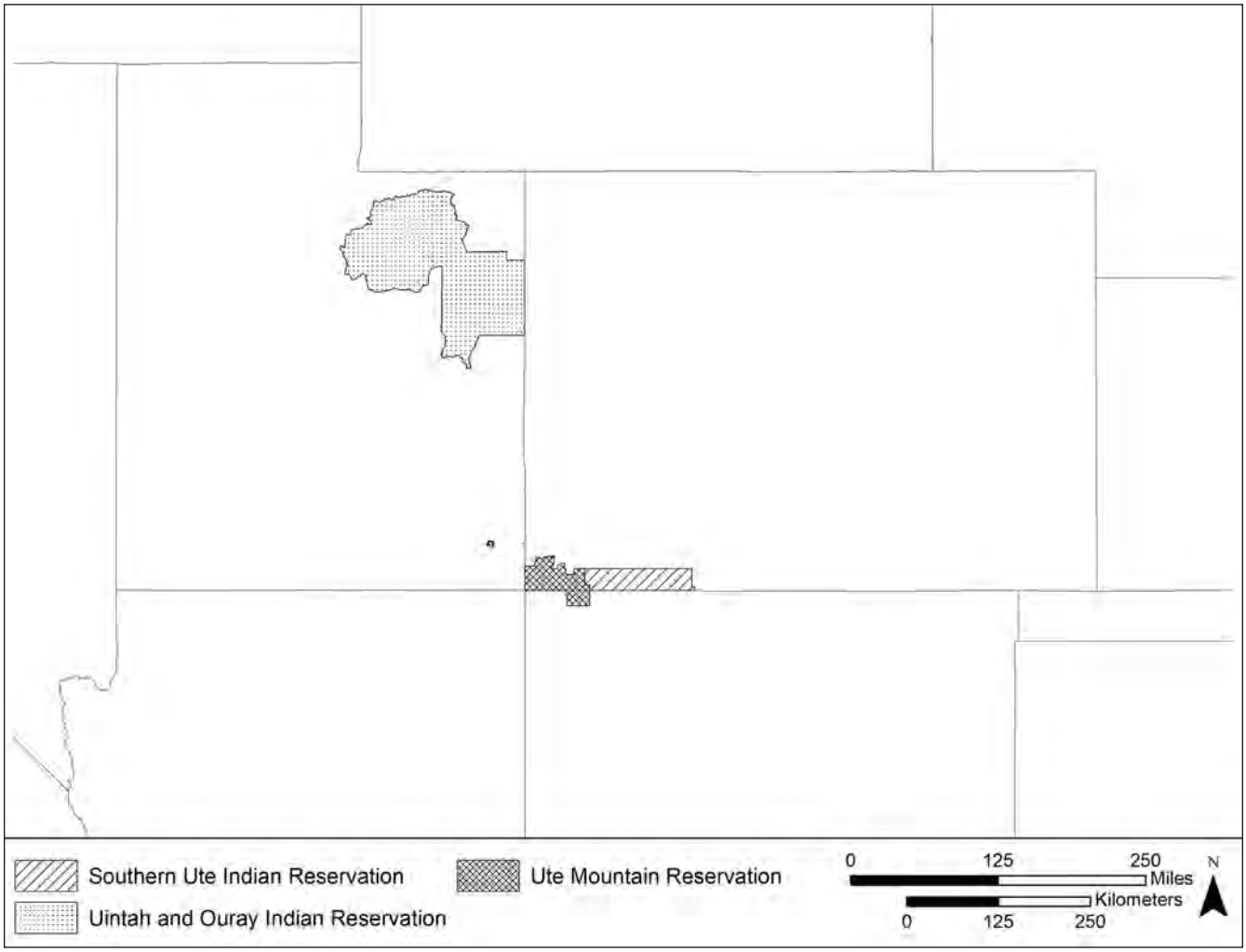

Figure 3.12. Contemporary Ute reservations.

traditional territory encompassed the Four Corners region (Perlman 1998:12). The Ute Indian Tribe of the Uintah and Ouray Reservation is predominantly made up of the Uintah, White River, and Uncompahgre (Tabeguache) bands.

UTE HISTORY IN THE BONITA PEAK AREA

The Bonita Peak area lies at the heart of traditional Ute territory and has been important in Ute lifeways for generations. Although Ute ancestors left a light imprint on the land, a number of campsites, trails, peeled trees, caves, and crevices associated with their occupation are present in and around the BPMD. Ute people have also expressed that the land itself, its viewsheds, plant and animal life, waterways, soundscapes, and landmarks are all lasting indicators of Ute presence because Ute culture was created in these environments. During fieldwork for the current study, the research team visited a Ute ancestral site near Molas Lake (5SA1802) just south of Silverton that consists of a lithic scatter with several obsidian fragments (Figure 3.13). Ute tribal participants suggested that this site was probably a camp for hunting and plant collecting. Viewing the multiple cobbles scattered across the ground surface at the site, Terry Knight said there were likely tipis there in the past, and possibly a medicine wheel grounds.

The group traveled to another Ute archaeological site situated on a high-altitude (12,600 ft. elevation) ridgeline near Maggie's Gulch (5SA1804), located just outside of and northeast of Silverton (Figure 3.14). The site consists of around 200 to 300 lithic artifacts of different material types, including obsidian, tools, cores, and an Elko Corner Notched projectile point. The Rio Grande Valley and the Animas River Valley are both visible from the site. Terry Knight believed this site was a hunting camp, and that there

Figure 3.13. Ute ancestral site near Molas Lake (5SA1802). Photograph by Maren Hopkins, August 20, 2019.

were probably others nearby. "There are a lot of deer, elk, and sheep here," he said. Mr. Knight explained that Utes would hunt by driving the game down the slopes into the valleys or draws where they could be more easily killed and processed. Cassandra Atencio explained that the viewshed was probably more important to Ute ancestors than the site itself because it kept them oriented within their homeland and being in the mountains was a source of spiritual strength, especially at high altitudes. She thought there was probably a trail on the ridgeline that was used by Utes in the past.

In the 1700s, Spanish explorers ventured into the San Juan Mountains to map the territory and establish trade relations with Native people living in the region. The Juan Maria Rivera expedition of 1765 was the first officially sanctioned exploration of the northern reaches of Spanish territory north of New Mexico (Horn 2017:2). The pretext of the expedition was to search for silver ore in the mountains after a Ute Indian living near Abiquiu claimed that the area was rich in precious metals. Many historians believe, however, that the true intent of the expedition was military reconnaissance, and it was concealed because of fear of violence and retaliation by the Utes (Jacobs 1992:203). Historical documents reveal that Rivera's group was charged by the Spanish colonial governor of Santa Fe de Nuevo México, Tomás Vélez Cachupín, with finding a crossing on the Colorado River (then called the Grand River or Rio Tizón) that had long been used by Utes and Paiutes. A safe crossing was needed to expand Spanish trade networks and reinforce the Spanish domain in the north. The expedition was also to assess the attitude of the Native people toward the Spanish colonists, and survey the land for travel routes and resources.

The Rivera expedition consisted of two entradas: the first in June and July 1765 and the second in October and November of the same year (Baker 2016; Jacobs 1992:223). During the first entrada, Rivera and his group were led by Ute guide Cuero de Lobo up the Animas River into the La Plata and San Juan mountains on a side trip, where they collected samples of ore to take back to Santa Fe. They then continued on their journey, passing through the areas of Mancos, Cortez, and Dolores to reach the Four Corners region. During the second entrada, Rivera followed roughly

Figure 3.14. Ute ancestral site near the top of Maggie's Gulch (5SA1804). Photograph by Maren Hopkins, August 20, 2019.

the same route to the Dolores River, and then crossed the La Sal Mountains and headed toward Moab and the Colorado River. Andrés Muñiz, an interpreter and guide for the later Dominguez-Escalante expedition, claimed to have also been with Rivera in 1765, and he reported that during Rivera's second entrada the group took a side trip across the Uncompahgre Plateau, through the Uncompahgre valley, and trekked as far north as the Gunnison River.

Notes from Rivera's expedition are some of the earliest written records of Ute habitation and land use in southwestern Colorado. Although his entradas did not reach Silverton, they explored the areas immediately north, south, and west of the Bonita Peak area, documenting the presence of Ute camps in the mountains and valleys throughout the territory. Rivera's entradas used Ute knowledge about trails, springs, and other natural resources. Rivera was accompanied and assisted by Utes throughout his expedition; he described his guides as Sabaguanas, Tabeguaches, and Moĝwáchis (Baker 2016).

In 1776, two Franciscan priests, Atanasio Dominguez and Silvestre Vélez de Escalante, traversed many of the same routes across Colorado and Utah that were used by Rivera. Maps from this expedition, created by Bernardo de Miera y Pacheco in 1779 (Kessel 2013), depict Ute camps throughout southern Colorado, along with the Ute trails used by Spanish explorers (Figure 3.15). The Animas River valley around present-day Durango, Colorado, was a notable Ute settlement area at this time, as was the Uncompahgre valley between Ouray and Montrose. Subsequent Spanish expeditions made similar observations about Ute land use and occupation.

Spanish colonists established trade networks that extended from New Mexico to California, via Colorado and Utah, and these networks enabled them to trade goods and slaves with Native people across the west. The web of trails in the Spanish trade network, all of which began as Indian trails, became collectively known as the Old Spanish Trail (Baker 2016; Burns 2003:22; Horn 2017) (Figure 3.16). Many of these routes still exist in southwestern Colorado, and while their form has changed over time, they constitute a significant imprint of Ute history on the land, and a reminder of the extensive territory that Utes once occupied. During

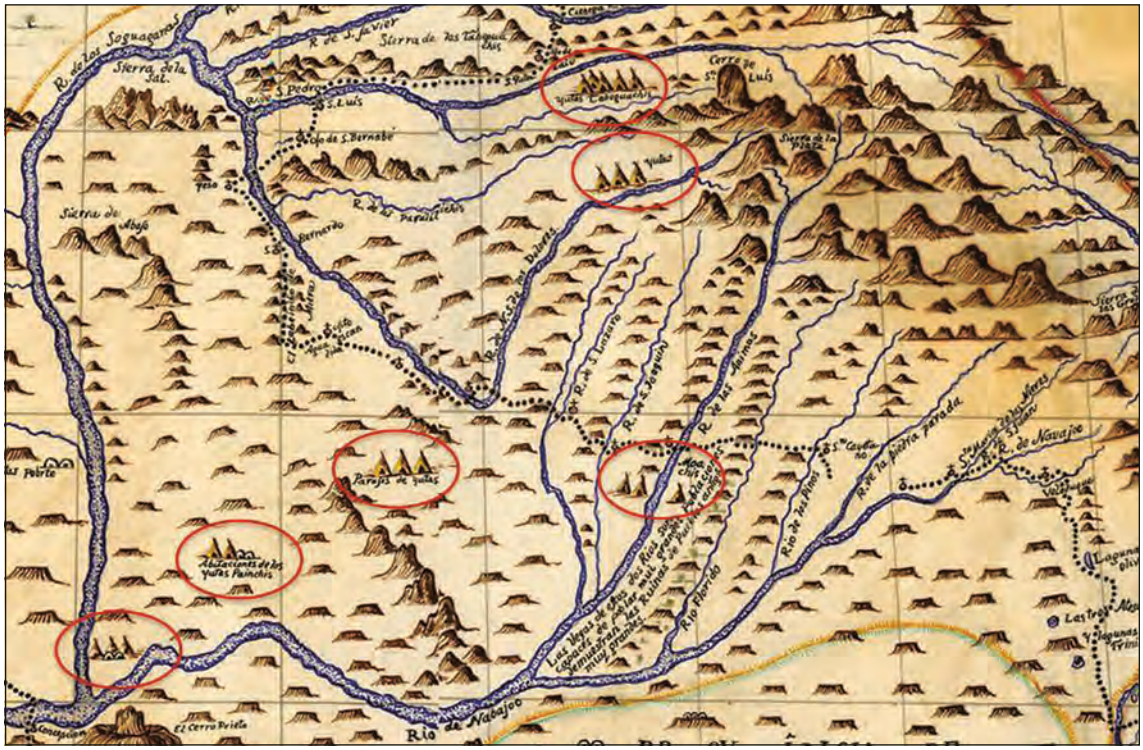

Figure 3.15. Map drawn by Bernardo de Miera following the Dominguez-Escalante Expedition of 1776. Ute camps are shown across southwestern Colorado, including in the San Juan Mountains and Animas River valley (Kessel 2013).

research for the current project, Alden Naranjo, Jr., recalled that "the trails that elders talk about that went across the mountains before the towns were established were for trade and visiting other Ute groups. Trails were their highways. Some of the trails are very old." In his analysis of the Rivera expedition, Jacobs (1992:203–204) similarly notes that as Euro-Americans began settling in southwestern Colorado they saw trails "that were already defined when cattle were first introduced into areas of the West, many of which were used by the native inhabitants, and eventually became the highways and byways of commerce and trade."

Trade and interaction between Utes and the Spanish colonists continued until Mexico gained independence from Spain in 1821. It was during this period that Euro-American fur trappers and traders entered the territory and began interacting regularly with the Utes. Antoine Robidoux's trading post at the junction of the Uncompahgre and Gunnison rivers near present-day Delta, Colorado, served as a primary node for trading in western Colorado. The Utes often clashed with Mr. Robidoux because he was known to send his own trappers into the mountains instead of buying pelts from the Utes (Lecompte 1978:137). Considerable trapping likely occurred in the San Juan Mountains in the 1820s and 1830s but it is not well documented (Horn 2017:4). Trappers traveling from New Mexico would follow the Old Spanish Trail into Colorado, and likely accessed the mountains by following an old Ute trail up the Animas River (Horn 2017:4). In 1833, fur trappers led by Colonel William G. Walton were reported to have trapped near Trout Lake near present-day Ophir, located in the mountains to the northwest of Silverton (*Durango Wage Earner*, March 14, 1907; Horn 2017:4).

American acquisition of New Mexico and Colorado changed trade relationships for the Utes and led to the free passage of Anglo-Americans through Ute territory. Military posts and Indian agencies were established in Ute territory to help maintain peace between the groups. Euro-American presence in Colorado increased dramatically in 1859 when gold was discovered in Colorado's Front Range.

In 1860, prospector Charles Baker led a small party up the Animas River into the mountains, arriving at a flat valley near Mineral and Cement creeks. Soon after his arrival, Baker and his group discovered gold, and by 1861 hundreds of people had rushed into the area. The site of Mr. Baker's original discovery came to be known as Baker's Park and then later as Silverton (Figure 3.17; Smith 1997). In spite of the initial influx of miners, Anglo settlement of this area was slow compared to other regions in Colorado. Its remote

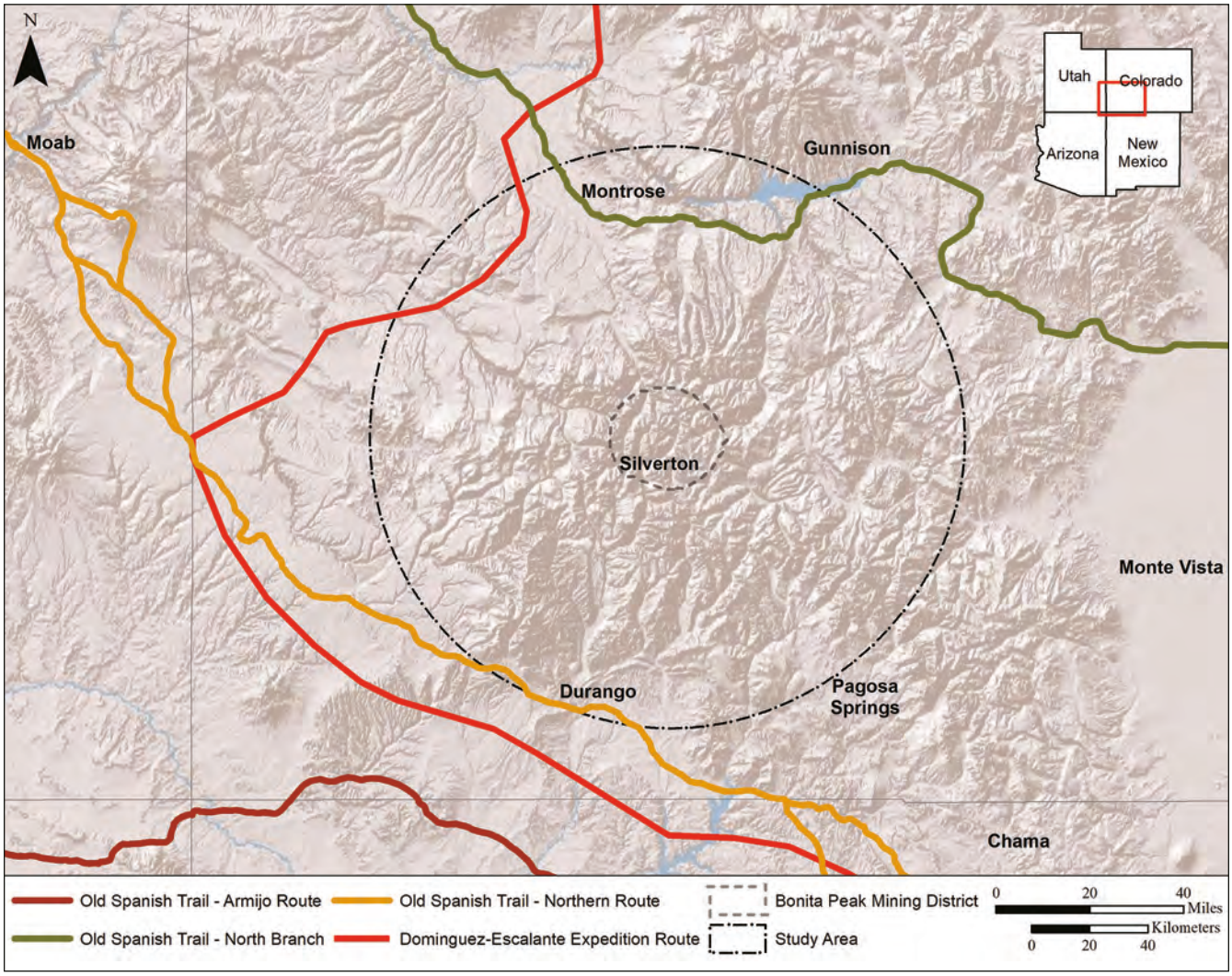

Figure 3.16. Segments of the Old Spanish Trail in southwestern Colorado.

location, harsh climate, and high elevation combined with frequent hostilities with the Utes caused many miners to leave the San Juan Mountains soon after they arrived. Some miners labeled their time there a bust because they believed the ore they were seeking was either nonexistent or inaccessible. With the onset of the Civil War, the development of the area was further delayed as many settlers returned to the East to join the war efforts.

Following the Treaty of 1868, which reduced Ute lands to the western third of Colorado, the Moĝwáchi(S) and Kapuuta(S) bands were pushed from their traditional territory along the Front Range of Colorado to the southwestern portion of the state. According to an account by Alden Naranjo, Jr., collected during the current study, it was after the Ute's removal from the Front Range that the Moĝwáchi(S) and Kapuuta(S) bands began to inhabit the Silverton area more permanently. He explained that as newcomers, the Moĝwáchi(S) and Kapuuta(S) had to rely on the Weenuche to teach them about the landscape. "Our sister tribes showed us the plants. Some of them do grow out along the Front Range too, so we used the knowledge that we already had, and then [we also learned] from our sister tribes," he said. Cassandra Atencio added that when band territories shifted there was animosity among the Utes, but familial ties established through intermarriage among different bands helped resolve those conflicts.

Utes living in the San Juan Mountains maintained their traditional, mobile lifestyle, even as Anglo settlement of the territory increased. They hunted animals and gathered plants at higher elevations during warmer months, and then moved to the lower-elevation valleys during the colder months. In the late 1860s and 1870s, the mining industry in

Figure 3.17. View of Baker's Park (Silverton), the Animas River, and the San Juan Mountains, San Juan County, Colorado, sometime between 1870 and 1878. Sultan Peak is in the background, camera view southwest. Photograph housed at the Denver Public Library Image Archives, Catalog No. WHJ-31.

the San Juan Mountains boomed. The settlements of Animas Forks, Eureka, and Howardsville were established along the upper Animas River in the early 1870s, and in 1874 the town of Silverton was founded in about the same location as Baker's Park.

The mineral-rich San Juan Mountains that were so attractive to miners were in the heart of Ute hunting and gathering territory. White settlers who arrived in the area began setting up camps on lands belonging to the Utes. Alden Naranjo, Jr., noted that ramifications of the conflict between Utes and miners in the mid-nineteenth century continue to be felt today and the Bonita Peak mine spill is part of the legacy of removal and genocide brought on by the mining interests:

> The skirmishes and the involvement we had with the miners and ranchers those are some of the things that happened after 1868 and when gold was found in the San Juans, ... A lot of that is basically based on our removal and genocide from those areas… Even though it was a reservation that had been established in 1868, we still had people coming into that area. The US government and the army couldn't keep these people out.
>
> There was a story told that one of these days, that because of this mineral here, a lot of people would be coming into this area. It would be hard to exterminate them, it would be hard to keep them out. Because it would be like waves of rats and mice coming into that area. You cannot get rid of all of them. You can get rid of some of them, but you cannot get rid of all of them. So that eventually we would have to adapt to them being there and digging holes in the ground. And for what reason? They were looking for gold, silver. People were going in there without any kind of idea of what they were disturbing. No idea of the impact there was going to have on the water, on the ground, on the plants, on the animals, on the people that were in that area. Not even the impact it was going to cause on them, they had no idea. They had one mind set—look for this gold and silver and take out as much as you can at the cost of everything else around them.
>
> So that's how the mindset was of people when they first came in, and gold was discovered in the San Juans. Alright, you have people that came and built towns. They hunted and exterminated just about anything in and around that area. Bonita Peak was one of those areas where almost everything was exterminated. Everything that was moving went into the stew pot. For at least 30–40 miles around there in that area was nothing. Plants yeah, but those plants were being impacted by the mines themselves, they are traveling through and

stomping on it. The water is turning bad. The hillside has been excavated for mines and things like that. And their animals: sheep, cattle, horses are eating anything they possibly can up there.... So, the humans, the miners, and others that came into that area, devastated the area just completely, to where they even started to slaughter their own animals to survive. Especially winter up in that area is harsh. They are up there obsessed with finding gold, finding silver. They are up there no matter how harsh the winters were or how hot it was or whatever they did. They had no idea they were impacting all this. So, what happened? There was nothing left for them to eat up in that area. Yeah, there were plants up in the area, but they didn't know that. We couldn't go up there, because if we showed up, they would shoot at us. Those are some of the things that happened during that period of time of the mining era in the San Juans, especially around what we are talking about Bonita Peak. Those are some of the things that happened around that area.

Today is the remnants that's left. And because of the spill that happened with the Gold King Mine, this kind of brought everything back up to the surface of the impact of what the miners did in the past. We are trying to find historical parts of it, trying to find a solution to the wrongs that happened up there. We are trying to come together as a group to find out what avenues we can take in order to prevent something like this from happening again.

As tensions grew, the US government entered into negotiations with the Utes, hoping that the Ute leaders would agree to cede the mineral-rich San Juan Mountains from their reservation so that mining could continue unabated. In the initial meetings, Ute leaders refused to cede any more territory, instead asking for the government to recognize its obligations of the Treaty of 1868 and remove all trespassers from their land. Unwilling to agree to those terms, government officials continued pushing for a deal. They turned to Chief Ouray of the Tabeguache band, with whom they had previous interactions negotiating treaties and treated him as the *de facto* leader and spokesman for all Utes. The chairman of the Board of Indian of Commissioners, Felix R. Brunot, who led the discussions, learned that Chief Ouray's son had been taken captive by the Lakota and then traded to the Arapaho. Using this as leverage, Brunot convinced Chief Ouray that the government could reunite him with his son in exchange for Ute cession of the San Juan Mountains. Although Brunot ultimately failed at reuniting Ouray and his son, he was successful at securing a deal with Ouray (Horn 2020).

Initially, the Utes agreed to sell existing mines, as long as no houses or permanent settlements were established and only a single road provided access. Brunot convinced the Utes that under these terms, trespassers were certain, and that the better option would be to get paid for their land by selling it to the government rather than losing it to land grabbers. Brunot asked the Utes to draw a boundary around an area they were willing to cede. He agreed to leave an area on the west side of the ceded land so that southern and northern parts of the reservation would remain connected, and he promised to have an agency built to serve the Kapuuta(S) and Moĝwáchi(S) Utes. When the Brunot Agreement was finalized, the Utes gave up 3.7 million acres of the San Juan Mountains, with the stipulation that the Utes would retain hunting rightsand receive an annual payment of $25,000. The Utes were explicit that no farmland was to be included in the ceded area, specifying that Uncompahgre Park, the fertile valley located north of Ouray, would remain in Ute hands (Horn 2020; Platts 2020). Ute leaders signed the agreement on September 13, 1873. It was approved by Congress on April 29, 1874.

With the completion of the Brunot Agreement, mining in the San Juan Mountains boomed and new towns and roads were built throughout the territory. Several government expeditions surveyed the lands around Baker's Park, looking for routes to use for toll roads and a location to build a railroad (Horn 2017:12). Expeditions significant to the BPMD area include the 1873 reconnaissance led by E. H. Ruffner, a party led by A. D. Wilson as part of the 1874 Ferdinand Hayden Expedition (Rhoda 1876), a party led by C. W. Whipple in 1875 as part of the 1874 George M. Wheeler Expedition, and a party led by William Marshall (1876) as part of the Wheeler Expedition in 1875. These expeditions documented numerous foot trails and horse paths through the mountains, over passes, and along the river valleys (Figure 3.18). Horn (2017:12) argues that because the miners and the government expeditions did not develop trails of their own, the travel routes they first used when they arrived in the Silverton area can be characterized as Ute trails with origins that likely date into the ancient past.

A number of trails were documented within the immediate vicinity of the Bonita Peak area after the method developed by Horn 2017 (Figure 3.19). The 1873 Ruffner Expedition map shows a trail crossing Mineral Creek just above its junction with the Animas River and then heading southwestward toward Cascade Creek and into the lower Animas Valley. The maps drawn from the Hayden Expedition in 1874–1877, as well as the Wheeler Expedition maps, depict faint dotted lines defining trail routes near South Mineral Creek heading toward Hope Lake and Trout Lake near

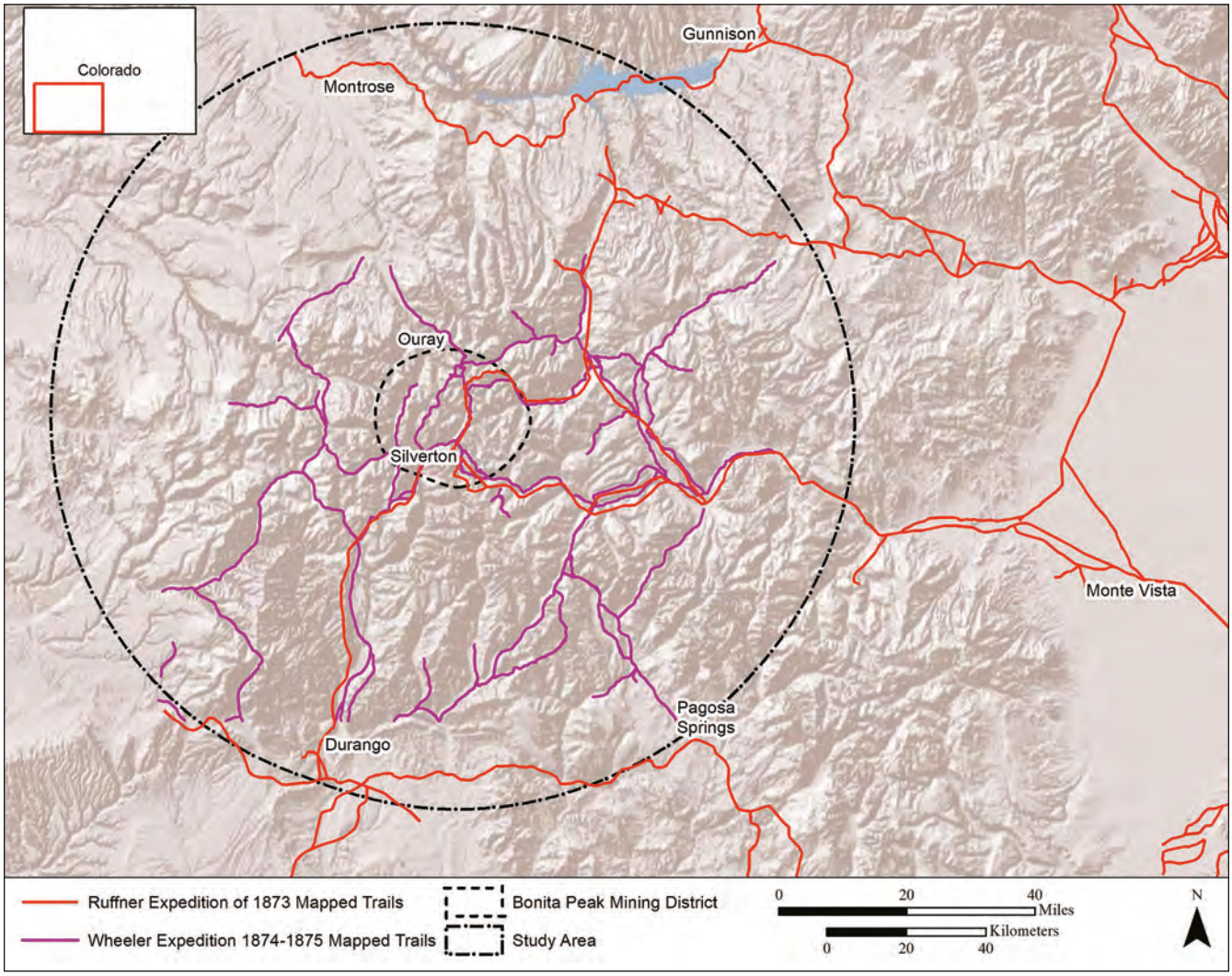

Figure 3.18. Ute trails mapped in the 1870s within the BMPD study area.

Ophir and Telluride. Routes are also shown entering Baker's Park from Sultan Mountain across Lime Creek. The Wheeler Expedition maps also shows the trails to the lower Animas Valley, with the one trail labeled "to Animas City," which is the area where Durango was later settled. During the later survey of the Animas River gorge and subsequent construction of the Animas Canyon Toll Road, segments of trail were observed along the Animas River near Silverton and farther south near present-day Durango (Robinson and Coleman 2017).

The final government expedition into the area was led by C. A. H. McCauley in 1877 (McCauley 1878). By the time McCauley arrived, wagon roads had already been built or were under construction. These superseded the use of Ute trails for major transportation throughout most of the San Juan Mountains. Otto Mears, a Russian immigrant to the area and an engineer, oversaw the construction of many of the wagon roads in the San Juan Mountains and he built a profitable business by charging tolls for the use of these routes. Mears was friendly with the Utes and he interacted with them regularly. He also served as special commissioner during the Brunot negotiations and subsequent US government meetings with the Utes, although the value of his service to the Utes remains in question today (Conetah 1982: 63–64; Kaplan 1982).

When surveyors established the the boundaries of the lands ceded under the Brunot Agreement, they failed to exclude Uncompahgre Park as promised and it was quickly settled by Anglo farmers and ranchers. As Anglo settlement increased, so, too, did tensions with the Utes over land and resources. After the Meeker Incident and the battle at Milk Creek in 1878, White settlers throughout western Colorado

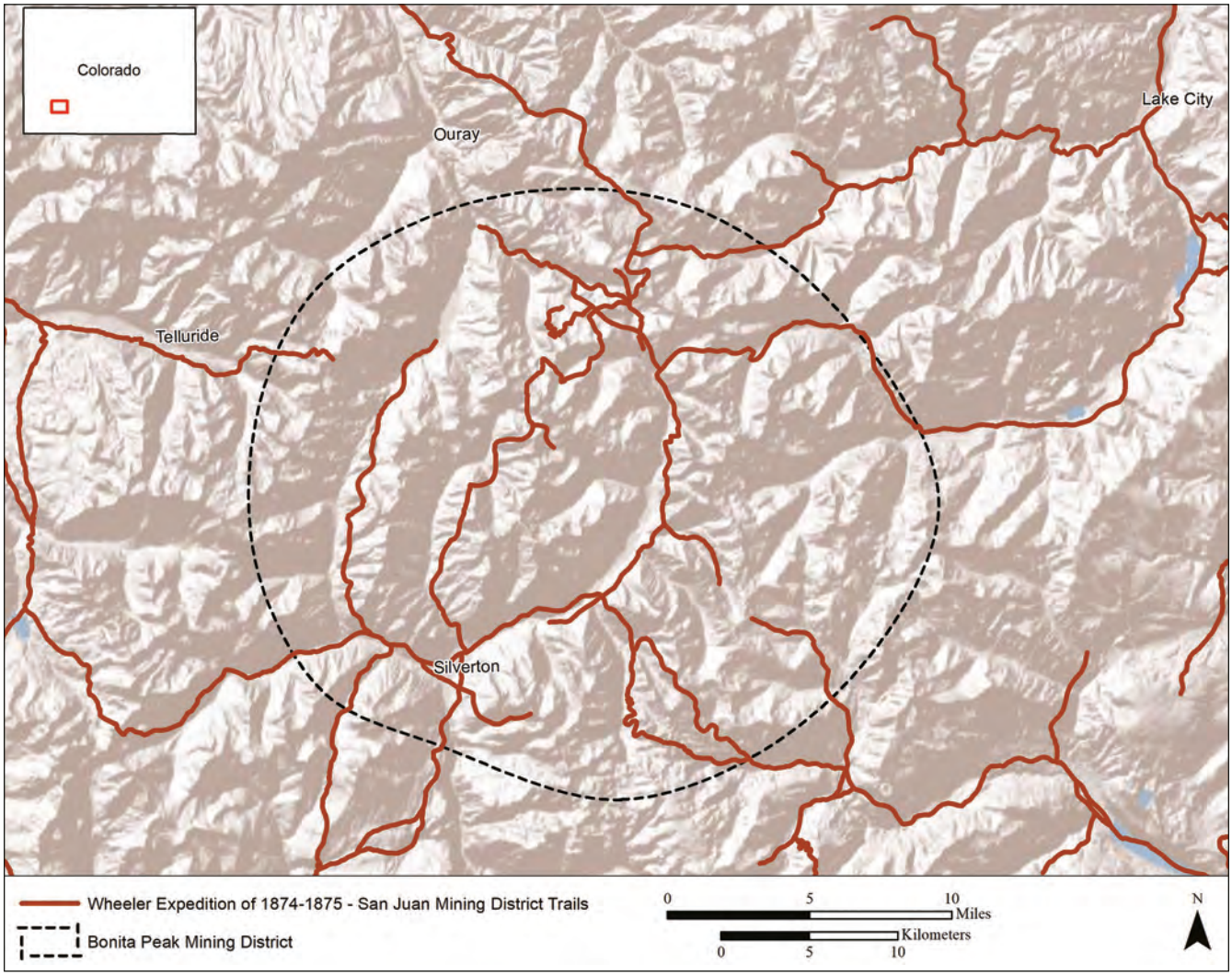

Figure 3.19. Ute trails mapped by Wheeler Expedition in 1874–1875 in the vicinity of Silverton and the BMPD.

became increasingly uneasy and continued their attempts to forcefully expel the Utes. The San Juan Mountains around Silverton were a noted area for violence between White settlers and the Utes (Decker 2004; Kaplan 1982). Alden Naranjo, Jr., remarked that Anglo settlers would remove Ute lodges and use them as firewood. "Platforms used for burials, lookouts, and as food caches were also burned," he said. Unburned examples of lodges and platforms are shown in Figure 3.20 and Figure 3.21. Mr. Naranjo lamented that there used to be Ute sites throughout the territory that are no longer there. In one act of retaliation, Mr. Naranjo, recalled that the Utes started a forest fire in the mountains around Silverton to chase the miners out. It was around that time that Colorado governor Fredrick Pitkin issued a letter to the town officials of Silverton stating, "The Indians are off their reservation seeking to destroy your settlements by fire, [they] are game to be hunted and exterminated like wild beasts. Send this word to the [other] settlements" (quoted in Decker 2004:146–147).

With the newly formed Ute reservations of 1879 and 1882, Utes were pushed farther away from the San Juan Mountains. While they continued to value the mountains as a significant part of their homeland, their access to them was severely diminished. Over the next several decades, as mining in the San Juans continued and the valleys filled with incoming settlers, the Utes were largely confined to their reservations. Utes retained hunting, fishing, and collecting rights under the Brunot Agreement of 1874, but those activities are not well documented for the early twentieth century.

In 1972, Ute Mountain Ute tribal member Clifford Whyte was arrested for killing a deer in Montezuma County, Colorado, on lands that were ceded under the Brunot Agreement.

Figure 3.20. Example of a wooden Ute structure similar to those burned as firewood by Anglo settlers in the 1870s. Basin: Ute, BAE 4750(1), Box VII:3, National Anthropological Archives, Smithsonian Institution.

Figure 3.21. Example of a wood Ute platform similar to those burned as firewood by Anglo settlers in the 1870s. SPC Basin Ute NM No. 00905600. Powell Expedition, Neg. No. 87-3941 National Anthropological Archives, Smithsonian Institution.

While Mr. Whyte had a tribal hunting license, he did not have a state license, so his buck was confiscated (*Desert Sun*, November 16, 1978). This event let the Ute tribes to review their agreement with the federal government and reassert their rights as outlined in the Brunot Agreement, which they had never abdicated. Whyte's citation was the subject of lengthy litigation, first in the Montezuma County Court, which dismissed the charges based on the Brunot Agreement, and then in the Colorado State District Court, which reversed the lower court decision and remanded the matter for additional proceedings. (*People v. Whyte*, Docket No. 7256, Montezuma County Court, June 4, 1973; Criminal Action No. 1727, Montezuma County District Court, June 10, 1974) (Herrera v. Wyoming 2018:15–16).

As Whyte's hearings came to a close, the Ute Mountain Ute Tribe initiated a federal declaratory judgment action against the State of Colorado to confirm Brunot Agreement hunting rights (*Ute Mountain Tribe of Indians v. State of Colorado*, C.A. No. 78-C-O220, filed March 1, 1978). The case was resolved through entry of a consent decree that recognized the right of Ute Mountain Ute tribal members to hunt in the Brunot Cession area for subsistence, religious, or ceremonial purposes without state licensing if they were authorized under permits issued by the Ute Mountain Ute Tribe. The consent decree also provided for coordination between tribal and Colorado officials in designating areas for hunting outside of normal state seasons and for ongoing cooperative management activities.

Following similar hunting disputes involving Southern Ute tribal members in the 1970s, the Southern Ute Indian Tribe and the State of Colorado addressed the hunting activities of tribal members off the reservation. At the time, the tribe agreed to refrain from exercising its off-reservation hunting rights outside the exterior boundaries of the reservation with the caveat that such agreement did not waive the tribe's right subsequently to assert its off-reservation hunting rights (*Silva v. Hyde*, C.A. No. C-3858, District Court of Colorado, March 17, 1972; Approving Stipulation and Settlement, Aug. 30, 1972). As time has passed, the Ute tribes and State of Colorado have refined their mutual understandings, signing additional agreements in 2008 and 2013 governing the exercise of off-reservation tribal hunting rights in the Brunot Cession area (Smith and others 2018:16–18).

In 2017, the Southern Ute Indian Tribe articulated its understanding of the Brunot Agreement of 1874, releasing a statement that read:

> The Brunot Treaty was ratified by the United States in 1874 and is most often remembered by Utes as the agreement when their land was fraudulently taken away. The Utes were led to believe that they would be signing an agreement that would allow mining to occur on the lands located only in the San Juan Mountain area, the site of valuable gold and silver ore. About four million acres of land not subject to mining would remain Ute territory under ownership of the tribe. However, they ended up forcibly relinquishing the lands to the U.S. government. Many years later, after meetings with the State of Colorado, a successful negotiation of a Memorandum of Agreement was signed in [2008]. The MOA assured the tribe with hunting and fishing rights in the off-reservation Brunot area, including rare game species. Tribal hunters participate in the hunt with special permits [Southern Ute Indian Tribe 2021].

Currently, the Southern Ute Indian Tribe issues extensive hunting regulations specific to the Brunot Cession area that are updated on a yearly basis (Southern Ute Indian Tribe Division of Wildlife Resource Management 2020). In spite of the progress that has been made, however, the Ute tribes still face obstacles when it comes to accessing their traditional homeland. The Brunot area falls under the jurisdiction of numerous federal, state, and municipal agencies, and private land owners (Figure 3.22). The San Juan National Forest alone covers approximately 1.9 million acres consisting principally of Brunot Agreement ceded lands (USFS 2013).

Contemporary Ute Perspectives about the Bonita Peak Area

The Bonita Peak area continues to be important to Ute people today. Many tribal members travel regularly into the San Juan Mountains for hunting, fishing, plant gathering, and recreation, and to teach their children and grandchildren about the area. Laverna Summa and Kathryn Jacket of the Ute Mountain Ute Tribe said that that they have stopped on the roadside to collect plants when traveling to Silverton. The traditional-use of plants is still widely practiced (see Chapter 5).

Many Ute tribal members also go to hot springs in the mountains to soak, heal their bodies, and gain strength in the waters where their ancestors used to bathe. When visiting Ouray during the fieldwork, Terry Knight, Alfred Wall, Jr., and Alden Naranjo, Jr., all soaked in the hot springs there. Mr. Wall explained that "Chief Ouray used to bathe there, and he used to take his horse into the bath with him. They say that is why he was so powerful and his horse was so fast—the hot springs give power and healing."

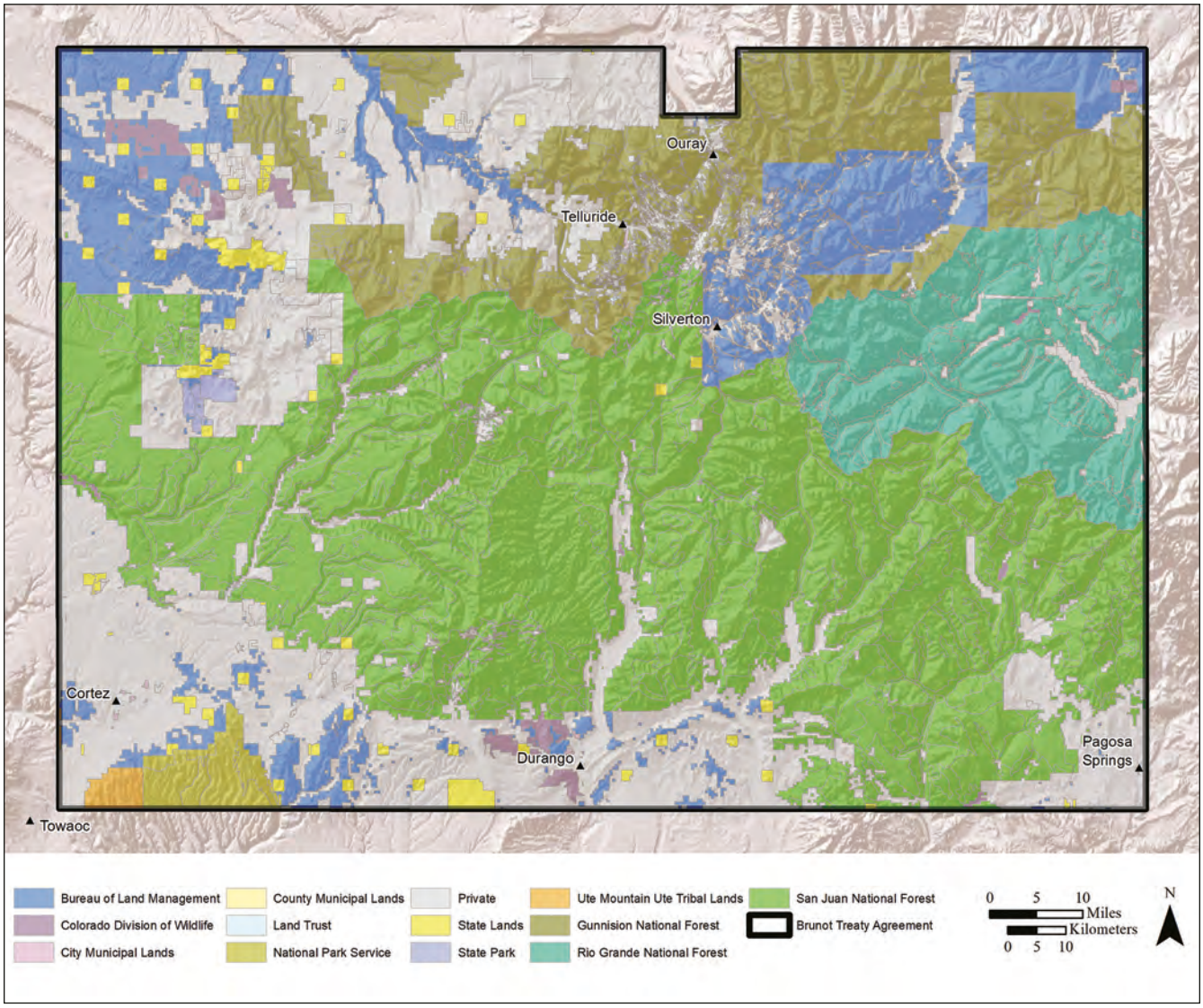

Figure 3.22. Contemporary land tenure map of the Brunot Cession area.

Erwin Taylor and Ernest Pinnecoose of Southern Ute Indian Tribe said that they have traveled regularly throughout their lives into the mountains in the vicinity of the BMPD to hunt, fish, and gather food and medicinal plants. Alden Naranjo, Jr., and Mr. Pinnecoose described a number of roads and trails they use across southern Colorado and into the mountains that have roots in Ute history (Figure 3.23). They said that many of these trails were shown to them by their parents, uncles, and grandparents, and they have traveled them since they were young on foot, horseback, and using motorized vehicles. When compared to historical maps showing Ute trails, many of the trails and roads that Mr. Naranjo, Jr., and Mr. Pinnecoose described align with older trails. Erwin Taylor said that he was taught that Ute trails are often marked by peeled trees or tree pegs, but many of these have been lost to forest fires over the years. The men said they often recall stories about Ute history when they are in the mountains.

Terry Knight explained that Ute people's connection to the BPMD project area is rooted in their identity. He said that through their oral teachings, the Ute people identify as Mountain People. "We are part of the mountains, and they are part of us. All Ute people are Mountain People," he said. Mr. Knight credits Ute ancestors for passing on traditional knowledge about history and the land. He said that people also learned through spiritual teaching and from the

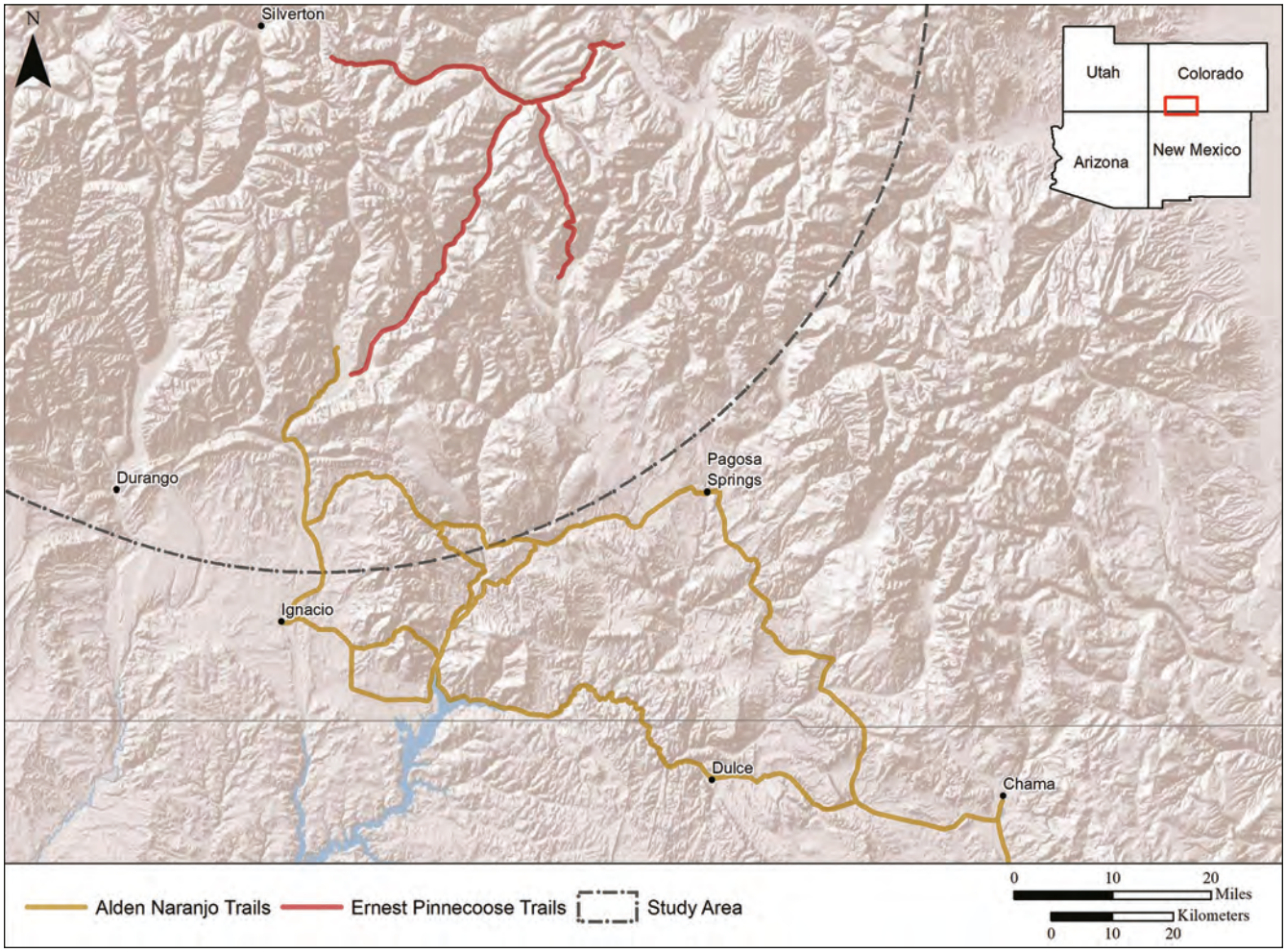

Figure 3.23. Ute trails described by Alden Naranjo, Jr., and Ernest Pinnecoose during the 2019 research session.

animals, but Ute traditions all derive from the environment in which they lived. Ute tribal members participating in the research for this study underscored the importance of being able to pass on their traditional knowledge to their future generations. Alfred Wall, Jr., noted that the Ute Mountain Ute Tribe currently has social service programs that take high risk kids into the mountains to teach them about history. He commented that "Utes know a lot about the plants here. We want to pass that on. We want our kids to know their history, the stuff that wasn't written in history books. We need to tell the truth. We need to tell our story so our kids know who they are."

CHAPTER FOUR

The Ute Cultural Landscape

AS A TRADITIONALLY mobile people who were sustained by Nuuchiu tuvupu(S) or "the Peoples' lands," Ute culture and traditional lifeways are deeply tied to the environment. Ute language, history, and identity are all entrenched within traditional landscapes. The Ute people continuously moved across the land for centuries, forming an intimate relationship with their landscape. Ute society cannot be understood without considering their attachments to the environment (Burns 2003:1). Relationships with the land provide the foundation for traditional knowledge and educational systems (Bennett 1999:6). Cultural knowledge, including place names and ecological terminology, is strongly embedded in the Ute language (Burns 2003:4).

Ute people view the earth as a living landscape where plants play a fundamental role in life and culture. In addition to fulfilling subsistence, medicinal, ceremonial, and domestic needs, plants hold a central role in traditional Ute worldviews and identity. This is demonstrated in part by the practice of naming bands based on a food preference, traditional geographic location, or natural resource important to the group's lifeways. For example, the Yampa Band is associated with yampa (or yampah; *Perideridia gairdneri*), plants also known as Indian potatoes or Indian carrots that have edible roots. The use and collection of certain plants is associated with traditions passed down by Ute ancestors, thus providing a sacred link to traditional ways of life, as well as prayers left by the ancestors (Perlman 1998:69).

UTE SEASONAL ROUNDS

The mountainous landscapes of their traditional territory are seen by Utes as the center of the universe (Burns 2003:2). In traditional Ute culture, connections to the land are maintained through seasonal rounds that traversed multiple habitats and ecological regions found within the BMPD (Figure 2.1 and Figure 2.2). The seasonal rounds are called *meeah-vah-ghat-knee*(M), which translates to "moving from place to place." Prior to obtaining the horse, Utes traveled in more restricted seasonal ranges on foot in small family or band units. The domain of a band was focused on a sacred mountain that was always kept in view; other nearby mountains demarcated the band's territorial limits. The mountains oriented the Ute people within the four directions. Within this sacred domain, the group moved in a seasonal round following for their subsistence in what may have become a somewhat ritualized pattern, with the uplands used in the summer months and the lowlands used during the winter months (Campbell 2007:875).

Terry Knight explained the seasonal round in 2016,

> The migration is called *mee-ah-vah-ghat-knee*(M). You are moving from place to place to place. Migrate. That's about as close as you can get to "migration." *Meeah-vah-ghat-knee*(M), that's what it means. Migrating from summer camp to fall camp, winter camp, spring camp, within this big area. Initially, it was only what we call a small area because they had to walk—no horse. And the women could only carry so much, and your dog. And so, we're not used to having a lot of stuff. … But what we had, we carried, migrating. But when we got the horse from the Spanish, which said the Utes were the first tribe to get the horse from the Spanish, so that made it easier to carry. We got into being materialistic then. And then we had horses to have the travois and take our tipis from place to place. But before that, we didn't have very many people to carry a tipi, so we just lived in whatever campground, built wickiups or what they call shade houses [Kelley and others 2019:4.3–4.38].

Terry Knight and Kathryn Jacket explained that extended families of Utes would begin traveling in the late spring. Summer and early fall were the ideal times to be in the mountains to collect plants and hunt. The mountains were avoided during the winter due to high snowpack and in the early spring because of inclement weather and the sometimes-aggressive bears that emerged from hibernation.

Ute place names for landforms often reflect the habitat associated with the place (See also Table 6.4; Figure 6.7). Some of the Ute terms for places within and near the study area were recalled by Antonio Buck, Jr., in 1962, and shared with James Goss, an anthropologist. These place names were told to Mr. Buck by a Ute man who had lived in the Conejos area of the San Luis Valley in the 1870s (Burns 2003:23):

> From here the trail goes up the river and across the pass Totupinukwiti, "the San Juan River." Then to Pagosa nuuwachichi that's Pagosa (water-gushing-outboiling). Then the trail goes by Tuwinichichi or Tupiwiniri, "Chimney Rock" (standing-up-rock). The Mexicans call it Piedra Parada. Then comes Pievanukwiti "Piedra River." Then you see Kaachigarichichi ''Ignacio Peak." Then you go across Ariupanaa, ''Spring Creek," that comes down from Wiiagarichichi "the H. D. Mountains" (Oak-Mountains).
>
> Then you come to Pinuu or Pinuuvanukwiti, "Pine River." There used to be a lot of big pine trees along here. They are all cut down now. We call Ignacio Pinuu. Sometimes people call us Utes that live in Ignacio, Pinuunuutchiyu. "Pine-RiverUtes." We call the San Juan Mountains Pinuunuk-wikkaipaa, "the Pine River Mountains." Next the trail crosses Tirinpanukwiichichi "the Florida River" (bare-plain-creek). It runs into the Animas River further down. Then, below Durango, the trail crosses Sagwavanukwiti "Blue River." That crossing is dangerous. A lot of people have been lost in that river. The Mexicans call it Rio Animas. We call Durango, Turankwu.
>
> Then the trail goes on past Agwapanukwichichi, "Basin Creek" (a-lot-of-drywood-on-a-hill-creek). Then past Paartavanukwiti "La Plata River." We never call it Panakarivanukwiti. Then the trail goes on over by those old Aztec ruins that we call Wiimukwiganipi "Mesa Verde Ruins" (old-Hopi-houses). The Mancos River we call Wiimukwiganivanukwiti (old-Hopi-houses-river).
>
> Then the trail goes by Togoyaki, a good place to live with sweet water, and cattails. Now they call it "Toyak" (spelled "Towaoc" now on maps, headquarters of the Ute Mountain Ute Reservation). There you go past Wisikaaivichi "Little Yucca Mountain." They call it Ute Mountain or Sleeping Ute Mountain today. That is where the Wiinuutsiyu have their Sundance, up on the side of that mountain.

Travel routes were among the most important topics of discussion among Utes, and trails were a reflection of the ritualized seasonal round that originated among walking Utes and carried forward with the horse (Figure 4.1). Utes would typically travel to a destination in one direction and return by another. The physical paths they followed thus metonymized Ute cosmology and respect for their sacred domain (Horn 2017; Wroth 2000). In the past, John Wesley Powell wrote about the Ute, saying "a path which has been followed by his forefathers is sacred to him," (quoted in Burns 2003:21).

The Ute seasonal round corresponded to their ceremonial calendar, with Bear Dance occurring on the vernal equinox, the Sun Dance on the summer solstice, the Pine Nut Round Dance on the fall equinox, and traditional storytelling on the winter solstice. Ute seasonal domains and the environment are represented by a color scheme with five colors corresponding to the seasons plus the sacred center, and each season represented by the sacred powers of an animal deity (Figure 4.2):

- turquoise (*sakwakar*$^{(S)}$)—green mountain slopes—Earth's center—wolf, bear, coyote
- black (*túu-kwa-ru*$^{(S)}$)—underworld—Winter—rattlesnake
- red (*'aka-gha-ru̲*$^{(S)}$)—basins—Spring—weasel
- yellow (*'óa-qa-ru̲*$^{(S)}$)—mountaintops—Summer—mountain lion
- white (*sa-gha-ru̲*$^{(S)}$)—sky—Fall—belonging to the myth eagle

This color scheme is often reflected in ritual, with ceremonial paints corresponding to the color and the season. Traditionally, Ute people would adorn themselves and their homes with certain colors to summon the help of the deity that corresponded to that color (Wroth 2000:43–49).

Ute Seasons

The Ute terms for seasons reflect changes in the environment. Northern Ute elders provided Ute terms for the four seasons, as well as the translations of Ute terms for the months documented by Smith (1974:278–279). There are named periods of seasonal change that relate to the availability of food.

Figure 4.1. Photo entitled "Teaching the Trail." Southern Ute chief Buckskin Charlie shows Ute warriors the signs of the trail. Basin: Ute, BAE 4750(6), Box VII:3, National Anthropological Archives, Smithsonian Institution.

Tumut, "going to sleep," Winter

Terry Knight and Helen Munoz said that *tumut*(M) was the Ute Mountain Ute term for winter. Mr. Knight described the middle of winter as *tuwikmerk*(M). Smith documented the term for winter as *tumu=tɨ*(U) and documented the White River and Uncompahgre Ute names and translations for the three winter months (Table 4.1). Givón (2013a:224) documented the Ute terms *témɐ and teme-tʉ* for winter. Ernest Pinnecoose explained that wintertime meant having to "break the water"—physically breaking the ice on the river to retrieve water for the household. It would also mean gathering snow for water. Ms. Munoz noted that wintertime is the time for telling stories.

Tāmān or Temanut, "things are waking up," Spring

Terry Knight and Helen Munoz provided *tāmān*(M) and *temanut*(M) as the Ute Mountain Ute terms for spring. Ms. Munoz explained that thunder in springtime is considered to be the bear rolling in his cave, beginning to wake up, which historically ushered in the Bear Dance. She noted that in recent years, thunder has been heard during winter months and this is understood as climate change. Smith (1974) documented terms and translations for two spring months among the White River and Uncompahgre Ute (Table 4.2). Givón (2013a:224) documented the Ute terms *tama-na*(S), *tama-na-tʉ*(S), *tama-ri-kʉ*(S), and *tamari-tʉ*(S) for springtime.

Tatatch, "when it is hot," Summer

Terry Knight and Helen Munoz provided *tatatch*(M) as the Ute Mountain Ute term for summer. Smith (1974) documented the Uncompahgre general terms for summer, *tacɐ=ttɨ*(U), as well as terms and translations for four months among the White River and Uncompahgre Ute (Table 6.3). Givón (2013a:209) documented the Ute term *táchɐ*(S) for summer.

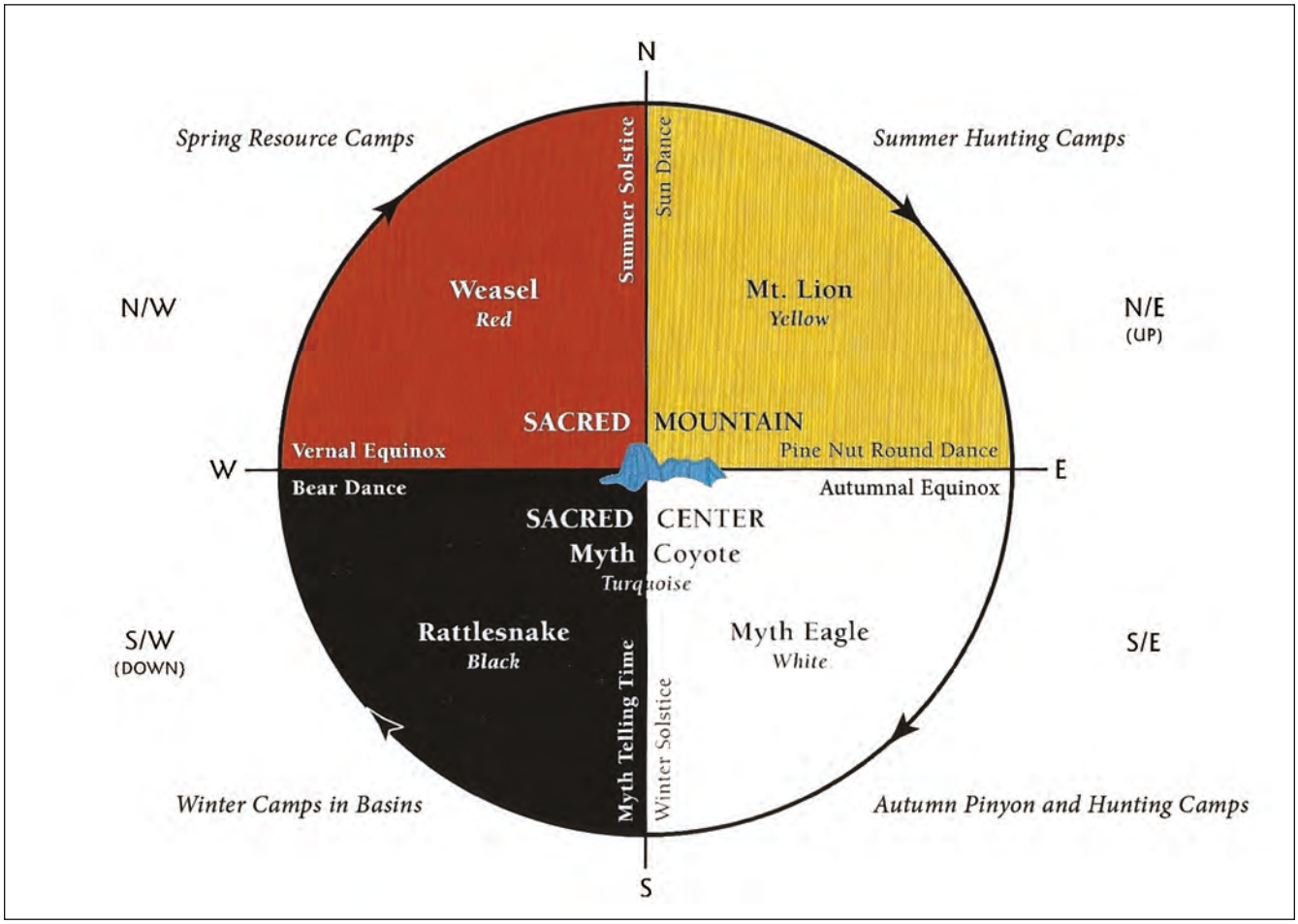

Figure 4.2. Ute color chart and associated seasons (from Wroth 2000:43).

Table 4.1. Uncompahgre and White River Ute Terms for Winter

English Term	*Uncompahgre Term*	*Translation*	*White River Term*	*Translation*
December	tumu maa-tukʷu=ci(U)	—	timi maa-tukʷu=ci(W)	"Cold weather here"
January	tukʷu-tamu=tɨ(U)	Middle of winter	tuwi-tuna maa-tukʷu=ci(W)	Middle of winter. "Wind blows and makes us cold. Evening star comes up in January, means cold weather."
February	passikʷamici(U) maa-tukʷu=ci(U)	"Turning Spring"; "Sun shines on the side of the trail"	miwɨ=pɨ kacuai(W)	"Strip of buckskin" Refers to a period of acute hunger when buckskin was boiled into soup.

Table 4.2. Uncompahgre and White River Ute Terms for Spring

English Term	*Uncompahgre Term*	*Translation*	*White River Term*	*Translation*
March	tama=ka(U) maa-tukʷu=ci(U)	"Spring comes"	pusikʷami=ci(W) maa-tukʷu=ci(W)	"Melting snow, snow on one side of the road, other side has snow. Bear rolls over this month"
April	nakai maa-tukʷu=ci(U)	"Leaves coming"	tama-maa-tukʷu=ci(W)	"Spring moon. Bear comes out"

Table 4.3. Uncompahgre and White River Ute Terms for Summer

English Term	*Uncompahgre Term*	*Translation*	*White River Term*	*Translation*
May	taca maa-tukʷu=ci(U)	"Summer comes"	taca maa-tukʷu=ci(W)	"Summer moon, nowadays you start planting then. Leaves coming out"
June	taca maa-tukʷu=ci(U)	"Summer comes"	taca maa-tukʷu=ci(W)	"Leaves getting bigger"
July	—	—	tuwi-ta=ci maa-tukʷu=ci(W)	"Middle of summer"
August	ʔuwana maa-tukʷu=ci(U)	"Part summer, part fall. Cricket sings"	tuwi-taca=ci(W) maa-tukʷu=ci(W)	"Everything ripe now"

Table 4.4. Uncompahgre and White River Ute Terms for Fall

English Term	*Uncompahgre Term*	*Translation*	*White River Term*	*Translation*
September	ʔutu-tata pɨ(U)	"Everything gets yellow"	ʔuwuna maa-tukʷu=ci	General term fall
October	ʔasiwaikʷu-tɨ(U) maa-tukʷu=ci(U)	"Leaves, everything dry, go hunting then"	takapi maa-tukʷu=ci	"When trees turn yellow"
November	—	—	takapi maa-tukʷu=ci; tumu=tɨ	"Start hunting deer. Leaves all fall"

Uvanit, "leaves are falling," Fall

Terry Knight and Helen Munoz provided *uvanit*(M) as the Ute Mountain Ute term for fall. Smith (1974) documented terms and translations for three fall months among the White River and Uncompahgre Ute (Table 4.4). Givón (2013b:224) documented the Ute terms *yugwa-na*(S), *yugwa-na-tu*(S), *yuvwa-na*(S), and *yuvwa-na-tu*(S) for the fall season.

UTE TRADITIONAL MANAGEMENT OF PLANT LIFE

Ute people believe that plants possess both physical and spiritual components and are sentient beings. Ernest Pinnecoose explained that the spirit within a plant, animal, or object is important, stating that "all things have a spirit and you have yours. You have to have respect for everything." For Ute people, plants as sentient beings have the power to interact and influence humans. The late Clifford Duncan, an Uncompahgre elder and historian, discussed Ute perspectives on the nature of plants, the protocol for harvesting them, and the consequences of ignoring the plant's true nature during fieldwork at the United States Air Force Academy in 2012:

> I was told never to walk up to a plant. I will walk past it, I will see that plant sitting right there, growing, but I walk past it. … And the idea there was this, that there is a spirit in that plant, and I tell the spirit, "Don't go away, stay in that plant," so it stays in it. The plant has two bodies to it: the plant and also a spirit. It's the spirit that heals people, not that plant. But it goes together, if you put it together, then you say, "Stay in there, I'm going to use you with what I need help with." Then I pull it out and I say thank you. Then I put it away. So, these plants, you gather them in a sacred manner. And each one [person] is trained to do it in a way they feel, or how they are brought up. That was one way that we did that. So, these plants around here might be like that. So, for you to go up to a plant and just pick it up, you picked up the plant, but that spirit jumped away. It's not going to heal you because you didn't tell it to stay in there. You got to treat it like a man or a human. That's how I looked at it [Duncan in Kelley and others 2017:4.7–51].

Ute people historically practiced a variety of strategies for maintaining and enhancing the natural resource abundance of their traditional lands. While some generalities about Ute perspectives on the natural world can be made, specific bands and family groups held and continue to hold specific, place-based knowledge that formed over multiple generations. Differences in language (pronunciations, spellings, and even terms), uses and seasons for harvesting certain plant species, and preferences for harvesting certain

animal and plant species differed among bands historically and today may differ among the three Ute tribes. These differences are also present within the tribe and within bands, where knowledge is most often passed on at the family level. Ernest Pinnecoose explained that in his youth, children were expected to learn from their elders by watching or listening, and it was not appropriate to ask questions. Mr. Pinnecoose and Elise Redd emphasized that every family maintains their own traditions when it comes to harvesting and using plants. Family harvest areas were often informally recognized by other members, however these areas were not exclusively "owned" by bands and visiting bands could seek permission from local groups prior to collecting in specific areas.

The exchange of traditional information was not generally prohibited, however, and Ute people learned from other Utes as well as from neighboring tribes and non-native people. The Utes adopted the practices they learned about when they served their needs during different eras. Alden Naranjo, Jr., explained that when the Moĝwáchi(S) and Kapuuta(S) bands relocated to the Silverton area, they had to adapt and learn how to use the plants and environment in their new area. To learn about their new environment, they looked to their sister tribe, the Ute Mountain Ute (i.e., the Weenuche band) for assistance. Mr. Naranjo, Jr., explained,

> Our sister tribes showed us the plants and some of it grows out along the Front Range, so we used the knowledge that we had and the information from out sister tribes. We shared information, and we shared among the different bands.

Cassandra Atencio elaborated about this exchange of information, saying,

> Even though there was animosity about moving into their territory, there were still familial ties because people married into the different bands. Bear Dance was different, it used to be in different places, and we intermarried during the Bear Dance and so you gain that information from the other bands. So, the intermingling between the bands allowed for that knowledge to be shared.

Harvesting

From a Ute perspective, the act of harvesting plant and animal species, when done with attention to the amount, timing, and other considerations, is a critical component to creating abundance. Traditional harvesting techniques—which included prayers, seasonal movements, limited time in a specific area, and allowing resources time to recover—all showed the plants that Ute people respected them, were grateful for them, and had a need for them. This, in turn, encouraged the plants to produce more and provide for the needs of the people. Harvests are also shared among community members. Helen Munoz noted that when harvesting foods, whether it is pine nuts or deer, you are expected to share some of your harvest with others. Clifford Duncan emphasized the need for respectful harvesting of plants and the consequences if plants are abused,

> Instructions were given before you go out not to abuse that [the plant], like scratch or disturb the surface of that and they would tell us, if you do that, it's going to move away. Like you're looking at plants and you go back next year and it's not there. It moved away to another place. Similar to a person, it moved away. *Mey-oata*(N), they say, *mey-oata*(N). That plant is *mey-oata*(N) that means it moved away. So, if there are plants out here that they were using, they may have moved away from there too. That goes back to…plants of all types, they are related to each other, like humans, they have their own children.
>
> Like if you take buffalo berries, a big clump, if you taste the berries from this plant and then go to this one over here, they taste different, then go over here and taste this one and it tastes like this one, that means a root is feeding this one, not this one. So, this older plant is the one producing, one might say, the offspring. Plants have that too. So, if that happens [the plants are abused], then it moves the whole clump.
>
> That's where I was mentioning we have to believe in that because it can't work any other way, it's going to move away if we don't take care of it. That's why a lot of Indians will say, if these people don't take care of this land, it's going to destroy, it's going to destroy itself [Kelley and others 2017:4.7–52].

How traditional harvesting methods enhance plant productivity is one of the core themes of Anderson's (2005) *Tending the Wild*, in which she describes harvesting methods used by the Timbisha Shoshone. The methods are similar to those described by Ute people. T in For example, piñon (*Pinus edulis*) is harvested with the goal of increasing the abundance of future pine nut harvests and willow (*Salix* spp.) and sumac (*Rhus trilobata*) stems are collected in a way that will benefit the plants and create the new growth desirable for basketry (Anderson 2005:191, 316). Recent botanical investigations into sustainable oshá (*Ligusticum*

porteri) harvesting yields by the Utes indicate that moderate to low harvest maintains healthy plant populations (Kindscher and others 2019:354–355). Ute harvesting practices indicate that whole plants are rarely collected so harvesting is akin to pruning that enhances plant productivity.

Terry Knight expressed that land managers do not always understand Utes' intent when they collect plants, stating "we only get what we need, not four or five bushels. Non-Indians think we try and take everything." He added that "when we go to the mountains, we look at the plants, not the views, because our reservation does not have all the herbs we need." Mr. Knight noted that some herbs are available only in certain places and if the contamination affects those areas it will have a detrimental effect on Ute Mountain Ute culture. Mr. Knight emphasized that plant collection areas are sacred places for Utes and they are "not supposed to be bothered by anyone except those who should be there." This value is in direct conflict with the recreational activity taking place throughout the San Juan Mountains. Alfred Wall, Jr., added that Ute people leave offerings before collecting anything and that Utes avoid ancestral sites, otherwise the spirits that inhabit those sites will follow them home.

Prayers and Offerings

Harvesting of plants and animals—whether for sustenance, medicinal, or ceremonial use—is always accompanied by prayers and other forms of spiritual offerings. These offerings reinforce the Ute worldview that the natural world is comprised of sentient beings with whom the Ute people need to communicate with and respect if they are to receive the life-sustaining power provided by these beings. Linda Baker recalled how her grandmother, Edna Russell Baker, would sing specific songs to plants before harvesting them as a form of offering. Linda Baker recalled how willow had a specific song and that her grandmother refrained from using any metal to harvest the stems and instead would break branches using her hands.

Conservation

While Utes actively manage, harvest, and engage with the natural world, they are careful to limit how their collection practices impact any one resource or area. Several elements of Ute traditional life reinforced this practice including moving seasonally across a large territory, traveling in small family groups, observing plants and animals for changes in the landscape, and respecting natural limits. Depending on the resource and its regional or seasonal abundance, an area might not be harvested for several successive seasons if it was in need of regeneration (Stoffle and others 2008:81). Linda Baker noted that some families maintained their own harvesting areas for certain plants. Harvested areas are recognizable by the growth habits of some plants, such as willows. Willows found growing in harvested areas reflected years of careful harvest practices that encouraged the straight, narrow stems prized for their use in basketry and cradle boards.

Diversification

Ute people relied on a tremendous diversity of plant and animal species, traversed a massive land base, and maintained successful trading partnerships with other tribes and non-Natives. As Linda Baker explained, Ute people had multiple subsistence strategies for survival, with plant harvesting and small game hunting being a more secure practice than large game hunting. Mr. Naranjo previously recalled that Ute people relied not only on large game such as bison, elk, deer, and antelope, but also waterfowl, bird eggs, and fish. Mr. Naranjo (2018) said that Ute people would stock natural lakes by transporting fish from one river or waterway to another using pine-pitch sealed baskets.

CHAPTER FIVE

Inventory of Ute Traditional-Use Plants

THIS STUDY IS focused on the identification of culturally important plants within the BPMD and how they are used by Ute people. The study is informed in part by more than a century of Ute cultural and natural resource studies as well as through interviews with Ute tribal participants. The protocols for collecting ethnographic information have evolved over the past century from a beginning in salvage ethnography that was often exploitative and had little community review or informed consent, to a community-based participatory approach. In our work, we draw upon previously published materials to provide baseline data that our contemporary tribal colleagues could review, correct, and update. The Southern Ute Tribe requested a full review of previously conducted research pertaining to Ute traditional use plants to create a baseline for the tribe's future consultation and educational efforts.

Specifically, this study relies on several key research projects that included ethnobotanical information. For the Ute Indian Tribe, the *Ethnography of the Northern Utes* (Smith 1974), the summary report of the Ute Ethnobotany Project (Chapoose and others 2012; McBeth and others 2008), and the article "Some Plant Names of the Ute Indians" (Chamberlin 1909) provided the majority of information about Ute plants and names. Three projects that included information about all three Ute tribes were also used, including an ethnographic overview of Chimney Rock National Monument (Hopkins and others 2020), a traditional use study at Great Sand Dunes National Park and Preserve (Kelley and others 2019), and an ethnographic and ethnobotanical survey of the United States Air Force Academy (Kelley and others 2017). The chapter on the Utes written for the *Handbook of North American Indians* (Callaway and others 1986), and an ethnographic overview of the Utes of west-central Colorado (Burns 2003) also provided significant ethnobotanical information. Information was also gathered during research at the Ute Indian Museum in Montrose, Colorado, during the current project.

Research specific to the Southern Ute Tribe included a National Park Study on the Old Spanish Trail (Stoffle and others 2008), as well as consultation records and interpretative material generated for the Great Sand Dunes National Park and Preserve (Naranjo 1997; Ruppert 1996). Research specific to the Ute Mountain Ute Tribe includes the recently completed *Ute Mountain Ute Traditional Cultural Property Survey of the Navajo-Gallup Water Supply Project* (Living Heritage Anthropology and others 2019). Several reports discuss how Ute cultural perceptions of the landscape differ from non-Native viewpoints, and how Ute people are uniquely qualified to identify, interpret, and evaluate landscapes and resources that are culturally significant to them (Burns 2003; Callaway and others 1986; Hopkins and others 2020; and McBeth 2019).

Ute orthography has evolved over the last century. In this report, we use the orthography used during the original research when the information was collected. The standardization of Ute orthography was beyond our scope of work. Kroeber (1908), Chamberlin (1909:27–32), and Sapir (1930a, 1930b, and 1931) made early attempts to transcribe the Ute language. James Goss (1967 and 2000) began his study of the Ute language in 1961 and has contributed greatly to Ute orthography over the last half century. Ute terms documented during fieldwork for the present study were provided by and reviewed by tribal research participants for accuracy. Differences in dialect and spelling remain among families and within the three Ute tribes. Presently, the Southern Ute Tribe uses an orthography developed by Thomas Givón (2011, 2013a, and 2013b) as the official orthography of the tribe. Dr. Stacey Oberly, a linguist with

the Southern Ute Culture Preservation Department also provided updated translations and Ute terms. When the tribal origin of a Ute term is known, the Ute term is accompanied by a superscript with the following abbreviations: Southern Ute Indian Tribe=(S), Ute Indian Tribe=(N), Ute Mountain Ute Tribe=(M). Ute terms from two bands of the Ute Indian Tribe are abbreviated here as White River Band=(W) and Uncompahgre Band=(U).

This chapter discusses Ute traditional-use plants found within the study area. In addition to the information obtained through the literature review, Ute perspectives were documented during fieldwork in the study area designed to elicit Ute information about the cultural significance of plants, including seasonality of use, harvesting practices, and traditional management. A total of 202 plant species were identified through archival research. Forty of these plants were observed during fieldwork (Table 5.1). More traditional-use species are present in the study area but were not observed partly because of seasonal and site-specific conditions. Of the total plant species; 83 have edible plant parts; 52 have medicinal uses; 16 are used in basketry; 5 are used for fuel (firewood); 19 have ceremonial uses; 17 have utilitarian uses; 7 are used for shelter; 2 are poisonous and avoided; 2 are used for animal feed; 1 as an insect repellent; 2 as a trail marker; 4 are used for hygienic purposes; 7 for weaponry; 1 as a toy; and 46 have unspecified uses. The study team recognizes, however, that these categories capture only one dimension of the cultural significance of these plants. Utes view these plants as indicators of their aboriginal territory, active players in certain oral histories, and as a means of sustaining the life and health of Ute people. This list should also be viewed as incomplete, as Ute protocols for sharing cultural information have previously and continue to influence what information can be shared and documented. Even if a specific plant is not noted here, its very presence in the landscape makes it a part of the Ute cultural and aboriginal landscape and therefore is significant to Ute people.

Table 5.1. Ute Traditional-Use Plants Identified in Archival Research and Field Visits

Latin Name	*Common Name*	*Ute Name(s)*	*Traditional Use(s)*	*Plant Part(s) Used*	*Elevation Range*
Abronia fragrans	Snowball sand verbena	sa-gwam-six-ta-gwĭv(N)	Medicinal	Root; Flower	400–2000 m (1300–6560 ft)
*Achillea millefolium**	Yarrow	i-am'-sĭ-ta-gwĭv(N); quishee quish(S)	Medicinal	Leaf	0–3600 m (0–11800 ft)
Achnatherum hymenoides	Indian ricegrass	nuumuvopeeav(M)	Edible	Seed	1066–2286 m (3500–7500 ft)
Agastache pallidiflora	Bill Williams Mountain giant hyssop	—	Edible	Leaf	2133–3050 m (7000–10000 ft)
Agave parryi	Parry's agave	—	Edible	—	1524–2133m (5000–7000 ft)
Agoseris spp.	Agoseris; Chicory	añ-'ka-pi-sa-wats(N)	Edible	Leaf	1981–3050 m (6500–10000 ft)
*Agropyron cristatum**	Crested wheatgrass	—	Edible	—	1524–2743m (5000–9000 ft)
*Agrostis scabra**	Rough bentgrass	—	Basketry	—	1524–2895 m (5000–9500 ft)
Allium spp.*	Garlic	kwee cha see hooh(N); kwicha-sugu'a(S); patasi(S)	Edible	Bulb; Leaf	0–3500 m (0–11500 ft)
Allium spp.	Wild onion	wisi-sikʷu(W); soovweya(N); seevergravp(N); cebolla(N); badasi(N); kwicha-sugu'a(S); patasi(S); saqo-patasi(S); sigu'a(S)	Edible	Bulb; Leaf	0–3500 m (0–11500 ft)
Allium acuminatum	Taper tip onion	küñ-ka(N)	Edible	Bulb; Leaf	91–1493 m (300–4900 ft)

continued

Table 5.1. (continued)

Latin Name	*Common Name*	*Ute Name(s)*	*Traditional Use(s)*	*Plant Part(s) Used*	*Elevation Range*
Allium bisceptrum	Twin crest onion	küñ-ka(N)	Edible	Bulb; Leaf	1100–2987 m (3600–9800 ft)
Allium cernuum	Wild onion; Nodding onion	—	Edible	Bulb; Leaf	600–3500 m (1950–11500 ft)
Allium geyeri	Geyer's onion	soovweya(N)	Edible	Bulb; Leaf	1524–3050 m (5000–10000 ft)
Allium schoenoprasum	Wild chives	kwechusagoot(N); phutus(N)	Edible	Leaf	0–3500 m (0–11500 ft)
Amaranthus powellii	Green amaranth	—	Edible	Leaf; Seed	0–2500 m (0–8202 ft)
Amaranthus retroflexus	Red root amaranth	—	Edible	Leaf; Seed	0–2500 m (0–8202 ft)
Amelanchier alnifolia	Serviceberry; Juneberry	jewap(S); joowump(S); to-ûmp'(N); toowump(S); tuwa̲=pɨ(W)	Edible	Fruit	1371–2743 m (4500–9000 ft)
Amsinckia tessellate	Bristly fiddleneck	tu'-ka-rûmp(N)	Unspecified	—	0–1524 m (0–5000 ft)
Antennaria dimorpha	Low pussytoes	tim'-pĭn-tsau-ûv(N)	Unspecified	—	600–3400 m (1950–11150 ft)
*Apocynum cannabinum**	Indian hemp	—	Utilitarian	—	1524–3050 m (5000–10000 ft)
Arabis holboellii	Holboell's rockcress	qta'-ko-mav(N)	Unspecified	—	1828–275 m (6000–9000 ft)
*Arctostaphylos uva-ursi**	Bearberry; Kinnikinnick; Wild tobacco	tahmahup(N)	Ceremonial; Medicinal	Leaf	0–3100 m (0–10170 ft)
*Arnica mollis**	Soft arnica	—	Medicinal	Root	1000–4000 m (3280–131253 ft)
Artemisia spp.	Sage	sahwa-vʉ̲(S); saghwa-pʉ̲(S); sahwovf(N); sahwavf(N)	Medicinal	Leaf; Stem; Flower; Seed	760–3000 m (2490–9840 ft)
*Artemisia frigida**	Fringed sage	—	Medicinal	Leaf; Stem	500–3000 m (1640–9842 ft)
Artemisia ludoviciana	Western mugwort	—	Medicinal	Leaf; Stem	760–2590 m (2500–8500 ft)
Artemisia tridentata	Big sagebrush	ma-av(N); ma-ap(N); sahwovf(N); meap(N)	Medicinal	Leaf; Stem	1524–2438 m (5000–8000 ft)
Asclepias spp.*	Milkweed	sa-na'-ko-mav(N); teeyahnuhkov(N)	Medicinal	—	—
Ascomycota (Phylum)	Lichen	—	Medicinal	—	—
Asparagus officinalis	Asparagus	-	Edible	Shoot	0–2500 m (0–8202 ft)
Astragalus iodanthus	Humboldt River milkvetch; Buffalo bean	ti'-wĭ-pĭtcûm-av(N)	Unspecified	—	—
Atriplex canescens	Four-wing salt brush	—	Unspecified	—	100–1981 m (300–6500 ft)

Table 5.1. (continued)

Latin Name	*Common Name*	*Ute Name(s)*	*Traditional Use(s)*	*Plant Part(s) Used*	*Elevation Range*
Balsamorhiza sagittata	Arrow leaf balsamroot	—	Edible	—	1000–3000 m (300–9842 ft)
Beckmannia syzigachne	American slough grass	a-wat′-o-gwĭv(N)	Unspecified	—	1200–2700 m (4000–9000 ft)
Berberis repens	Oregon grape; Barberry	ksĭp-o-a-ats(N)	Medicinal; Edible	Root; Fruit	1524–2591 m (5000–8500 ft)
Betula occidentalis	Birch	?pa-gwai′ûv(N)	Unspecified	—	1676–2438 m (5500–8000 ft)
Bryophyta (Division)	Moss	pa̲sagho-vʉ̲(S)	Hygiene	Whole plant	—
Calochortus gunnisonnii	Mariposa lily	—	Edible	Bulb	900–2700 m (3000–9000 ft)
Calochortus nuttallii	Sego lily	si′go(N); sikʷu(N); cikwu(W); see wus ago(N)	Edible	Bulb; Seed; Flower	1372–2438 m (4500–8000 ft)
Carex spp.	Sedge	pi′-gwûts(N); pa′-gwûts(N)	Unspecified	Bulb	
Castilleja spp.	Paintbrush	‘aka-sée’a-pʉ̲(S); pia-sée’mi-‘napʉ̲(S); uka-si-ti(N); ?uka-si=ti(U); changon-nuhu-nup(N)	Utilitarian	—	—
*Castilleja occidentalis**	Western yellow paintbrush	—	Edible	Flower	—
Castilleja integra	Whole leaf paintbrush	—	Edible	Flower	1372–3200 m (4500–10500 ft)
Castilleja parviflora	Mountain paintbrush	mo′-ten-aĭt(N)	Medicinal	—	—
*Castilleja rhexifolia**	Splitleaf Indian paintbrush	—	Edible	Flower	—
*Celtis reticulata**	Netleaf hackberry	—	Weaponry	Wood	305–2286 m (1000–7500 ft)
Cercocarpus montanus	Mountain mahogany	tu-have(M)	Edible; Medicinal; Weaponry	Stem	1300–2200 m (4500–7000 ft)
Chenopodium spp.	Lamb’s quarters	—	Edible	Leaf; Stem	—
Cirsium spp.	Thistle	—	Edible	Shoot	—
Cladonia spp.	Reindeer lichen	—	Unspecified	—	—
Claytonia megarhiza	Spring beauty	noogkachoon(N); noowhchoon(N); nooglacachoon(N)	Edible	Bulb	—
Cleome serrulata	Rocky Mountain bee plant	—	Edible; Medicinal	Leaf; Seed	914–2896 m (3000–9500 ft)
Collinsia parviflora	Blue-eyed Mary	mi’-pûⁿ-ga-shi”-ĕts(N)	Medicinal	—	900–2700 m (3000–9000 ft)
Comandra umbellata	Pale bastard toadflax	sa-gwa-si-ûn-gûts(N)	Medicinal	Root	152–2591 m (500–8,500 ft)
Cornus sericea	Redosier dogwood; Kinnikinnick; Red willow	a-va-tu-tûm-bûtc-ûm-av(N); kaib′-o-gwĭv(N); kai′-sĭv(N)	Basketry	Stem	1372–3048 m (4500–10000 ft)

continued

Table 5.1. (continued)

Latin Name	*Common Name*	*Ute Name(s)*	*Traditional Use(s)*	*Plant Part(s) Used*	*Elevation Range*
Crataegus rivularis	River hawthorn	—	Weaponry	Wood	1300–2300 m (4265–7545 ft)
Cryptantha sericea	Silky cryptantha	yu′-bi-shad-ûmp(U)	Medicinal	Root	—
Cymopterus longipes	Long stalk spring parsley	o-an-tûv(N)	Edible	Leaf	—
Cystopteris fragilis	Brittle bladder fern	tĭm-pĭm-ûv(N)	Unspecified	—	1524–3658 m (5000–12000 ft)
Datura wrightii	Sacred datura	‘u̶n̶u̶-pu̶-vu̲(S)	Medicinal	—	300–1980 m (1000–6500 ft)
Daucus carota	Wild carrot	yepuhch(N)	Edible	Root	—
Descurainia pinnata	Western tansy mustard	po-e′-tcĕm-ĕn(N)	Medicinal	—	0–2438 m (0–8000 ft)
Distichlis spicata	Salt grass	—	Medicinal	Leaf	0–1829 m (0–6000 ft)
Draba nemorosa	Woodland draba	kus-pa-sen-di-ät(N)	Unspecified	—	0–2700 m (0–8858 ft)
Eleocharis palustris	Common spike rush	pa-on-ga-da-pĭn-tĭd(N)	Unspecified	—	1067–3048 m (3500–10000 ft)
Elymus canadensis	Canada wildrye	o-do-rûm-bĭv(N)	Edible	Seed	914–2743 m (3000–9000 ft)
Ephedra viridis	Mormon tea; Indian tea	tutu-pu̶ vu̲(S); nukpii(N)	Medicinal; Beverage	Stem	762–2591 m (2500–8500 ft)
Equisetum arvense	Field horsetail; Common horsetail	tu-ko-wûts(N); to-tsi-wats(N)	Unspecified	—	1372–2743 m (4500–9000 ft)
Equisetum hyemale	Scouringrush horsetail	—	Unspecified	—	762–2591 m (2500–8500 ft)
Equisetum laevigatum	Smooth scouring rush	ya-a′-ti-nûmp(N)	Medicinal; Edible; Utilitarian; Toy	Stem	914–2438 m (3000–8000 ft)
Ericameria nauseosa	Rubber rabbitbrush	saku-pu̶(S)	Ceremonial; Utilitarian	Flower	610–2440m (2000–8000 ft)
Erigeron canus	Hoary fleabane	?sa-gûm-sĭ-ta-gwĭv(N)	Unspecified	—	1700–2700 m (5577–8858 ft)
Eriogonum spp.	Buckwheat; Cushion buckwheat	k‘sûm-sêd-au-ge-ĕts(N)	Medicinal	—	—
Erysimum asperum	Western wallflower	sa′-go-a′′-sĭnt(N)	Unspecified	—	0–1981 m (0–6500 ft)
*Fragaria vesca**	Strawberry	twes(N); tuwisi(W); tu̶vwisi(S)	Edible	Fruit	1800–3400 m (6000–11000 ft)
Fraxinus spp.	Ash	wa’apu̶-pu̶(S)	Fuel	Wood	—
Fritillaria atropurpurea	Spotted fritillary	kai′-rûm-sĭ-ta-gwĭv (N)	Medicinal	Bulb	1400–2700 m (4500–9000 ft)
Fritillaria pudica	Yellow fritillary	pim′-ĭ-kwi-ĕts(N)	Edible	Bulb	0–2100 m (0–6889 ft)
Fungi (Kingdom)	Puff ball mushroom	—	Ceremonial	—	—

Table 5.1. (continued)

Latin Name	*Common Name*	*Ute Name(s)*	*Traditional Use(s)*	*Plant Part(s) Used*	*Elevation Range*
Glaux maritima	Sea milkwort	tsûn′-a-na-di-ĕts[(N)]	Unspecified	—	—
Grayia spp.	Hop sage	?sa′-mûv[(N)]	Unspecified	—	—
Grindelia nuda	Curlytop gumweed	—	Medicinal	Flower; Root	200–2900 m (656–9514 ft)
*Grindelia squarrosa**	Curlycup gumweed	ku-ats-ûm-sĭ-ta-gwĭv[(N)]	Medicinal	Flower; Root	200–2900 m (656–9514 ft)
Gutierrezia spp.	Snakeweed	shpûmp[(N)]; gudereria[(N)]	Unspecified	—	—
Hedysarum boreale	Utah sweet vetch	kai-va-ma-mû-tca-kwûv[(N)]; mo′-tĕm-be-ĭtch[(N)]	Medicinal	Root	1800–2900 m (6000–9500 ft)
Helianthus spp.	Sunflower	ahkoop[(N)]; ?ak^{w}u̲=pɨ[(N)]; ?ukwu=pɨ[(W)]; kú-pu̲[(S)]	Edible	Seed; Flower; Leaf; Root	—
Hierochloe odorata	Sweetgrass	—	Ceremonial	Leaf	—
Ipomopsis aggregata	Scarlet gilia	—	Edible; Utilitarian	Flower; Whole plant	1524–2591 m (5000–8500 ft)
Ipomopsis longiflora	Flaxflowered gilia	—	Edible	Flower	457–2134 m (1500–7000 ft)
Iva axillaris	Poverty weed	tam-ĕs′-ta-gwĭv[(N)]; ta-ma-sĭ-ta-gwĭv[(N)]	Medicinal	—	10–2500 m (32–8202 ft)
Juncus balticus	Baltic rush	pau-wûv[(N)]	Ceremonial	Stem	1066–2895 m (3500–9500 ft)
Juncus ensifolius	Swordleaf rush	—	Basketry	Stem	453–3048 m (1500–10000 ft)
*Juncus parryi**	Parry rush	—	Basketry	Stem	1500–4000 m (4921–13123 ft)
Juniperus spp.	Juniper; Cedar	pawa-pu̲[(S)]; wahuhp[(N)]	Edible; Ceremonial; Medicinal	Needle; Cone	—
Juniperus communis	Common juniper	wahup[(M)]	Edible; Weaponry	Cone; Wood	0–3400 m (0–11200 ft)
Juniperus deppeana	Alligator juniper	bawahup[(N)]	Unspecified	—	1372–3048 m (4500–10000 ft)
Juniperus monosperma	One-seed juniper	—	Ceremonial	Leaf	914–2134 m (3000–7000 ft)
Juniperus osteosperma	Utah juniper	wahup[(N)]	Edible	Cone	800–2600 m (2600–9000 ft)
Juniperus scopulorum	Rocky Mountain juniper	wahup[(S,N)]; po wap[(S,M)]	Ceremonial; Edible; Weaponry	Needle; Cone; Wood	1067–2743 m (3500–9000 ft)
Lathyrus ornatus	Bonneville pea	sa-gwa′-sa-ĭnt[(N)]	Unspecified	—	—
Lepidium spp.	Pepperweed; Peppergrass	sau′-ga-mi-ants[(N)]; wa′-to-ma-sĭv[(N)]	Unspecified	—	—
Lewisia pygmaea	Alpine bitterroot	—	Edible	Root	2300–4200 m (7545–13780 ft)
Lewisia redivia	Bitterroot	nugunı̲[(S)]	Ceremonial; Medicinal; Edible	Root	—
Leymus cinereus	Basin wildrye	ku-sia-kump[(N)]	Unspecified	—	—

continued

Table 5.1. (continued)

Latin Name	*Common Name*	*Ute Name(s)*	*Traditional Use(s)*	*Plant Part(s) Used*	*Elevation Range*
Leymus salinus	Saline wildrye	o-wiu (N)	Unspecified	—	0–3050 m (0–10000 ft)
*Ligusticum porteri**	Oshá; Bear root; Porter's lovage	kwiya-gha-tu tuka-pi (S); kwiyaghatu tuna-pu (S); gweahgahtichganap (M)	Ceremonial; Medicinal	Root	1300–3500 m (4300–11500 ft)
Lithospermum ruderale	Western stone seed	tsût-kûp (N)	Medicinal	Root	—
Lomatium dissectum var. *multifidum*	Biscuitroot; Carrot leaf	kʷiu (N)	Medicinal; Edible	Root	150–3000 m (492–9842 ft)
Lycopus americanus	American horehound	—	Medicinal	—	1524–2286 m (5000–7500 ft)
Maianthemum racemosum	Feathery false lily of the valley	yo-gwo'-ta-ma-nûmp (U)	Unspecified	—	1981–3048 m (6500–10000 ft)
Matricaria discoidea	Disc mayweed; May apple	(ma)-mo-a-na-nûmp (N)	Medicinal	—	0–2700 m (0–8858 ft)
Mentha arvensis	Wild mint	damount-up (N); kouerau-nap (N)	Ceremonial; Edible; Beverage	Leaf; Stem	1524–2896 m (5000–9500 ft)
Monarda fistulosa	Mintleaf beebalm; Indian perfume	—	Insect repellent; Medicinal; Hygiene	Leaf	1500–2600 m (5000–8500 ft)
Nicotiana attenuata	Coyote tobacco	sapatu=ti (N)	Medicinal; Ceremonial	Leaf	305–2134 m (1000–7000 ft)
Nuphar lutea	Yellow pond lily	—	Edible	Leaf; Seed	2000–2250 m (600–7500 ft)
Oenothera spp.	Evening primrose	—	Unspecified	—	—
Opuntia spp.	Prickly pear	mana=pi (N,U); manivf (S)	Utilitarian; Edible	Fruit; Leaf	—
Opuntia polyacantha	Plains prickly pear	maanife (N); manivf (S)	Edible; Medicinal	Fruit; Pad; Flower	609–2438 m (2000–8000 ft)
Orogenia linearifolia	Great Basin Indian potato	nuu-pucu=ti (W); pĭn-'ka-pai-äts (N)	Edible	Bulb	—
*Pascopyrum smithii**	Western wheatgrass	—	Animal feed	Leaf; Seed	914–2438 m (3000–8000 ft)
Paxistima myrsinites	Oregon box leaf	te-ĕ-kav (N)	Unspecified	—	1372–2743 m (4500–9000 ft)
Penstemon glaber	Western smooth beardtongue	mû-tcĕm-bi-a (N)	Unspecified	—	—
Perideridia gairdneri	Yampa	yam-pah (N); yaa=pi (N,W)	Edible	Root	0–3000 m (0–9842 ft)
Phacelia spp.	Phacelia	?(ma)-mû'-tĕm-bi-a (N)	Unspecified	—	—
*Phleum pratense**	Common Timothy	—	Animal feed	Leaf, Seed	1219–2134 m (4000–9000 ft)
Phlox gracilis; Microsteris gracilis	Slender phlox	yo-gûm-sĭ-ta-gwĭv (U)	Medicinal	Whole plant	300–2400 m (1000–8000 ft)
Phlox longifolia	Longleaf phlox	mo-mu-'kwi-ĕts (N)	Unspecified	—	980–2070 m (3200–6800 ft)

Table 5.1. (continued)

Latin Name	*Common Name*	*Ute Name(s)*	*Traditional Use(s)*	*Plant Part(s) Used*	*Elevation Range*
Phragmites australis	Common reed	—	Basketry	Stem	0–1829 m (0–6000 ft)
*Picea engelmannii**	Engelmann spruce	—	Trail Marker; Shelter	Wood	2438–3505 m (8000–11500 ft)
Picea pungens	Colorado blue spruce	yiyuup(M)	Trail Marker; Shelter	Wood	1800–3000 m (5905–9842 ft)
Pinus aristata	Bristle-cone pine	—	Beverage	Needle	1700–3400 m (5577–11154 ft)
Pinus contorta	Lodgepole pine	ah-gwoop(N)	Shelter	Wood	—
Pinus edulis	Piñon pine	wa'a-pʉ(S); tu-gwoop(M); noodtoohuuhch(N); noodtoohvuhch(N); na?a-tɨpa=ci(W); nutu-tɨpa=ci(W)	Edible; Utilitarian; Basketry; Fuel	Wood; Seed; Sap; Needle	1500–2700 m (4921–8858 ft)
Pinus flexilis	Limber pine	ah-gwoop(N)	Shelter	Wood	1000–3000 m (3280–9842 ft)
*Pinus ponderosa**	Ponderosa pine	'agho-pʉ(S); uu-vweep(N)	Ceremonial; Edible; Medicinal; Utilitarian	Wood; Sap; Needle	1524–2743 m (5000–9000 ft)
Poliomintha incana	Purple sage; smoke sage; frosted mint	'aqho-tama-na-pʉ(S); quata manah(M)	Medicinal	Whole plant	—
Polypogon monspeliensis	Annual rabbit's foot grass	shpump(N)	Unspecified	—	152–2438 m (500–5000 ft)
Populus spp.	Cottonwood	sʉʉvu-pʉ(S); páa-sʉʉvu-pʉ(S); sho-av(N)	Ceremonial; Fuel; Utilitarian; Edible	Wood; Seed; Bark	1524–2286 m (5000–75000 ft)
*Populus angustifolia**	Narrowleaf cottonwood	—	Unspecified	—	1500–2200m (5000–7000 ft)
Populus fremontii	Fremont's cottonwood	—	Unspecified	—	700–1900m (2500–6100 ft)
*Populus tremuloides**	Aspen	sʉʉvu-pʉ(S)	Edible; Medicinal; Shelter; Fuel; Ceremonial	Wood; Sap	0–3048 m (0–10000 ft)
Potentilla anserina	Silverweed cinquefoil	qte'-äñ-gv̆(N)	Unspecified	—	1100–2700 m (3500–9000 ft)
*Potentilla concinna**	Elegant cinquefoil	—	Unspecified	—	—
*Potentilla rubricaulis**	Rocky Mountain cinquefoil	—	Unspecified	—	—
*Prunus virginiana**	Chokecherry	tée'na-pi(S); durn-up(S); turnup(N); titatɨna=pɨ(W)	Edible; Weaponry	Fruit; Stem	(1372–2438 m (4500–8000 ft)
*Pseudocymopterus montanus**	Alpine false spring parsley	—	Edible	Root	1676–3658 m (5500–12000 ft)
*Pseudotsuga menziesii**	Douglas fir	sa'ma-'agho-pʉ(S); sa'ma-yʉvʉ-pʉ(S)	Shelter	Wood	1524–3048 m (5000–10000 ft)
Pteridium aquilinum	Western bracken fern	kai-ban-kĭm-bĭs(N)	Edible	Leaf; Shoot	1067–2896 m (3500–9500 ft)

continued

Table 5.1. (continued)

Latin Name	*Common Name*	*Ute Name(s)*	*Traditional Use(s)*	*Plant Part(s) Used*	*Elevation Range*
Purshia spp.	Cliffrose	pu-i'-tcûm-av(N)	Unspecified	—	—
*Quercus gambelii**	Gambel oak	kwiya-vʉ(S); quiuve(S); quiau(M); kwi'-ûv(S)	Ceremonial; Edible; Shelter; Weaponry; Utilitarian	Seed; Wood; Leaf	1219–3048 m (4000–10000 ft)
Ranunculus aquatilis	White water crowfoot	pai'-a-pu-ĕts(N)	Unspecified	—	1372–2743 m (4500–9000 ft)
Ranunculus cymbalaria	Alkali buttercup	pau-ûs-a-nau-ga-ant(N)	Unspecified	-	1524–2438 m (5000–9000 ft)
*Rhus trilobata**	Three-leaf sumac; Skunkbush	'isi-vʉ(S); eesh(S,N); mo-tam-bi-äts(N); wi̱si(N)	Edible; Utilitarian; Basketry	Fruit; Stem; Root	762–2286 m (2500–7500 ft)
Ribes spp.	Currant; Gooseberry	sí-voghoy-pi̱(S); poghoy-pi̱(S); kʷatɨna=pɨ(W)	Edible	Fruit	—
Ribes aureum	Golden currant	po-gomp'-ĭv(N)	Edible	Fruit	1200–2100 m (4000–7000 ft)
Ribes cereum	Western red currant; Wax currant	poo gweep(S)	Edible	Fruit	91–3962 m (300–13000 ft)
Ribes inerme	White stem gooseberry	sapatuu=pɨ(W)	Edible	Fruit	1219–2134 m (4000–7000 ft)
Ribes leptanthum	Trumpet gooseberry	—	Edible	Fruit	1676–3048 m (5500–10000 ft)
Rosa spp.	Wild rose	gehrump(N); añ-ga-ko-rĭmp(N)	Edible	Fruit	—
Rosa sayi	Prickly rose	—	Unspecified	-	—
*Rosa woodsii**	Wood's rose	añ-ga-si-ûñ-gĭv(N)	Edible; Medicinal	Fruit	1676–2743 m (5500–9000 ft)
*Rubus ideaus**	Raspberry	poghoy-pʉ-vʉ(S); naka=watu=pɨ(W)	Edible	Fruit	1850–3500 m (6000–11500 ft)
*Rubus parviflorus**	Thimbleberry	—	Edible	Fruit	2150–3250 m (7000–10800 ft)
Rumex crispus	Culrey dock	—	Edible, Medicinal	—	—
*Rumex salicifolius**	Willow dock	—	Medicinal	—	300–2700 m (1000–9000 ft)
Salix spp.	Willow	aguu kannu(S); ka-nivh(S); auka ka-nivh(S); kana-vʉ(S)	Ceremonial; Medicinal; Basketry	Stem; Cambium	—
Salix amygdaloides	Peachleaf willow	k'sa'nav; k'sa-ka-nav	Basketry	Stem	1524–1981 m (5000–6500 ft)
Salix eriocephala	Missouri River willow	—	Basketry	Stem	0–1200 m (0–3937 ft)
*Salix exigua**	Sandbar; Coyote willow	ka-nav'(S)	Basketry	Stem	350–2800 m (100–9200 ft)
Salix lasiandra	Pacific willow	—	Basketry	Stem	1200–2700 m (3700–8300 ft)
Salix lucida	Shining willow	k'sa'nav; k'sa-ka-nav	Basketry	Stem	0–600 m (0–1968 ft)

Table 5.1. (continued)

Latin Name	*Common Name*	*Ute Name(s)*	*Traditional Use(s)*	*Plant Part(s) Used*	*Elevation Range*
Salix scouleriana	Scouler's willow	ta-ma-nûmp-ĭn-av(N); ta-ma-nûmp-in-ka-av(N)	Basketry	Stem	2100–3300 m (6900–10700 ft)
Sambucus microbotrys	Elderberry	—	Edible	Fruit	1829–3048 m (6000–10000 ft)
*Sambucus racemosa**	Red elderberry	—	Edible	Fruit	1829–3048 m (6000–10000 ft)
Schoenoplectus tabernaemontani	Soft stem bulrush	t'su-saip(N)	Edible	Shoot	0–2438 m (0–8000 ft)
Senecio spp.	Groundsel	ko-ats-ĕm-sĭ-ta-gwĭv(N)	Medicinal	—	—
Shepherdia argentea	Buffaloberry	tuwa-pʉ(S); ahkup(N); agup(N); anga-si-un-giv(N); añ-gût-a-gwĭv(N); nika=pi(W)	Edible; Medicinal	Fruit	—
Shepherdia canadensis	Russet buffaloberry	ta-ma-nûmp(N)	Edible	Fruit	2134–2743 m (7000–10000 ft)
Solanum jamesii	Wild potato; Mountain potato	—	Edible	Tuber	1676–2591 m (5500–8500 ft)
*Solidago simplex**	Mt. Albert goldenrod	—	Medicinal	—	1100–2900 m (3500–9500 ft)
Sphaeralcea spp.	Globe mallow	—	Edible	—	—
Spiranthes diluvialis	Ute ladies tresses	—	Medicinal	—	1300–1800 m (4265–5905 ft)
Streptanthus cordatus	Heartleaf twist flower	o-nûn-ga-ats(N)	Unspecified	—	610–2438 m (2000–8000 ft)
Symphoricarpos spp.*	Snowberry	—	Basketry	Stem	1100–3700 m (3500–12000 ft)
*Taraxacum officinale**	Common dandelion	(mo)-mûn'-ti-ad-qsûp(N)	Edible	Leaf; Flower	762–2743 m (2500–9000 ft)
Tellima spp.	Tellima	añ-gai-ya-ga-ti-nûmp(N)	Unspecified	—	—
Toxicodendron rydbergii	Poison ivy	che dap(M); chi-nip(M)	Poisonous	—	0–2591 m (0–8500 ft)
Trifolium spp.	Clover	pu-i'-tcûm-av(W)	Unspecified	—	-
Trifolium pratense	Red clover	?sa-gwa-ĭn-di-ûp(N); mo'-pi-änts(N); mû'-pi-äints(N)	Unspecified	—	1200–2700 m (4000–9000 ft)
Trifolium repens	White clover	—	Unspecified	—	1067–2286 m (3500–7500 ft)
Triglochin maritima	Seaside arrowgrass	pa'-sau-wa-dĭnt(N)	Unspecified	—	1372–2591 m (4500–8500 ft)
Typha angustifolia	Narrow-leaf cattail	—	Ceremonial; Edible; Utilitarian	Shoot; seed; leaf	0–1900 m (0–6233 ft)
Typha latifolia	Broad-leaf cattail	—	Ceremonial; Edible; Utilitarian; Basketry	Shoot; Seed; Leaf	1219–2591 m (4000–8500 ft)
*Ulmus pumila**	Siberian elm	—	Fuel	Wood	0–2286 m (0–7500 ft)

continued

Table 5.1. (continued)

Latin Name	*Common Name*	*Ute Name(s)*	*Traditional Use(s)*	*Plant Part(s) Used*	*Elevation Range*
Vaccinium caespitosum	Bilberry; Dwarf huckleberry; Blueberry	tuwa-pi̲(S); toowump(N); patu=pɨ(N)	Edible	Fruit	0–4500 m (0–14763 ft)
*Verbascum thapsus**	Common mullein	teeyahumkuv(S, N)	Medicinal	Leaf	1524–2134 m (5000–7000 ft)
Viola beckwithii	Beckwith's violet	ka-bam-sĭ-ta-gwĭv(N)	Medicinal	—	900–2700 m (2952–8858 ft)
Yucca angustissima	Soapweed yucca	wisi(M)	Edible; Utilitarian	Fruit	—
Yucca baccata	Banana yucca	wisi(M); wi̲si(N); wisiwĭv(M); wíisi-vʉ(S)	Edible; Utilitarian	Fruit; Leaves	914–2438 m (3000–8000 ft)
Yucca glauca	Soap weed yucca	—	Edible; Hygiene; Utilitarian	Root; Fruit; Leaves	1067–2591 m (3500–8500 ft)
Yucca harrimaniae	Spanish bayonet	wi̲si(N)	Hygiene; Utilitarian	Root; Leaves	1000–2500 m (3280–8202 ft)
Zigadenus nuttallii	Nuttall's death camas	ta-bä'-si-gwĭv(N)	Poisonous	Bulb	500–1200 m (1640–3937 ft)

**Denotes plants species was observed during fieldwork . Elevation ranges derived from SEINet 2021; Springer and others 2009.*

ETHNOGRAPHIC SUMMARIES OF PLANT RESOURCES IN THE BPMD AREA

Plants are important in Ute subsistence and ceremony, spirituality, and education. Traditional-use plants are considered sacred because they provide a link to traditional Ute values, knowledge, and history (Perlman 1998:69). Traditional-use plants serve a range of functions including food, medicine, ceremonies, household maintenance, hygiene, construction, shelter, entertainment, and education. Traditional knowledge about plants has been preserved primarily through the continued interaction with the environment and maintenance of traditional cultural practices. The following section describes ethnographic information for plants identified during this study. For some plants, the available ethnographic information is limited to a Ute name; however, even this is significant because names represent a legacy of use, knowledge, and understanding.

The ethnographic information presented in this chapter was obtained or reviewed during interviews and fieldwork with Ute tribal research participants (Figure 5.1; Figure 5.2; Figure 5.3). A plant biologist, William Widener, assisted with fieldwork to ensure accurate identification of plant species. Plants are listed in alphabetical order according to their scientific name and are summarized in Table 5.1. Scientific terminology rather than Ute names were used to order the discussion so that the EPA can more easily use these data for continued remedial investigation of the BPMD. Common names and Ute names are also provided.

Figure 5.1. Garrett Briggs and William Widener document plants in the BPMD study area. Photograph by Maren Hopkins, August 20, 2019.

Figure 5.2. William Widener and Cassandra Atencio discuss plants in the project area. Photograph by Maren Hopkins, August 20, 2019.

Figure 5.3. William Widener discusses plants with Terry Knight. Photograph by Maren Hopkins, August 20, 2019.

Abronia fragrans

Common Name(s): Snowball sand verbena

Ute Name(s): Sa-gwam-sĭ-ta-gwĭv(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Root; Flower

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: This plant has medicinal uses and the Ute name provided translates as "stomach medicine" (Chamberlin 1909:32).

Figure 5.4. *Abronia fragrans*. From USDA-NRCS PLANTS Database, ABFR2, Al Schneider.

Achillea millefolium

Common Name(s): Yarrow

Ute Name(s): I-am'-si-ta-gwiv(N); Quishee quish(S)

Traditional Use(s): Medicinal

Plant Part(s) Used: Leaf

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: This plant has medicinal uses and one of the terms provided, *i-am'-sĭ-ta-gwĭv*(N), translates as "wound medicine" (Chamberlin 1909:32). During this project, Ute elders stated that the leaves are harvested, and chewed and placed on a wound to heal burns or cuts.

Southern Ute Ethnobotany: This plant has multiple medicinal uses. The leaves can be used as a blood coagulant and the flowers are used to treat headaches and diabetes.

Ute Mountain Ute Ethnobotany: Alfred Wall, Jr., stated that this plant is used medicinally.

Figure 5.5. *Achillea millefolium*. Photograph by William Widener.

Figure 5.6. *Achillea millefolium*. Photograph by William Widener.

Figure 5.7. *Achillea millefolium*. Photograph by William Widener.

Achnatherum hymenoides

Common Name(s): Indian ricegrass

Ute Name(s): Nuumuvopeeav(M)

Traditional Use(s): Edible

Plant Part(s) Used: Seed

Season(s) Harvested: Summer; Fall (seed)

General Ute Ethnobotany: The seeds for this plant were parched, ground, and consumed (Burns 2003:27–28; Callaway and others 1986).

Ute Mountain Ute Ethnobotany: Helen Munoz stated that the seeds from this plant were extensively harvested, and the practice of harvesting it increases its populations. The term *nuumuvopeeav*(M) translates to "Ute Rice."

Figure 5.8. *Achnatherum hymenoides*. Photograph by William Widener.

Agastache pallidiflora

Common Name(s): Bill Williams Mountain giant hyssop

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Leaf

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant is edible and was considered a staple food (Moerman 1998:52).

Figure 5.9. *Agastache pallidiflora*. USDA-NRCS PLANTS Database, AGPA, Al Schneider.

Agave parryi

Common Name(s): Parry's agave

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant is edible and was considered a staple food (Moerman 1998:53, 758).

Figure 5.10. *Agave parryi*. USDA-NRCS PLANTS Database, AGPA4, Jeff McMillian.

Agoseris spp.

Common Name(s): Agoseris

Ute Name(s): Añ-ka-pi-sa-wats(N)

Traditional Use(s): Edible

Plant Part(s) Used: Leaf

Season(s) Harvested: Unspecified

General Ute Ethnobotany: The leaves of this plant are eaten, similar to dandelion greens (Chamberlin 1909:36; Moerman 1998:54).

Figure 5.11. *Agoseris glauca*. From Bugwood.org, UGA1208019, Dave Powell, USFS.

Agropyron cristatum

Common Name(s): Crested wheatgrass

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This introduced species was observed in the field and tribal research participants noted that it is edible.

Figure 5.12. *Agropyron cristatum*. From Bugwood.org, UGA1213038, Dave Powell, USFS.

Agrostis scabra

Common Name(s): Rough bentgrass

Ute Name(s): Uknown

Traditional Use(s): Basketry

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant was observed during fieldwork and may have been used in basketry.

Figure 5.13. *Agrostis scabra*. Photograph by William Widener.

Figure 5.14. *Agrostis scabra*. Photograph by William Widener.

Allium spp.

Common Name(s): Wild onion; Garlic; Wild chives

Ute Name(s): Soovweya(N); Küñ-ka(N); Quee chesagoot(M); Wisi-sikʷu(W); Kwee cha see hooh(N) Kwechusagoot(N); Seevergravp(N); Cebolla(N); Badasi(N); Phutus(N); Patasi̲(S); Sa̲qo-pa̲tasi̲(S); Sigu'a̲(S); Sgu-patasi̲(S); Kwicha-sugu'a̲(S)

Traditional Use(s): Edible

Plant Part(s) Used: Bulb; Leaf

Season(s) Harvested: Spring (bulb; leaf)

General Ute Ethnobotany: Tribal research participants and Kelley and others (2017:4.3–6) identify multiple species of wild onion *(A. acuminatu; A. bisceptrum; A. cernuum;* and *A. geyeri*) as a traditionally important Ute food source.

Ute Indian Tribe Ethnobotany: Betsy Chapoose noted that the term *badasi*(N) refers specifically to chives (*A. schoenoprasum*), whose leaves appear similar to blades of grass. *Sooweya*(N) refers to onions in general. *Kwechusagoot*(N) refers only to wild garlic (*Allium* spp.), which has a pungent smell and grows in sandy soils. The term *kwechusagoot*(N) refers to the strong odor of the plant.

Southern Ute Ethnobotany: Ernest Pinnecoose noted that wild onions sprout in the late spring. Edward Box III recalled harvesting wild onions with his grandfather, Mr. Edward Box, Sr., near Silverton, along Molas Pass. Mr. Box III noted that these plants were used both as a food and an herb and helped keep people healthy. Givón (2013a:223) documented the following terms for wild onion: *patasi̲*(S), *sa̲qo-pa̲tasi̲*(S), *sigu'a̲*(S), and *sigu-patasi̲*(S) and the following terms for wild garlic: *kwicha-sugu'a̲*(S) and *patasi̲*(S).

Ute Mountain Ute Ethnobotany: Alfred Wall, Jr., and Helen Munoz stated that the bulbs are harvested from the time they emerge in the spring and early summer up until they bloom. The bulbs are not harvested after they have bloomed. The Ute name was described as *soovweya*(M). Ms. Munoz indicated that the *A. geyeri* or Geyer's onion is the type harvested in higher elevations and is known as the mountain onion. The name described for this species is *kweechasahgooh*(M).

Figure 5.16. *Allium* spp. Photograph by William Widener.

Figure 5.15. *Allium* spp. Photograph by William Widener.

Figure 5.17. *Allium* spp. Photograph by William Widener.

Amaranthus spp.

Common Name(s): Amaranth, Indian spinach; Pigweed

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Leaf; Seed

Season(s) Harvested: Spring

General Ute Ethnobotany: Amaranth is a food plant; the shoots can be eaten raw or cooked. The plant itself is eaten when cooked. The seeds are parched and ground in preparation for consumption (Burns 2003:27–28; Callaway and others 1986:338). The young leaves and mature seeds of at least two species (*A. powellii* and *A. retroflexus*) are edible (McBeth 2008:18).

Figure 5.18. *Amaranthus retroflexus*. Photograph by Sean O'Meara, March 5, 2014.

Amelanchier alnifolia

Common Name(s): Serviceberry; Juneberry

Ute Name(s): Jewap(S); Joowump(S); To-ûmp'(N); Toowump(S); Tuwa=pɨ(W)

Traditional Use(s): Edible

Plant Part(s) Used: Fruit

Season(s) Harvested: Fall

General Ute Ethnobotany: These berries ripen and are gathered in the fall. Berries are eaten fresh or dried and eaten over winter (Smith 1974:270; Moerman 1998:758; McBeth 2008:63; Kelley and others 2019:4.3–21). The berries are a staple in traditional Ute diets. The berries were often pounded into a pulp and dried in the sun for later use. The berries were also added to fat and dried meat to make pemmican, meat cakes that could be stored for periods of time without spoiling (Burns 2003:27–28; Callaway and others 1986:338; Ute Indian Museum 2019).

Figure 5.20. *Amelanchier alnifolia*. From Bugwood.org, UGA2123037, Mary Ellen (Mel) Harte.

Figure 5.19. *Amelanchier alnifolia*. Photograph by Maren Hopkins, August 21, 2019.

Amsinckia tessellate

Common Name(s): Bristly fiddleneck

Ute Name(s): Tu'-ka-rûmp(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:32) and McBeth (2008:58) document the Ute name for this plant but do not identify a use.

Figure 5.21. *Amsinckia tessellata*. From USDA-NRCS PLANTS Database, Brother Alfred Brousseau.

Antennaria spp.

Common Name(s): Pussytoes

Ute Name(s): Tim'-pĭn-tsau-ûv(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:32) and McBeth (2008:58) document the Ute name for *A. dimorpha* but do not identify a use. *A. umbrinella* was observed within the project area and research participants indicated it may be used by Ute people. The name provided for this plant translates as "rock-matting plant."

Figure 5.22. *Antennaria dimorpha*. From USDA-NRCS PLANTS Database, ANDI2, Gary A Monroe.

Apocynum cannabinum

Common Name(s): Indian hemp

Ute Name(s): Unknown

Traditional Use(s): Utilitarian

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant is dried and used to make cordage. It was observed at the Southern Ute Indian Museum in Ignacio and the Ute Indian Museum in Montrose, Colorado, where it is noted that this plant is used for weaving and making ropes.

Figure 5.23. *Apocynum cannabinum*. Photograph by William Widener.

Figure 5.24. *Apocynum cannabinum*. Photograph by William Widener.

Arabis holboelli

Common Name(s): Holboell's rockcress

Ute Name(s): Qta'-ko-mav(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Chamberlin (1909:32) and McBeth (2008:48) document the Ute name for this plant but do not identify a use.

Figure 5.25. *Arabis holboellii*. From USDA-NRCS PLANTS Database, ARHO2, Al Schneider.

Arctostaphylos uva-ursi

Common Name(s): Bearberry; Kinnikinnick; Wild tobacco

Ute Name(s): Tahmahup(N)

Traditional Use(s): Ceremonial; Medicinal

Plant Part(s) Used: Leaf

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant was observed during fieldwork. The plant is dried and mixed with other plants to create "mountain tobacco" (Kelley and others 2019:4.3–23). McBeth (2008:30) also noted that this plant is considered one of two types of native tobacco and that it has medicinal uses.

Ute Mountain Ute Ethnobotany: During research for the current study, Terry Knight explained that the leaves of this plant are used as a generic tobacco. It is dried, ground, and smoked in pipes. He said the Ute Mountain Ute Tribe refers to this mixture as *sawawaip*, meaning "green tobacco.

Figure 5.26. *Arctostaphylos uva-ursi*. Photograph by William Widener.

Figure 5.27. *Arctostaphylos uva-ursi*. Photograph by William Widener.

Figure 5.28. Terry Knight discussing *Arctostaphylos uva-ursi*. Photograph by Maren Hopkins, August 20, 2019.

Arnica mollis

Common Name(s): Soft arnica

Ute Name(s): Unknown

Traditional Use(s): Medicinal

Plant Part(s) Used: Root

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant was observed during fieldwork and Ute tribal participants said noted its medicinal uses as a pain reliever.

Figure 5.29. *Arnica mollis*. Photograph by William Widener.

Artemisia spp.

Common Name(s): Sagebrush

Ute Name(s): Sahwa-vʉ(S); Saghwa-pʉ(S); Ma-ap(N); Ma-av(N); Meap(N); Sahwavf(N); Sahwofv(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Stem; Leaf; Flowers; Seeds

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Tribal research participants and Kelley and others (2019:4.3–23) identify multiple species of sage (*A. frigida*; *A. ludoviciana* and *A. tridentata*) as traditionally important medicines and ceremonial-use plants. The stems, including leaves, flowers, and seeds if present, are harvested and used for smudging. Sage was also burned in sweat lodges. The spiritual cleansing properties of the plant were important to the Ute people. As a medicine, the leaves of sagebrush could be chewed or steeped in hot water to make tea for treating colds and congestion. It can also be made into a poultice to treat injuries and reduce swelling (Ute Indian Museum 2019). *A. scopulorum* was observed within the project area and may be used by Ute people. Givón (2013a:197) documented the Ute terms *sahwa-vʉ*(S) and *saghwa-pʉ*(S) for sagebrush in general.

Ute Indian Tribe Ethnobotany: Big sagebrush (*A. tridentata*) is variously refered to as *ma-av*(N), *ma-ap*(N), *sahwovf*(N), and *meap*(N). *Sahwovf*(N) or *sahwavf*(N) refer generally to sagebrush.

Ute Mountain Ute Ethnobotany: Helen Munoz stated that some species of sagebrush are used to repel evil spirits while others are used to treat colds. The leaves are boiled and then consumed as a tea.

Figure 5.30. *Artemisia frigida*. Photograph by Sean O'Meara, August 6, 2020.

Figure 5.31. *Artemisia ludoviciana*. Photograph by Sean O'Meara, August 6, 2020.

Figure 5.32. *Artemisia tridentata*. Photograph by Maren Hopkins, August 21, 2019.

Asclepias spp.

Common Name(s): Milkweed

Ute Name(s): Teeyahnuhkov(N); Sa-na'-ko-mav(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:32) and McBeth (2008:7) documented the Ute names for this plant but did not provide translations. This plant is reported to be used medicinally.

Figure 5.33. *Asclepias tuberosa*. Photograph by Sean O'Meara, June 9, 2020.

Ascomycota (Phylum)

Common Name(s): Lichen

Ute Name(s): Unknown

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Both lichen and reindeer lichen (*Cladonia* spp.) were noted in McBeth (2008:54); however, uses were only provided for lichen, which can be used to treat sores and diarrhea.

Figure 5.34. Lichen. Photograph by Sean O'Meara, July 22, 2020.

Asparagus officinalis

Common Name(s): Asparagus

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Shoot

Season(s) Harvested: Spring

General Ute Ethnobotany: These plants naturalize readily in riparian areas. The shoots that emerge in the spring are edible and are harvested around April.

Figure 5.35. *Asparagus officinalis*. Photograph by William Widener.

Astragalus iodanthus

Common Name(s): Humboldt River milkvetch

Ute Name(s): Ti'-wǐ-pǐtcûm-av(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: A Ute name is provided for this plant in Chamberlin (1909:34) and McBeth (2008:45); however, no uses were identified. The Ute name for this plant translates as "earth-matting plant" or "ground-matting plant."

Figure 5.36. *Astragalus* spp. Photograph by Sean O'Meara, June 9, 2020.

Atriplex canescens

Common Name(s): Four-wing salt brush

Ute Name(s): N/A

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant is listed in McBeth (2008:62), but no uses were mentioned.

Figure 5.37. *Atriplex canescens*. Photograph by William Widener.

Balsamorhiza sagittata

Common Name(s): Arrow leaf balsamroot

Ute Name(s): N/A

Traditional Use(s): Edible

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant is a source of food (McBeth 2008:12; Moerman 1998:758).

Figure 5.38. *Balsamorhiza sagittata*. From Bugwood.org, UGA0807014, Dave Powell, USFS.

Beckmannia syzigachne

Common Name(s): American slough grass

Ute Name(s): A-wat'-o-gwĭv(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:33) and McBeth (2008:51) document the Ute name for this plant but do not identify a use.

Figure 5.39. *Beckmannia syzigachne*. From USDA-NRCS PLANTS Database, BESY, Gary Larson.

Berberis repens

Common Name(s): Oregon grape

Ute Name(s): Ksĭp-o-a-ats(N)

Traditional Use(s): Medicinal; Edible

Plant Part(s) Used: Root; Fruit

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: The Ute name for this plant is provided by Chamberlin (1909:33). McBeth (2008:21, 31, 59) notes that the roots are used medicinally and that the berries are edible.

Figure 5.40. *Berberis repens*. Photograph by William Widener.

Betula occidentalis

Common Name(s): Birch

Ute Name(s): ?pa-gwai'ûv(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:33) and McBeth (2008:44) document the Ute name for this plant but do not identify a use. *B. glandulosa* was observed within the project area and Ute research participants say this plant may be used by Ute people.

Southern Ute Ethnobotany: Research participants from Southern Ute noted that birch is good for making bows. They said that the flexibility and strength of this wood makes for good bows.

Figure 5.41. *Betula occidentalis*. From USDA-NRCS PLANTS Database, BEOC2, Susan McDougall.

Bryophyta (Division)

Common Name(s): Moss

Ute Name(s): Pasagho-vʉ(S)

Traditional Use(s): Hygiene

Plant Part(s) Used: Whole plant

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Moss is collected and combined with grasses and bark and used to line cloth for infants and during menses (Kelley and others 2017:A-29). Givón (2013a:179) documented the term *pasagho-vʉ*(S) for moss.

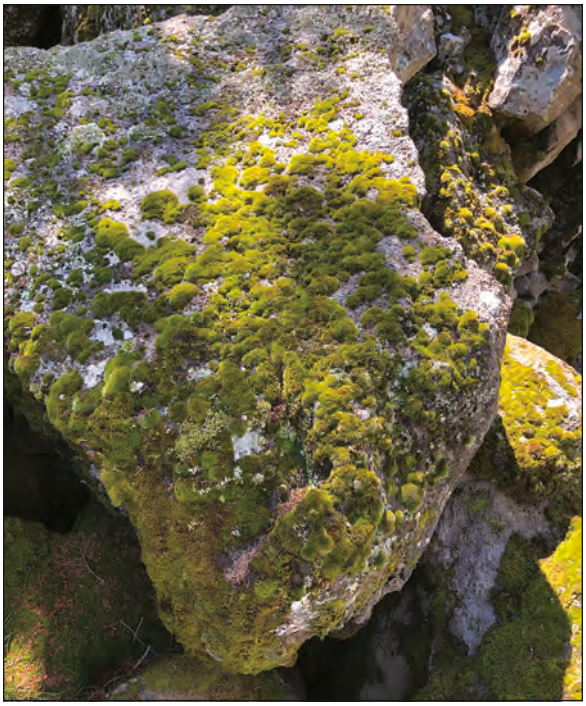

Figure 5.42. Moss. Photograph by Sean O'Meara, September 2, 2019.

Calochortus spp.

Common Name(s): Sego lily

Ute Name(s): Si'go(N); Sikʷu(N); Cikwu(W); See wus ago(N)

Traditional Use(s): Edible

Plant Part(s) Used: Bulb; Seed; Flower

Season(s) Harvested: Summer

Ute Indian Tribe Ethnobotany: At least two species of this plant are traditionally used (*C. nuttallii* and *C. gunnisonnii*). The roots of this plant are an important food source and it is generally harvested in the summer. It is either eaten fresh or baked in an oven (Smith 1974:271; McBeth 2008:62–63; Moerman 1998:758). The seeds are ground in preparation for consumption, and the flowers are eaten raw (Burns 2003:27–28; Callaway and others 1986:338).

Figure 5.43. *Calochortus gunnisonii*. Photograph by Sean O'Meara, September 2, 2019.

Carex spp.

Common Name(s): Sedge

Ute Name(s): Pi-gwûts(N); Pa′-gwûts(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:33) and McBeth (2008:62) document the Ute name for this plant but do not identify a use.

Figure 5.44. *Carex* spp. Photograph by Sean O'Meara, August 19, 2017.

Castilleja spp.

Common Name(s): Paintbrush

Ute Name(s): ‘aka-sée’a-pʉ̲[(S)]; Pia-sée’mi-‘napʉ̲[(S)]; Changon-nuhu-nup[(N)]; Uka-si-ti[(N)]; ?Uka-si=ti[(U)]; mo’-ten-aĭt[(N)]

Traditional Use(s): Edible; Medicinal

Plant Part(s) Used: Flower

Season(s) Harvested: Summer

General Ute Ethnobotany: At least two species of this plant are traditionally used (*C. integra* and *C. parviflora*). *C. parviflora* is listed by Moerman (1998:758) as being used to treat stomach ailments; however, the modern extent of that species is confined to the west coast of the United States and Canada. *C. occidentalis* and *C. rhexifolia* were observed in the project area and may be used by Ute people for a similar purpose.

Southern Ute Ethnobotany: Ernest Pinnecoose and Elsie Redd stated that the flowers of Indian paintbrush are eaten as a sweet snack. When the bees visit the flowers, it means the nectar is present and the flowers are sweet and ready to eat. The flowers bloom for several days or weeks before the nectar is present. Givón (2013a:166) documented the Ute terms *‘aka-sée’a-pʉ̲*[(S)] and *pia-sée’mi-‘napʉ̲*[(S)] for this plant.

Ute Mountain Ute Ethnobotany: Helen Munoz stated that the flowers are eaten as a sweet snack and also noted that the bees indicate when the flowers are ready. This plant is also eaten by deer and elk, and hummingbirds are attracted to the flowers.

Figure 5.45. *Castilleja integra*. Photograph by Sean O’Meara, June 9, 2020.

Figure 5.46 *Castilleja rhexifolia*. Photograph by William Widener.

Celtis reticulata

Common Name(s): Netleaf hackberry

Ute Name(s): Unknown

Traditional Use(s): Weaponry

Plant Part(s) Used: Wood

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Wood from this plant is used to create bows (Kelley and others 2019:4.3–23).

Figure 5.47. *Celtis reticulata*. Photograph by William Widener.

Cercocarpus montanus

Common Name(s): Mountain mahogany

Ute Name(s): Tu-have(M)

Traditional Use(s): Edible; Medicinal; Weaponry

Plant Part(s) Used: Stem

Season(s) Harvested: Unspecified

Ute Mountain Ute Ethnobotany: Terry Knight noted that the branches of this plant are utilized to make arrow shafts and spears,

> Maybe in the summertime they would make these items. Fall time, before the hunt they would meet, and the arrow makers, whatever, would give these people, trade their arrows and the bows with these certain families so they could have something to procure their food with. When I was a kid, my uncle made me some arrows out of mountain mahogany. He said you dry them, and where they were kind of a little bit crooked, he said you get the backbone disk of a deer, where that hole is, and you use that to straighten that arrow before it gets dry. Just work with it and put it down—not necessarily in the sun but let it dry. You work with it. He made me about four of those arrows. The fletchings, I don't know what kind of bird it was. And he fixed it. But he didn't put arrowheads on there. He didn't have any, and he didn't make any metal arrowheads. It was just the wood. And that wood was strong! I would shoot on my targets on the outhouse—I can't remember how far, but that wood would stick on the lumber that that outhouse was made of [Kelley and others 2019:4.3–23].

Ute Indian Tribe Ethnobotany: Clifford Duncan noted that short branches are used to make drumsticks for use in Native American Church ceremonies (Kelley and others 2017:4.7–11).

Figure 5.49. *Cercocarpus montanus*. Photograph by William Widener.

Figure 5.48. *Cercocarpus montanus*. Photograph by William Widener.

Chenopodium spp.

Common Name(s): Lamb's quarters; Indian spinach

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Leaf; Stem

Season(s) Harvested: Spring

General Ute Ethnobotany: The young leaves of this plant are harvested and eaten in the spring (McBeth 2008:11).

Figure 5.50. *Chenopodium* spp. Photograph by Sean O'Meara, July 24, 2019.

Cirsium spp.

Common Name(s): Thistle

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Shoot

Season(s) Harvested: Spring

Southern Ute Ethnobotany: Alden Naranjo, Jr., noted that the young shoots of this plant are edible (Kelley and others 2017:A-40). *C. scariosum* was observed in the project area and may be used by Ute people.

Figure 5.51. *Cirsium scariosum*. Photograph by William Widener.

Claytonia megarhiza

Common Name(s): Spring beauty

Ute Name(s): Nooglacachoon(N); Noogkachoon(N); Noowhchoon(N)

Traditional Use(s): Edible

Plant Part(s) Used: Bulb

Season(s) Harvested: Spring

Ute Indian Tribe Ethnobotany: The tap root of this plant is edible and is one of three tubers considered to be "Indian potatoes" by the Northern Ute bands (McBeth 2008:11). The other two species are yampah (*Perideridia gairdneri*) and *Solanum jamesii*. Betsy Chapoose noted that these bulbs are harvested in the springtime only, not in the fall as has been previously reported. The term *noowhchoon*(N) translates to Ute (*noowh*) potato (*choon*). Ms. Chapoose uses the Ute term *ka chunt*(N) to say Indian potato.

Ute Mountain Ute Ethnobotany: Helen Munoz stated that the tubers of this plant are picked in the spring and fall. The plant is usually found among groves of *quiau*(M) or oak (*Quercus gambelii*).

Figure 5.52. *Claytonia megarhiza*. From Bugwood.org, UGA5509323,William M. Ciesla.

Cleome serrulata

Common Name(s): Rocky Mountain bee plant

Ute Name(s): Unknown

Traditional Use(s): Medicinal; Edible

Plant Part(s) Used: Seed; Leaf

Season(s) Harvested: Unspecified

General Ute Ethnobotany: The seeds of this plant are used to make dyes and to treat sores (Kelley and others 2019:4.3–23). The young leaves of this plant are edible (McBeth 2008:12). The seeds are parched and ground in preparation for use. The shoots and leaves are boiled prior to consumption (Burns 2003:27–28; Callaway and others 1986:338).

Figure 5.53. *Cleome serrulata*. Photograph by Sean O'Meara, August 2, 2019.

Collinsia parviflora

Common Name(s): Blue-eyed Mary

Ute Name(s): Mi'-pû^{n}-ga-shi"-ĕts$^{(N)}$

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant is used medicinally to treat dermatological ailments (Moerman 1998:758; Chamberlin 1909:33; McBeth 2008:45).

Figure 5.54. *Collinsia parviflora*. From Bugwood.org, UGA5002065, Mary Ellen (Mel) Harte.

Comandra umbellata

Common Name(s): Pale bastard toadflax

Ute Name(s): Sa-gwa-si-ûn-gûts(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Root

Season(s) Harvested: Unspecified

General Ute Ethnobotany: The roots of this plant are used to treat headaches (Chamberlin 1909:33).

Figure 5.55. *Comandra umbellata*. From Bugwood.org, UGA5473150, Rob Routledge, Sault College.

Cornus sericea

Common Name(s): Redosier dogwood, Red willow

Ute Name(s): A-va-tu-tûm-bûtc-ûm-av(N); Kaib'-o-gwĭv(N); Kai'-sĭv(N)

Traditional Use(s): Basketry

Plant Part(s) Used: Stem

Season(s) Harvested: Unspecified

General Ute Ethnobotany: The stems of this plant are used in basketry (McBeth 2008:15). This plant is also referred to as kinnikinnick or red willow (Chamberlin 1909:33).

Figure 5.56. *Cornus sericea*. Photograph by William Widener.

Crataegus rivularis

Common Name(s): River hawthorn

Ute Name(s): Unknown

Traditional Use(s): Weaponry

Plant Part(s) Used: Wood

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Wood from this plant is used to create a bow (Kelley and others 2019:4.3–23).

Figure 5.57. *Crataegus rivularis*. Photograph by William Widener.

Cryptantha sericea

Common Name(s): Miner's candle

Ute Name(s): Yu'-bi-shad-ûmp(U)

Traditional Use(s): Edible

Plant Part(s) Used: Root

Season(s) Harvested: Unspecified

General Ute Ethnobotany: The roots are used medicinally to treat stomach ailments (Chamberlin 1909:35; Moerman 1998:758).

Figure 5.58. *Cryptantha sericea*. From Bugwood.org, UGA1211047, Dave Powell, USFS.

Cymopterus longipes

Common Name(s): Long stalk spring parsley; Biscuit root

Ute Name(s): O-an-tûv(N)

Traditional Use(s): Edible

Plant Part(s) Used: Leaf

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Chamberlin (1909:33) documented the Ute term for this plant as well noting that the leaves are boiled and eaten. This plant can be eaten raw or cooked (Burns 2003:27–28; Callaway and others 1986:338).

Figure 5.59. *Cymopterus* spp. Photograph by William Widener.

Cystopteris fragilis

Common Name(s): Brittle bladder fern

Ute Name(s): Tĭm-pĭm-ûv(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:32) and McBeth (2008:50) document the Ute name for this plant but do not identify a use. *Tĭm-pĭm-ûv*(N) translates as "rock-loving plant."

Figure 5.60. *Cystopteris fragilis*. From Bugwood.org, UGA5496224, Rob Routledge, Sault College.

Datura wrightii

Common Name(s): Sacred datura

Ute Name(s): ʻ~~U~~nu-pu-vu(S)

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Moerman (1998:758) noted that this plant is used as a narcotic. Givón (2013a:167) documented the Ute term *ʻ~~unu~~-pu-vu*(S) for this plant.

Figure 5.61. *Datura wrightii*. Photograph by William Widener.

Daucus carota

Common Name(s): Queen Anne's lace

Ute Name(s): Yepuhch(N)

Traditional Use(s): Edible

Plant Part(s) Used: Root

Season(s) Harvested: Unspecified

General Ute Ethnobotany: McBeth (2008:47) documents the Ute name for this plant but does not identify a use. This plant is a recent introduction.

Figure 5.62. *Daucus carota*. Photograph by Sean O'Meara, August 6, 2020.

Descurainia pinnata

Common Name(s): Western tansy mustard

Ute Name(s): Po-e'-tcĕm-ĕn(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: This plant has medicinal uses (Chamberlin 1909:36).

Figure 5.63. *Descurainia pinnata*. From Bugwood.org, UGA5374707, Joseph M. DiTomaso, UC-Davis.

Distichlis spicata

Common Name(s): Salt grass

Ute Name(s): N/A

Traditional Use(s): Medicinal

Plant Part(s) Used: Leaf

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Clifford Duncan noted that the blades of this grass are used to treat cataracts (Kelley and others 2017:4.7–29).

Figure 5.64. *Distichlis spicata*. From Bugwood.org, UGA5387251, Joseph M. DiTomaso, UC-Davis.

Draba nemorosa

Common Name(s): Woodland draba

Ute Name(s): Kus-pa-sen-di-ät(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:35) documents the Ute name for this plant but does not identify a use.

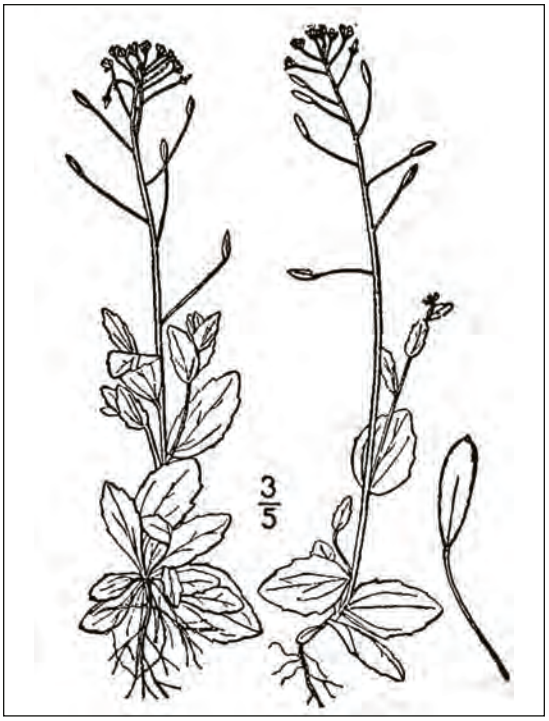

Figure 5.65. *Draba nemorosa*. From USDA-NRCS PLANTS Database, Britton, N.L. and A. Brown.

Eleocharis palustris

Common Name(s): Common spike rush

Ute Name(s): Pa-on-ga-da-pĭn-tĭd(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:33) documents the Ute name for this plant but does not identify a use.

Figure 5.66. *Eleocharis palustris*. From USDA-NRCS PLANTS Database, ELPAP, Sheri Hagwood.

Elymus canadensis

Common Name(s): Canada wheatgrass

Ute Name(s): O-do-rûm-bĭv(N)

Traditional Use(s): Edible

Plant Part(s) Used: Seed

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:34) noted that the seeds of this plant are edible.

Figure 5.67. *Elymus canadensis*. From USDA-NRCS PLANTS Database, Larry Allain.

Ephedra viridis

Common Name(s): Indian tea

Ute Name(s): Tʉtʉ-pʉ-vʉ(S);Nukpii(N)

Traditional Use(s): Medicinal; Beverage

Plant Part(s) Used: Stem

Season(s) Harvested: Unspecified

Ute Mountain Ute Ethnobotany: Ms. Munoz stated that the stems of this plant are picked when they are dark green and steeped to make tea.

Ute Indian Tribe Ethnobotany: McBeth (2008:55) documents the Ute name for this plant but does not identify a use.

Southern Ute Ethnobotany: Givón (2013a:178) documented the Ute term *tʉtʉ-pʉ-vʉ*(S) for this plant.

Figure 5.68. *Ephedra* spp. Photograph by William Widener.

Equisetum spp.

Common Name(s): Scouring rush; Horsetail

Ute Name(s): To-tsi-wats(N); Tu-ko-wûts(N); Ya-a'-ti-nûmp(N)

Traditional Use(s): Medicinal; Edible; Utilitarian; Toy

Plant Part(s) Used: Stem

Season(s) Harvested: Unspecified

General Ute Ethnobotany: At least three species (*E. arvense*, *E. hyemale*, and *E. laevigatum*) are used traditionally (Kelley and others 2019:4.3–21; Living Heritage Anthropology and others 2019:6–6; McBeth 2008:52). The plant is also used to scour dishes and utensils. Ute people eat this plant raw or cooked. Infusions made from this plant help backaches (Ute Indian Museum 2019).

Ute Indian Tribe Ethnobotany: Chamberlin (1909:34) documented the Ute terms *to-tsi-wats*(N) to describe the fertile stems and *tu-ko-wûts*(N) to describe sterile stems of *E. arvense*. *Ya-a'-ti-nûmp*(N) is the Ute term for *E. laevigatum* and loosely translates to "a cry or call out instrument," in reference to the use of the stem to make childrens' whistles.

Southern Ute Ethnobotany: During research for the current study, Cassandra Atencio commented that her grandmother used to make her use this plant to scrub cast iron dishes.

Figure 5.69. *Equisetum arvense*. Photograph by William Widener.

Figure 5.70. *Equisetum laevigatum*. Photograph by Maren Hopkins, August 21, 2019.

Ericameria nauseosa

Common Name(s): Rubber rabbitbrush

Ute Name(s): Saku-pʉ̲[(S)]

Traditional Use(s): Ceremonial; Utilitarian

Plant Part(s) Used: Flower

Season(s) Harvested: Fall

Ute Mountain Ute Ethnobotany: During fieldwork for an ethnographic study at Chimney Rock National Monument, Alfred Wall, Jr., noted that rabbitbrush is used in Ute sweat lodges (Hopkins and others 2020:164).

Southern Ute Ethnobotany: Tribal representatives noted that the flowers can be used as a dye. Givón (2013a:193) documented the Ute term *saku-pʉ̲*[(S)] for this plant.

Figure 5.71. *Ericameria nauseosa*. Photograph by Sean O'Meara, September 21, 2008.

Erigeron canus

Common Name(s): Hoary fleabane

Ute Name(s): ?sa-gûm-sǐ-ta-gwǐv(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:34) provides a Ute name for this plant but does not identify a use. Additional species of *Erigeron* (*E. simplex; E. glaciali; and E. coulteri)* were observed within the project area and Ute research participants believe it may have been used by Ute people in the past.

Figure 5.72. *Erigeron canus*. USDA-NRCS PLANTS Database, ERCA4,Al Schneider.

Eriogonum spp.

Common Name(s): Buckwheat

Ute Name(s): K‘sûm-sêd-au-ge-ĕts(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:34) noted that this buckwheat is used medicinally. *E. jamesii* and *E. racemosum* were observed within the project area and may be used by Ute people.

Figure 5.73. *Eriogonum jamesii*. Photograph by William Widener.

Figure 5.74. *Eriogonum jamesii*. Photograph by William Widener.

Figure 5.75. *Eriogonum racemosum*. Photograph by Sean O’Meara, June 14, 2020.

Erysimum asperum

Common Name(s): Wallflower

Ute Name(s): Sa'-go-a'-sĭnt(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:34) provides a Ute name for this plant but does not identify a use.

Figure 5.76. *Erysimum capitatum*. Photograph by Sean O'Meara, July 25, 2019.

Fragaria vesca

Common Name(s): Wild strawberry

Ute Name(s): Twes(N); Tuwisi(N); Tuvwisi(S)

Traditional Use(s): Edible

Plant Part(s) Used: Fruit

Season(s) Harvested: Summer; Fall (Fruit)

Ute Indian Tribe Ethnobotany: The fruit are eaten (McBeth 2008:22). They are primarily consumed when the berries are fresh (Burns 2003:27–28; Callaway and others 1986:338).

Ute Mountain Ute Ethnobotany: Kathryn Jacket stated that the berries are edible. Emily Whiteman noted that strawberries were collected in the summer camps in the mountains.

Figure 5.77. *Fragaria vesca*. Photograph by William Widener.

Figure 5.78. *Fragaria vesca*. Photograph by William Widener.

Figure 5.79. *Fragaria vesca*. Photograph by William Widener.

Fraxinus spp.

Common Name(s): Ash

Ute Name(s): Wa'apʉ-pʉ(S)

Traditional Use(s): Fuel

Plant Part(s) Used: Wood

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Clifford Duncan previously noted that the wood can be used for fuel (Kelley and others 2017:A-58).

Southern Ute Ethnobotany: Givón (2013a:123) documented the Ute term *wa'apʉ-pʉ*(S) for this plant.

Figure 5.80. *Fraxinus* spp. Photograph by William Widener.

Figure 5.81. *Fraxinus* spp. Photograph by William Widener.

Fritillaria atropurpurea

Common Name(s): Spotted fritillary

Ute Name(s): Kai'-rûm-sĭ-ta-gwĭv(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Bulb

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:34) noted that the bulbs are used medicinally but that the plant can also be toxic.

Figure 5.82. *Fritillaria atropurpurea*. From Bugwood.org, UGA1209091, Dave Powell, USFS.

Fritillaria pudica

Common Name(s): Yellow fritillary

Ute Name(s): Pim'-ĭ-kwi-ĕts(N)

Traditional Use(s): Edible

Plant Part(s) Used: Bulb

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:34) noted that the bulbs of this plant are edible.

Figure 5.83. *Fritillaria pudica*. From Bugwood.org., UGA5504093, Harlan B. Herbert.

Fungi (Kingdom)

Common Name(s): Puffball mushroom; Ground mushrooms

Ute Name(s): N/A

Traditional Use(s): Ceremonial

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Mr. Clifford Duncan previously noted that the use of puffball mushrooms is reserved for people who have extensive botanical knowledge (Kelley and others 2017:A-61).

Figure 5.84. Puffball (Basidiomycota division). Photograph by Sean O'Meara, August 19, 2017.

Glaux maritima

Common Name(s): Sea milkwort

Ute Name(s): Tsûn'-a-na-di-ĕts(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:33) provides a Ute name for this plant but does not identify a use.

Figure 5.85. *Glaux maritima*. From USDA-NRCS PLANTS Database, GLMA, Joe F. Duft.

Grayia spp.

Common Name(s): Hop sage

Ute Name(s): ?Sa'-mûv(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:34) provides a Ute name for this plant but does not identify a use.

Figure 5.86. *Grayia spinosa*. From USDA-NRCS PLANTS Database, GRSP, Al Schneider.

Grindelia spp.

Common Name(s): Curly cup gumweed

Ute Name(s): Ku-ats-ûm-sĭ-ta-gwĭv(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Flower; Root

Season(s) Harvested: Spring; Summer

Ute Indian Tribe Ethnobotany: At least two species of this plant (*G. nuda* and *G. squarrosa*) are used traditionally (Kelley and others 2017:A-63). The resin from the bud is used to treat respiratory and urinary tract infections (McBeth 2008:31; Chamberlin 1909:34). The root is used to treat diarrhea (McBeth 2008:31).

Figure 5.87. *Grindelia nuda*. Photograph by William Widener.

Figure 5.88. *Grindelia nuda*. Photograph by William Widener.

Gutierrezia spp.

Common Name(s): Broom snakeweed

Ute Name(s): Shpûmp(N); Gudereria(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:39) and McBeth (2008:63) document the Ute name for this plant but do not identify a use.

Figure 5.89. *Gutierrezia sarothrae*. Photograph by Sean O'Meara, June 24, 2020.

Hedysarum boreale

Common Name(s): Utah sweet vetch

Ute Name(s): Kai-va-ma-mû-tca-kwûv(N); Mo'-tĕm-be-ĭtch(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Root

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: The roots are used medicinally (Chamberlin 1909:35) and the Ute term *kai-va-ma-mû-tca-kwûv*(N) refers in part to mountains, or *kai-va*.

Figure 5.90. *Hedysarum boreale*. From Bugwood.org, UGA1364187, Mary Ellen Harte.

Helianthus spp.

Common Name(s): Sunflower

Ute Name(s): ahkoop(N); ʔakʷu̲=pɨ(N); ʔukʷu=pɨ(W); Kú̲-pʉ(S)

Traditional Use(s): Edible

Plant Part(s) Used: Leaf; Flower; Seeds; Root

Season(s) Harvested: Summer

Ute Indian Tribe Ethnobotany: The seeds are a food source (McBeth 2008:18; Smith 1974:273). The seeds are parched and ground to prepare them for consumption. The roots are cooked and eaten (Burns 2003:27–28; Callaway and others 1986:338).

Ute Mountain Ute Ethnobotany: Helen Munoz stated that the greens, flowers, and seeds are eaten.

Figure 5.91. *Helianthus* spp. Photograph by Sean O'Meara, July 11, 2020.

Hierochloe odorata

Common Name(s): Sweetgrass

Ute Name(s): Unknown

Traditional Use(s): Ceremonial

Plant Part(s) Used: Leaf

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Clifford Duncan said that the use of sweet grass was adopted from the Plains tribes but is now used ceremonially by Ute people (Kelley and others 2017:4.7–30).

Ute Mountain Ute Ethnobotany: Alfred Wall, Jr., stated that this plant is used to smoke and cleanse oneself. Traditionally, sweetgrass is braided into a bunch when it is still in the ground and then is pulled out as that braided bunch. It must be dried because it will not burn when wet. He was unsure of the Ute name. Ute Mountain Ute participants in the current study said that sweetgrass was probably traditionally used by Northern Utes, but now Southern Utes and members of Ute Mountain Ute can easily acquire it. Mr. Wall said he uses sweetgrass to smudge himself.

Figure 5.92. *Hierochloe odorata*. From Bugwood.org, UGA5548468, Rob Routledge, Sault College.

Ipomopsis spp.

Common Name(s): Gilia

Ute Name(s):Unknown

Traditional Use(s): Edible; Utilitarian

Plant Part(s) Used: Flower; Whole plant

Season(s) Harvested: Summer

General Ute Ethnobotany: At least two species of this plant (*I. aggregata* and *I. longiflora)* have been identified by tribal research participants as having traditional uses (Kelley and others 2019:4.3–21). McBeth (2008:51) noted that the whole plant can be boiled and used as a glue.

Ute Mountain Ute Ethnobotany: Helen Munoz stated that the flowers are eaten as a sweet snack. This plant is also eaten by deer and elk, and hummingbirds are attracted to the flowers.

Figure 5.93. *Ipomopsis aggregata*. Photograph by William Widener.

Iva axillaris

Common Name(s): Poverty weed

Ute Name(s): Tam-ĕs'-ta-gwĭv(N); Ta-ma-sĭ-ta-gwĭv(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:39) provides a Ute name for this plant and noted that it was occasionally used medicinally. The Ute term *ta-ma-sĭ-ta-gwĭv*(N) refers in part to medicine or *sĭ-ta-gwĭv*.

Figure 5.94. *Iva axillaris*. From Bugwood.org, UGA1459464, Steve Dewey, Utah State University.

Juncus spp.

Common Name(s): Baltic rush; Parry's rush; Swordleaf rush

Ute Name(s): Pau-wûv(N)

Traditional Use(s): Ceremonial

Plant Part(s) Used: Stem

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: At least two species of this plant (*J. balticus* and *J. parryi*) are used traditionally (McBeth 2008:37; Chamberlin 1909:35). The stems are used to make pipes for smoking ceremonial tobacco. *J. ensifolius* was also observed in the project area and may be used by Ute people. The Ute term *pau-wûv*(N) partially refers to the aquatic habitat of the plant by referencing *pa* or water.

Ute Mountain Ute Ethnobotany: Tribal research participants noted that *J. parryi* may have been used in basketry.

Figure 5.96 *Juncus parryi*. Photograph by William Widener.

Figure 5.95. *Juncus ensifolius*. Photograph by William Widener.

Juniperus spp.

Common Name(s): Juniper; Cedar

Ute Name(s): Pawa-pʉ[(S)]; Bawahup[(N)]; Wahuhp[(N)]; Wahup[(S,N,M)]; Po-wap[(S, M)]

Traditional Use(s): Edible; Ceremonial; Fuel; Weaponry

Plant Part(s) Used: Needle; Cone; Wood

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Multiple species of juniper (*J. deppeana; J. monosperma; J. communis; J. osteosperma; J. scopulorum*) are traditionally used by Ute people. The juniper cones (berries) are harvested and eaten (McBeth 2008:22) and the needles are used for smudging (Kelley and others 2017:A-71). The berries can be eaten cooked or raw, and they can also be steeped and made into tea (Burns 2003:27–28; Callaway and others 1986:338). The term "cedar" is often used interchangeably to describe junipers.

Ute Mountain Ute Ethnobotany: Alfred Wall, Jr., stated that the leaves are dried and then burned. Terry Knight has noted that the stems from *J. communis* and *J. scopulorum* are traditionally used to make spears and bows (Kelley and others 2019:4.3–24). Mr. Knight has noted that wood from *J. communis* and *J. scopulorum* is used to makes spears and bows (Kelley and others 2019:4.3–24). Laverna Summa explained that it is common to say a prayer when collecting this plant. Other representatives noted that cedar (*J. scopulorum*) is used for cleansing body and spirit. *Wahup*[(M)] is the term for *J. communis* and *po wap*[(M)] is the term for *J. scopulorum*.

Figure 5.98. *Juniperus communis*. Photograph by William Widener.

Figure 5.97 *Juniperus* spp. Photograph by William Widener.

During an ethnographic study at Chimney Rock National Monument, Mr. Wall noted that cedar is used for purifying, healing, and praying. The seeds are used to make necklaces, which are worn for protection and spiritual guardianship (Hopkins and others 2020:164).

Southern Ute Ethnobotany: Ernest Pinnecoose and Elise Redd stated that this plant is used by Ute people. Previously, Mr. Naranjo and Austin Box noted that the berries are edible and that the plant also has medicinal and ceremonial uses (Kelley and others 2017:4.3–6, 4.3–8). *Wahup*(S) is the term for *J. scopulorum*. Givón (2013b:168) documented the Ute term *pawa-pu̲*(S) for this plant.

Ute Indian Tribe Ethnobotany: Smith (1974:270) noted that the berries are referred to as *wapu=pɨ*(W), and when harvesting, berries were taken from multiple trees to determine which one had the best taste. The berries were ground on a metate into a pulp, which was then eaten fresh or dried. *Wahup*(N) is the term for *J. scopulorum* and *wahuhp*(N) is the general Ute term for *Juniperus* spp. *Bawahup*(N) is the term for *J. deppeana*.

Figure 5.99. *Juniperus scopulorum*. Photograph by William Widener.

Lathyrus oarnatus

Common Name(s): Bonneville pea

Ute Name(s): Sa-gwa'-sa-ĭnt(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:35) provides a Ute name for this plant but does not identify a use.

Figure 5.100. *Lathyrus lanszwertii*. From USDA-NRCS PLANTS Database, LALAL2, Gary A. Monroe.

Lepidium spp.

Common Name(s): Pepperweed; Peppergrass

Ute Name(s): Sau'-ga-mi-ants(N); Wa'-to-ma-sĭv(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:35) provides a Ute name for this plant but does not identify a use.

Figure 5.101. *Lepidium perfoliatum*. Photograph by William Widener.

Lewisia spp.

Common Name(s): Bitterroot

Ute Name(s): Nʉguni(S)

Traditional Use(s): Medicinal; Ceremonial; Edible

Plant Part(s) Used: Root

Season(s) Harvested: Unspecified

General Ute Ethnobotany: At least two species of this plant (*L. redivia* and *L. pygmaea*) are traditionally used (Kelley and others 2019:4.3–21). Tribal research participants noted that this plant is culturally significant and is used both medicinally and ceremonially. The plants roots are edible. Givón (2013a:129) documented the Ute term *nʉguni*(S) for this plant.

Ute Mountain Ute Ethnobotany: Ute Mountain Ute research participants noted that this plant grows in "the high mountains."

Figure 5.102. *Lewisia pygmaea*. Photograph by William Widener.

Leymus spp.

Common Name(s): Basin wildrye; Saline wildrye

Ute Name(s): O-wiv(N); O-wiu(N); Ku-sia-kump(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Two species of this plant (*L. cinereus* and *L. salinus*) are traditionally used. McBeth (2008:68) provides a Ute name for this plant but does not identify a use. Chamberlin (1909:38) noted that *o-wiv*(N) refers also to grasses in general.

Figure 5.103. *Leymus cinereus*. From Cassondra Skinner, hosted by the USDA-NRCS PLANTS Database.

Ligusticum porteri

Common Name(s): Oshá; Bear root

Ute Name(s): Kwiya-gha-tu̶ tu̶ka-pi(S); Kwiyaghatu̶ tuna-pu̲(S); Gweahgahtichganap(M)

Traditional Use(s): Ceremonial; Medicinal

Plant Part(s) Used: Root

Season(s) Harvested: Fall

General Ute Ethnobotany: This plant has ceremonial and medicinal uses (Kelley and others 2019:4.3–24).

Ute Indian Tribe Ethnobotany: Clifford Duncan noted that this plant is considered sacred and is used in sweats and other ceremonies (Kelley and others 2017:A-76).

Ute Mountain Ute Ethnobotany: Helen Munoz stated that this plant is used by Ute people. During the current study, Laverna Summa noted that the root is harvested in the fall. The smell of the root helps determine when it is ready for harvest. This is a medicinal plant used for colds, sore throats, and spiritual cleansing. It is also used in ceremonies and powwows when singing—when a singer's throat becomes dry, the person chews the root for relief. It is common to say a prayer when collecting this plant.

Kathryn Jacket said that this plant is used as mouthwash. She noted that during ceremonies it is mostly used by men.

Terry Knight said that anyone can use it for sickness and protection. He explained that elderly people use it to soothe their throats, like a cough drop. Mr. Knight explained that Utes learned about this plant from the bears; the bears dig the root out and eat it when they are sick. He said the Ute Mountain Ute word, *gweahgahtichganap*(M) translates to "bear's food." He

Figure 5.104. *Ligusticum porteri*. Photograph by Maren Hopkins, August 19, 2019.

said that this plant is processed in many ways including drying and pounding to make a poultice. It can be chewed but should not be swallowed. It can also be seeped in hot water and consumed as a tea to be used as cough syrup.

Southern Ute Ethnobotany: Givón (2013a:184) documented the Ute terms *kwiya-gha-tu tuka-pi*(S) and *kwiyaghatu tuna-pu*(S) for this plant. Ernest Pinnecoose and Elise Redd stated that this plant is used medicinally. Mr. Pinnecoose is concerned that this plant is being overcollected for commercial purposes. He said, however, that a blanket moratorium on gathering would affect his and other tribal members' ability to gather small amounts of the plant for personal use. Molas Pass is an area were *kwiya-gha-tu tuka-pi*(S) is harvested.

Garrett Briggs noted that *kwiya-gha-tu tuka-pi*(S) is usually harvested around October. He explained that the root is dug from the ground and there are small hairs on the plant marking where the usable part of the root begins. People only collect as much as they need to get them through the year.

Cassandra Atencio explained that it is Ute custom to say a prayer before collecting *kwiya-gha-tu tuka-pi*(S). She said excess should never be discarded; it should be spread around one's house for protection and mixed with sage and cedar. This will protect the home.

Edward Box III recalled harvesting *kwiya-gha-tu tuka-pi*(S) near the Silverton area with his grandfather, Mr. Eddie Box, Sr. Mr. Box recalled that when harvesting the plant with his grandfather they would make offerings and only take the minimum amount to be used for that coming year. This would allow the plant would be able to regenerate.

Lithospermum ruderale

Common Name(s): Western stone seed

Ute Name(s): Tsût-kûp(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Root

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:35) notes that the roots of this plant are medicinal and are used as a diuretic.

Figure 5.105. *Lithospermum ruderale*. From USDA-NRCS PLANTS database, LIRU4, Alfred Brousseau.

Lomatium dissectum var. *multifidum*

Common Name(s): Biscuitroot; Carrot leaf

Ute Name(s): To-tûv(N); Kʷiu(N)

Traditional Use(s): Medicinal; Edible

Plant Part(s) Used: Root

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:34) noted that the root of this plant is used to treat wounds and bruises:

> The root furnishes one of the medicines most highly valued among this and related peoples. It is especially applied externally upon wounds and bruises, being first reduced to a pulp between stones or in a mortar. It is also used for distemper in horses; for this purpose, it is burned in a pan held beneath the horse's nose.

Figure 5.106. *Lomatium* spp. Photograph by Sean O'Meara, May 14, 2019.

Lycopus americanus

Common Name(s): Horehound

Ute Name(s): N/A

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Mountain Ute Ethnobotany: Alfred Wall, Jr., stated that this plant is used medicinally and referred to it as "toothache medicine."

Figure 5.107. *Lycopus americanus*. USDA-NCRS PLANTS Database, LYAM, Robert H. Mohlenbrock.

Maianthemum racemosum

Common Name(s): Feathery false lily of the valley

Ute Name(s): Yo-gwo'-ta-ma-nûmp(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:40) provides a Ute name for *M. racemosum* but does not identify a use. The Ute name provided translates as, "coyote berry." *M. stellatum* was observed within the project area and Ute research participants believe it may be used by Ute people.

Figure 5.108. *Maianthemum* spp. Photograph by William Widener.

Figure 5.109. *Maianthemum* spp. Photograph by William Widener.

Figure 5.110. *Maianthemum* spp. Photograph by William Widener.

Figure 5.111. *Maianthemum stellatum*. Photograph by William Widener.

Matricaria discoidea

Common Name(s): Disc mayweed; May apple

Ute Name(s): (Ma)-mo-a-na-nûmp(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:35) notes that this plant is used medicinally.

Figure 5.112. *Matricaria discoidea*. From Bugwood.org, UGA1364312, Mary Ellen Harte.

Mentha arvensis

Common Name(s): Wild mint

Ute Name(s): Damount-up(N); Kouerau-nap(N)

Traditional Use(s): Ceremonial; Edible; Beverage

Plant Part(s) Used: Leaf

Season(s) Harvested: Unspecified

Ute Indian tribe Ethnobotany: McBeth (2008:64) provides a Ute name for this plant but does not identify a use. The leaves are made into a tea and used in the Sun Dance (Kelley and others 2017:A-81).

Ute Mountain Ute Ethnobotany: Helen Munoz stated that this plant is used medicinally and to make a tea. During fieldwork for an ethnographic study at Chimney Rock National Monument, Emily Whiteman explained that wild mint is added to spring water for use during ceremonies (Hopkins and others 2020:164). It is also used as an herb in cooking and is known to keep mice away from homes.

Figure 5.113. *Mentha arvensis*. From Bugwood.org, UGA5515764, Rob Routledge, Sault College.

Monarda fistulosa

Common Name(s): Indian perfume; Wild bergamot; Mintleaf beebalm

Ute Name(s): Unknown

Traditional Use(s): Hygiene; Medicinal; Insect repellent

Plant Part(s) Used: Leaf

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: McBeth (2008:32) noted that this plant was used as a perfume and to heal wounds.

Ute Mountain Ute Ethnobotany: Alfred Wall, Jr., stated that the stems are picked and smudged on a person's body to create a pleasant smell. Other tribal research participants noted that this plant is also used as an insect repellant. Ute Mountain Ute participants in the current study noted that this plant grows in "the high mountains."

Figure 5.114. *Monarda fistulosa*. Photograph by William Widener.

Nicotiana attenuata

Common Name(s): Wild tobacco; Coyote tobacco

Ute Name(s): Sapatu=ti(N)

Traditional Use(s): Medicinal; Ceremonial

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Figure 5.115. *Nicotiana attenuata*. Photograph by William Widener.

Ute Indian Tribe Ethnobotany: McBeth (2008:31) notes that tobacco is used medicinally and ceremonially. *N. attenuata* can be mixed with bearberry (*Arctostaphylos uva-ursi*) to make a traditional tobacco smoking mixture.

Figure 5.116. *Nicotiana attenuata*. Photograph by William Widener.

Nuphar lutea

Common Name(s): Yellow pond lily

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Leaf; Seed

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: McBeth (2008:22) noted that this plant is edible and used in traditional soups. The plant can be eaten cooked, and the seeds are cooked and ground into flour (Burns 2003:27–28; Callaway and others 1986:338).

Figure 5.117. *Nuphar lutea*. From USDA-NCRS PLANT Database, NULU, Thomas G. Barnes.

Oenothera spp.

Common Name(s): Evening primrose

Ute Name(s): Unknown

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant is mentioned in McBeth (2008:50); however, no uses were provided.

Figure 5.118. *Oenothera* spp. Photograph by William Widener.

Figure 5.119. *Oenothera* spp. Photograph by William Widener.

Opuntia polyacantha

Common Name(s): plains prickly pear

Ute Name(s): Maanife[(N)]; Manivf[(S)]; Mana=pi[(N, U)]

Traditional Use(s): Edible; Medicinal

Plant Part(s) Used: Fruit; Pad; Flower

Season(s) Harvested: Unspecified

General Ute Ethnobotany: The fruit and flowers, which are especially sweet, are eaten and the pads of this cactus are used medicinally (Kelley and others 2017:A-88, A-89).

Ute Mountain Ute Ethnobotany: Helen Munoz stated that the fruit of this plant is eaten.

Ute Indian Tribe Ethnobotany: *Maanife*[(N)] refers specifically to *O. polyacantha* whereas *mana=pi*[(N, U)] refers to cactus in general.

Figure 5.120. *Opuntia polyacantha*. Photograph by William Widener.

Orogenia linearifolia

Common Name(s): Great Basin Indian potato

Ute Name(s): Nuu-pucu=ti(N); Pĭn-'ka-pai-ätsˢ(N)

Traditional Use(s): Edible

Plant Part(s) Used: Bulb

Season(s) Harvested: Spring

Ute Indian Tribe Ethnobotany: McBeth (2008:23) notes that the tuber of this plant is edible and was considered a delicacy. Chamberlin (1909:35) noted the Ute name but did not describe any other uses. Betsy Chapoose noted that potatoes are harvested in the spring.

Figure 5.121. *Orogenia linearifolia*. From USDA-NCRS PLANT Database, ORLI, Al Schneider.

Figure 5.122. *Orogenia linearifolia*. From USDA-NCRS PLANT Database, ORLI, Al Schneider.

Pascopyrum smithii

Common Name(s): Western wheatgrass

Ute Name(s): Unknown

Traditional Use(s): Animal feed

Plant Part(s) Used: Leaf; Seed

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Tribal research participants noted that this plant is used to feed livestock.

Figure 5.123. *Pascopyrum smithii*. Photograph by William Widener.

Paxistima myrsinites

Common Name(s): Oregon box leaf

Ute Name(s): Te-ĕ-kav(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: A Ute name is provided for this plant in Chamberlin (1909:35); however, no uses were provided. The term *te-ĕ-kav*(N) refers in part to deer, or *te-a*(N).

Figure 5.124. *Paxistima myrsinites*. From USDA-NCRS PLANT Database, PAMY, Al Schneider.

Penstemon glaber

Common Name(s): Western smooth beardtongue

Ute Name(s): Mû-tcĕm-bi-a(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:35) provides a Ute name for this plant but does not identify a use. *P. whippleanus* was observed within the project area and Ute research participants believe it may be used by Ute people.

Figure 5.125. *Penstemon* spp. Photograph by Sean O'Meara, June 18, 2012.

Perideridia gairdneri

Common Name(s): Yampa; Indian potato; Indian carrot

Ute Name(s): Yam-pah(N); Yaa=pi(N)

Traditional Use(s): Edible

Plant Part(s) Used: Root

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: The root of this plant is an important food source and is considered one of three "Indian potatoes" (McBeth 2008:11). The plant can be eaten raw, baked, or ground and dried for storage (Burns 2003:27–28; Callaway and others 1986:338).

Figure 5.126. *Perideridia gairdneri*. Photograph by William Widener.

Phacelia spp.

Common Name(s): Phacelia

Ute Name(s): ?(ma)-mû'-tĕm-bi-a(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:35) provides a Ute name for this plant but does not identify a use.

Figure 5.127. *Phacelia sericea*. From USDA-NRCS PLANT Database, PHSES, Gary A. Monroe.

Phleum pratense

Common Name(s): Timothy grass

Ute Name(s): Unknown

Traditional Use(s): Animal feed

Plant Part(s) Used: Leaf; Seed

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Tribal research participants said this plant is used to feed livestock. *P. commutatum* was observed within the project area.

Figure 5.129. *Phleum pratense*. Photograph by William Widener.

Figure 5.128. *Phleum pratense*. Photograph by William Widener.

Phlox spp.

Common Name(s): Phlox

Ute Name(s): Yo-gûm-sĭ-ta-gwĭv(N); mo-mu-ʻkwi-ĕts(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Whole plant

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Two species of this plant (*P. gracilis* or *yo-gûm-sĭ-ta-gwĭv*(N) and *P. longiflora* or *mo-mu-ʻkwi-*ĕts(N)) are traditionally used (Chamberlin 1909:34–35). The whole plant is used as to treat burns. The term *yo-gûm-sĭ-ta-gwĭv*(N) provided translates as "coyote medicine" (Chamberlin 1909:35; McBeth 2008:52).

Figure 5.130. *Phlox gracilis*. From USDA-NRCS PLANT Database, MIGR4, Gary A. Monroe.

Phragmites australis

Common Name(s): Common reed

Ute Name(s): Unknown

Traditional Use(s): Basketry

Plant Part(s) Used: Stems

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Tribal research participants noted that the stems of this plant are used to make small baskets.

Figure 5.132. *Phragmites australis*. Photograph by William Widener.

Figure 5.131. *Phragmites australis*. Photograph by William Widener.

Picea spp.

Common Name(s): Spruce

Ute Name(s): Yiyuup(M); Sa'ma-'aghu-pʉ(S); Sa'ma-yʉvʉ-pʉ(S)

Traditional Use(s): Trail marker; Shelter

Plant Part(s) Used: Wood

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Tribal research participants noted that these trees can be used as trail markers and the wood is also used to make shelters. At least two species (*P. pungens* and *P. engelmannii)* are used traditionally. During the current research, tribal participants also noted that spruce branches can be used to make tipi poles. The poles should be about four inches in diameter. Givón (2013a:206) documented the terms *sa'ma-'aghu-pu*(S) and *sa'ma-yuvu-pu*(S) for spruce in general.

Figure 5.134. *Picea pungens*. Photograph by William Widener.

Figure 5.133. *Picea engelmanii*. Photograph by William Widener.

Pinus aristata

Common Name(s): Bristlecone pine

Ute Name(s): Unknown

Traditional Use(s): Beverage

Plant Part(s) Used: Needle

Season(s) Harvested: Summer

General Ute Ethnobotany: Tribal research participants noted that a tea is made from the needles of this tree.

Figure 5.135. *Pinus aristata*. Photograph by William Widener.

Pinus contorta

Common Name(s): Lodgepole pine

Ute Name(s): Ah-gwoop(N)

Traditional Use(s): Shelter

Plant Part(s) Used: Wood

Season(s) Harvested: Summer

Ute Indian Tribe Ethnobotany: The trunks of this tree are harvested in the early summer and used to make tipi poles (Kelley and others 2017:4.7–29; McBeth 2008:34). Clifford Duncan previously provided the term for this plant.

Ute Mountain Ute Ethnobotany: Terry Knight said that tipis are made with lodge pole pines. Poles that are 3 to 4 inches in diameter at the base are used, and there are 8 to 10 poles in an average tipi.

Figure 5.136. Image of tipi poles. Basin: Ute, BAE 4251(5-b), Box VII:3, National Anthropological Archives, Smithsonian Institution.

Figure 5.137. Lodgepole pine poles used for supporting tipi. Basin: Ute, BAE 4251(6-a), Box VII:3, National Anthropological Archives, Smithsonian Institution.

Figure 5.138. Tipi construction using lodgepole pine. Basin: Ute, BAE 4251(7-a), Box VII:3, National Anthropological Archives, Smithsonian Institution.

Pinus edulis

Common Name(s): Piñon pine

Ute Name(s): Wa'a-pʉ(S); Tu-gwoop(M); Noodtoohuuhch(N); Noodtoohvuhch(N); Na?a-tɨpa=ci(W); Nutu-tɨpa=ci(W)

Traditional Use(s): Edible; Medicinal; Basketry; Fuel

Plant Part(s) Used: Sap; Seed; Wood; Needle

Season(s) Harvested: Fall (nuts)

Ute Indian Tribe Ethnobotany: Piñon nuts are an important staple food source. The nuts are roasted in order to retrieve the seeds (McBeth 2008:16). The nuts are referred to as *tu-vaatch* or *ti-va*, a word that applies to many types of nuts. The cones ripen in the fall and the nuts can be harvested at that time. Utes traditionally harvest the nuts using sticks and knocking the cones off the trees. The cones are then beaten to release the nuts; the seeds can also be picked out by hand. Nuts were stored whole in a dry location for later use. The nuts can be eaten whole or ground and made into mush (Ute Indian Museum 2019).

> A long pole was used to beat the tree limbs and dislodge the cones, which fell to the ground and were gathered. The nuts were either shaken or beaten from the cones. They might be stored for the winter without shelling or they might be put in a flat basket with hot coals and shaken until the shells popped off. The nuts were winnowed, then ground on a metate and the meal stored for the winter. The meal was mixed with water and made into small balls or boiled into a mush. Another method of parching the nuts was to heat a stone which had a good-sized hollow into which the nuts were put after the fire had burned out. They were stirred until the shells cracked then winnowed [Smith 1974:66].

Piñon sap also has multiple uses. According to tribal research participants, the piñon tree sap is specifically sought as a sealant for baskets, as it is the best material for creating a long-lasting water-proof seal (McBeth

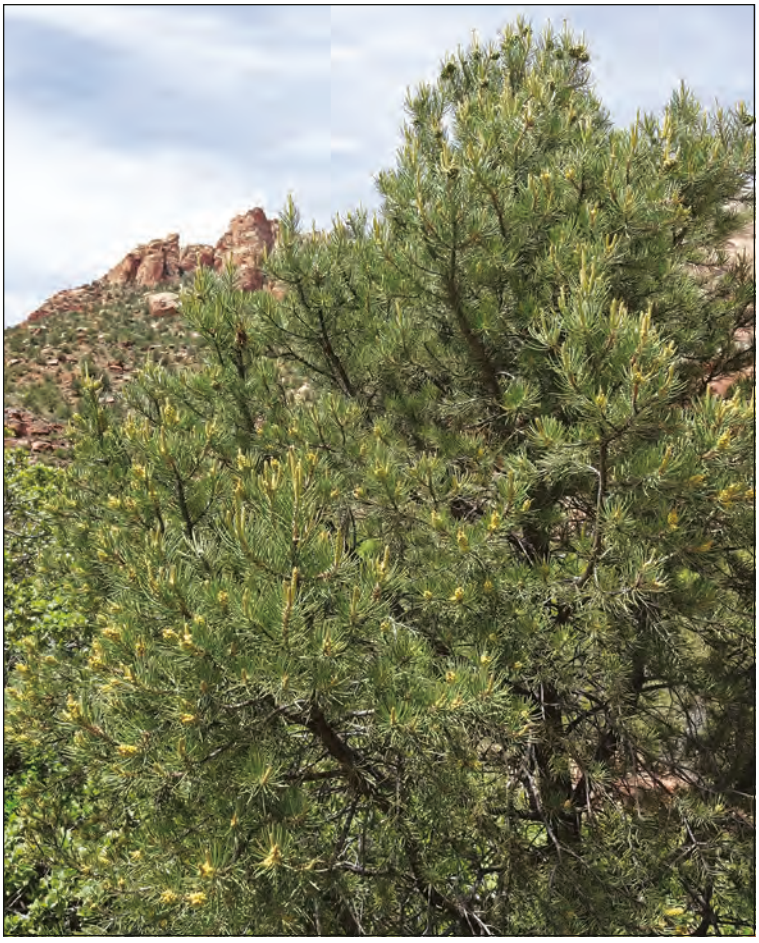

Figure 5.139. *Pinus edulis*. Photograph by William Widener.

2008:35). The sap is also used for paints and fixing pigments.

The branches with their needles can also be used as a top layer on wickiups and other structures to help keep water and snow out. The wood is used for fuel (Kelley and others 2017:A-100).

Ute Mountain Ute Ethnobotany: Helen Munoz stated that piñon pine has multiple uses. The nuts are eaten and the sap is chewed like a chewing gum. The sap is also used as a waterproof sealant for baskets. Baskets specifically made for drinking and storing water are sealed with this sap and are called *tu-vutch*(M) or "water baskets." Mark Wing noted that the sap is also used medicinally to disinfect wounds.

Southern Ute Ethnobotany: Ernest Pinnecoose and Elise Redd stated that the sap is used medicinally and for waterproofing baskets. Mr. Pinnecoose also noted that the sap from piñon pine can be used as a glue for arrows and topically for medicinal purposes. The pitch is also chewed like gum. Givón (2013a:188) documented the Ute terms *wa'a-pʉ*(S) for the tree and multiple terms for the pine nut (*kamu-pu-ruvwa-chi*(S); *núu-ruvʉa-chi*(S); *sana-tʉvwa-chi*(S); *wa'a-pʉ-rʉvwa-chii*(S)).

Figure 5.140. *Pinus edulis*. Photograph by Maren Hopkins, August 21, 2019.

Pinus flexilis

Common Name(s): Limber pine

Ute Name(s): Ah-gwoop(N)

Traditional Use(s): Shelter

Plant Part(s) Used: Wood

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: The trunks of this tree are harvested in the early summer and used to make tipi poles (Kelley and others 2017:4.7–29). Clifford Duncan previously provided the term for this plant.

Figure 5.141. Pine posts used for tipi poles. Basin: Ute, NM 282947(2), Box VII:5, National Anthropological Archives, Smithsonian Institution.

Pinus ponderosa

Common Name(s): Ponderosa pine

Ute Name(s): ‘agho-pu̲[(S)]; Uu-vweep[(N)]

Traditional Use(s): Ceremonial; Edible; Medicinal; Utilitarian

Plant Part(s) Used: Wood; Sap; Needles; Bark, Inner cambium

Season(s) Harvested: Early summer (Sap); Spring (sap); Fall (sap)

General Ute Ethnobotany: Ponderosa pine is a culturally significant plant with many uses (McBeth 2008:11, 24–25). Mature trees were peeled for their sap, called *piah-deh*[(N)] or *bee-yah-day*[(N)].

Ute Indian Tribe Ethnobotany: Clifford Duncan and Betsy Chapoose described the uses and harvesting methods of ponderosa pine sap (McBeth 2008:25). Mr. Duncan described the term *bee at a mee aye*[(N)], or “go after the sugar,”

> At certain times of the year, the old ladies get on their horses, and they go up into the mountains and they go on after sap, ponderosa pine sap. And this is back in about 1930s or 40s. *Bee at a mee aye*[(N)] is a word that we would use. Bee at a mee aye. When you describe that word it means sweet or going after a sweet, that’s what that word means. Bee at a mee aye means sugar or sweet. Mee aye means go after: so they’re going after that, so they collect that and spend about a day, two days in the mountains, collecting. So, then they come back [and they put it in] containers, baskets, willow baskets that they made, down there. Just pour that into that. It would be raw when they collect it. Later when they’re coming back, after so many days, they probably dried that because it hardens up.
>
> But it’s a taste of that sap that they’re after—a sweet taste, but it has to be a certain time of the year. So, they mix that with whatever meals they are going to have or they also preserve that in certain way to use later.

Ms. Chapoose described the three known uses of the ponderosa and more specifically the role of women in the harvest,

> There are three ways that I know we would use these trees. One is to peel it and use it for possibly in making mats or some other such items. Another one was to get the sugar out of the bark, which they pulled off

Figure 5.142. *Pinus ponderosa* in the foreground. Photograph by William Widener.

and they either pounded or boiled. Only the women did that and they didn't do it in the presence of men—that was strictly a women's activity. The third way that was taught to me was in the longevity ceremony, and they used the tree in the way that promoted a long life.

But those are really the only three things that I know that we used. I don't buy into the theory that its main use was in times of distress [only used during times of starvation]. I think that it was a supplement to the diet that was generally practiced. And I do know that even after the Utes were moved into Utah, that they were coming back to certain areas to do this, and it was the women that came back in.

Southern Ute Ethnobotany: Ponderosa pine is regarded as a food sources and for its medicinal and cultural uses. During an interpretative video produced for the Great Sand Dunes National Park and Preserve, in 1997, Alden Naranjo, Jr., discussed many of these uses in detail:

Alden Naranjo, Jr., (AN): Well, [the inner bark of the ponderosa pine was used] for cleansing your digestive tract; it would be used for cleaning you out, especially after a long winter, with all the edible that they ate. … And also, for medicinal purposes they used [it] for if you had fevers, or if you had any sores, then they would use also that to put on there to make sure that it would dry it out. That's what it would do, so they used that for that. So, they'd take the pitch off of the pine tree here and use that on the sores. That's what they used it for.

NPS: O.K., when it was prepared as edible, was it primarily raw or cooked, or was it smoked, or made into a drink of some sort?

AN: It was cooked in a basket with hot water that had been placed in a basket. The water had been heated by rocks. So, then they would put the inner bark in the baskets to boil it. Then they would drink that. And then also maybe they would put other things in there, other plants in there—herbal plants that we'd put in there.

When asked about the edible uses of the plant, Mr. Naranjo stated:

Well, you know, at certain times of the year they would have to have this edible, I guess to supplement the edible sources that they had at that time. If they were running low on any kind of like vegetable matter that they used to eat, then they would use also this, along with that, to supplement that edible, to add onto—like making a stew.

Figure 5.143. *Pinus ponderosa*. Photograph by William Widener.

NPS: Was the pitch from the tree used, do you know?

AN: The pitch from the tree was used for—you know how you would use glue today? It was used also, the pitch was used like that. So whenever they needed to put something together, they would use that. And also they would use it in their ceremonies by using it at certain times of the year for their ceremonial purposes.

When asked how trees were physically peeled, Mr. Naranjo related the following:

Well, they would cut this. Like here [motioning to the tree], they would cut it on top, cut the bark, make a line across it. Then they would take a piece of wood, a stick, then they would start to peel it from the bottom. As they went up, it would come apart—you know, pulling it apart like that. That's the way that they harvested it.

NPS: Were there any other purposes for the pitch or the medicinal uses of the bark, besides just what you were talking about, medicinal purposes? Was there any other use for the bark?

AN: Well, there was a time when they would use something like this in their ceremonies that they would use this. Like if it was for healing, then they would use this also, the tree itself. … We don't do that anymore, but this is just what I've been told that they would be doing that, the way that they used to use a tree for healing, ceremonial purposes, for supplementing their Edible, and also for medicinal purposes that they would use this tree for. Also, they

used the bark, they carried it around for fire-starters. Then they would use that also [Kelley and others 2019:4.3–24–4.3–26].

Tribal research participants discussed making cradleboards from wood planks taken from ponderosa pine trees that had been peeled as the main source of the board. When making cradleboards, natural pigments are used. White is the color used on boys' cradleboards and yellow for girls (Kelley and others 2019:4.3–26).

During research for the current study, Cassandra Atencio said that the needles from ponderosa pine trees are used to make small baskets, and her mother used to make baskets like this. The needles from pines were also used. Givón (2013a:189) documented the Ute term *'agho-pʉ*(S) for this plant.

Ute Mountain Ute Ethnobotany: Terry Knight explained that primarily ponderosa pines and sometimes aspens were peeled to harvest the sap of the trees. The sap of the trees, or *pe-ah-de*(M) in Ute, can be harvested in the spring and fall. The sap is edible and is also used as a meat preserver and as a medicine to treat infections. Mr. Knight added that the sap is sometimes sweet. Animals are attracted to the tree sap. He was unaware of peeled trees in the Silverton area, but he has not looked for them at this location. Mr. Knight said that peeled trees are an indication of springs. He noted that there is a peeled tree located approximately 100 yards from a spring in Thompson Park, an area south of the Target Tree Campground in the San Juan National Forest and seven miles east of Mancos, Colorado.

During fieldwork for an ethnographic study at Chimney Rock National Monument, tribal research participants from the Ute Mountain Ute tribe noted that pine sap is used as chewing gum, as a medicine used for curing sores, and to make whistles that are used in the Sun Dance (Hopkins and others 2020:164).

Poliomintha incana

Common Name(s): Frosted mint

Ute Name(s): 'aqho-tama-na-pʉ(S); Quata manah(M)

Traditional Use(s): Medicinal

Plant Part(s) Used: Whole plant

Season(s) Harvested: Unspecified

Ute Mountain Ute Ethnobotany: In a previous study, Terry Knight has noted that this plant is used to treat a variety of ailments including sore throats and infections (Kelley and others 2019:4.3–26).

Southern Ute Ethnobotany: Givón (2013a:192) documented the Ute term *'aqho-tama-na-pʉ*(S) for this plant.

Figure 5.144. *Poliomintha incana*. From USDA-NRCS PLANTS Database, POIN3, Al Schneider.

Polypogon monspeliensis

Common Name(s): Annual rabbit's foot grass

Ute Name(s): Shpump(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: McBeth (2008:51) provides a Ute name for this plant but does not identify a use. This plant is non-native.

Figure 5.145. *Polypogon monspeliensis*. From USDA-NRCS PLANTS Database, POMO5, Sheri Hagwood.

Populus spp.

Common Name(s): Cottonwood

Ute Name(s): Yuupa(S); Sho-av(N); Páa-~~suuvu-pu~~(S); Suuvu-pu(S)

Traditional Use(s): Ceremonial; Fuel; Utilitarian; Edible

Plant Part(s) Used: Wood; Seed; Bark

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Tribal research participants noted that this plant is culturally significant and has multiple uses, including in the construction of arbors (Kelley and others 2019:4.3–26) and as a dye during ceremonies (McBeth 2008:36). The trunk of a cottonwood serves as the center pole of the Sun Dance ceremony. Two cottonwood species (*P. angustifolia* and *P. fremontii*) have been identified as significant.

Ute Indian Tribe Ethnobotany: Tribal research participants have identified multiple uses for this plant including in ceremonial fires, as a substitute for tobacco (bark), and in bedding (seed duff) (Kelley and others 2017:A-109). During interviews with tribal leader Connor Chapoose (1905–1961) in 1960, he provided detailed accounts of the northern Ute Sun Dance (Witherspoon 1993:53–56), including the capturing of the center pole.

Southern Ute Ethnobotany: As noted by Opler (1941), a forked cottonwood tree is used as the center pole in the corral created for the Sun Dance. The ceremony begins with "the capture of the center pole," which Opler describes as a function of the entire tribe, however this part of the ceremony has been discontinued in modern times at Southern Ute. Describing the historical component of the Southern Ute ceremony, Opler states (1941:557):

> A day before the dance is to be held, a group of prominent tribesmen, the sun dance leader, assisting shamans and a group of warriors set out to find a suitable cottonwood tree. A typical band camp follows behind, whole families with children straggling in the rear guarded by scouts. The oldest warrior, one who had led his people on raids and had perhaps killed an enemy, acts as chief. Riding ahead with a scout, he sights the tree which is dubbed "an enemy chief." The band leader shoots for the center pole, aiming at the fork or "heart." When the arrow or bullet strikes, the

Figure 5.146. *Populus angustifolia* seed fluff. Photograph by William Widener.

> others, armed also with bows and arrows, rush forward. Two men with axes chop the tree down as fast as possible. This is called "cutting down the enemy." As day dawns, the men and women circle round the fallen tree, shouting their victory. The woman [sic] help in stripping the limbs off, just as they strip a fallen enemy on the field of battle. When the loot is collected and the captive thoroughly taunted, they load him on a wagon and return to camp. Those who remained behind while the others went for the tree have a sham battle with the victors upon their arrival at the camp. "You aren't Utes! You didn't help!" the victors cry. Finally, they win their right to enter the camp and the pole is placed on the ground.

Fourteen other poles were also harvested in a similar manner, all referred to as "captives." When erected, the forks of the center pole face east, and the other poles encircle it. An east-facing opening is left in the corral. The diameter of the corral measures around 90 feet. After the ceremony, the Sun Dance poles are left standing.

Describing the preparation of the center pole and the corral, Opler states (1941:558):

> The center pole, a big cottonwood trunk about twenty-five feet long, forked at the top, was then stripped of bark beginning at the bottom and extending about eight feet up the base. The bark hacked off in three-foot strips was laid to one side while the men stood around and joked. A few were busy meanwhile digging fourteen holes for the circular corral, two for the gateway to the east and twelve others for the pillars of the enclosure. The ground plan of the circular enclosure had a diameter of almost ninety feet.

Givón (2013a:140) documented the Ute term *páa-s~~uuvu-pu~~*$^{(S)}$ for the narrowleaf cottonwood (*P. angustifolia*) and *suuvu-pu*$^{(S)}$ for the wide-leaf or Frémont cottonwood (*P. fremontii*).

Figure 5.147. *Populus angustifolia*. Photograph by William Widener.

Figure 5.148. Sun dance lodge constructed using cottonwood posts. National Anthropological Archives, Smithsonian Institution.

Ute Mountain Ute Ethnobotany: During fieldwork for the current project, Laverna Summa noted that cottonwood trees are still used for the Sun Dance. She said that some people have suggested using aspen poles (also a *Populus* spp.). This is controversial, however, because the cottonwood tree is specifically designated for this ritual because of its spiritual significance, and this cannot be substituted with another tree.

Figure 5.149. Cottonwood center post erected for a Sun Dance lodge. A willow bundle rests in the fork. Basin: Ute, BAE 4510(1–5), Box VII:3, National Anthropological Archives, Smithsonian Institution.

Populus tremuloides

Common Name(s): Quaking aspen

Ute Name(s): S~~uu~~vu-p~~u~~$^{(S)}$

Traditional Use(s): Edible; Medicinal; Ceremonial; Shelter; Fuel

Plant Part(s) Used: Sap; Wood

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Aspen sap was traditionally consumed by the Utes (Burns 2003:27–28; Callaway and others 1986:338). Ute tribal members have previously noted that the sap would also be used to sweeten other foods like pemmican and the small branches are used to make shelters. The branches or smaller trees would also be used in making shelters such as wickiups, as the branches grow straight (Kelley and others 2019:4.3–26; McBeth 2008:12, 34). Givón (2013a:123) documented the Ute term *s~~uu~~vu-p~~u~~*$^{(S)}$ for this plant.

Ute Mountain Ute Ethnobotany: During the current study, Terry Knight noted that Utes would sometimes peel aspen trees, but more often they would peel ponderosa pine.

Figure 5.150. A stand of *Populus tremuloides* in the summer. Photograph by William Widener.

Figure 5.151. *Populus tremuloides*. Photograph by William Widener.

Figure 5.152. A stand of *Populus tremuloides* in the fall. Photograph by Sean O'Meara, October 12, 2019.

Potentilla spp.

Common Name(s): Cinquefoil

Ute Name(s): Qte'-ăñ-gĭv(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:35) provides a Ute name for *P. anserina* but does not identify a use. *P. concinna and P. rubricaulis* were observed within the project area and Ute research participants believe it may be used by Ute people.

Figure 5.153. *Potentilla anserina*. From Bugwood.org, UGA5474861, Rob Routledge, Sault College.

Prunus virginiana

Common Name(s): Chokecherry

Ute Name(s): Tée'na-pi̱(S); Durn-up(S); Turnup(N); Titat̶ina=pi̶(W)

Traditional Use(s): Edible; Weaponry

Plant Part(s) Used: Fruit; Wood

Season(s) Harvested: Late Summer; Fall (Fruit)

Ute Indian Tribe Ethnobotany: The fruit of this plant was harvested when ripe and dried, providing an important food source (McBeth 2008:48). Tribal research participants noted that they gather only enough to feed their families, which, provided there is an abundant harvest, usually amounts to three to five gallons of fruit. The flavor of the berries can be very tart or sweet. They are often used in desserts. The berries are gathered between July and September when they turn black (Kelley and others 2019:4.3–26; 2017:4.7–28 and 4.7–33). McBeth (2008:37) noted that the branches of the plant are used to make bows. The chokecherry is revered by Ute people, and they often travel long distances to harvest this plant. The berries may be eaten raw or pounded and formed into cakes that are then dried for storage (Burns 2003:27–28; Callaway and others 1986:338; Ute Indian Museum 2019).

Southern Ute Ethnobotany: Ernest Pinnecoose and Elise Redd stated that the berries are an important food source. Research participants from Southern Ute noted that the wood from the *durn-up*(S) is good for making bows. They said that the flexibility and strength of this wood makes for good bows. Givón (2013a:137) documented the Ute term *tée'na-pi̱*(S) for this plant.

Ute Mountain Ute Ethnobotany: Helen Munoz and Alfred Wall, Jr., stated that the berries are an important, traditional staple food. The berries ripen during late summer and early fall and harvesters have to be cautious of bears as they also eat the berries. During fieldwork for an ethnographic study at Chimney Rock National Monument, tribal participants from the Ute Mountain Ute noted that in addition to being an important Ute food, chokecherries were used for making pigments to paint pictographs (Hopkins and others 2020:164).

Figure 5.154. *Prunus virginiana*. Photograph by William Widener.

Pseudocymopterus montanus

Common Name(s): Alpine false spring parsley

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Root

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Tribal research participants noted that root of this plant may be edible.

Figure 5.155. *Pseudocymopterus montanus*. Photograph by William Widener.

Pseudotsuga menziesii

Common Name(s): Douglas fir

Ute Name(s): Sa'ma-'agho-pʉ̲[(S)]; Sa'ma-yu̲vu̲-pʉ̲[(S)]

Traditional Use(s): Shelter

Plant Part(s) Used: Wood

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Tribal research participants noted that the wood from this tree can be used to make shelters. Givón (2013a:152) documented the Ute terms *sa'ma-'agho-pʉ̲*[(S)] and *sa'ma-yʉvʉ-pʉ̲*[(S)] for this plant.

Figure 5.156. *Pseudotsuga menziesii*. From Bugwood.org, UGA0008197, Paul Wray, Iowa State University.

Pteridium aquilinum

Common Name(s): Western bracken fern; Brake fern

Ute Name(s): Kai-ban-kǐm-bǐs(N)

Traditional Use(s): Edible

Plant Part(s) Used: Leaf; Shoot

Season(s) Harvested: Fall; Spring (shoot)

General Ute Ethnobotany: This plant is edible. It is collected in the fall and can be dried and stored. The shoots are collected and eaten in the spring (Burns 2003:27–28; Callaway and others 1986:338). Chamberlin (1909:35) provides a Ute name for this plant but does not document its use. The Ute term *kai-ban-kǐm-bǐs*(N) partially refers to the montane habitat of the plant by referencing *kai-ba* or mountain.

Figure 5.157. *Pteridium aquilinum* in the foreground of an aspen grove. Photograph by Sean O'Meara, July 19, 2020.

Purshia spp.

Common Name(s): Cliffrose

Ute Name(s): Pu-i'-tcûm-av(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:33) provides a Ute name for this plant but does not identify a use.

Figure 5.158. *Purshia stansburiana*. Photograph by Sean O'Meara, June 21, 2020.

Quercus gambelii

Common Name(s): Gambel oak

Ute Name(s): Kwiya-vɯ̲[(S)]; Kwi'-ûv[(N)]; Quiuve[(S)]; Quiau[(M)]

Traditional Use(s): Edible; Fuel; Ceremonial; Utilitarian; Weaponry

Plant Part(s) Used: Seed; Leaf; Wood

Season(s) Harvested: Fall (Seed)

Figure 5.159. *Quercus gambelii*. Photograph by Maren Hopkins, August 21, 2019.

Ute Indian Tribe Ethnobotany: This plant has multiple traditional uses (Kelley and others 2017:A-120; Kelley and others 2019; McBeth 2008:17). It is used to make bows, arrows, and spears (branches), as well as cigarette paper (leaves). The acorns are gathered in the fall and eaten. The nuts are boiled or roasted to remove the seeds' bitter taste. Acorns are often crushed and made into meal. The remaining bitterness is removed by rinsing the meal and adding ash. Ute people use acorn meal to make small cakes or mush (Ute Indian Museum 2019).

Southern Ute Ethnobotany: Ernest Pinnecoose and Elise Redd stated that the branches are used for fishing poles. The acorns are used in the tanning process for hides of buffalo, elk, deer, and other game, and the acorns can also be roasted and used for a food source. The wood from the oak is a good fuel (Kelley and others 2017:4.3–8). During the current study, Southern Ute participants from noted that oak is good for making bows. They said that the flexibility and strength of this wood makes for good bows. Givón (2013a:183) documented the term *kwiya-vɯ̲*[(S)] for this plant.

Ute Mountain Ute Ethnobotany: Helen Munoz stated that the acorns of this plant are a food source and that the acorns are boiled to remove tannins prior to eating.

Figure 5.160. From Left to Right: Garrett Briggs, William Widener, and Helen Munoz discussing traditional uses of *Quercus gambelii* along the Animas River on October 17, 2019. Photograph by Sean O'Meara.

Ranunculus spp.

Common Name(s): Buttercup

Ute Name(s): Pai'-a-pu-ĕts(N); Pau-ûs-a-nau-ga-ant(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: At least two species (*R. cymbalaria* or *pau*-ûs-*a-nau-ga-ant*(N) and *R. aquatilis* or *pai'-a-pu*-ĕts(N)) are used traditionally. While Chamberlin (1909:36) documented Ute names for both species, no uses were provided.

Figure 5.161. *Ranunculus cymbalaria*. From Bugwood.org, UCR 5504205, Harlan B. Herbert.

Rhus trilobata

Common Name(s): Three-leaf sumac; Skunkbush

Ute Name(s): ‘isi-vu(S); Eesh(S,N); Mo-tam-bi-äts(N); Wisi(N)

Traditional Use(s): Edible; Utilitarian; Basketry

Plant Part(s) Used: Fruit; Stem; Root

Season(s) Harvested: Fall (Fruit); Spring (Stems)

Southern Ute Ethnobotany: Alden Naranjo, Jr., and Austin Box previously described several traditional uses of this plant. They described the process of harvesting the berries in the fall after they have dried on the stem, and then storing them dried for use in the winter or grinding them and making a porridge (Kelley and others 2017:4.3–9). Edward Box III noted that Ute people historically harvested sumac in the Animas Valley between Ignacio and Silverton. Givón (2013b:206) documented the terms *‘isi-vu*(S) for the plant and *‘ísi*(S) and *‘isi-vi*(S) for the fruit.

Ute Indian Tribe Ethnobotany: This plant is used in basketry (young stems) and the berries are edible (Kelley and others 2017:A-124). Chamberlin (1909:36) documented the name *mo-tam-bi-*äts(N) and Smith (1974:270) documented the term *wisi*(N). Ute women used sumac more than any other plant for making baskets. Young, pliable branches that were easy to weave were used. Sumac roots and branches were also used for making the frames of cradleboards (Ute Indian Museum 2019).

Ute Mountain Ute Ethnobotany: Helen Munoz described how the stems are used to make baskets, which are then lined with sap to make them waterproof. Once the sap has been applied, it is left for a period of time to harden. Thelma Whiskers, of White Mesa, still makes these baskets. Eddie Box, Sr., also used to make them. The berries are used to make a lemonade-flavored beverage. During fieldwork for an ethnographic study at Chimney Rock National Monument, Emily Whiteman noted that the berries from the sumac bush are used to make a drink that is consumed during ceremonies (Hopkins and others 2020:164).

Figure 5.163. *Rhus trilobata*. Photograph by Sean O'Meara, July 30, 2019.

Figure 5.162. *Rhus trilobata*. Photograph by Maren Hopkins, August 21, 2019.

Ribes spp.

Common Name(s): Currant; Gooseberry

Ute Name(s): Sí-voghoy-pi̲[(S)]; Poghoy-pi̲[(S)]; Po-gomp'-ǐv[(N)]; Poo gweep[(S)]; Kʷatɨna=pɨ[(W)]; Sapatuu̲=pɨ[(W)]

Traditional Use(s): Edible

Plant Part(s) Used: Fruit

Season(s) Harvested: Fall (Fruit)

General Ute Ethnobotany: Multiple species of *Ribes* spp., often differentiated by scientists between currants (*R. cereum*; and *R. aureum*) and gooseberries (*R. inerme* and *R. leptanthum*), were identified by tribal research participants as traditionally important foods (Kelley and others 2017:4.3–6; Chamberlin 1909:36; Moerman 1998:476; Smith 1974:270; McBeth 2008:21). The berries are dried and stored for future consumption or eaten raw (Burns 2003:27–28; Callaway and others 1986:338). Givón (2013a:141, 159) documented the Ute term *poghoy-pi̲*[(S)] for gooseberry and *sí-voghoy-pi*[(S)] for currant.

Ute Indian Tribe Ethnobotany: Smith (1974:270) noted that *sapatuu=pɨ*[(W)] or currants were harvested by the White River band at the end of June or early July. These berries were mashed and formed into small cakes, then stored for use in the winter months when they were cooked in deer fat and eaten. Gooseberries were notably eaten fresh even though they are sour and also dried and stored for use in the winter months. Chamberlin (1909:36) documented the Ute term *Po-gomp'*-ǐv[(N)], which he provided the translation as "the berry plant" (*po-gomp* or "the berry", and *ǐv* or "the plant").

Figure 5.165. *Ribes leptanthum*. Photograph by Sean O'Meara, April 20, 2018.

Figure 5.164. *Ribes cereum*. Photograph by Sean O'Meara, July 21, 2014.

Figure 5.166. Harvesting currants. National Anthropological Archives, Smithsonian Institution.

Rosa spp.

Common Name(s): Wild rose

Ute Name(s): Gehrump(N); Añ-ga-ko-rĭmp(N); Añ-ga-si-ûñ-gĭv(N)

Traditional Use(s): Weapon; Edible

Plant Part(s) Used: Fruit (hips); Stems

Season(s) Harvested: Fall (Fruit)

General Ute Ethnobotany: Tribal research participants identified at least two species of wild rose (*R. sayi* and *R. woodsii*) that have traditional uses. The fruit is edible and also used to treat colds.

Ute Indian Tribe Ethnobotany: Smith (1974:270) documented that Northern Utes harvested rose hips from the mountains and distinguished between two sizes of hips, *cii=pɨ*(N) for the smaller ones and *muwici=pɨ*(N) for the larger ones. She described that the hips were boiled until they became soft (Smith 1974:270). Ute hunters favored rose branches for making arrows because they are straight and flexible (Ute Indian Museum 2019). Chamberlin (1909:36) documented the Ute term *Añ-ga-si-ûñ-gĭv*(N), the partial translation of which is "red stem" (*añ-kar* or "red", and *si-uñgen* or "stem").

Figure 5.168. *Rosa woodsii*. Photograph by William Widener.

Southern Ute Ethnobotany: Alden Naranjo, Jr., previously noted that the young straight shafts are used to make arrows (Kelley and others 2019:4.3–27).

Figure 5.167. *Rosa woodsii*. Photograph by Maren Hopkins, August 21, 2019.

Rubus ideaus

Common Name(s): Raspberry

Ute Name(s): Poghoy-pʉ-vʉ̲[(S)]; Naka=wat¬u=pɨ[(W)]

Traditional Use(s): Edible; Medicinal

Plant Part(s) Used: Fruit

Season(s) Harvested: Summer; Fall (Fruit)

General Ute Ethnobotany: Several sources report that wild raspberries are a traditionally important Ute food source (Kelley and others 2017:4.7–29; McBeth 2008:22, and Smith 1974:270). They can be eaten raw or formed into cakes and dried for future consumption (Burns 2003:27–28; Callaway and others 1986:338). Givón (2013a:193) documented the Ute term *poghoy-pʉ-vʉ̲*[(S)] for raspberry.

Figure 5.170. *Rubus ideaus*. Photograph by William Widener.

Figure 5.169. *Rubus ideaus*. Photograph by William Widener.

Rubus parviflorus

Common Name(s): Thimbleberry

Ute Name(s): N/A

Traditional Use(s): Edible

Plant Part(s) Used: Fruit

Season(s) Harvested: Summer; Fall (Fruit)

General Ute Ethnobotany: Tribal research participants noted that the delicate berries are a source of food.

Figure 5.171. *Rubus parviflorus*. Photograph by William Widener.

Rumex spp.

Common Name(s): Dock

Ute Name(s): Unknown

Traditional Use(s): Edible; Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: The Utes use at least two species of this plant (*R. crispus* and *R. salicifolius*) (McBeth 2008:50). Tribal research participants noted that the plant is edible and has medicinal uses.

Figure 5.172. Laverna Summa holding a sample of dock collected near the Gold King Mine. Photograph by Maren Hopkins, August 19, 2019.

Figure 5.173. *Rumex salicifolius*. Photograph by William Widener.

Salix spp.

Common Name(s): Willow

Ute Name(s): K'sa'nav(N); Ta-ma-nûmp-ĭn-av(N); Ta-ma-nûmp-in-ka-av(N); K'sa-ka-nav(N); Aguu kannu(S); Ka-nivh(S); Auka ka-nivh(S); Kana-vu̲(S)

Traditional Use(s): Basketry; Medicinal; Ceremonial

Plant Part(s) Used: Stem; Cambium

Season(s) Harvested: Early Spring (Stem)

General Ute Ethnobotany: Tribal research participants explained that the young shoots of willow are put in bunches and used for the Sun Dance participants as well as on the floor of the Sun Dance lodge. The branches are also used for shade arbors in the Sun Dance ceremony.

> A tribal representative explained that the gray willow is thicker and longer and are used for constructing shelters and arbors. A tribal representative explained that they would use the long and narrow straight branches of the willow to make a lodge. The lodge would be round with a cone shape and would be high enough to stand up in. The willow poles would be covered with hides and a hole in the ceiling would be left open to vent for a fire. Today this type of structure is used for sweat lodges [Kelley and others 2019:4.3–27].

The inner bark has medicinal properties. The inner bark is removed, dried, and then boiled. The resulting tea is used to alleviate headaches and pain (Kelley and others 2017).

Additional willows observed within the project area that may be used by Ute people include *S. bebbiana; S. boothii; S. brachycarpa; S. glauca;* and *S. monticola*.

Ute Indian Tribe Ethnobotany: Willow is an important component of basket making and multiple species have been described as being used: *S. amygdaloides* or *k'sa'nav*(N)and *k'sa-ka-nav*(N)*; S. eriocephala; S. exigua* or *ka-nivh*(S)*; S. lucida* or *k'sa'nav*(N)and *k'sa-ka-nav*(N)*;* and *S. scouleriana* or *ta-ma-nûmp*-ĭn-*av*(N) and *ta-ma-nûmp-in-ka-av*(N (Chamberlin 1909:36; McBeth 2008:68; Moerman 1998:758).

Southern Ute Ethnobotany: During the current study, Southern Ute participants noted that willow is good for making bows. They said that the flexibility and strength of this wood makes for good bows. Givón (2013a:159, 223, 388) documented multiple Ute terms for willow including *kana-vu̲*(S) for willows in general, *ku̲cha-kana-vu̲*(S) for gray willow (possibly *S. bebbiana* or *S. glauca*), and *'ea-ghana-vu̲*(S) for yellow willow (possibly *S. lutea*).

Figure 5.174. *Salix exigua*. Photograph by William Widener.

In observing a Southern Ute Sun Dance in 1937, Opler noted the significance of willows in this ritual. He described their function in preparation of the ceremonial corral, and in other aspects of the ceremony. He stated:

> The corral is completed by setting the other fourteen poles laid across the top and tied together with wire. It is almost noon when the helpers are finished and the entire afternoon is spent in gathering up the brush and willows to fill in the walls of the corral. The willow brush around the sides makes a solid enclosure. The work is completed by tying fresh willow branches over the section of the center pole painted red and black [Opler 1941:559].

Opler noted that "Up at the fork of the pole, they have a bundle of willows put there from the beginning" (Opler 1941:556). Willows are also used as bedding for the dancers and to help with the acoustics during the ceremony. "The women had bunches of willows in their hands which they pounded on the ground in time to the music to produce a rustling sound" (Opler 1941:562). While Opler does not describe the cultural significance of the willow in the Sun Dance, he does say that friends and relatives of the dancers bring them as a "sign of good will" (Opler 1941:563).

Edward Box III noted that tribal members collect willow along the Animas River between Silverton and Ignacio.

Ute Mountain Ute Ethnobotany: Tribal participants in the current study said that willow is "really important." Helen Munoz stated that the branches of this plant are used to make cradle boards. The Ute name was described as *ka-nivh*. Kathryn Jacket stated that the branches are used to make the shade cover for the cradle boards. It is harvested along rivers in the spring time before the plants leaf out.

Figure 5.175. Sun Dance corral with willow enclosure. Photograph by J. D. Clark, 1906. Neg. No. 46,787-E. National Anthropological Archives, Smithsonian Institution.

Figure 5.176. A painting on muslin attributed to Ute artist Louis Fenno depicting the Ute Sun Dance (upper scene), Bear Dance (middle scene), and other historical events (bottom portion), 1890–1900 (IV.CI-A756.1.D, photographed by Richard Wicker, Denver Museum of Nature and Science). Note willows depicted on exterior of Sun Dance corral.

Sambucus spp.

Common Name(s): Elderberry

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Fruit

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Tribal research participants identified at least two species (*S. racemosa* and *S. microbotrys*) that are edible and a traditional source of food (McBeth 2008:20). This plant can be eaten raw, or dried and stored for future consumption (Burns 2003:27–28; Callaway and others 1986:338).

Figure 5.177. *Sambucus racemosa*. Photograph by William Widener.

Schoenoplectus tabernaemontani

Common Name(s): Soft stem bulrush

Ute Name(s): T'su-saip(N)

Traditional Use(s): Edible

Plant Part(s) Used: Shoot

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:36, 40) noted that the young shoots of this plant are edible.

Figure 5.178. *Schoenoplectus tabernaemontani*. From Bugwood.org, UGA5079 044, Troy Evans, Great Smoky Mountains National Park.

Senecio spp.

Common Name(s): Ragwort

Ute Name(s): Ko-ats-ĕm-sĭ-ta-gwĭv(N)

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:36, 37) reported that Ute people had medicinal uses for *Senecio* spp. and the Ute term *ko-ats*-ĕm-*sĭ-ta-gwĭv*(N) refers in part to medicine or *sĭ-ta-gwĭv*. Although tribal research participants did not comment on this plant during fieldwork, multiple species were observed in the BPMD (*S. atratus*, *S. bigelovii*, *S. eremophilus*, and *S. triangularis*). Moerman (1998:527) notes that *S. tirangularis* was used by Plains tribes as a sedative and analgesic.

Figure 5.179. *Senecio triangularis*. Photograph by William Widener.

Shepherdia spp.

Common Name(s): Buffaloberry; Soapberry

Ute Name(s): Agup[(N)]; Anga-si-un-giv[(N)]; Ahkup[(N)]; Añ-gût-a-gwĭv[(N)]; Nika=pi[(W)]; Añ-gût-a-gwĩv[(N)]; Tuwa-pʉ̲[(S)]; Ta-ma-nûmp[(N)]

Traditional Use(s): Medicinal; Edible

Plant Part(s) Used: Fruit

Season(s) Harvested: Fall (Fruit)

General Ute Ethnobotany: Multiple sources indicate that buffaloberry is traditionally an important source of food for Ute people (Chamberlin 1909:36; Kelley and others 2017:4.7–33; McBeth 2008:20; Moerman 1998:528; Smith 1974:269). At least two species have been identified (*S. argentea* and *S. canadensis*). The Ute people prized the buffaloberry, and the dried berries served as a convenient substitute for chokecherries for making pemmican. Berries could be eaten raw, cooked, or dried and stored for later use (Ute Indian Museum 2019). *Shepherdia canadensis* (soapberry) or *ta-ma-nûmp*[(N)] can be eaten as a whipped froth (Burns 2003:27–28; Callaway and others 1986:338). Givón (2013a:132) documented the Ute term *tuwa-pʉ̲*[(S)] for this plant.

Ute Indian Tribe Ethnobotany: Clifford Duncan previously noted that the berries are delicate and must be harvested carefully. Harvesters only collected what they needed, and some berries were left on the ground to germinate (Kelley and others 2017:4.7–33). Multiple Ute terms from the Ute Indian Tribe are documented for buffaloberry including: *agup*[(N)]; *anga-si-un-giv*[(N)]; *ahkup*[(N)]; *añ-gût-a-gwĭv*[(N)]; *nika=pi*[(W)]; and *añ-gût-a-gwĩv*[(N)].

Figure 5.180. *Shepherdia argentea*. Photograph by William Widener.

Figure 5.181. *Shepherdia argentea*. Photograph by Maren Hopkins, August 21, 2019.

Figure 5.182. *Shepherdia argentea*. Photograph by William Widener.

Solanum jamesii

Common Name(s): Wild potato

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Tuber

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: The tuber of this plant is edible and is listed as one of the three "Indian potatoes," along with yampah (*Perideridia gairdneri*) and spring beauty (*Claytonia megarhiza*) (McBeth 2008:11). This plant can be eaten raw, boiled, or baked (Burns 2003:27–28; Callaway and others 1986:338).

Figure 5.183. *Solanum jamesii*. Photograph by William Widener.

Solidago simplex

Common Name(s): Mt. Albert goldenrod

Ute Name(s): N/A

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Ute research participants noted that this plant is used to prevent pregnancy.

Figure 5.184. *Solidago simplex*. Photograph by William Widener.

Sphaeralcea spp.

Common Name(s): Globe mallow

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Mountain Ute Ethnobotany: Tribal research participants previously said that this plant is edible (Living Heritage Anthropology and others 2019:6–7).

Figure 5.185. *Sphaeralcea* spp. Photograph by Sean O'Meara, August 6, 2020.

Spiranthes diluvialis

Common Name(s): Ladies tresses

Ute Name(s): Unknown

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: This plant is listed in McBeth (2008:67) and tribal research participants noted that it has medicinal uses.

Figure 5.186. *Spiranthes diluvialis*. Photograph by William Widener.

Streptanthus cordatus

Common Name(s): Heartleaf twist flower

Ute Name(s): O-nûn-ga-ats(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:36) provides the Ute name for this plant but does not identify a use.

Figure 5.187. *Streptanthus cordatus*. From USDA-NRCS PLANTS Database, STCO6, Gary A. Monroe.

Symphoricarpos spp.

Common Name(s): Snowberry

Ute Name(s): Unknown

Traditional Use(s): Basketry

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: The stems of this plant are sometimes used in basketry (McBeth 2008:36), although willow (*Salix* spp.) and sumac (*Rhus trilobata*) are preferable materials.

Figure 5.188. *Symphoricarpos* spp. Photograph by William Widener.

Taraxacum officinale

Common Name(s): Common dandelion

Ute Name(s): (Mo)-mûn'-ti-ad-qsûp(N)

Traditional Use(s): Edible

Plant Part(s) Used: Leaf; Flower

Season(s) Harvested: Spring

Southern Ute Indian Tribe Ethnobotany: Erwin Taylor noted that all parts of plant are eaten and are similar in taste to wild asparagus (*Asparagus officinalis*).

Ute Indian Tribe Ethnobotany: Chamberlin (1909:36) documented the Ute name for this species and noted that the young leaves are eaten.

Ute Mountain Ute Ethnobotany: Helen Munoz said that the leaves, flowers and flower stalks are eaten when they first emerge.

Figure 5.189. *Taraxacum officinale*. Photograph by William Widener.

Tellima spp.

Common Name(s): Tellima

Ute Name(s): Añ-gai-ya-ga-ti-nûmp(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:36) provides a Ute name for this plant but does not identify a use.

Figure 5.190. *Tellima grandiflora*. From USDA-NRCS PLANTS Database, TEGR2, Brother Alfred Brousseau.

Toxicodendron rydbergii

Common Name(s): Poison ivy

Ute Name(s): Che dap(M); Chi-nip(M)

Traditional Use(s): Avoid

Plant Part(s) Used: None

Season(s) Harvested: None

Ute Mountain Ute Ethnobotany: Alfred Wall, Jr., stated that the Ute name was described as *che dap*(M) or *chi-nip*(M). Kathryn Jacket said that this plant must be avoided when in the mountains.

Figure 5.191. *Toxicodendron rydbergii*. From USDA-NRCS PLANTS Database, TORY, Al Schneider.

Trifolium spp.

Common Name(s): Clover

Ute Name(s): ?Sa-gwa-ĭn-di-ûp(N); Mo'-pi-änts(N); Mû'-pi-äints(N); Pu-i'tcûm-av(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Chamberlin (1909:36) provides the Ute name for this plant but does not identify a use. *T. longipes* was observed in the project area. Ute research participants believe this plant may be used by Ute people.

Figure 5.193. *Trifolium repens*. Photograph by William Widener.

Figure 5.192. *Trifolium longipes*. Photograph by William Widener.

Triglochin maritima

Common Name(s): Seaside arrowgrass

Ute Name(s): Pa'-sau-wa-dĭnt(N)

Traditional Use(s): Unspecified

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:36) provides a Ute name for this plant but does not identify a use.

Figure 5.194. *Triglochin maritima*. From USDA-NRCS PLANTS Database, TRMA20, Al Schneider.

Typha spp.

Common Name(s): Cattail

Ute Name(s): Unknown

Traditional Use(s): Ceremonial; Edible; Utilitarian; Basketry

Plant Part(s) Used: Shoot; Leaf; Seed

Season(s) Harvested: Spring (shoot); Summer (leaf and seed); Fall (seed)

General Ute Ethnobotany: At least two species (*T. latifolia* and *T. angustifolia*) are used traditionally. Kelley and others (2017:A-143) describe multiple traditional uses for these plants including eating the young shoots, stuffing buckskin or pillows with the seed chafe for insulation, weaving the leaves into matts, and using the stalks during the Sun Dance Ceremony.

Ute Mountain Ute Ethnobotany: Helen Munoz stated that the broadleaf cattails are traditionally used.

Southern Ute Ethnobotany: During research for the current study, Cassandra Atencio explained that this is a ceremonial plant used in the Sun Dance. It is also used as a weaving material. The young bulbs are edible. Ms. Atencio noted that the brown part, or fluff, was traditionally used to make diapers and menstrual pads.

Figure 5.195. *Typha latifolia*. Photograph by William Widener.

Ulmus pumila

Common Name(s): Siberian elm

Ute Name(s): Unknown

Traditional Use(s): Fuel

Plant Part(s) Used: Wood

Season(s) Harvested: Unspecified

General Ute Ethnobotany: Tribal research participants noted that the wood from this introdued species is used for firewood, although other species of wood are preferred for fuel.

Southern Ute Ethnobotany: During the current study, Southern Ute participants noted that elm is good for making bows because of the wood's flexibility and strength.

Figure 5.196. *Ulmus pumila*. Photograph by William Widener.

Unknown

Common Name(s): Unidentified wild carrot

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Root

Season(s) Harvested: Spring

Ute Mountain Ute Ethnobotany: Helen Munoz described a plant that has cabbage-like leaves and a white root. The root is gathered in the spring and eaten.

Unknown

Common Name(s): Unidentified red berry

Ute Name(s): Unknown

Traditional Use(s): Edible

Plant Part(s) Used: Fruit

Season(s) Harvested: Unspecified

Ute Mountain Ute Ethnobotany: Helen Munoz described a plant that is collected near Dolores, Colorado. The red berries are ground and made into a pudding. The plant has small grey leaves, thorns, and sour red berries. It is dependent on harvesting for its survival; if it is not harvested, the plant will disappear. Ms. Munoz noted that there used to be a lot in the past and now it is hard to find. It can still be found on the Uintah and Ouray Reservation.

Unknown

Common Name(s): Unidentified blue berry

Ute Name(s): Unnown

Traditional Use(s): Edible

Plant Part(s) Used: Fruit

Season(s) Harvested: Unspecified

Ute Mountain Ute Ethnobotany: Helen Munoz described a low-growing plant with a blue berry that is collected in the mountains. It is dependent on harvesting for its survival; if it is not harvested, the plant will disappear. Further research is needed to determine if this is *Mahonia repens*, creeping barberry.

Vaccinium caespitosum

Common Name(s): Bilberry; blueberry

Ute Name(s): Tuwa-pi̲[(S)]; Toowump[(N)]; Patu=pɨ [(W)]

Traditional Use(s): Edible

Plant Part(s) Used: Fruit

Season(s) Harvested: Summer; Fall

Ute Indian Tribe Ethnobotany: The berries are harvested and eaten (McBeth 2008:45; Smith 1974:269).

Southern Ute Ethnobotany: Givón (2013a:130) documented the Ute terms *tuwa-pi̲*[(S)] for the blueberry bush and *tuwa-pi̲*[(S)] for the the fruit.

Figure 5.197. *Vaccinium caespitosum*. From Bugwood.org, UGA1364443, Mary Ellen Harte.

Verbascum thapsus

Common Name(s): Common mullein

Ute Name(s): Teeyahumkuv[S, N]

Traditional Use(s): Medicinal

Plant Part(s) Used: Leaf

Season(s) Harvested: Spring; Summer; Fall

Ute Indian Tribe Ethnobotany: McBeth (2008:55) documented the Ute name for this introduced plant species.

Southern Ute Tribe Ethnobotany: Alden Naranjo, Jr., previously noted that the leaves of *teeyahumkuv*[S, N] are mixed with tobacco and smoked to treat respiratory ailments (Kelley and others 2017:A-145).

Figure 5.198. *Verbascum thapsus*. Photograph by Sean O'Meara, July 11, 2017.

Viola beckwithii

Common Name(s): Beckwith's viola

Ute Name(s): Ka-bam-sĭ-ta-gwĭv[N]

Traditional Use(s): Medicinal

Plant Part(s) Used: Unspecified

Season(s) Harvested: Unspecified

Ute Indian Tribe Ethnobotany: Chamberlin (1909:37) noted that this plant was used medicinally. The Ute name translates as "horse medicine" (*Ka-bam* "Horse's" and *sĭ-ta-gwĭv* "Medicine").

Figure 5.199. *Viola beckwithii*. From USDA-NRCS PLANTS Database, VIBE2, Gary A. Monroe.

Yucca spp.

Common Name(s): Yucca

Ute Name(s): W̲isi(N); Wisi (N, M); Wisiwĭv(M); Wíisi-vʉ̲ (S)

Traditional Use(s): Edible; Hygiene; Utilitarian

Plant Part(s) Used: Fruit; Root; Leaves

Season(s) Harvested: Fall (Fruit); Anytime (Root)

General Ute Ethnobotany: At least three species of yucca (*Y. baccata*, *Y. glauca*, and *Y. harrimaniae*) are traditionally used by Ute people, mainly for their edible fruit and for their roots, which form suds when mixed with water (Kelley and others 2017:A-149; McBeth 2008:68–69). The fibers were also used to make cordage for sandals, water containers, and other implements. The plant must be boiled in order to harvest the fibers. The fruit of this plant can be eaten cooked or raw (Ute Indian Museum 2019).

Ute Mountain Ute Ethnobotany: Alfred Wall, Jr., stated that the root of the yucca was traditionally used for shampoo. The Ute Mountain Ute Elder Committee continues to harvest yucca root for this purpose and demonstrate its use to younger generations. The Ute name was described as *wisi*(M). Mr. Wall also noted that the original Ute term for Sleeping Ute Mountain is Wisikava(M), or "Yucca Mountain." During fieldwork for an ethnographic study at Chimney Rock National Monument, Mr. Wall explained that the root of the yucca is the part of the plant harvested for shampoo. The long root is dug from the ground and stripped of its skin. It is then mashed into a pulp and mixed with water, and the resulting suds are used to cleanse the hair and skin (Hopkins and others 2020:164).

The yucca fruits are consumed as food, and the fibers from the leaves are used to make clothing, ropes, and other implements (Hopkins and others 2020:164). Helen Munoz noted that wís, or the fruit from the banana yucca, is harvested when it is fully ripe and cooked. The Ute name for both plants was described as *wisiwĭv*(M). The root of the soapweed yucca is harvested for shampoo. Only part of the root is taken, not the whole plant.

Southern Ute Ethnobotany: The Ute term for the yucca plant is *wíisi-vʉ̲* (S). The yucca-leaf rope is *wíi-vʉ̲*(S) and the fruit are *wíisi̲* (S) (Givón 2013b:226).

Figure 5.200. *Yucca baccata*. Photograph by Sean O'Meara, September 1, 2019.

Figure 5.201. *Yucca glauca*. Photograph by Sean O'Meara, July 31, 2019.

Zigadenus nuttallii

Common Name(s): Nuttall's death camas

Ute Name(s): Ta-bä'-si-gwĭv(N)

Traditional Use(s): Avoided (poisonous)

Plant Part(s) Used: None

Season(s) Harvested: None

Ute Mountain Ute Ethnobotany: Helen Munoz said this plant is often confused with wild onion. This plant is poisonous and should be avoided. Its leaves are said to look like—but not smell like—the wild onion. Chamberlin (1909:37) also documented that this plant was regarded as poisonous by Ute people. The term *ta-bä'-si-gwĭv*(N) translates to "sun sego" (*ta'-bi* or "sun" and *si-go iv* or "sego").

Figure 5.202. *Zigadenus nuttallii*. From USDA-NRCS PLANTS Database, ZINU, G. A. Cooper.

ADDITIONAL PLANTS OBSERVED DURING FIELDWORK WITH NO KNOWN TRADITIONAL USES

An additional 38 plant species were identified by a research botanist during fieldwork in the BPMD (Table 5.2). Although at this time no Ute traditional uses are documented for these plants, several of those included here share the same genus as some traditional-use plants. This list is provided for future reference should additional research yield Ute traditional uses.

Table 5.2. Additional Plants Observed During Fieldwork with No Known Traditional Uses

Latin Name	***Common Name***
Acer negundo	box elder
Aquilegia coerulea	Colorado blue columbine
Arenaria lanuginosa	spreading sandwort
Bistorta bistortoides	American bistort
Bistorta vivipara	alpine bistort
Blepharoneuron tricholepis	pine dropseed
Boechera stricta	Canadian rockcress
Caltha leptosepala	white marsh marigold
Campanula rotundifolia	common harebell
Cardamine cordifolia	hearleaf bittercress
Chamerion angustifolium	fireweed
Clematis ligusticifolia	western virgin's bower
Dasiphora fruticosa	shrubby cinquefoil
Delphinium barbeyi	subalpine larkspur
Deschampsia brevifolia	Bering hairgrass
Dieteria canescens	hoary false tansy-aster
Dyssodia papposa	fetid-marigold
Epilobium leptocarpum	slender-fruit willowherb
Eremogone fendleri	Fendler's matted sandwort
Festuca thurberi	Thurber's fescue
Geranium richardsonii	Richardson's geranium
Heuchera parvifolia	little-flower alumroot
Holodiscus dumosus	rockspirea
Hymenoxys hoopesii	orange sneezeweed
Linum lewisii	Lewis flax
Lonicera involucrata	twinberry honeysuckle
Oreochrysum parryi	Parry's goldenrod
Pedicularis groenlandica	bull elephant's-head
Pedicularis racemosa	sickletop lousewort
Poa cusickii	Cusick's bluegrass
Prunella vulgaris	common selfheal
Rorippa alpina	alpine yellowcress
Sedum lanceolatum	lance-leaf stonecrop
Trisetum spicatum	spike trisetum
Urtica gracilis	California nettle
Veratrum californicum	California false hellebore
Veronica wormskjoldii	American alpine speedwell
Vicia americana	American vetch

CHAPTER SIX

Inventory of Other Ute Traditional-Use Resources

ERNEST PINNECOOSE EXPLAINED that, "In the Ute worldview, the natural environment is a means for connecting with the spirit, which is an inherent part of the value of the earth's natural resources, both when they are used and when they are harvested." In Ute belief, when something is collected, an offering or a prayer must be left behind, and this helps maintain balance. In addition to the traditional use plants described in Chapter 5, tribal research participants identified other resources that are culturally significant to Ute people. Animals, minerals, water resources, and physical locations all play a role in traditional Ute life and the maintenance and preservation of culture and heritage. These resources may also have been impacted by the 2015 Gold King Mine spill and the cumulative impacts from mining in the BPMD.

ANIMALS

Animals are a core part of traditional Ute life, providing life-sustaining food, as the protagonists in many Ute traditional stories including those of Creation, and as a source for cultural and spiritual guidance and inspiration (Table 6.1). Linda Baker noted that *sinae-vi* (the wolf) is a sacred animal to the Utes and an integral part of their Creation. Although rarely discussed, the encroachment and exploitation of the natural environment in the San Juan Mountains created a domino effect on the region's plant and animal species that ultimately led to the eradication of the wolf from the state of Colorado. Ms. Baker explained that over-hunting and the introduction of domesticated livestock degraded plant habitats for local deer, elk, and small game that were the natural prey of wolves, mountain lions, coyotes, and raptors. As their natural prey disappeared, wolves turned to domesticated livestock as a new food source and this led to a reactionary campaign against the wolf and other predators by farmers and ranchers. Ms. Baker recalled Ute elders such as the late Alden Naranjo, Jr., stressing that the Ute people exist today because of the wolf's role in Creation and that the loss of the wolf has had profound negative consequences ecologically, socially, and spiritually. Ms. Baker elaborated on the importance of the wolf to Ute social life:

> Culturally and socially, Ute people have learned about social structure from the wolf. This includes the selection of male and female leaders, the important roles everyone plays in contributing to the survival of a group, and the care and teaching of the next generation.

Hunting and fishing have always been an important part of Ute life. In the past, pitfalls, deadfalls, and drives were used as hunting techniques for large game. Nets were used to hunt rabbits during communal rabbit hunts. Small mammals and birds were hunted with slingshots and bows and arrows (Callaway and others 1986:340–341). Animals such as hawks, eagles, bears, buffalos, wolves, and mountain lions are spiritually significant, and they convey information to medicine men (Burns 2003:28; Reed 1991:14; Wroth 2000:43–49). The Utes made clothing and crafts from buckskin, sheepskin, and elk hides. Fletching for arrows was made using wing feathers of birds such as magpies, eagles, hawks, and owls (Callaway and others 1986:343, 352). As with the ethnobotanical section, not all animal species of notable cultural significance are listed here and it should be assumed that all animals hold a place of significance for Ute people.

Ernest Pinnecoose discussed learning to hunt from his cousins, Ervin and Buddy Taylor. They would venture into the mountains including the area around Silverton and other

Table 6.1. Ute Traditional-Use Animals Identified in Archival Research and Field Visits

Resource	*Ute Term*	*Use*
Ant	Páa-chi(S); Tasi'a-vi(S)	Indicator of seasons; spiritually significant
Bear	Kwiya-'éese(S); Kwiya-chi(S); Kwiya-gha-tʉ(S); Kʷia=ka=tɨ(N)	Medicine animal (Wroth 2000:43–49); hides, teeth, claws used at Ute M.
Beaver	—	Hide used
Bee	Pia-múua-raa-chi(S); Múu-ráa-pi(S)	Indicator of seasons
Bird (generally)	Wichichi(S)	—
Bison; buffalo	Kúchu(S); Ta'u-chi(S); Koach(N)	Medicine animal (Wroth 2000:43–49); hides used; Food
Coyote	Yogho-vʉ- chi(S)	Medicine animal (Wroth 2000:43–49)
Deer	Tʉi-yʉ(S); Tʉi-ku-chi(S)	Food; hides, sinew used; hooves used for rattles (Opler 1941:571)
Dog	Sarichi(S)	Helped carry supplies at Southern Ute
Dove, mourning	?ai?a=pɨ(W)	—
Duck	Chʉga-chi(S)	—
Eagle	Kwana-chi	Medicine animal (Wroth 2000:43–49); bones used for ceremonial whistles; feathers used in ceremony (Opler 1941:552, 555)
Eagle, bald	Pía-gwana- chi(S)	Feathers are used at Southern Ute
Eagle, golden	—	Feathers are used at Southern Ute
Elk	Pariyʉ	Food; teeth, hide and bones used
Fish	Pakɨɨ(N)	Food
Flicker, red	'aka-qona-vi(S)	Feathers are used at Southern Ute
Fox	Tavi-cha'a-chi(S); Tapai-ca=ci(W)	—
Fox, black	Túu-tavay-cha'a-chi(S); Tuu-tapai-ca=ci(W)	—
Hawk, redtail	—	Feathers are used at S. Ute
Horse	Cava(S); Cavallo(S)	Domesticated animal used for transportation
Jackrabbit	Kamu-chi(S); Kamu=ci(N)	—
Jay, Steller's	—	Feathers are used at S. Ute
Magpie	Mam-kway'a-chi(S)	Feathers are used at S. Ute
Marmot, groundhog	?iya=pɨ=ci(N)	Food
Moose	Payuku(S); Paiyukɨ(W)	Medicine animal; food at S. Ute
Mountain goat	Yúaa-siveetu-chi(S)	Food
Mountain lion	Tukwai-chi(S)	Medicine animal (Wroth 2000:43–49)
Mouse, field	Pui=ci=ci(N)	—
Osprey	—	Feathers are used at S. Ute
Owl	Muu=pɨ=ci(W)	—
Porcupine	Yʉʉ-pʉ-chi(S); ?iyu=pi=ci(N)	Food; quills (*mana'wa-vi*(S)) used for adornment

Table 6.1. (continued)

Resource	***Ute Term***	***Use***
Prairie dog	Techay'a[(S)]; Techay'a-y[(S)]; Cisɨ=ci[(N)]	—
Pronghorn	Wachi-chi[(S)]; Waci=ci[(N)]	Food
Rabbit, cottontail	Tavʉ-chi[(S)]; Tapu=ci[(N)]	—
Rat	Káa-cha'a-chi[(S)]; Kaci=ci[(N)]	—
Rattlesnake	Toghoa-vi[(S)]; Tuk^{w}ua=pɨ[(N)]	Medicine Animal (Wroth 2000:43–49)
Salmon, kokanee	—	Food
Sheep, Rocky Mountain; Bighorn	Nagha-chi[(S)]	Food; constructing bows at S. Ute
Skunk	Peni-yʉ[(S)]; Pinii[(N)]	—
Trout	Pagʉ[(S)]	—
Turkey, wild	Kwiyu-tʉ[(S)]	Food; feathers for arrow making at S. Ute
Weasel, red	Pavi-chi-chi[(S)]	Medicine Animal (Wroth 2000:43–49)
Wolf	Sinapi[(N)]	Medicine Animal (Wroth 2000:43–49)

Ute Indian Tribe animal terms derived from Smith 1974:268–269. Southern Ute terms derived from Givón 2013b.

traditional Ute hunting grounds. He described harvesting, processing, and preserving an animal in the following passage:

> So, if you harvested an animal, we all partook in the prayer ceremony, giving thanks for that animal and then preparing it the best way we could to get home. And then our great-great-grandma would make jerky—the old style. There were no machines, it was done with a knife and you probably took a 5-pound piece of meat and when you are done with it you have a 5-foot strip of meat and you hang that over a line and let it dry. When ready to cook the meat, we would grind it and make a gravy out of it as well. You could eat it, add it to stews or eat it with Indian bread as a sandwich, so there were various ways. My modern-day methods include making jerky—so dry meat, then smoking it to preserve it as well as freezing in the freezer for fresh use. So, I have various ways of preserving the meat and the same way with the fish. This time of the year, the kokanee salmon start running out of the reservoir.

Mr. Pinnecoose has hunted elk, deer, and mountain goat extensively in the many of the drainages near Silverton, including Cement Creek, Red Mountain Pass, other passes between Silverton and Lake City, and the upper Animas. He has seen animals migrate into new areas throughout his decades of hunting and exploring the region including the arrival of bighorn sheep into the upper reaches of Cement Creek, pushing out some of the mountain goats into other parts of the drainage or to other drainages.

Ute Mountain Ute research participants discussed a variety of culturally significant animals. Ants are described as an indicator of the seasons and as having spiritual significance. Alfred Wall, Jr., listed multiple animals that are hunted for food including deer, buffalo, elk, mountain goats, mountain bighorn sheep, marmots, and porcupines. Laverna Summa noted that Ute people always ate native fish. Both the bear and moose are considered "brothers" and are not eaten. Moose, buffalo, and bears are also considered medicine animals with the bear being associated with the Ute Bear Dance and moose being known as "carriers of the medicine." Elk, beaver, and deer were also hunted for their hides. Elk hides in particular were used for the tipi coverings. Porcupine quills and elk teeth are used for adornment on clothing and elk bones are used to make rasps as well as tools. Bear teeth and claws were said to be used for decoration and adornment, and bear hides were made into rugs.

Ernest Pinnecoose emphasized the contemporary importance of hunting in and around the BPMD. When asked about contemporary hunting practices, Mr. Pinnecoose responded with the following:

> We hunt in the wilderness, the wild wilderness of Colorado. It's not a cake walk. It is riding horses, backpacking, and having to haul [the animal] after you harvest.

> We generally take our own horses, set up camps and harvest whatever animals we can in the time period we have. … We get our subsistence tags to harvest in those areas…Within the Brunot area we are allowed deer and elk, turkey, mountain lion to harvest, we have what they call an exotic species which are the moose, bighorn sheep, and the mountain goat. We have a draw system within our tribal organization where you put in for one of each species.

Cassandra Atencio noted that the buffalo is an animal with many uses and different bands had different levels of access to it. Buffalo hides were used to cover Moĝwáchi(S) and Kapuuta(S) tipis, and also used the material for making moccasin soles.

MINERALS

Minerals serve a variety of functions in traditional Ute life. The BPMD is an area with a high concentration of significant minerals (Figure 6.1) and lithic resources for Ute people who would often travel long distances to collect minerals from specific sources. For example, Wroth (2000:148) details that Ute dyes for decorating parfleches were produced from an unidentified black stone collected near Ouray, Utah, which was prized for the brown-to-black color used to outline patterns. Juice extracted from prickly pear (*Opuntia* spp.) was applied to "fix" the dye and make it resistant to water. Opler (1941:558) notes that Southern Ute people used to travel to a source near Mancos Canyon to collect red ochre and coal for use in the Sun Dance. During his expedition in the 1690s, Diego de Vargas observed Ute people with paint on their faces (Vargas 1998:I:308 as cited in Wroth 2000:61).

Ute tribal members commented about the traditional uses of minerals during research for the current study (Table 6.2):

- Alfred Wall, Jr., said that red dirt, or ochre, is used as ceremonial body paint. He said it was also used traditionally as sunscreen.
- Terry Knight said that red paint made from ochre is used in the summertime for the Sun Dance. Mr. Knight said he paints red ochre on himself when he officiates funerals in order to "let the spirits know you are there for good. You have to talk to the spirit world, the sky, earth, etc. Adorning yourself shows reverence and offers protection." He added that not everyone can use it; only certain people can and should adorn themselves this way at appropriate times. Mr. Knight said that he always leaves an offering when collecting things like minerals, and that he uses a wooden implement to dig into the ground. "You need to use natural materials to touch Mother Earth," he said. Mr. Knight collected a sample of red ochre he found in the BMPD study area (Figure 6.2).
- Alfred Wall, Jr., said that sand has many uses and many of them are private. "It is sacred and not publicly demonstrated," he said. He also commented that sand and rocks are heated up and used to help cure pain, such as arthritis.
- Alfred Wall, Jr., said that white clay is applied to feet during ceremonial dances because it protects them from the heat. Mr. Wall said white clay can also be mixed with water and consumed to help with constipation.
- Alfred Wall, Jr., said that fine grain pebbles are used for rattles.

Figure 6.1. Ernest Pinnecoose holds yellow mineral found in Cement Creek near Gladstone. Photograph by Shawn Kelley, October 17, 2019.

Table 6.2. Ute Traditional-Use Minerals Identified in Archival Research and Field Visits

Resource	*Ute Term*	*Traditional Use*
Black sand	Tuu sawop (M)	—
Coal	Kukwi-vʉ (S)	Ceremonial (Opler 1941:558)
Fine grain pebbles	Tupataz (M)	Ceremonial
Red dirt	—	Medicinal; Ceremonial
Red ochre	Ah-gah-hah (M)	Ceremonial; Medicinal (Opler 1941:558)
Red sand	Aka sawop (M)	—
River stone	—	Medicinal
Salt	ʻea-vʉ (S)	Medicinal
Sand	Sawop (M); Siwa=pɨ (W)	Medicinal; Ceremonial
White clay	Pawia-vi (S)	Medicinal; Ceremonial
Yellow ochre	Rocka (M)	Ceremonial

Figure 6.2. Terry Knight of the Ute Mountain Ute Tribe describes the cultural significance of red ochre found near Molas Lake in the BPMD study area. Photograph by Maren Hopkins, August 20, 2019.

- Alfred Wall, Jr., stated that yellow mineral is used to paint moccasins.
- Cassandra Atencio recalled that her elders warned that certain ochre sources were known to be contaminated and could cause sickness in the people applying ochre from those places. These elders would collect ochre from places they knew to be safe.

WATER

Water is sacred for Ute people both for its life-sustaining properties and its cultural importance. Water is a significant resource for Ute people today, just as it was in the past. Recent heavy metals monitoring of springs and draining mines in the BPMD (Figure 6.3) reveal at least 132 seeps and springs in the BPMD that contribute to the Animas River watershed (Cowie and Roberts 2020:5) and the EPA maintains publicly available information about ongoing monitoring of the San Juan watershed (*Durango Herald* 2018; EPA 2021). Tribal representatives participating in this project note that all seeps and springs are categorically important cultural resources for the Ute people, even if there is no specific documentation of their use. Ute people value all seeps and springs and have concerns about their welfare. Erwin Taylor noted that, "Utes very much still see natural waters as a source of life and sustenance, happiness, and well-being." Ute tribal members participating in the current research expressed concern about the health and well-being of the water sources affected by the Gold King Mine spill in 2015 (Figure 6.4). Terry Knight said that the environment

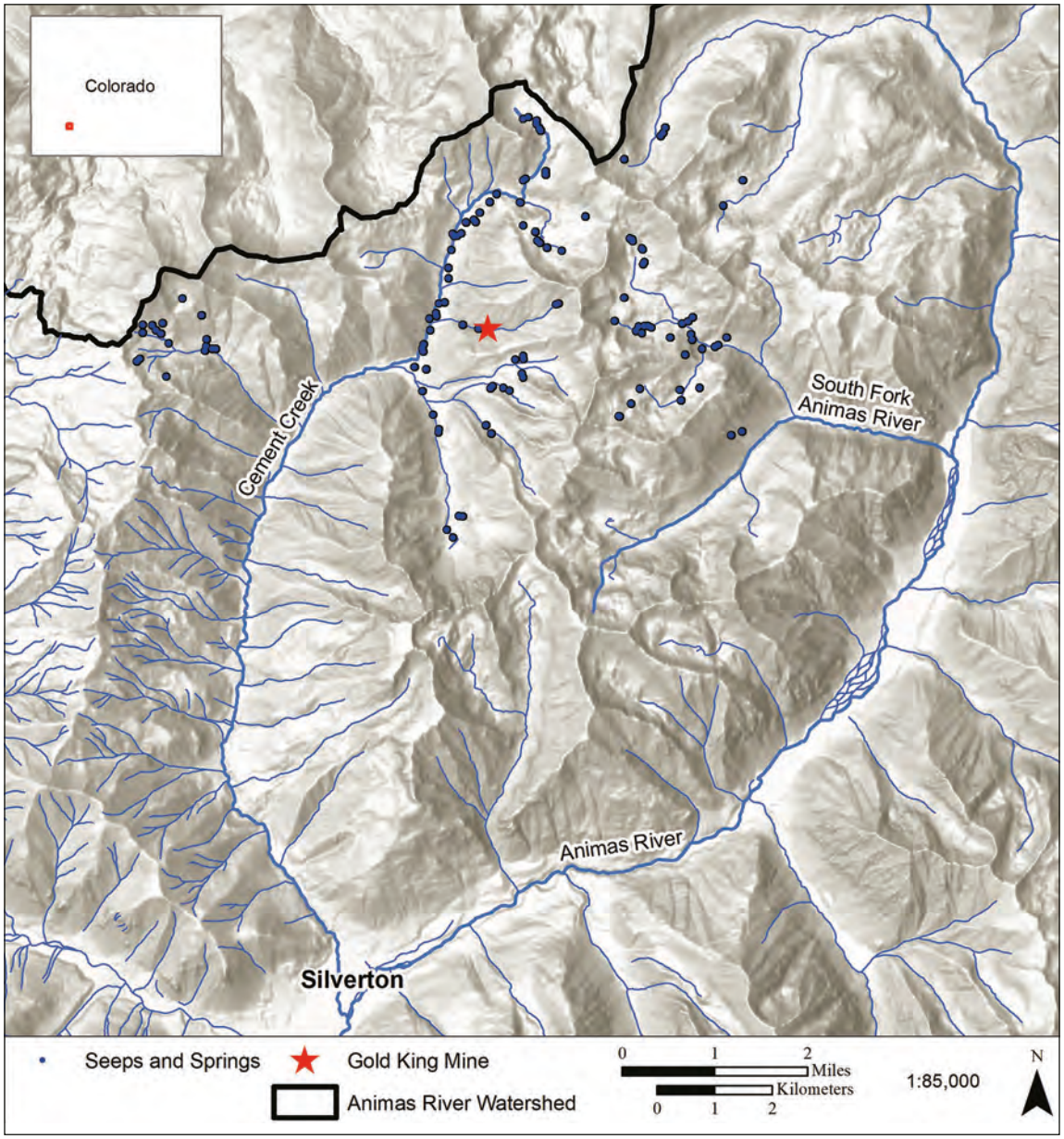

Figure 6.3. Seeps and springs located in the BPMD.

is "damaged pretty bad." He expressed worry for the plants and wildlife and said that he is nervous about hunting animals that may have consumed contaminated water. Laverna Summa similarly noted that she "wouldn't want to collect plants next to yellow water." Alfred Wall, Jr., said he "feels bad for the poor water," and he worries that it will not be safe for future generations. Mr. Knight stated, "We need to find a way to clear the water up. Our Creator put the water here, and he is the only one that can fix it."

Ute terms and concepts reflect their value for water resources. Ute tribal members made several comments about the value and significance of water during research for the current study; however more research is needed to further develop this information (Table 6.3).

- Ernest Pinnecoose explained that snow is important for replenishing the earth and preparing it for springtime. In the spring, Utes were taught to "go break the ice" and get the water flowing. Plants can be affected by drought, freezing, flooding, and fire.
- Alfred Wall, Jr., explained that hot springs are a source of spiritual strength, power, and healing.

Table 6.3. Ute Traditional Terms and Concepts Relating to Water

Resource	***Ute Term***	***Translations and Comments***
Cloud	‘uwa-ti-pʉ(S)	“Rain maker”
Creek	Páanu̲kwitu̲(S)	“Water running”
Dew	Panuukwatu̲(S)	—
Glacier	Nuuvf tuskaat(M); Nuva tsuka(M)	This refers to “snow forming on ice” and is an indicator of Winter and Spring.
Hail	Nía(S)	—
Hot springs	New-wee chuche(M)	Hot springs are visited for medicinal purposes.
Ice	Para’si-kya-pʉ̲(S); Para’si-pʉ̲(S); Tʉ’asi-pʉ̲(S)	“Ice” “Frozen thing” —
Lake	Páa-gharu̲-rʉ̲(S)	—
Pond	Páa-gharu̲-rʉ̲(S)	—
Rain	Páa-‘uwa-rʉ̲(S); ‘uwapá(S)	—
Rain cloud(s)	Páa-‘uwa-ti=kya-tʉ̲(S)	—
Rainwater	‘uwa-páa(S)	“Falling water”
River	‘ava-tu nukwi-tu(S)	—
Snow	Nʉvwa-rʉ̲(S); Nʉvwa̲-vʉ̲(S); Nuva(M)	“Snow” “Snow”
Snow clouds	Nʉvwa-wichi-chi̲(S)	“Snow bird”
Spring	Mach-spitsit(M)	—
Spring water	Chipe(M)	This is part of Chipeta’s name, who was the wife of Chief Ouray.
Water	Páa(S)	“Water”
Waterfall	—	Mr. Box III notes that he and his family would stop at waterfalls to give offerings and prayers and collect water to be used in ceremonies.
Wetland	Pagʉ-‘napʉ̲(S); Sowat tukits(M)	—

Utes traditionally bathed in hot springs to rejuvenate their mind, spirit, and body. Cassandra Atencio said that hot springs in the mountains were sometimes visited as a destination in the wintertime. They were our “banana belts,” she said.

- Terry Knight explained that in the past Ute camps would always be placed a short distance from their water source. This was to prevent contamination of the water source, and to respect the Ute philosophy that “water belongs to everyone, including animals and plants.”
- Edward Box III shared that when he would travel with his grandparents, Mr. Eddie Box, Sr., and Mrs. Dorothy Birch Box, to ceremonies and events at the Sister Tribes, they would stop and collect spring water and making offerings at a specific waterfall near Silverton. Mr. Box noted that his grandparents would always stop at this particular waterfall, make a blessing, and drink from the water. Passing this waterfall still connects Mr. Box to Mother Earth and memories of his grandparents and ancestors visiting this place.

Figure 6.4. Four years after the Gold King Mine spill, Ute research participants are still concerned about the yellow sludge coating rocks in Cement Creek. Terry Knight discusses the cultural importance of water with Michael C. Spears, while Kathryn Jacket examines plants growing next to the stream. Photograph by T. J. Ferguson, August 21, 2019.

LANDFORMS, UTE PLACE NAMES, AND UTE LEGACY NAMES

Ute landscapes are important cultural resources. In a previous ethnographic study, Betsy Chapoose of the Ute Indian Tribe said that among the most important aspects of Ute history and heritage are the aesthetics of the land. She explained that "you can burn down all the old camps, but you can't change the line of sight. You can always come back to the place and frame whatever it is you are looking for there" (Chapoose in Burns 2003:48). Ms. Chapoose explained that ceremonial sites are often chosen because of the viewsheds. The Ute people hold the mountains in high regard because that is where they originated, and they know it embodies spiritual power (Figure 6.5). During the current study, Ernest Pinnecoose commented that he was taught to respect the mountains because "they will take you if you don't respect them." Mr. Pinnecoose noted that mountain passes and saddles are important landmarks for navigation in the mountains and can provide a sheltered place to look out.

Place naming is a way to preserve knowledge about the land because names are often descriptive and incorporate cultural values. Mark Wing commented that landforms served as landmarks and were often used to describe a place:

> They would describe the landmarks to indicate the locations of the area, they would look at a landmark and it would signify; and picking up a certain thing of the area and tell the people later on you know, that's the place I was talking about. Like *tupetkuvits*(M), that is the rock formation we just came from. They would be some location they would identify. So, if they were talking elsewhere, in a different area, they would say "we will meet you at the *tupetkuvitz*(M), at that rock formation. Same as the *Sowat tukits*(M). *Sowat tukits*(M), that is the green meadow. So, if there was an area like that particularly, located in a certain area only and then when they saw that the people would know what he was talking about. So that is how they found their directions in an area.

Ute names for landforms often reference habitats associated with place. Unfortunately, the preservation and use of Ute place names has been largely trumped by a preference for Western terms. In spite of removal and relocation however, many Ute Legacy Names (Figure 6.6) persist in Colorado, reflecting Ute historical figures and Ute association with those areas as identified by the non-native colonial powers.

Figure 6.5. San Juan Mountains in the vicinity of the Gold King Mine. Photograph by T. J. Ferguson, August 19, 2019.

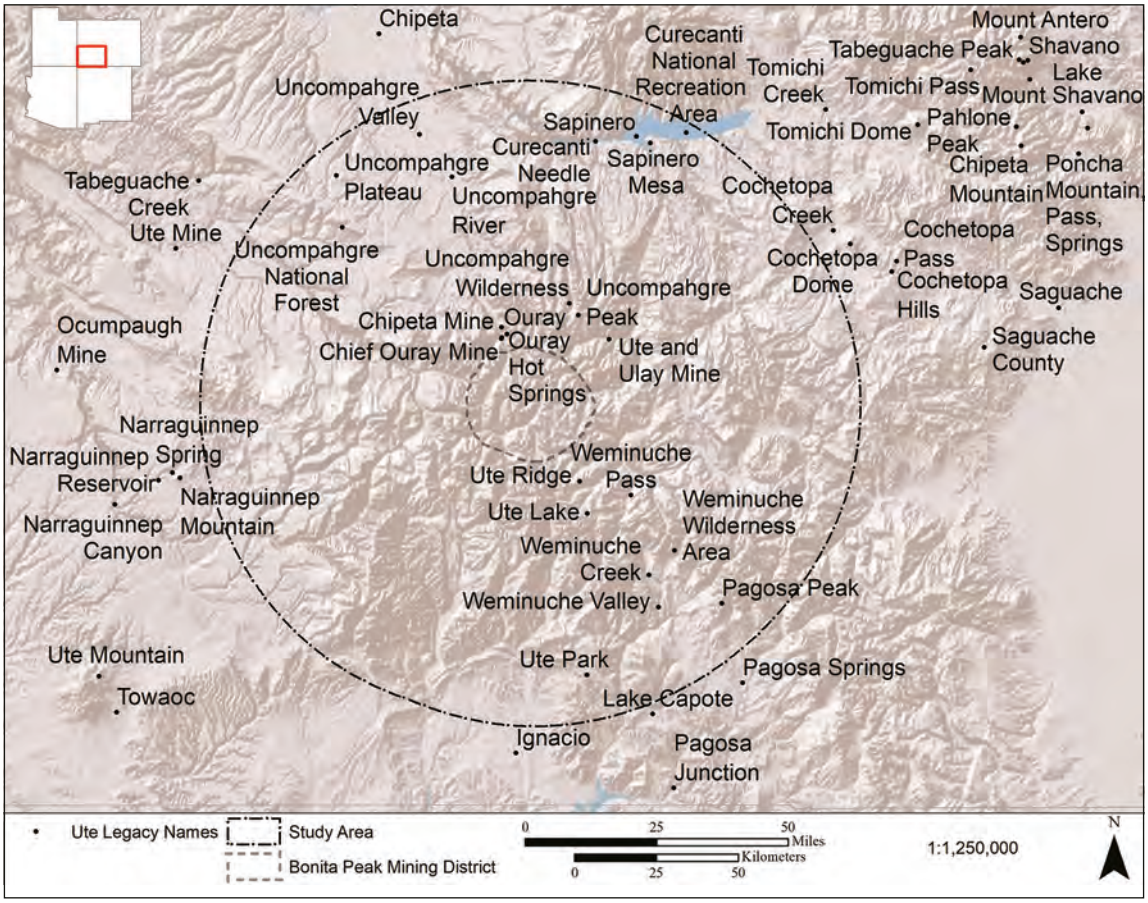

Figure 6.6. A sample of Ute legacy names in and adjacent to the BMPD study area.

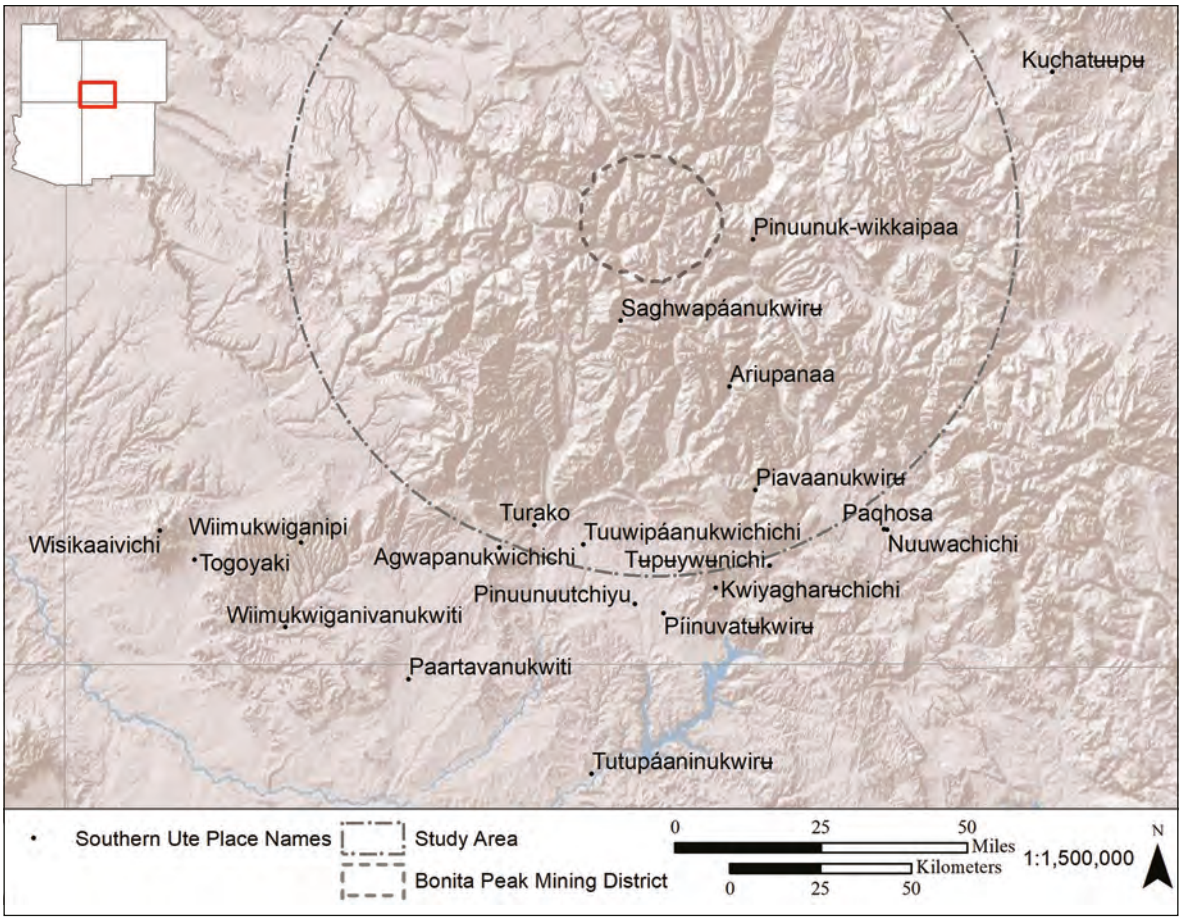

Figure 6.7. Selected Southern Ute place names in the BPMD region.

As Bennett (1999:2–3) notes however, "Ute traditional knowledge has been widely excluded from mainstream documents and maps. As such, places significant to the Ute are predominantly referred to by Spanish, English, or Americanized names." In spite of this, some Ute place names in the vicinity of the BPMD are still known (Figure 6.7; Table 6.4). The majority of these place names are derived from an interview conducted in 1962 by James Goss with Southern Ute elder Antonio Buck, Jr. A few names on modern maps pay tribute to the legacy of Ute people in Colorado—two examples of this are the Uncompahgre National Forest and the Weminuche Wilderness. Directed research about Ute place names would likely produce additional Ute toponyms in the vicinity of the BPMD study area.

UTE ASTRONOMY AND THE SKY

The sky is a major component of the Ute cultural landscape and Ute people have their own knowledge of astronomy and the way celestial bodies move across the sky. Several of the features of the night sky were documented during this study (Table 6.5). Mark Wing listed the night sky as part of the many elements that Ute people were knowledgably about:

The native people of this land were already knowledgeable of the elements, the night sky, the stars. The medicines of the earth, herbs, different things. Then when the Europeans settled in this land they found out. They started to learn different things from them.

Table 6.4. Ute Place Names Identified in Archival Research and Field Visits

Ute Place Name(s)	***Locations***	***Translation***
‘aka káavi(S); Agapatch(M)	—	General term for red mountain
‘iya-paa(S)	Yampa River	—
Agwapanukwichichi(S)	Basin Creek	A Lot-of-Dry-Wood-on-a-Hill Creek
Ariupanaa(S)	Spring Creek	Spring Creek
Kaachigarichichi(S)	Ignacio Peak	—
Kavakáavi(S)	Jackson Peak	Horse Mountain
Kuchat~~ʉʉpʉ~~(S)	Cochetopa Pass	Smoky Obsidian
Kwiyaghar~~ʉ~~chichi(S)	H.D. Mountain	Oak Mountain
Ma-ni-tukhwa̲(S)	Manitou Springs	—
Nuuwachichi(S)	Pagosa Springs	Water Gushing Out
Paartavanukwiti(S)	La Plata River	—
Panakáavi(S)	Longs Peak	Shiny Mountain
Paqhosa(S)	Pagosa Springs (Townsite)	Smell of Sulfur; Stinking Sulfur
Piaroghoavi ’ɵaa (S)	Sangre de Cristo Mountains	Great Serpent’s Back
Piaroghoavi Y~~ʉ~~chi(S)	Mount Blanca	Great Serpent’s Head
Piavaanukwir~~ʉ~~(S)	Piedra River	—
Píinuvat~~ʉ~~kwir~~ʉ~~(S)	Pine River	—
Pinuunuk-wikkaipaa(S); Awatakaav(M)	San Juan Mountains	Pine River Mountains
Pinuunuutchiyu(S); Píinu(S)	Ignacio	Home of Pine River Utes; Pine
Saghwapáanukwir~~ʉ~~(S)	Animas River	Blue River
Sah-gwah-ghowhidz(M)	Ridges Basin	Green Basin
Tavakáavi(S)	Pikes Peak	Sun Mountain
Tíiap~~ʉ~~(N)	Denver	Place where Salt Was Collected
Togoyaki(S)	Towaoc	—
T~~ʉ~~p~~ʉ~~yw~~ʉ~~nichi(S)	Chimney Rock	Standing Up Rock
Turako(S)	Durango	—
Tutupáaninukwir~~ʉ~~(S)	San Juan River	—
Tuukumkari(S)	Tucumcari, New Mexico	Covered in Black
Tuuwipáanukwichichi(S)	Florida River	Bare-plain Creek
Waata’wagharʉr~~ʉ~~(S)	Spanish Peaks	Two Leaders Sitting
Wiimukwiganipi(S); Múukwi-ani-p~~ʉ~~(S)	Mesa Verde Ruins	Old Hopi Houses
Wiimukwiganivanukwiti(S)	Mancos River	Old Hopi House River
Wisgaruchuch(M); Wisikaaivichi(S)	Sleeping Ute Mountain	Yucca Mountain; Little Yucca Mountain

Place names of the Southern Ute Indian Tribe are derived from a 1962 interview of Antonio Buck, Jr., by James Goss (Burns 2003:23) and from Alden Naranjo, Jr., in 2019 and 2020 transcribed by Dr. Stacy Oberly using the orthography developed by Givón. Place names of the Ute Indian Tribe are derived from Smith (1974:277). Place names of the Ute Mountain Ute Tribe were provided by tribal representatives during this study.

Table 6.5. Ute Astronomical Terms Identified in Archival Research and Field Visits

Resource	*Ute Term*	*Translation and Notes*
Big dipper	ʔakwu=ci (W)	"That dipper pours out the stars. In the morning when it gets light, all the stars have been poured out"
Comet	Saa-kamu=pɨ=ci (W)	When comets are seen, a long winter is predicted. "A big fire, it is going to be cold." "When a star fell down, it means they are going to have a new star in the sky."
Dawn	Tasʉ'aqa-tʉ (S)	—
Evening, late	Tuwi=ci tukʷatiu (W)	—
Meteor shower, Shooting star	Puuchi-wi'i- (S); Púuchi-wi-i- (S)	— —
Moon	Muátaǵóci (S); Mataqweetch (M)	—
Morning, early	Wíichkʉ-mana-kwa (S); Wicukwu (W)	—
Morning	Tapa-ci mapaatu=tukʷa (W)	—
Morning star	Tasʉ'a-púuchi-vʉ (S); Wíichkʉ-puuchi-vi (S);	—
New moon	'áa-mʉa-tago-chi (S)	—
Noon	Togho-tavay (S); Tukʷu tapai (W); Tukʷu-tami-pani tapa=ci (W)	"Sun overhead"; "Sun light straight up" — —
Night	Tugwa-na-tʉ (S)	—
North star	'ava-tʉ púuchi-vi (S); Mani-tukʷa-tapuu=ci=pɨ (W)	—
Pleiades	Seniaa-u (S)	—
Rainbow	Páa-roghoa-vi (S); Páa-roghoa-wʉnʉ- (S); Páa-roghoa-wʉnʉn-rʉ (S); Patuwa=ci (W)	"Water snake" "Water snake standing" "Water snake standing"
Seven Sisters	Navay-kya-vee-ini (S); Navay-kya-vaa-ku (S)	—
Sky	Tugu-paya (S)	—
Solar eclipse	Tama-i-yu=tɨ (W)	"It is getting dark"
Star	Púuchivi (S); Pujuuv (M)	—
Sun	Tavachi (S); Tavatch (M)	—
Sunset	Tapai ciakʷa (W)	"Sun is going down"
Twilight	'áa-tugwa-na-tʉ (S); ʔatukʷua tiu (W)	"A little dark" —

Ute Indian Tribe astronomical terms derived from Smith 1974:277–280; S. Ute astronomical terms from Southern Ute Indian Tribe Tribal Council Resolution 2019-121 and Givón 2013a.

CHAPTER SEVEN

Summary and Recommendations

THE SOUTHERN UTE Indian Tribe's Cultural Preservation Department worked with Anthropological Research, LLC, to conduct Ute ethnographic and ethnobotanical research in the BPMD. This work was funded by the EPA through the Environmental Programs Division as part of the WIIN Act. The EPA recognizes the historical and cultural connection that Ute people have to the BPMD area and the Animas River watershed, and acknowledges the threats that contamination to the land poses to Ute people and their culture. At the request of the Southern Ute Indian Tribe, this research included input from all three Ute tribes: Southern Ute Indian Tribe, Ute Mountain Ute Tribe, and the Ute Indian Tribe. Ute participants in this study stressed that the impacts from the Gold King Mine spill are part of a continuous series of adverse effects that began with the encroachment of non-Native people on Ute aboriginal territory. Violence, loss of land, environmental degradation, species loss, removal from ancestral areas, and the associated impacts to health, language, customs, and sovereignty over their sacred landscape are all part of the lasting legacy of the mining that occurred in the BPMD. Ute people view the mountainous region as a sacred landscape, as the site of their Creation, and the origin of all aspects of their culture and history. Moving forward, Ute people should have a collaborative and decisive role in the management, interpretation, research, and celebration of places and resources within their indigenous landscape. As a Southern Ute-led study, this project serves as a model for future tribally directed research.

SUMMARY OF RESEARCH

Research efforts for this study included field trips to the BPMD area and interviews during work sessions with tribal members on the Southern Ute and Ute Mountain Ute reservations. A total of 20 tribal members from Southern Ute and Ute Mountain Ute participated in the research. Efforts were made to involve members of the Ute Indian Tribe but they were unable to participate in fieldwork or work sessions due to scheduling conflicts. They are represented here through the literature. Nonetheless, the perspectives of northern Ute people relevant to the BPMD and the study area were researched using prior ethnographic studies and are summarized in this report. In March 2020, in-person research tasks were halted due to the COVID-19 pandemic. This report thus includes information collected during fieldwork and interviews before that date, as well as data from the extensive literature review conducted for this study.

The BPMD falls at the center of the Ute aboriginal homeland. Over the past five centuries Ute territory has fallen under various political domains including Spain, Mexico, France, the Republic of Texas, and the United States. However, in spite of a lengthy and complex history involving many different groups, the influence of the US government on Ute territory in the nineteenth century had the most significant and severe impact on the Utes. Within a 50-year time span in the nineteenth century, Ute lands were reduced to only 3 percent of what they once were (Figure 7.1). In spite of this, the Ute people retain deep cultural and historical connections to their aboriginal homeland, and these connections are preserved through cultural teachings that have been passed down through generations. Many Ute tribal members continue to visit the BPMD and the study area on a regular basis to hunt, visit cultural sites, collect wild plants, and teach tribal youth about Ute culture. The Southern Ute Indian Tribe expects these activities to continue in the future.

The focus of the research was on Ute plant use and traditional knowledge about the environment. Archival research

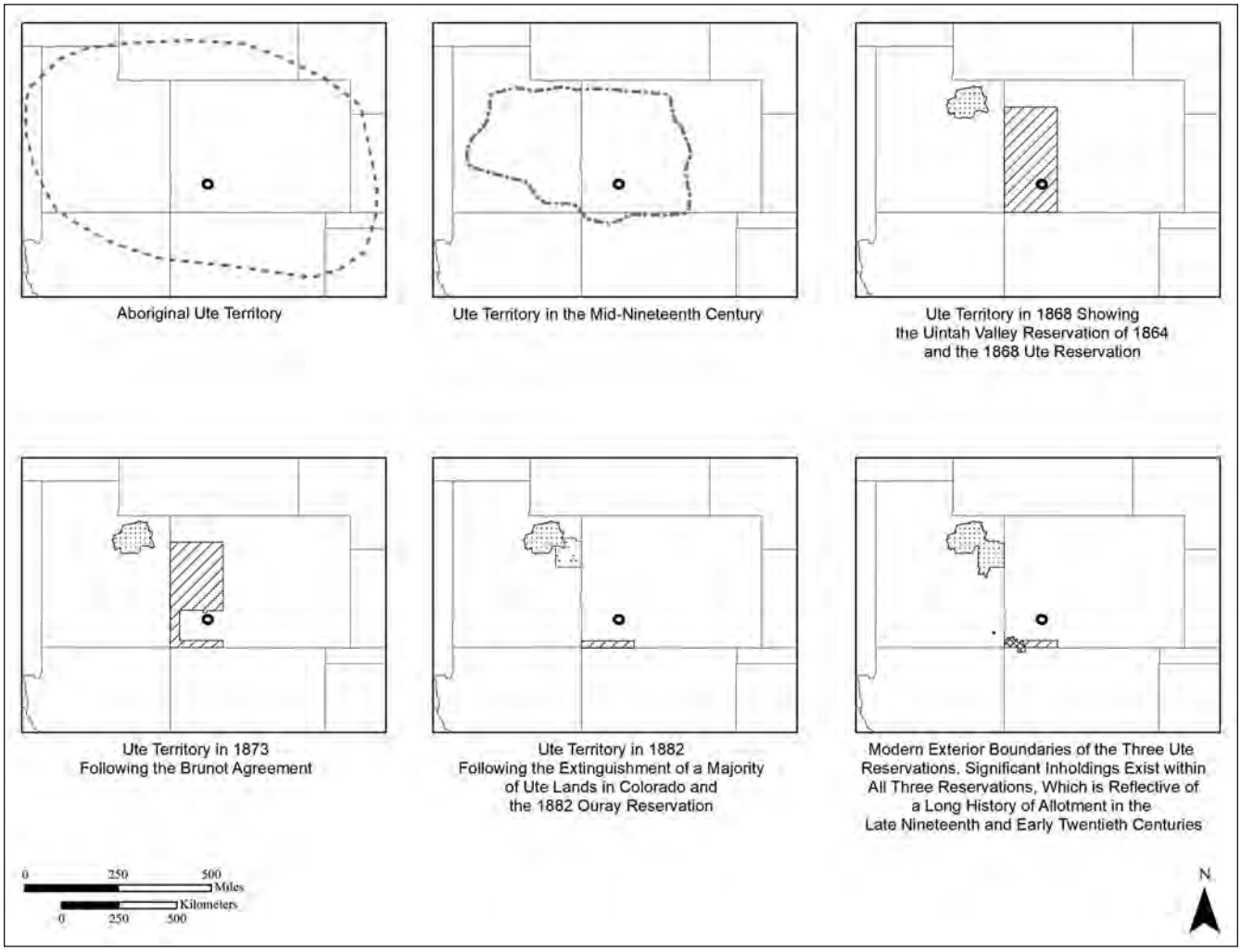

Figure 7.1. Changes in Ute land tenure through time in relation to the BPMD study area.

and interviews documented that the Utes use at least 202 plant species. Forty of these species were observed during fieldwork. The Utes use these plants for food, medicine, basketry, firewood, ceremonies, utilitarian purposes, shelter, animal feed, insect repellent, trail markers, hygienic purposes, weaponry, and toys. The collection of plants within the BPMD study area by Utes is not well documented but given Ute cultural values and ethnobotanical practices there is a high probability that Utes will use plants in the BPMD for one or more of these purposes in the future. Additional plants of interest to the Southern Ute Indian Tribe were identified during fieldwork but warrant additional research to determine their cultural significance and use. Other resources discussed in the report include animals, minerals, water resources, and landforms. Like plants, the collection of other resources within the BPMD by Utes is not well documented but given Ute cultural values and cultural practices there is a high probability that Utes will use resources from the BPMD in the future.

Ute Perspectives on the Gold King Mine Spill and the Study

Throughout this project, Ute tribal participants (Figure 7.2) expressed concern for the environment and plants that may have been affected by the Gold King Mine spill. Their concerns are summarized below.

Linda Baker of the Southern Ute Indian Tribe was shocked by the Gold King Mine spill. She recalled seeing dead fish and birds along the shoreline of the Animas River and said that the spill and the ongoing contamination emanating from the BPMD has had a negative psychological effect on the Ute people she knows. Ms. Baker pointed out there is a continuous negative impact across generations

Figure 7.2. Ernest Pinnecoose and Garrett Briggs discussing the impacts of the Gold King Mine spill as they stand alongside Cement Creek. Remediation efforts can be seen in the background. Photograph by Shawn Kelley, October 17, 2019.

from mining that has affected the Southern Ute people, as well as all of the other communities that are connected to the watershed.

During fieldwork, Mark Wing of the Ute Mountain Ute Tribe said that it was good to be back in his homeland, pointing out that this is how Utes view the BPMD and the study area. He explained that the historical and ongoing contamination of the area is something that Ute people have had to deal with as a result of the encroachment of miners in nineteenth century. When asked how he felt to be in the area, Mr. Wing responded that seeing the land that they lost brings out an emotional feeling, seeing how beautiful the land is, how resourceful his people were, and thinking how wonderful it would be if they could still live here. This is a place where the ancestors' spirits are still present. Their presence is peaceful and can be felt in the cool, calm breeze. Mr. Wing was taught to say prayers before and after entering areas like this and to never touch or take artifacts, otherwise the spirit embedded in that artifact will follow you home.

When asked if being in an area from which his ancestors were removed made him sad, Mr. Wing said, "Yes, the Ute people are still sad about being removed from their homeland and they do not talk about it often. During removal, young children, women and older women were killed, and there were many ways that Ute people were harmed at a time when they were not harming anyone." He explained that Ute people responded to the encroachment by conducting raids using their hunting arrows. The miners then came in permanently, driving the Ute people out, and Ute people continue to suffer today from that separation and loss. The enormous greed of the miners resulted in the small reservations the Ute have today and their inability to access the majority of their aboriginal lands. The tribe today is trying to buy back lands that were taken from them and expand

their land base, but obstacles remain. According to Mr. Wing, after the establishment of the reservation, the federal government tried to convert the Ute people into farmers and offered reservation funding based on the amount of land being grazed or farmed. The removal of Utes from the Bonita Peak area and their mountain homelands continues to have tangible effects on the tribe and the Ute people.

During the Gold King Mine spill, Ernest Pinnecoose of the Southern Ute Indian Tribe recalled seeing dead fish on the southern end of the Animas River. Due to their large size, he suspects those fish were older populations. From his perspective, the Creator has a way of saving animals by sending them into tributaries so the entire population is not destroyed. From a Ute perspective, Ernest Pinnecoose stated that Ute people understand what is under the earth and even though the Ute people did not create this ongoing contamination, they are forced to deal with it and are negatively affected by it. Edward Box III noted that he would like to harvest and collect water again in the BPMD but remains concerned about contamination in the water and the soil.

In referring to the Gold King Mine spill, Alfred Wall, Jr., said, "This is one more injustice in a long line of problems that Utes have had; these are the consequences that Native Americans suffer from." He said that contamination from the mining activities is still spreading and it appears to him that wildlife, soil, water quality, and plant species continue to be negatively affected. Seeing the orange color of the soil and water is upsetting, because the water should be clear (see Figure 6.4). He said that there appears to be no end to it, even though the original spill event was brief. Mr. Wall stated that "Any Native American who sees the water like this, yellow with contamination, will break out in tears. It's sad. It harms people. It harms us."

Erwin Taylor expressed concern for the soil, plants, wildlife, and air quality as a result of the Gold King Mine spill. He believes that the contaminants released into the water from the spill have diminished the quality of life of humans and harmed the environment. Mr. Taylor believes the people of southwestern Colorado are suffering from the cumulative effects of more than a century of contamination from mining:

> It did contaminate some of the streams, the animals, the birds, and it affects us every day, the contamination coming down the river. It has destroyed some of the strawberry plants, the raspberry plants, they used to have the onions plants, the blueberry plants and there are more besides that. We used to have wild apples and plums along the river. The red ones and the blue ones and they don't have them anymore, because we don't have the flow of the river just like we used to, because of the contamination.These plants are gone today and I'm sure we would like to see that come back. We used to eat off the land. A lot of those plants, they were healthy for us. Some of the plants were used for medicine.

He questions how the EPA determined their baseline values for assessing adverse impacts to health and the environment, and he does not agree that those values necessarily represent the values of the Ute people.

Alden Naranjo, Jr., emphasized that the adverse impacts experienced today by the Ute people are the result of more than 100 years of irresponsible, greedy, and selfish actions on the part of the US government. He would like to see proactive steps taken to care for the environment and not repeat the negative patterns of history. Mr. Naranjo said, "We cannot go back in the past; it's already happened. We have to go forward and think about the future. Money is not going to solve or mitigate these problems, and we should not have to pay for them with our lives."

RECOMMENDATIONS

Tribal representatives and Ute elders from the Southern Ute Indian Tribe provided the following recommendations:

Garrett Briggs recommended:

1. This research project should serve as an opportunity to identify additional projects that document more in-depth investigations of Ute history, traditional use of resources, and Ute ethnobotany in the area.
2. Follow-up interviews should be conducted with Ute language speakers to record Ute language terms for plant parts, landforms, and locational terms (i.e., across the river) for use in future curriculums and interpretative displays.
3. Dr. Thomas Givón, editor of the *Ute Dictionary*, should be interviewed to identify additional resources and information pertaining to Ute language about the environment.
4. Digital reports should include audio links in the text so readers can hear the Ute pronunciation of terms, because some terms are not recorded in documents or known by more than a handful of people. When native speakers pass on, that knowledge is lost. The written form of the Ute language was produced by linguists and, therefore, a fluent speaker may not be able to pronounce a word presented in a written format.

5. Additional representatives from the three Ute tribes should be included in future research.

Ernest Pinnecoose recommended:

1. Multiple study plots should be selected and soil tests conducted as part of a long-term monitoring of plant species. Long-term monitoring and testing of plant samples would lead to a better understanding of how the mine spill and ongoing contamination are affecting culturally significant plant species such as raspberry (*Rubus ideaus*), wild strawberry (*Fragaria vesca*), and oshá (*Ligusticum porteri*), as well as other roots and medicinal plants.
2. Research should be conducted on how contaminated plants affect wildlife who eat the plants and drink the water, and the risks this presents to people hunting that wildlife.

Linda Baker recommended:

1. If a youth component is part of future studies, it should be included in the original proposal and be a funded part of the study from the beginning of the project.
2. The Jicarilla Apache Nation should be included in future ethnobotanical studies in the Animas River watershed because the Jicarilla and Ute people have familial, historic, and contemporary connections and use many of the same plants.

Edward Box III recommended:

1. The use of Ute language terms in this report is valuable and should be done in future studies. This document can teach younger generations about their history and language, and they can read the information provided by their elders.

Erwin Taylor recommended:

1. Wild onion (*Allium* spp.) be added to the list of species for toxicological testing.

Tribal representatives and Ute elders from the Ute Mountain Ute Tribe provided the following recommendations:

Mark Wing recommended:

1. A youth component should be included in future studies related to BPMD.
2. The EPA should fund the development of educational programs for youth based on this study and future research. Youth could be taught a five-day lesson over the summer. This curriculum should include lessons on the reservation and culminate in a visit to the project area.

Although all of the plant species discussed in Chapter 5 hold traditional and contemporary significance for Ute people, the following 21 plant species, organized by the parts of the plant most commonly used, are recommended for toxicological testing (Table 7.1):

1. Edible and Medicinal Roots: This category includes plants generally found at higher elevations and along riparian areas that may have been affected by the BPMD spill. Species to be tested include oshá (*Ligusticum porteri*), cattail (*Typha* spp.), and spring potato (*Claytonia* spp.).
2. Edible, Medicinal, and Ceremonial Use Leaves: This category includes plants generally found at higher elevations and along stream beds that may have been affected by the BPMD spill. Species include bee balm (*Monarda fistulosa*), mountain sage (*Artemisia ludoviciana*), fringed sage (*Artemisia frigida*), kinnikinick (*Arctostaphylos uva-ursi*), and wild mint (*Mentha arvensis)*.
3. Edible Berries and Fruits: This category includes plants generally found in the mixed montane and conifer forests, dry hill sides, and along stream beds that may have been affected by the BPMD spill. Species include chokecherry (*Prunus virginiana*), three-leaf sumac (*Rhus trilobata*), Buffaloberry (*Shepherdia* spp.), currant (*Ribes* spp.), gooseberry (*Ribes* spp.), oak (*Quercus gambelii*), wild strawberry (*Fragaria vesca*) and wild raspberry (*Rubus ideaus*).
4. Ceremonial, Utilitarian, and Medicinal Stems and Shoots: This category includes plants generally found in and along stream beds and aspen forests that may have been affected by the BPMD spill. Species include narrowleaf cottonwood (*Populus angustifolia*); mountain mahogany (*Cercocarpus montanus*), red willow (*Cornus sericea*), willow (*Salix* spp.), and quaking aspen (*Populus tremuloides*).

Ute research participants recommend designating study plots across a variety of plant habitats to study the long-term effects of the spill on plant species. They are also concerned about the impact of the spill on animal species, specifically those that use and inhabit the waterways.

Table 7.1. Recommended Plant Species for Testing

Common Name(s)	*Scientific Name(s)*	*Plant Part(s)*	*Harvest Season(s)*	*Habitat(s)*	*Notes*
Aspen, quaking	*Populus tremuloides*	Trunk; Leaf; Stem	—	Aspen forests; Riparian areas; Subalpine forests	—
Beebalm	*Monarda fistulosa*	Leaf; Stem; Flower	Summer	Riparian areas	Harvest leaves when mature and flowers are blooming.
Buffaloberry	*Shepherdia* spp.	Fruit	Summer	Riparian areas	Harvest when berries are ripe.
Cattail	*Typha* spp.	Tuber; Young shoots	Spring	Riparian areas	Harvest young shoots in the spring.
Chokecherry	*Prunus virginiana*	Fruit	Summer; Fall	Riparian areas	Harvest when berries are black.
Cottonwood	*Populus* spp.	Trunk; Leaf	—	Riparian areas	
Currant	*Ribes* spp.	Fruit	Summer; Fall	Riparian areas; Mixed montane forests	Harvest when berries are ripe.
Kinnikinick; Wild tobacco; Bearberry	*Arctostaphylos uva-ursi*	Leaf	—	Mixed montane forests; riparian areas, aspen forest	—
Mountain mahogany	*Cercocarpus montanus*	Stem	Spring	Arid areas; Mixed montane forests	Straight stems are harvested.
Mint, wild	*Mentha arvensis*	Leaf; Stem	Summer	Riparian areas	Harvest young or mature leaves before frost.
Oak	*Quercus gambelii*	Fruit	Fall	Arid areas; piñon-juniper forests; Mixed montane forests	Acorns are harvested and boiled four times to remove tannins.
Onion, wild	*Allium* spp.	Bulb; Leaf	Spring	Mixed montane forests; arid areas; riparian areas	The bulbs are generally harvested before flowering.
Oshá; Bear root	*Ligusticum porteri*	Root; Stem; Leaf	Late fall (October)	Riparian areas; Subalpine meadows; Aspen forests; Mixed montane forests	The root is harvested usually after seed heads have matured but before frost.
Raspberry	*Rubus ideaus*	Fruit	Summer; Fall	Riparian areas; Mixed montane forests	Harvest when berries are ripe.
Red willow	*Cornus sericea*	Stem;	—	Riparian areas	—
Sage, fringed	*Artemisia frigida*	Leaf; Stem	Summer	Mixed montane forests; arid areas	Harvest before the frost.
Sage, mountain	*Artemisia ludoviciana*	Leaf; Stem	Summer	Arid areas; Mixed montane forests	Harvest before the frost.
Spring beauty	*Claytonia* spp.	Tuber	Spring	Subalpine	Bulbs are harvested at tree line.
Strawberry, wild	*Fragaria vesca*	Fruit	Summer	Riparian areas; Mixed montane forests	Harvest when berries are ripe.
Sumac, three-leaf	*Rhus trilobata*	Fruit	Summer	Riparian areas; Mixed montane forests	Harvest when berries are ripe.
Willow	*Salix.* spp.	Stem	Winter; Spring	Riparian areas	Harvest stems are harvested in winter or spring depending on use.

References Cited

Anderson, M. Kat
2005 *Tending the Wild: Native American Knowledge and Management of California's Natural Resources*. University of California Press, Berkeley.

Baker, Steven G.
1993 *Modeling for Historic Eastern Ute Culture Change* (Abstract). Paper presented at the First Biennial Rocky Mountain Anthropology Conference, September 30–October 2, 1993, Jackson, Wyoming.
2016 *Juan Rivera's Colorado, 1765: The First Spaniards Among the Ute and Paiute Indians on the Trail to Teguayo*. Western Reflections Publishing, Lake City, Colorado.

Barton, John D., and Candace M. Barton
2001 Jurisdiction of Ute Reservation Lands. *American Indian Law Review* 26(1):133–146.

Bennett, Julia L.
1999 *We Know This Place, Mapping Relationships Between Landscape and Language: A Study of Moache and Capote Ute Place Names*. Paper written for SW 496, instructed by Dr. Richard Ellis, Fort Lewis College, Durango, Colorado. San Juan National Forest archives. Copy on file, Anthropological Research, LLC, Tucson, Arizona.

Blair, Rob, and Mary Gillam
2011 Geomorphic History of the San Juan Mountains. In *The Eastern San Juan Mountains: Their Geology, Ecology, and Human History*, edited by Rob Blair and George Bracksieck, pp. 61–78. University Press of Colorado, Boulder.

Borland, Lois
1951 The First Los Pinos Agency and the Sale of the San Juan. *Colorado Magazine* 28(2):107–127.

Brunswig, Robert H., Sally McBeth, and Louise Elinoff
2010 Re-Enfranchising Native Peoples in the Southern Rocky Mountains: Integrated Contributions of Archeological and Ethnographic Studies on Federal Lands. In *Post-colonial Perspectives in Archaeology*, edited by Peter Bikoulis, D. Lacroix, and M. Peuramaki-Brown, pp. 55–69. Chacmool Archaeological Association, Calgary, Canada.

Buckles, William
1971 The Uncompahgre Complex: Historic Ute Archaeology and Prehistoric Archaeology on the Uncompahgre Plateau in West Central Colorado. PhD. dissertation, Department of Anthropology, University of Colorado, Boulder.

Bugwood.org
2020 Forestry Images. Center for Invasive Species and Ecosystem Health, University of Georgia. https://www.forestryimages.org/, accessed August 7, 2020.

Burns, Sam (editor)
2003 *The Utes of West Central Colorado, the Uncompahgre and White River Bands: An Ethnographic Overview*. Office of Community Services, Fort Lewis College, Durango, Colorado.

Caine, Jonathan Saul, and Anna B. Wilson
2011 The Hydrogeology of the San Juan Mountains. In *The Eastern San Juan Mountains: Their Geology, Ecology, and Human History*, edited by Rob Blair and George Bracksieck, pp. 79–98. University Press of Colorado, Boulder.

Callaway, Donald, Joel Janetski, and Omer C. Stewart
1986 Ute. In *Great Basin*, edited by Warren L. d'Azevedo, pp. 336–367, Handbook of North American Indians, vol. 11, William C. Sturtevant, general editor. Smithsonian Institution, Washington, DC.

Campbell, Gregory R.
2007 *An Ethnological and Ethnohistorical Assessment of Ethnobotanical and Cultural Resources at the Sand Creek National Historic Site and Bent's Old Fort National Historic Site, Volume 2*. University of Montana, Missoula.

Cassells, E. Steve
1983 *The Archaeology of Colorado.* Johnson Publishing, Boulder.

Chamberlin, Ralph V.
1909 *Some Plant Names of the Ute Indians*. American Anthropologist 11(1):27–40.

Chapman, S.S., Griffith, G.E., Omernik, J.M., Price, A.B., Freeouf, J., and Schrupp, D.L.
2006 *Ecoregions of Colorado*. US Geological Survey, Reston, Virginia.

Chapoose, Betsy, Sally McBeth, Sally Crum, and Aline La Forge
2012 Planting A Seed: Ute Ethnobotany, A Collaborative Approach In Applied Anthropology. *The Applied Anthropologist* 32(1):2–11.

Chimney, Rodney A., and David Cooper
2011 Fens of the San Juan Mountains. In *The Eastern San Juan Mountains: Their Geology, Ecology, and Human History*, edited by Rob Blair and George Bracksieck, pp. 129–136. University Press of Colorado, Boulder.

Colorado Water Quality Control Division
2016 *Gold King Mine Spill, Animas River Basin, Southwest Colorado, August 2015*. Water Quality Control Division, Department of Public Health & Environment, State of Colorado, Denver.

Conetah, Fred A.
1982 *A History of the Northern Ute People*, edited by Kathyrn L. MacKay and Floyd A. O'Neil. Uintah-Ouray Ute Tribe, Fort Duchesne, Utah.

Cowie, Rory, and Scott Roberts
2020 *Bonita Peak Mining District 2016–2018 Seeps, Springs, and Draining Mines Characterization Report*. Mountain Studies Institute, Silverton, Colorado.

Decker, Peter R.
2004 *The Utes Must Go: American Expansion and the Removal of a People*. Fulcrum Publishing, Golden, Colorado.

Delaney, Robert W.
1974 *The Southern Ute People.* Indian Tribal Series, Phoenix.

Desert Sun
1978 *Ute Tribe and Colorado Treaty 1874 Treaty Honored*. 16 November: B3. Palm Springs, California.

Duncan, Clifford
2003 The Northern Utes. In *A History of Utah's American Indians*, edited by Forrest S. Cuch, pp. 167–224. Utah State Division of Indian Affairs and Utah State Division of History, Salt Lake City.

Durango Herald
2018 EPA Creates Partnership to Study Long-term Water Quality. *The Durango Herald* 26 April. https://durangoherald.com/articles/220720-epa-creates-partnership-to-study-longterm-water-quality, accessed February 26, 2021.

Durango Wage Earner
1907 The Early History of Southwestern Colorado: Interesting details of the Discovery and Development of this Great Southwestern Empire . . . Nature Lavish Her Many Gifts to Man. 14 March: 2–3. Durango, Colorado.

Environmental Protection Agency (EPA)
2002 *Guidance for Quality Assurance Project Plans*. Office of Environmental Information, Washington, DC.
2017 *Bonita Peak Mining District Among Superfund Sites Targeted for Intense and Immediate Attention. News Release from Region 8*,

https://www.epa.gov/newsreleases/bonita-peak-mining-district-among-superfund-sites-targeted-intense-and-immediate, December 8, 2017.

2020 *Superfund Site: Bonita Peak Mining District Unincorporated, Co.* Electronic document, https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0802497#bkground, accessed May 25, 2020.

2021 *San Juan Watershed.* https://www.epa.gov/san-juan-watershed, accessed Feburary 26, 2021.

Fetchenier, Scott

1996 Ore Deposits and Minerals. In *The Western San Juan Mountains: Their Geology, Ecology, and Human History*, edited by Rob Blair, pp. 80–95. University Press of Colorado, Boulder.

Finger, Susan E., Stanley E. Church, and Paul von Guerard

2007 *Potential for Successful Ecological Remediation, Restoration, and Monitoring. In Integrated Investigations of Environmental Effects of Historical Mining in the Animas River Watershed, San Juan County, Colorado*, edited by Stanley E. Church, Paul von Guerard, and Susan E. Finger, pp. 1067–1078. Professional Paper No. 1651, US Geological Survey, US Department of Interior, Reston, Virginia.

Finley, Bruce, and Tom McGhee

2015 Animas Mine Disaster: Arsenic, Cadmium, Lead Broke Water Limits. *The Denver Post*, August 10, 2015. Electronic document, https://www.denverpost.com/2015/08/10/animas-mine-disaster-arsenic-cadmium-lead-broke-water-limits/, accessed May 22, 2020.

Floyd-Hanna, Lisa, Albert W. Spencer, and William H. Ronne

1996 Biotic Communities of the Semiarid Foothills and Valleys. In *The Western San Juan Mountains: Their Geology, Ecology, and Human History*, edited by Rob Blair, pp. 143–158. University Press of Colorado, Boulder.

Givón, Thomas

2011 *Ute Reference and Grammar*, John Benjamins Publishing, Philadelphia.

2013a *Ute Dictionary*, John Benjamins Publishing, Philadelphia.

2013b *Ute Texts*, John Benjamins Publishing, Philadelphia.

Goss, James A.

1967 Ute Language, Kin, Myth, and Nature: A Demonstration of a Multi-Dimensional Folk Taxonomy. *Anthropological Linguistics* 9(9):1–11.

2000 Traditional Cosmology, Ecology and Language of the Ute Indians. In *Ute Indians Arts and Culture*, edited by William Wroth., pp. 27–52, Colorado Springs Fine Art Center, Colorado Springs.

Herrera v. Wyoming

2018 *Brief of Amici Curiae Southern Ute Indian Tribe and Ute Mountain Ute Tribe in Support of Petitioner, 11 September*. https://www.supremecourt.gov/DocketPDF/17/17-532/63266/20180911114930131_17-532tsacSouthernUteIndianTribe.pdf. Accessed 9 March 2021.

Hopkins, Maren P. Barry Price Steinbrecher, Michael C. Spears, and T.J. Ferguson.

2020 *Ethnographic Overview of Chimney Rock National Monument*, San Juan National Forest, Colorado. Anthropological Research, Tucson.

Horn, Jonathan C.

2017 *Historical Research on Ute Trails in the Bandora Mine Area in the San Juan Mountains near Silverton, San Juan County, Colorado*. Alpine Archaeological Consultants, Montrose, Colorado.

2020 Brunot Agreement. *Colorado Encyclopedia*, https://coloradoencyclopedia.org/article/brunot-agreement, accessed July 20, 2020.

Iden, Thomas L.

1929 A History of the Ute Indian Cessions of Colorado. MA thesis, Western State College of Colorado, Gunnison.

Indian Claims Commission

1962 Findings of Fact, September 14, 1962, Docket No. 327: *The Confederated Bands of Ute Indians versus The United States of America.* 11 Ind. Cl. Comm. 180. US National Archives, Washington, DC.

Jacobs, G. Clell

1992 The Phantom Pathfinder: Juan Maria Antonio de Rivera and His Expedition. *Utah Historical Society Quarterly* 60(3):200–223.

Jamieson, David W., William H. Romme, and Preston Somers
1996 Biotic Communities of the Cool Mountains. In *The Western San Juan Mountains: Their Geology, Ecology, and Human History*, edited by Rob Blair, pp. 159–174. University Press of Colorado, Boulder.

Jefferson, James, Robert W. Delaney, and Gregory C. Thompson
1972 *The Southern Utes: A Tribal History*, edited by Floyd A. O'Neil. Southern Ute Tribe, Ignacio, Colorado.

Jones, William R.
2007 History of Mining and Milling Practices and Production in San Juan County, Colorado, 1871–1991. In *Integrated Investigations of Environmental Effects of Historical Mining in the Animas River Watershed, San Juan County, Colorado*, edited by S. E. Church, P. von Guerard, and S. E. Finger. U.S. Geological Survey Professional Paper 1651, pp. 39–86.

Kaplan, Michael
1982 *Otto Mears: Paradoxical Pathfinder*. San Juan County Book Company, Silverton, Colorado.

Kelley, Shawn, Sean O'Meara, Damon Hill, and Karen Koestner
2017 *United States Air Force Academy Ethnographic and Ethnobotanical Survey*. Parametrix, Inc., Albuquerque.

Kelley, Shawn, Sean O'Meara, Damon Hill, and Marilyn Martorano
2019 *Native American Traditional Use Study of Great Sand Dunes National Park and Preserve*. Parametrix, Inc., Albuquerque.

Kessel, John L.
2013 *Miera y Pacheco, A Renaissance Spaniard in Eighteenth-Century New Mexico*. University of Oklahoma Press, Norman.

Kindscher, Kelly, Leanne M. Martin, and Quinn Long
2019 The Sustainable Harvest of Wild Populations of Oshá (Ligusticum porteri) in Southern Colorado for the Herbal Products Trade. *Economic Botany* 73(3): 341–356.

Korb, Julie E. and Rosalind Y. Wu
2011 Fire, Climate, and Forest Health. In *The Eastern San Juan Mountains: Their Geology, Ecology, and Human History*, edited by Rob Blair and George Bracksieck, pp. 151–172. University Press of Colorado, Boulder.

Kroeber, Alfred L.
1908 Notes on Ute Language. *American Anthropologist* 10(1):74–87.

Lecompte, Janet
1978 *Pueblo, Hardscrabble, Greenhorn: The Upper Arkansas, 1832–1856*. University of Oklahoma Press, Norman.

Lister, Florence C. (editor)
2011 *In the Shadow of the Rocks: Archaeology of the Chimney Rock District in Southwest Colorado*. Durango Herald Small Press, Durango, Colorado.

Living Heritage Anthropology, Parametrix, and Ute Mountain Ute Tribe
2019 *Ute Mountain Ute Tribe Traditional Cultural Properties Study of the Navajo-Gallup Water Supply Project Area*. Parametrix, Inc., Albuquerque.

Lloyd, John B.
1932 The Uncompahgre Utes. MA thesis, Western State College of Colorado, Gunnison.

Madsen, David
1975 Dating Paiute-Shoshoni Expansion in the Great Basin. *American Antiquity* 40(1): 82–86.

Marshall, William L.
1876 *Executive and Descriptive Report of Lieutenant William L. Marshall, Corps of Engineers, on the Operations of Party No. 1, Colorado Section, Field-season of 1875. In Annual Report of the Chief of Engineers to the Secretary of War for the Year 1876, Part III*, pp. 300–329. Government Printing Office, Washington, DC.

Martin, Curtis
2016 *Ephemeral Bounty; Wickiups, Trade Goods, and the Final Years of the Autonomous Ute*. University of Utah Press, Salt Lake City.

McBeth, Sally
2008 *Ute Ethnobotany Project: Summary Report of a Cooperative Project of the Grand Mesa, Uncompahgre, and Gunnison National Forests and the Grand Junction Field Office of the Bureau of Land Management*. University of Northern Colorado, Greeley.

2019 *Native peoples of the Florissant Valley: Florissant Fossil Beds National Monument Ethnographic Overview and Assessment, Florissant Fossil Beds National Monument, Colorado*. University of Northern Colorado, Greeley.

McCauley, C. A. H., Asa Gray, and Townshend Stigh Brandegee
1878 Report on the San Juan Reconnaissance of 1877. In *Annual Report upon Explorations and Surveys in the Department of the Missouri*, by E. H. Ruffner, pp. 1751–1867. Appendix SS of the Annual Report of the Chief of Engineers for 1878. Government Printing Office, Washington, DC.

McPherson, Robert S.
1992 *Sacred Land, Sacred View*. Charles Redd Center for Western Studies, Brigham Young University, Salt Lake City.

Minckley, W. L., and David E. Brown
1994a Arctic-Boreal Wetlands. In *Biotic Communities: Southwestern United States and Northwestern Mexico*, edited by David E. Brown, pp. 237–238. University of Utah Press, Salt Lake City.
1994b Cold-Temperate Wetlands. In *Biotic Communities: Southwestern United States and Northwestern Mexico*, edited by David E. Brown, pp. 239–247. University of Utah Press, Salt Lake City.

Moerman, Daniel E.
1998 *Native American Ethnobotany.* Timberline Press, Portland, Oregon.

Naranjo, Alden, B.
1997 Interview at Indian Grove. Video recording on file at Great Sand Dunes National Park and Preserve, Mosca, Colorado.
2018 Interview at La Botica Site. Transcript on file at Southern Ute Indian Tribe NAGPRA Office, Igancio, Colorado.

Naranjo, Alden B., and Monica Lujan
2000 The Ute Creation Story. In *Ute Indians Arts and Culture: From Prehistory to the New Millennium*, edited by William Wroth, pp. 7–8. Taylor Museum of the Colorado Springs Fine Arts Center, Colorado Springs.

Ninnemann, John L., and Duane A. Smith
2006 *San Juan Bonanza: Western Colorado's Mining Legacy*. University of New Mexico Press, Albuquerque.

Nydick, Koren
2011 Mountain Lakes and Reservoirs. In *The Eastern San Juan Mountains: Their Geology, Ecology, and Human History*, edited by Rob Blair and George Bracksieck, pp. 113–128. University Press of Colorado, Boulder.

Opler, Marvin K.
1941 The Integration of the Sun Dance in Ute Religion. *American Anthropologist* 43(4): 550–572.

Perlman, Susan E.
1998 *Traditional Cultural Properties Survey of the Mid-America Pipeline Company's Proposed Rocky Mountain Expansion Project, Northwestern New Mexico, Western Colorado and Eastern Utah*. Cultural Resources Report No. 98–163. SWCA, Inc. Environmental Consultants, Albuquerque.

Platts, Henry
2020 Ouray. *Colorado Encyclopedia*, https://coloradoencyclopedia.org/article/ouray, accessed July 20, 2020.

Potter, James M.
2020 Ute History and the Ute Mountain Ute Tribe. *Colorado Encyclopedia*, https://coloradoencyclopedia.org/article/ute-history-and-ute-mountain-ute-tribe, accessed 14 July 2020.

Reed, Alan D.
1988 *Ute Cultural Chronology. In Archaeology of the Eastern Ute: A Symposium*, edited by Paul R. Nickens, pp. 79- 111. Colorado Council of Professional Archaeologists Occasional Papers No. 1, Denver.
1994 The Numic Occupation of Western Colorado and Eastern Utah During the Late Prehistoric and Protohistoric Periods. In *Across the West: Human Population Movement and the Expansion of the Numa*, edited by David B. Madsen and David Rhode, pp. 188–166. University of Utah Press, Salt Lake City.

Reed, Verner Z.
1991 (1893) *The Southern Ute Indians of Early Colorado*. Vistabooks, Dillon, Colorado.

Rhoda, Franklin
1876 *Report on the Topography of the San Juan Country. In Annual Report of the United States Geological and Geographical Survey of the Territories, Embracing Colorado and Parts of Adjacent Territories, Being a Report of Progress of the Exploration for the Year 1874*, by H. V. Hayden, pp. 451–496. Government Printing Office, Washington, DC.

Robinson, Lynn, and Julie Coleman
2017 National Register Nomination of the Animas Cañón Toll Road, La Plata and San Juan Counties, Colorado. United States Department of the Interior.

Ruppert, David
1996 Consultation notes and interview transcripts from tribal consultation at the Great Sand Dunes National Monument with Ute tribal representatives Clifford Duncan, Betsy Chapoose, and Alden Naranjo,Jr., June 4. On file at Great Sand Dunes National Park and Preserve, Mosca, Colorado.

Sapir, Edward
1930a Southern Paiute A Shoshonean Language. *Proceedings of the American Academy of Arts and Sciences* 65(1):1–296.
1930b Texts of the Kaibab Paiute and Uintah Utes. *Proceedings of the American Academy of Arts and Sciences* 65(2):297–536.
1931 Southern Paiute Dictionary. *Proceedings of the American Academy of Arts and Sciences* 65(3):537–730.

SEINet
2021 Arizona-New Mexico Chapter, https://swbiodiversity.org/seinet/index.php#, accessed March 29, 2021.

Sellars, Richard W.
2007 A Very Large Array: Early Federal Historic Preservation—The Antiquities Act, Mesa Verde, and the National Park Service Act. *Natural Resources Journal* 47(2):267–328.

Smith, Anne M.
1974 *Ethnography of the Northern Utes.* Papers in Anthropology No. 17. Museum of New Mexico Press, Santa Fe.

Smith, Duane A.
1997 *Silverton: A Quick History*. First Light Press, Fort Collins, Colorado.

Smith, Sacha
2016a EPA Seeks Assistance from Ute Tribes. *The Southern Ute Drum* August 5. https://www.sudrum.com/news/2016/08/05/epa-seeks-assistance-from-ute-tribes/, accessed February 26, 2021.
2016b Tribe, EPA Give Updates on Gold King Mine and Bonita Peak Mining District. *The Southern Ute Drum* November 23. https://www.sudrum.com/top-stories/2016/11/23/tribe-epa-give-updates-on-gold-king-mine-and-bonita-peak-mining-district/, accessed February 26, 2021.
2017 EPA Updates Tribal Staff on Mining District. *The Southern Ute Drum* April 27. https://www.sudrum.com/top-stories/2017/04/27/epa-updates-tribal-staff-on-mining-district/, accessed February 26, 2021.

Somers, Preston, and Lisa Floyd-Hanna
1996 Wetlands, Riparian Habitats, and Rivers. In *The Western San Juan Mountains: Their Geology, Ecology, and Human History*, edited by Rob Blair, pp. 175–189. University Press of Colorado, Boulder.

Southern Ute Drum
2019 Ethnographic Field Study Brings Ute Tribes Together in San Juans. *The Southern Ute Drum* September 12. https://www.sudrum.com/culture/2019/09/12/ethnographic-field-study-brings-ute-tribes-together-in-san-juans/, accessed February 26, 2021.

Southern Ute Indian Tribe
2021 *History of Southern Ute*. https://www.southernute-nsn.gov/history, accessed June 30,2020.

Southern Ute Indian Tribe Division of Wildlife Resource Management (SUITDWRM)
2020 *2020–2021 Brunot Area Hunting & Fishing Proclamation: For Brunot Area Hunting & Fishing by Southern Ute Tribal Members.* SUITDWRM, Ignacio, Colorado.

Springer, Judith D., Mark Daniels, and Mare Nazaire
2009 *Field Guide to Forest and Mountain Plants of Northern Arizona: From the Mogollon Rim and White Mountains North.* Northern Arizona Ecological Research Institute, Flagstaff.

Stanton, Mark R., Douglas B. Yager, David L. Fey, and Winfield G. Wright
2007 Formation and Geochemical Significance of Iron Bog Deposits. In *Integrated Investigations of Environmental Effects of Historical Mining in the Animas River Watershed, San Juan County, Colorado*, edited by Stanley E. Church, Paul von Guerard, and Susan E. Finger, pp. 693–720. Professional Paper No. 1651, US Geological Survey, US Department of Interior, Reston, Virginia.

Stoffle, Richard W., Kathleen Van Vlack, Rebecca Toupal, Sean O'Meara, Henry F. Dobyns, and Richard Arnold
2008 *American Indians and the Old Spanish Trail*. Bureau of Applied Research in Anthropology, University of Arizona, Tucson.

Thayer, David L., and Douglas R. Thayer
2018 *The King of the Spill: The Gold King Mine, San Juan County, Colorado*. San Juan County Historical Society, Silverton, Colorado.

Toledo, Damon
2016 EPA Proposed Adding Bonita Peak Mining District to NPL List. *The Southern Ute Drum* April 28. https://www.sudrum.com/top-stories/2016/04/28/epa-proposes-adding-bonita-peak-mining-district-to-npl-list/, accessed February 26, 2021.

Turkewitz, Julie
2015 Environmental Agency Uncorks its Own Toxic Water Spill at Colorado Mine. *New York Times*, August 10, 2015. Electronic document, https://www.nytimes.com/2015/08/11/us/durango-colorado-mine-spill-environmental-protection-agency.html, accessed May 22, 2020.

US Bureau of Reclamation
2015 *Technical Evaluation of the Gold King Mine Incident, San Juan County, Colorado*. Technical Service Center, US Bureau of Reclamation, US Department of Interior, Denver.

USDA, NRCS.
2021 *The PLANTS Database*. National Plant Data Team, Greensboro, NC 27401-4901 USA, http://plants.usda.gov, accessed March 29, 2021.

US Forest Service (USFS)
2013 *US Forest Service, US Dep't of Agric., Record of Decision, Final Environmental Impact Statement for the San Juan National Forest Land and Resource Management Plan at 4* (Sept. 2013), http://www.fs.fed.us/r2/sanjuan/ (providing Forest Service Plan 2013).

Ute Indian Museum
2019 *Plant List for the Ute Indian Museum Native Garden*. Ute Indian Museum, Montrose, Colorado.

Von Guerard, Paul, Stanley E. Church, Douglas B. Yager, and John M. Besser
2007 The Animas River Watershed, San Juan County, Colorado. In *Integrated Investigations of Environmental Effects of Historical Mining in the Animas River Watershed, San Juan County, Colorado*, edited by Stanley E. Church, Paul von Guerard, and Susan E. Finger, pp. 19–38. Professional Paper No. 1651, US Geological Survey, Department of Interior, Reston, Virginia.

Witherspoon, Y. T., editor
1993 *Conversations with Connor Chapoose: A Leader of the Ute Tribe of the Uintah and Ouray Reservation*. University of Oregon Anthropological Papers No. 47. Department of Anthropology and Oregon State Museum of Anthropology, Eugene.

Wroth, William, ed.
2000 *Ute Indian Arts and Culture: From Prehistory to the New Millennium*. Colorado Springs Fine Art Center, Colorado Springs.