SOUTHEASTERN IDAHO CULTURAL RESOURCES OVERVIEW

Burley and Idaho Falls Districts

1981

SOUTHEASTERN IDAHO
CULTURAL RESOURCES OVERVIEW,
BURLEY AND IDAHO FALLS DISTRICTS

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BY:

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WITH:

CHAPTERS ON HISTORIC THEMES AND
LIFEWAYS OF NON-NATIVE GROUPS BY
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ABSTRACT

Based on all reasonably available primary and secondary sources, a narrative is developed dealing with the prehistoric and historic human use or occupation of the study area from the earliest times to the present. Past and current work is summarized and various research orientations are also discussed. The narrative focuses on changes in settlement patterns, land use, land tenure, and cultural systems and has a cultural ecological orientation. One major event discussed is the transition, about 7200 years ago, from the styles and economic adaptation labeled Paleo Indian to those labeled Archaic, and the concurrent establishment of modern environmental conditions. Another is the introduction of Shoshonean ceramics and languages around AD 1250 and a possible associated increase in population density. Environmental events of possible importance are also discussed, including a warm and/or dry period from 7000 to 4000 years ago, a severe drought from AD 1240 to 1290, and the Little Ice Age from AD 1500 to 1920. Cultural changes associated with the introduction of the horse around AD 1700 and historic native american lifeways are also examined. Processes of Euroamerican settlement are described, focusing on key phenomena such as the fur trade, emigrant trails, mineral exploitation, transportation networks, the cattle and sheep industries, irrigated agriculture, and the resulting drastic environmental changes. Data on the cultural and natural characteristics of 2025 cultural resource sites in the study area are presented and some computer analysis of this data is attempted using cross tabulations of variables. Recommendations for future management and research focus on the need for additional cultural historical and settlement pattern data.

FORWARD

With this publication, for the first time, the Idaho Bureau of Land Management has produced a major cultural resources overview for general distribution. The publication of this study, therefore, represents a milestone in the evolution of Federal Cultural Resource Management in the State of Idaho. In addition, this overview should fill a gap in the regional literature on the cultural past and provide a framework for appropriate resource management decisions in the future.

Since Commonwealth Associates. Inc. of Jackson, Michigan, completed the overview in January of 1981, a significant research focus has emerged in southern Idaho prehistory which should be mentioned. This research centers on questions surrounding the putative presence of Fremont in southeastern Idaho and the relationship (or lack of) between the Fremont and Numic speaking Shoshone. The primary investigator of Fremont in late prehistoric Idaho (post 1200 AD) is B. Robert Butler of the Museum of National History, Idaho State University. Interested readers who desire to learn about Butler's views on Fremont in Idaho should examine his various recent papers in the *Idaho Archaeologist*, *Tebiwa*, and *Plains Anthropologist*.

Richard R. Harrison
Idaho State Office, BLM
Boise, Idaho
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A number of individuals besides the members of the project team contributed to this study. Archaeologists and historians familiar with the study area, who are listed in Appendix 1, were especially generous with their time. Their comments on management options and research directions are incorporated into Chapter 11. Richard Harrison of the Bureau of Land Management served as Contracting Officer's Authorized Representative and helped facilitate the orderly completion of the project. Jerry Wylie and Joseph Gallagher of the U.S. Forest Service made available a variety of information generated by Forest Service activities. The excellent photographs, supplied by the Idaho Historical Society, were selected with the assistance of Ken Swanson. As Supervisor of the Archaeology Section at Commonwealth Associates, Don Weir was instrumental in coordinating production efforts and ensuring the quality of the final report. The original manuscript was typed by Dorothy Kelly and Pat Murphy, and proofread by Kris Kirsch and Nancy Clagett. Figures 8, 9, and 10 were drawn by Steve Wright; Figures 11 and 12 were drawn by Kristine Paulsen; and Steve Triechler served as graphics coordinator.

MANAGEMENT SUMMARY

This Cultural Resource Overview is designed to provide a review and synthesis of existing prehistoric and historic cultural resource information and to identify all recorded cultural resource sites through a compilation of existing site record data. The information provided by this study is intended to help the Bureau of Land Management to identify, evaluate, and protect cultural resources on public lands under its jurisdiction and to insure that Bureau-initiated or Bureau-authorized actions do not inadvertently harm or destroy nonfederal cultural resources, as mandated by federal legislation. Data was compiled from a variety of sources, including bibliographies, documents, published literature, manuscript and archival sources, maps, reports, museum collections, site files, and other primary and secondary sources. In addition, informants knowledgeable about the history and prehistory of the study area were consulted.

Using a cultural historical framework, major changes over time in settlement patterns, land use, land tenure, and cultural systems can be summarized. The earliest traces of man in Southern Idaho dating to about 15,000 years ago lie outside the study area at Wilson Butte Cave, but the artifacts from this occupation lack any distinctive traits. Fluted, lanceolate Clovis points may represent the earliest temporally distinct style in the area. Elsewhere in western North America Clovis points have been dated most frequently between 11,000 and 11,500 BP and many have been associated with mammoth remains. The earliest radiocarbon dated stylistically distinct material is from the Wasden Site and consists of fluted Folsom Points which appear to be about 11,000 years old and are associated with the remains of elephant, camel, and an extinct form of bison. A variety of point styles referred to as Plano types

characterize the next major prehistoric period or phases in the study area. Plano points associated with a species of bison with traits intermediate between modern and extinct forms date to 8000 BP at the Wasden Site. Researchers dealing with these early materials uniformly draw parallels with contemporary styles and adaptations on the Plains.

By 8000 to 10,000 years ago species of elephant and camel became extinct and the climate and vegetation were becoming more like that of the present. As climatic conditions moderated, vegetational zones shifted upward, forests and grasslands on the Snake River Plain became less extensive, and Alpine glaciers contracted. A major change in material culture and possibly in subsistence and settlement patterns occurred around 5200 BC. Stemmed and Notched point styles replace lanceolate Plano styles and some researchers see a concurrent shift toward the exploitation of more diverse resources, including an increased emphasis on plant foods. Paleoecological indicators document that the postglacial climatic amelioration culminated in the establishment of basically modern environmental conditions shortly before or at about the same time as this cultural transition. Following this transition, material culture in the study area is most frequently compared with areas farther south. Styles, economic adaptation, and various time periods from 5200 BC to ca. AD 1850 in the study area are labeled "Archaic", whereas those immediately preceding the Archaic are labeled "Paleo Indian".

Many items of material culture remain relatively constant throughout the Archaic Stage. Continuity in subsistence and settlement patterns is less obvious except at a very general level. From between 7000 to 4000 years ago, variable evidence exists for climatic conditions warmer and dryer than those of the present. Although other areas in the arid west show evidence of range shifts or abandonment during this period, no such changes have been substantiated in the study area. Any broad, relatively synchronous changes in material culture or adaptations between 5200 BC and AD 1250 are presently poorly defined. A decrease in projectile point neck widths marks the introduction of the bow and arrow sometime around 2900 years ago. South of the study area in Utah, a major change occurs around 1700 years ago with the appearance of the Fremont Culture. Although Fremont ceramic and even agricultural traits may extend into the study area, they remain poorly understood.

A well defined change occurs around AD 1250 with the introduction of ceramics associated with historically known Shoshonean speakers and the appearance of small side-notched points. Linguistic evidence supports an arrival of Shoshonean languages in Idaho at about this time. Controversy exists however as to whether gene flow accompanied these traits. It appears that population density increased during this period. Some hypothesize that this increase resulted from higher effective moisture levels and an increase in large mammal populations.

The introduction of the horse around 1700 led to significant changes in aboriginal settlement patterns and, to varying degrees, in other aspects of culture. These changes almost certainly included increases in exploitive range, bison utilization, interaction and trade with other groups, warfare, and at least temporary increases in the level of social organization and formal leadership. The initial intrusion of Euroamericans into the study area early in the nineteenth century probably caused less change than did the horse. Fur trappers and explorers did introduce trade goods and contributed to the extinction of bison west of the Continental Divide by 1840. By this time the fur trade era ended due to beaver scarcity and lack of demand for furs. Between the collapse of the fur trade in 1840 and 1860, the only Euroamericans in the area were passing through on their way to Oregon or California, and aboriginal lifeways remained relatively intact.

Around 1860 the discovery of gold and the establishment of the first permanent agricultural settlement in southeastern Idaho at Franklin marked the beginning of Euroamerican dominance. By 1868 a treaty establishing the Fort Hall Reservation was signed and the Native Americans were forced to give up most of their traditional way of life. Although initial gold discoveries in Idaho occurred outside the study area, freight and stage roads leading to these discoveries passed through the study area and helped open it for settlement. The cattle and sheep industries also began to supply meat and wool for the mining communities during this period. The Mormon agricultural settlements just beginning in the southeastern corner of the state marketed butter, eggs, flour and other grains at the mining towns and encouraged the development of railroads to facilitate this trade.

In the 1870s, development was spurred by the discovery of gold at American Falls and Cariboo. Chinese miners became a major ethnic group in the study area during this time, later followed by Japanese railroad and agricultural workers in the early 1890s and 1900s.

During the 1870s and 1880s railroads replaced stage and freight roads on major routes and further stimulated economic development. Crowding on the Plains had contributed to the Idaho cattle industry and with the completion of the Oregon Short Line in 1885, cattle could be shipped directly to eastern markets. The industry grew until severe winters in 1886 and 1887 forced it to stabilize. A lumber industry also developed to supply the needs of the railroads and communities were established along major routes.

By 1880 the early Mormon communities were well developed and cooperative dairies, flour, and woolen mills were established. New communities were also being established along the Upper Snake River. Because of aridity, the key to permanent settlement of most of the study area was the irrigation technology previously developed by the Mormons in Utah. Early irrigation ditches and canals were constructed by community-wide cooperative efforts. Later, private companies became involved as larger projects were undertaken.

The Depression of 1893 slowed the growth of Idaho agriculture, but the Carey Act of 1894 and the Reclamation Act of 1902 resulted in the settlement of most of the remaining arable land by 1930. Increases in the scale of irrigation projects culminated with huge, federally funded projects implemented under these acts which expanded agricultural settlement to the limits that natural water supplies would allow, or in some cases, beyond. During the 1930s some marginal areas were abandoned due to lowered water tables and a period of severe drought.

Euroamerican settlement caused drastic changes in the environment of the study area. In areas subjected to irrigated agriculture, nearly all native vegetation was destroyed and the natural hydrologic system was completely altered. On lands used for seasonal grazing cattle and sheep reduced or eliminated palatable grasses and forbs and permitted less desirable species to increase. Overcutting depleted forests, especially those at lower elevations which were easily accessible and most vulnerable.

In the late nineteenth and early twentieth centuries, some perceived the finite nature of natural resources and the need for development to be planned and sustainable. As the government was disposing of the lands most suitable for settlement, a policy of retaining certain lands for public use under federal administration emerged. This trend led to the establishment of the Forest Service, the Grazing Service, the Bureau of Land Management, and the Soil Conservation Service. An interplay between development to secure short-term gains and conservation in order to insure long-term economic security and environmental quality characterizes twentieth century land use in the study area up to the present. The conservation of cultural resources is part of the trend towards recognizing the costs of development. The resources themselves document the history of man-land relationships and thereby constitute a source of data for future land use decision making.

To date, known material remains in the study area relating to this 15,000 year period of human occupation consist of 2025 formally recorded cultural resource sites. Maps showing their location and a computer print-out listing and analyzing their characteristics accompany this overview study. This site specific information should be extremely useful for future research and management.

Based on this study, some management options and research directions are recommended. Most recommendations focus on the need for additional data to facilitate the chronological placement of prehistoric material on the basis of artifact styles and the need to identify and explain the functions of various kinds of prehistoric sites. Improved capabilities in these areas are necessary in order to provide a data base for regional planning and significance evaluation of specific sites. A number of cultural resources in the study area are likely to be significant because of their historical, scientific, ethnic, or public values.

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CHAPTER 1

INTRODUCTION

PROJECT BACKGROUND

Studies designated by the Bureau of Land Management as Class I Cultural Resource Inventories are overview studies prepared for general management programs at the regional or district level. They are designed to provide a review and synthesis of existing prehistoric and historic cultural resource information and identify all recorded cultural resource sites through a compilation of existing site record data. Class I inventories are part of the Bureau's effort to identify, evaluate, and protect cultural resources on public lands under its jurisdiction and to insure that Bureau-initiated or Bureau-authorized actions do not inadvertently harm or destroy nonfederal cultural resources. This is required by the Antiquities Act of 1906, the Reservoir Salvage Act of 1966, as amended, the National Environmental Policy Act of 1969, and Executive Order 11593.

This Class I inventory of southeastern Idaho includes the Bureau of Land Management's Burley District and the Soda Springs Resource Area, Medicine Lodge Resource Area, and the Big Desert Planning Unit in the Idaho Falls District (Figure 1). This area includes all of Cassia, Oneida, Franklin, Bear Lake, Bannock, Caribou, Bingham, Bonneville, Teton, Madison, Fremont and Jefferson Counties, and portions of Clark, Butte, Power, Custer, Blaine, and Twin Falls Counties.

A specific mandate which makes this study necessary is Section 202 of the Federal Land Policy and Management Act of 1976, which requires the Bureau to formulate land use

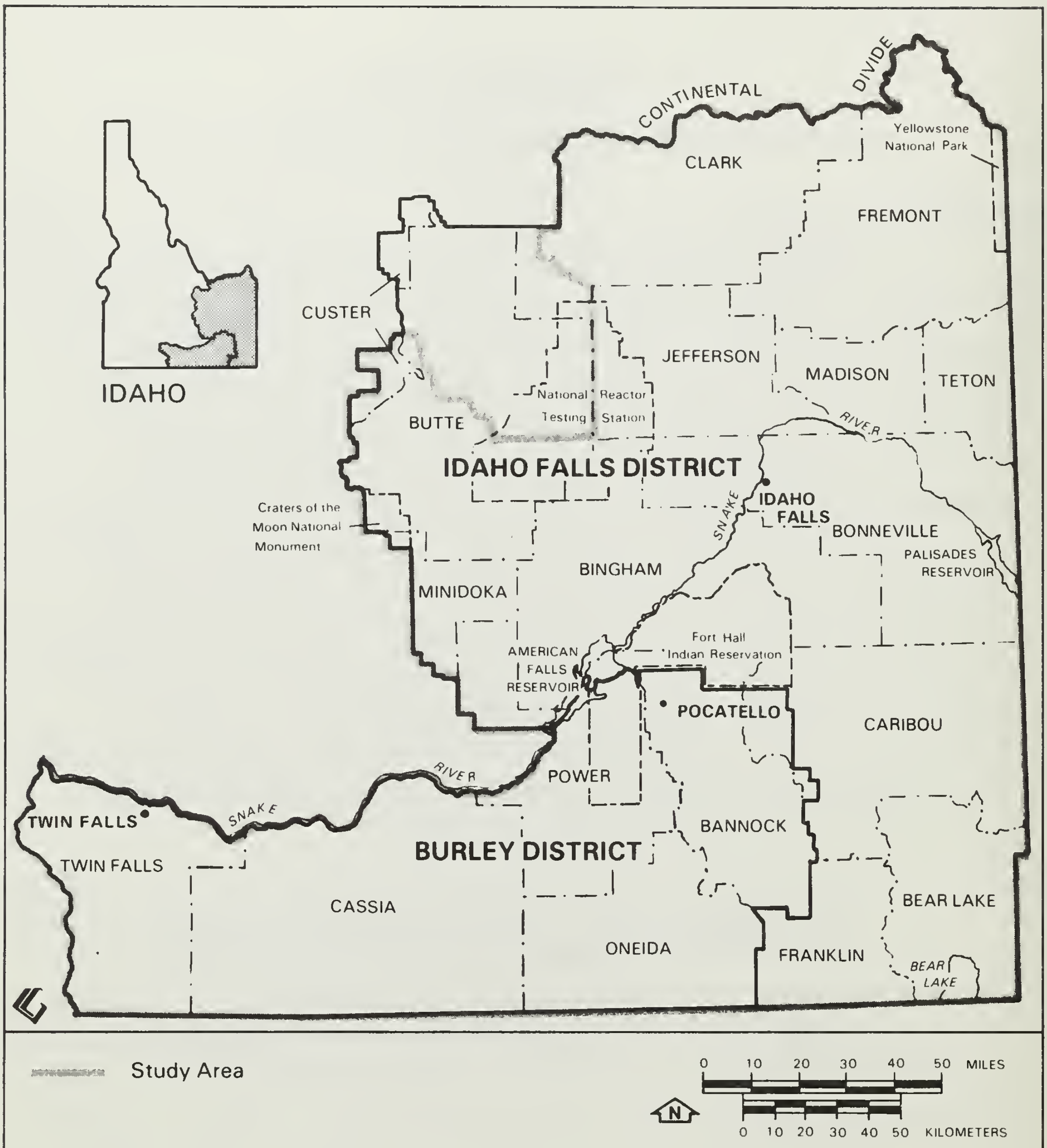


Figure 1

Study Area

Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

plans. The inventory data generated by this study can be utilized in making land use classifications which contribute to the conservation of cultural resources. This study can identify situations where more specific studies are needed and help determine appropriate strategies for future work. It can expedite the compilation of background information for future work because it brings together existing cultural resource information in one place. When more detailed information is needed, this study can serve as a guide to where this information can be obtained. It can also provide a framework for evaluating the significance of sites in terms of current research questions and identify critical data needed for future research and management.

THEORETICAL ORIENTATION AND ASSUMPTIONS

Class I inventories are broader in scope than any other type of cultural resource management study. Not only do they deal with the entire prehistoric and historic cultural sequence for a given area, but they must also accommodate a wide variety of research orientations in order to manage these resources properly. Ideally, these inventories even anticipate future research needs, although this is obviously difficult. For these reasons, we have tried to use a broad, flexible theoretical orientation in our approach to this study.

A cultural ecological perspective was used during the collection and analysis of information, especially for prehistoric cultural resources and in trying to understand the spatial distribution of all resources. The use of a particular cultural ecological approach probably broadened, rather than narrowed the scope of our research, since the one used emphasized the mutual interaction between culture and environment and between techno-economic and other aspects of culture, rather than any form of techno-economic or environmental determinism. Cultural ecology and its emphasis on identifying the influence of environmental variables on settlement patterns is especially useful to cultural resource management because it can result in predictive models very useful for planning purposes.

Related to this cultural ecological approach is the concept of culture as an open system with various subsystems. Vayda (1969) has pointed out that the systems approach is one of the main ways of showing the relationship between environment and cultural behavior. By taking into account feedback relationships, a systems approach can avoid the assumptions of simple linear causality traditionally associated with cultural ecology. This approach is in accordance with the general holistic perspective of anthropology and accommodates a consideration of the multiple cultural and natural variables affecting the nature and distribution of cultural resources.

The ecological information that can be derived from cultural resources can have direct relevance to modern society. Our approach incorporates a paradigm that sees these resources as "indispensible banks of data for land use planning and related contemporary developments" (Moratto and Kelley 1978:24). This is especially true in the arid west where archeology and allied disciplines can help us to understand the climatic cycles upon which modern adaptations are so dependent. Dixon (1977) cites a number of cases where archeological data has been used to understand climatic and other types of environmental change important to our economy, plan flood control efforts, and to manage and conserve economically important resources like marine fisheries. History and archeology can provide information useful for range management, since the Great Basin provides one of the last opportunities to study the influences of man and his domestic animals on endemic plant, animal and human communities (Young, Evans, and Tueller 1976).

Obviously, the use of a specific theoretical approach was not necessary or appropriate for certain portions of this study, such as the summarization of past and current work. In addition, our approach to historic cultural resources is less ecologically oriented than the approach to prehistoric cultural resources. Although still ultimately dependent on the natural environment, the relationship of historic groups to their immediate environment is greatly modified by their participation in widespread economic networks based on agriculture and industrialization. Our approach to historic resources is probably more materialistic than that used in most historical studies. This is understandable because of the need to focus on those events or activities most likely to directly affect the physical remains of historical groups. In accordance with the format specified by the BLM, a thematic approach was used for the historic narrative. This approach provides a well organized structure for researching and presenting history, but tends to occasionally obscure interrelationships between different themes in a given time period.

This study assumes that cultural resources can be significant for a variety of reasons. These sources of significance not only justify the wise management of cultural resources, but provide a framework for their investigation and subsequent evaluation. A broad, flexible approach has been advocated which sees significance being derived from the historical, scientific, ethnic and public values of cultural resources (Moratto and Kelley 1978).

Obviously, archeological sites are the only source of data available for the scientific study of extinct prehistoric aboriginal cultures. In addition, through archeology the physical remains of historic groups can both complement and expand the understanding of historic events and processes gained from written sources. It is especially important for understanding the "history of inarticulate" groups (Ascher 1974) or groups not well represented in written sources. Because archeological sites may contain both environmental and cultural data, they are a source of data for both the natural and social sciences. Ethnic significance is attributed to cultural resources that hold "religious, mythological, spiritual, or other symbolic importance for a discrete group of people" (Moratto and Kelley 1978:10). Public significance relates to educational, economic, or aesthetic benefits that society in general can obtain from cultural resources (Moratto and Kelley 1978:12).

METHODOLOGY

Although our research covered the whole study area regardless of ownership, major emphasis was placed on cultural resources on, or immediately adjacent to BLM surface-administered lands. Even though this overview deals with the human use and occupation of the study area from the first traces of man until the present, some differential emphasis within the historic period was inevitable. Specifically, even though we agree with Deetz (1972:115) that archeology has the potential to include the study of material culture, regardless of its chronological placement, some de-emphasis of the events of the last 50 years was necessary. This is justifiable because of the unwieldy size of this body of data and the fact that most physical remains of this period are located on nonfederal lands. We fully support the contention that in some cases, sites less than 50 years old (Moratto and Kelley 1978:20) may be significant, but it seems likely that a smaller percentage of these sites would be significant in comparison to earlier sites. This is a result of their abundance and the fact that many aspects of this period are probably most profitably studied through documentary sources rather than through physical remains.

An initial step in this project was the compilation of background data and bibliographies and the drafting of a working thematic outline of the prehistory and history of the study area. This outline served as a guide to data compilation and report preparation.

Data was compiled from a variety of sources, including bibliographies, documents, published literature, manuscript and archival sources, maps, reports, museum collections, and other primary and secondary sources. In addition, informants knowledgeable about the history and prehistory of the study area were consulted, including professional and amateur historians and archeologists. All sources utilized are cited within the narrative or included in Appendix I. Appendix II is a brief discussion of cultural resource collections from the study area. While the historic and prehistoric narrative was being researched and written, information from all cultural resource site records for the study area was compiled. Part II of this overview deals with this portion of the study.

Work on the narrative portion of the project began in November 1979 with John G. Franzen and Frank A. Fiori compiling general background data and bibliographies on the study area. Mr. Franzen served as project manager and principal investigator for the study and was responsible for researching and writing all portions of the narrative, except those dealing with historic themes and historic lifeways. These were the responsibility of Mr. Fiori, the project historian. During December 1979, working outlines of the prehistory and history of the study area were prepared by Mr. Franzen and Mr. Fiori, respectively. Interviews of informants and the consultation of written sources also began in December and most historical research was completed by February 1980. Most Pre-and Protohistoric research was completed by April 1980. Chapters dealing with historic themes and historic lifeways were written from February through May 1980 and the remainder of the narrative was prepared between May, 1980 and August, 1980.

CHAPTER 2

ENVIRONMENTAL BACKGROUND

INTRODUCTION

Environmental data are critical to understanding both historic and prehistoric use of the study area, and this chapter focuses on those factors known or suspected to have most affected human adaptations. Geology, climate, soils, vegetation, and wildlife are briefly discussed, as well as the evidence for environmental change.

GEOLOGY - GEOMORPHOLOGY

Four commonly recognized geomorphic provinces extend into the study area (Figure 2), including the Northern Rocky Mountain, Middle Rocky Mountain, Basin and Range, and Columbia Intermontane Provinces (Ross and Savage 1967:Figure 54). Significant variations in both rock types and landforms occur between these provinces.

The Northern Rocky Mountain Province includes the Centennial Range, which forms a natural barrier between the Columbia River Basin and the Great Plains. The dominant rock types in this area are Pliocene volcanic rocks consisting of siliceous welded tuffs and rhyolitic flows. Paleozoic and Mesozoic sedimentary rocks and Precambrian metamorphic rocks also occur, generally in higher,more rugged areas. Quaternary sediments dominate the southern and extreme northwestern portions of this province. Topography varies from gently rolling in the western areas to sharp and rugged in the east. In general, the aspect and drainage is to the south, with deeply incised stream valleys forming natural routes of travel (Sims 1979).

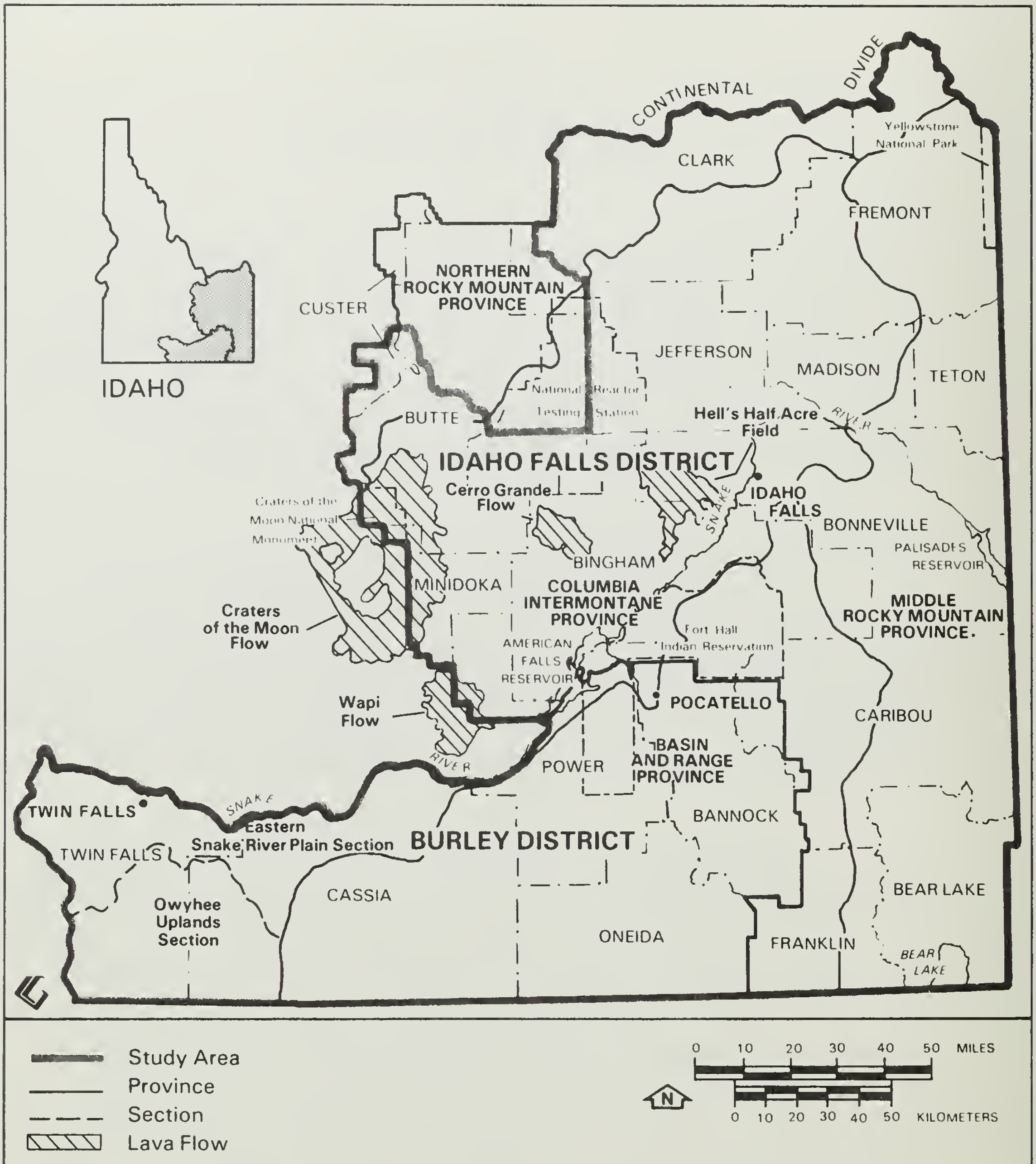


Figure 2

Geomorphic Provinces and Holocene Lava Flows

Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

The Middle Rocky Mountain Province in Idaho includes the Yellowstone Plateau and the complexly folded and faulted ranges along the east boundary of the state. Silicic rhyolites and welded tuffs dominate the Yellowstone Plateau, which includes features such as deep canyons and thermal springs or geysers. The remainder of the Middle Rocky Mountain Province in Idaho is dominated by the Snake River Mountains and the Caribou, Aspen, and Bear River Ranges. These mountain ranges consist of tight-to-open folded Paleozoic and Mesozoic sedimentary rocks and are distinct and subparallel. The valleys between these ranges drain northwest towards the Snake River and were used as early migration routes (Ross and Savage 1967:148).

Characteristic of the Basin and Range Province in Idaho are subparallel, block-faulted mountains separated by open valleys (Ross and Savage 1967:148). This province includes the Cotterell Range, the Deep Creek Mountains, and the Bannock, Portneuf, and Wasatch Ranges. Most of these ranges are composed of pre-Cretaceous sedimentary rocks with local metamorphism. Intermontane basins contain alluvial and lacustrine deposits or basalt flows related to those of the Snake River Plain.

The Columbia Intermontane Province in Idaho has been divided into six sections (Ross and Savage 1967:Figure 54), and two of these sections extend into the study area. The Eastern Snake River Plain section dominates the whole study area, and is a relatively level and featureless lava plateau composed of numerous coalescing shield volcanoes. Fissure flows, such as the Craters of the Moon flow, cover large areas but are less extensive than flows originating from low shields. Some low shields have steep summit regions, and these are often referred to as buttes. Other features of minor importance include tuff-and-cinder cones and maar craters (Greeley 1977:41).

The basalt flows of the Eastern Snake River Plain are of three basic ages: Lower Pleistocene to Pliocene, Upper Pleistocene, and recent (Holocene) flows which are relatively unweathered (Bond 1978). On older flows, much of the hummocky local relief has been obliterated by weathering and the accumulation of wind-blown sediments (Greeley 1977: 28). In low and protected areas, loess tends to accumulate most quickly (King 1977:55). It is in these low and protected areas where playas often occur.

Radiocarbon dates exist for some recent lava flows which have occurred since the area was occupied by humans (Figure 2). Charred organic matter beneath Holocene flows in Craters of the Moon National Monument have yielded dates of 2080±85 and 2130±80 years BP (Papson 1977:217). The Cerro Grande flow has a date of 10,780±300 (King 1977:55) and the Wapi flow is estimated to be about the same age or slightly older than the King's bowl flow, which has a date of 2360±150 BP (Champion and Greeley 1977:139). Tree rings from junipers in the Hell's Half Acre Lava Field indicate a minimum age of 1660 years BP and a radiocarbon date of 4100±200 years BP has also been obtained for this flow (Karlo 1977:122).

Undoubtedly this recent volcanism within the study area affected human adaptations, and volcanic events outside the study area provide at least two extremely important stratigraphic markers which may occur at sites within the study area. Ash from the eruption of Mt. Mazama in Oregon consistently dates to around 6700 BP (Mehringer, Arno, and Petersen 1977:352) and ash from Glacier Peak in Washington usually ranges from 12 to 13,000 BP (Lemke et al. 1975), although a relatively late date of 11,250 BP was obtained from Lost Trail Pass Bog (Mehringer, Arno, and Petersen 1977:352). These ash layers are typically light gray or brownish gray. Evidently Glacier Peak erupted several times, producing ash of different ages and geographic extent.

The Owyhee Uplands section of the Columbia Intermontane Province occurs in the southwest corner of the study area. This plateau consists of Pliocene silicic welded tuff, ash, and flow deposits and Pliocene pyroclastics (Bond 1978).

Alluvial, colluvial, aeolian, and lacustrine sediments of Quaternary age cover extensive areas in all geomorphic provinces, especially along rivers, and in valley bottoms or low-lying areas. These deposits include most areas developed for irrigated agriculture, and are the scene of the most intensive modern use. Many of these areas are privately owned, while higher or dryer areas are less developed and more likely to be federally owned.

One of the most direct influences of geology on prehistoric adaptations is that of the nature and distribution of raw materials suitable for chipped stone tool manufacture. Southeast Idaho contains a variety of raw material types, many of which are widely available. Obsidian and ignimbrite sources appear to be associated with silicic or rhyolitic volcanic rocks, rather than the more extensive basaltic flows. Known obsidian sources include: Big Southern Butte (Rember and Bennett 1979; Spear 1977), the Centennial Mountains

(Sims 1979), the Yellowstone Plateau (Wright et al. 1978), and Oneida County deposits (Gruhn 1961a; Staley 1962). Ignimbrite or welded tuff occurs in many locales, including: outcrops below American Falls (Stearns and Isotoff 1956), the Centennial Mountains (Sims 1979), and a large number of areas in the South Hills region of Twin Falls and Cassia Counties (Gruhn 1961a:50; Wylie and Ketchum 1980:3). Although vast areas of basalt are present, relatively little of this is the fine-grained variety preferred for tool manufacture. Chert or chalcedony is present in the limestones and dolomites of the Northern and Central Rocky Mountain Provinces and in the Basin and Range Province (Bond 1978). Paleozoic quartzites are also widespread in mountains surrounding the Snake River Plain. Chert, chalcedony and quartzite pebbles and cobbles are widely available in colluvial or alluvial gravels in all provinces.

Some minerals of economic importance during historic times occur in the study area, but in general the most important mineral producing areas in Idaho are north of the study area in the Northern Rocky Mountain Province. Clay pits near Ammon and Bone in Bonneville County and near Roberts in Jefferson County supply the Idaho Falls Brick and Tile Company and both pits and a processing plant are located in the Burley-Rupert area (Ross and Savage 1967:94-95). Commercial grade carbonate rock is widespread in the Basin and Range and Middle Rocky Mountain Provinces of southeastern Idaho, particularly in the Jurassic Twin Creek Limestone and Cretaceous travertines (Ross and Savage 1967:Figure 35; 94). Many small lime kilns are thought to remain from early historic lime production (Ross and Savage 1967:94). Some minor mercury placers occur near American Falls and in southeastern Cassia County. Gemstone quality agate and opal also occur in some areas. Gold production occurred in the Caribou district and from placers along the Snake River. Peat has been commercially produced from bogs on Marsh Creek near Downey and along the Teton River near Driggs and Victor. Commercially important phosphate deposits are widespread, mainly in Permian rocks and in the Phosphoria formation (Ross and Savage 1967:103). Some commercial use of silica has occurred in Bannock, Power, Caribou and Bear Lake Counties.

CLIMATE

Elevational differences cause the climate of the study to exhibit a great deal of local variation. Mean annual precipitation ranges from over 30 inches in the mountains to less than 10 inches on the Snake River Plain (Rice 1971:655). Deep snow limits the utilization of higher areas during the winter and aridity may limit the use of portions of the Snake River Plain during the summer. Mean July maximum temperatures range from 90° along the Snake River near Twin Falls to 76° in the Centennial Mountains (Rice 1971:653). Mean minimum January temperatures range from 0°F in the Island Park area to 16°F in the Twin Falls area (Rice 1971:652). Climatic variation within the study area, which is caused largely by elevational differences, greatly influences plant and animal communities, and consequently both prehistoric and historic land use.

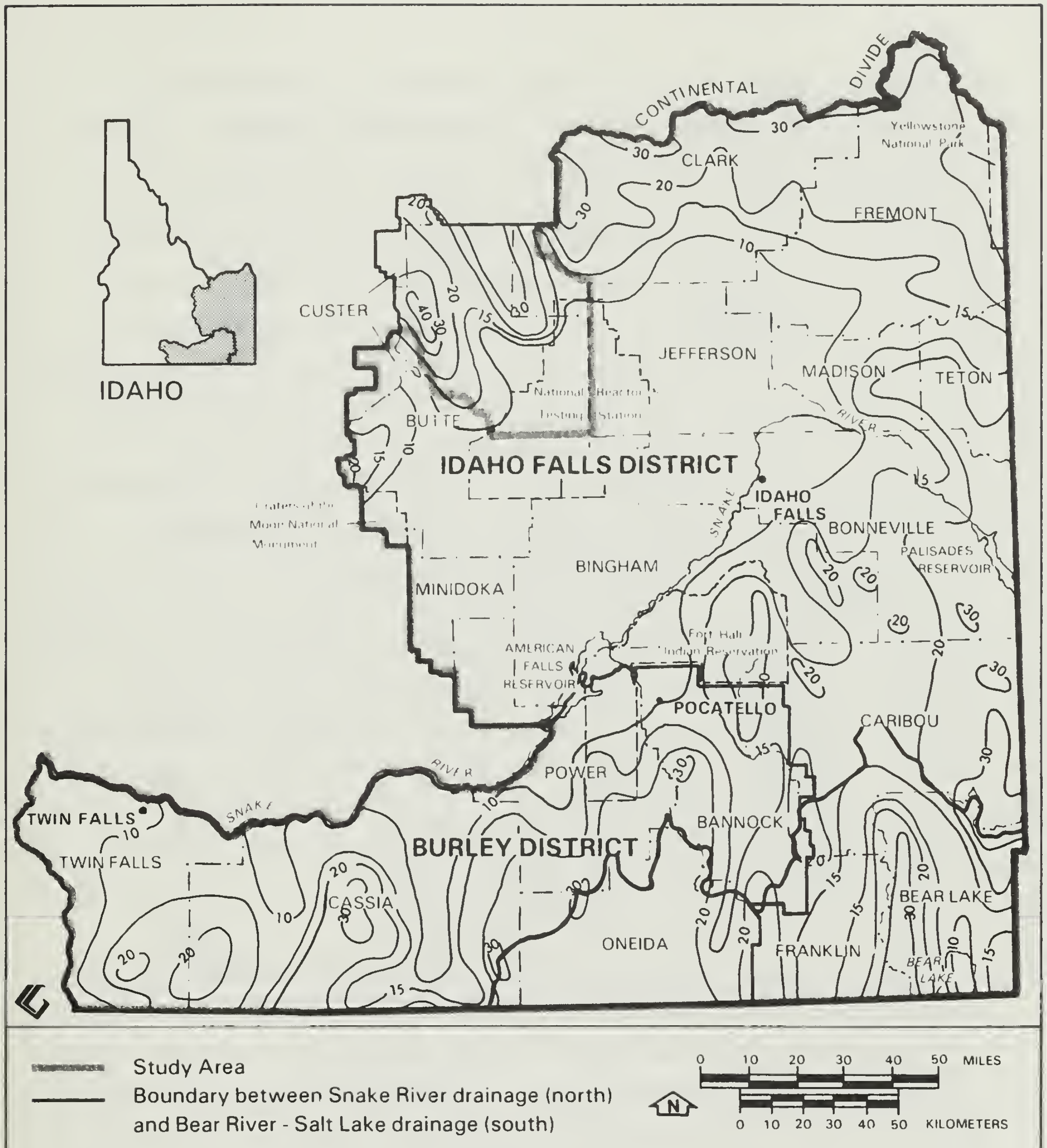
In general, precipitation is the limiting factor for most biological processes in arid and semiarid ecosystems (Noy-Meir 1974:222). Although fluctuations in precipitation can be large, they tend to be well bounded and consistent (Noy-Meir 1974:222). In dry regions, such as deserts or arid steppes, the general variability of annual precipitation results in "irruptive populations" of vegetation and game following high rainfall, followed by population declines or "crashes" when drier conditions return (Dasmann 1964:88). Of course, all the study area cannot be characterized as arid or semiarid, since precipitation levels increase altitudinally in the mountain ranges in the area (Figure 3). It is assumed that resources found only in higher areas are less moisture dependent than those occurring wholly or seasonally in the lower areas. On both the Upper Snake River Plain and the Eastern Highlands, precipitation maximums occur in May and June and minimums occur in July, August and September (Rice 1971:648).

SOILS

Since soils are influenced by climate, parent materials, biota, topography, and time, they are greatly affected by geology and related elevational differences. Light to very dark arid and semiarid soils, including Desert and Sierozem soils, Brown soils, Chesnut soils, and Chernozem soils are characteristic of lower elevations covered with sagebrush and grass. A very dark colored transition or prairie soil is characteristic of subhumid grassland and the sagebrush-grassland-forest transition. A dark to light colored subhumid or Western Brown Forest Soil occurs in the higher, forested areas. Some rocky areas with little soil development occur in places like recent lava flows. A map and descriptions of Idaho's general soil types are included in Ross and Savage (1967).

VEGETATION

Elevation also plays an important role in vegetational variation, especially through its influence on climate. Vegetation zones present in the study area, beginning with the highest and continuing through the lowest are: Alpine,



Data Source: Rice 1974

Figure 3

Mean Annual Precipitation

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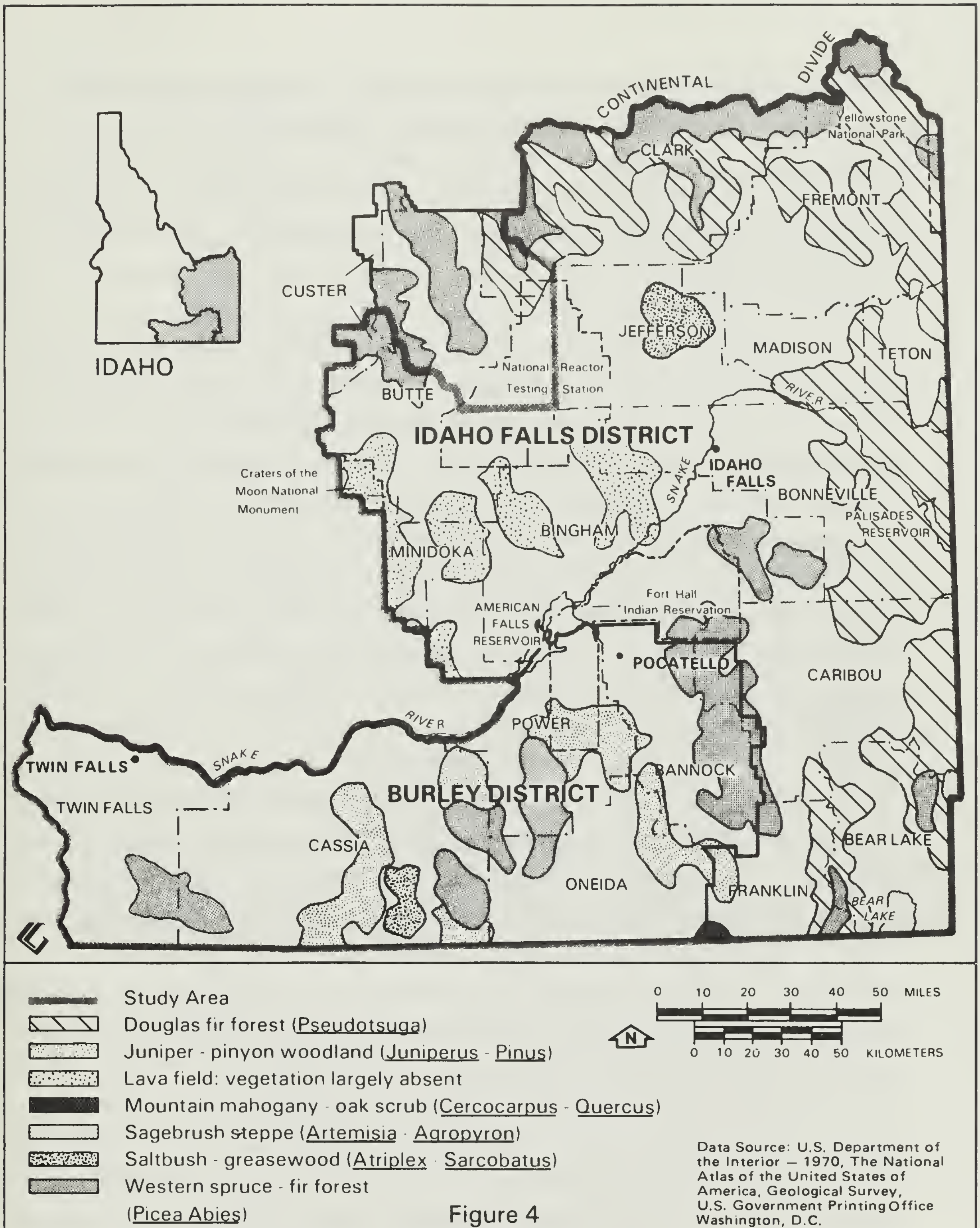
Spruce-fir, Douglas fir, Juniper-pinyon, Oak-Mountain mahogany, and Sagebrush-grass (Daubenmire 1952a). However, Daubenmire (1952a:11) cautions that the researcher "who searches in the field for zones in the sense of belts, which can be rigidly defined in terms of elevation above sea level, is doomed to disappointment in Idaho as elsewhere in the Rockies." This is because factors besides elevation, such as slope, aspect, soil, and drainage, result in an interpenetration of zones, especially along ravines. A more generalized classification divides the study area into three zones: subalpine coniferous forest characterized by _Abies lasiocarpa_ (subalpine fir), _Picea engelmannii_ (Engelmann spruce), _Pinus albicaulis_ (whitebark pine), _Pinus contorta_ (lodgepole pine), and _Larix lyallii_ (alpine larch); montane coniferous forest dominated by _Pseudotsuga menziesii_ (Douglas-fir), _Pinus ponderosa_ (ponderosa pine), _Pinus contorta_, _abies grandis_ (grand fir), and _Larix occidentalis_ (western larch); and sagebrush steppe (Mehringer, Arno, and Petersen 1977:Figure 4). The dominant vegetational zone in the study area, especially on BLM lands is the sagebrush-steppe or sagebrush-grassland (Figure 4).

It is thought that the typical vegetation of the Snake River Plain before it was altered by man-caused fires and domestic livestock grazing was probably "an open stand of Artemisia intermixed with a vigorous stand of perrenial grasses and forbs" (Blaisdell 1958:5). However, local variability ranges from heavy stands of Artemisia to almost pure grassland. Patches of bare soil are numerous, resulting in excellent visibility of archeological remains in this zone.

Artemisia tridentata is the dominant shrub in most of this zone, with _Artemisia tripartita_ dominant in some



Data Source: U.S. Department of the Interior — 1970, The National Atlas of the United States of America, Geological Survey, U.S. Government Printing Office Washington, D.C.

Figure 4
Vegetation

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locales. Other shrubs present include Purshia tridentata, Tetradymia canescens, Chrysothamnus puberulus, and Gutierrezia sarothrae. The most abundant grasses in this community are Agropyron spicatum, A. dasystachyum, Koeleria cristata, Oryzopsis hymenoides, Poa Nevadensis, P. secunda, and Stipa comata.

Steward (1938:21) emphasizes that information on plant foods utilized by aboriginal groups in Idaho is incomplete. However, major plant foods of the study area can be determined from available accounts for groups within and adjacent to the study area. Shoshonean groups utilized many seed producing plants characteristic of the sagebrush-grassland zone (Steward 1938:21-30). Average dates at which the major seed species ripened between 1941 and 1947 at the U.S. Sheep Experiment Station near Dubois range from June 26 to July 27 (Blaisdell 1958:Table 1). Seeds must be harvested soon after ripening because they soon fall to the ground.

Roots and berries were relatively more important than seeds among Idaho groups, in comparison to Shoshoneans farther south (Steward 1938:18-19). Important root species mentioned by Steward (1938) include Camassia quamash (blue camas), Calochortus nuttallii (sego lily), Cirsium spp. (thistle), Lewisia rediviva (bitterroot), Perideridia gairdneri (yampa), Valeriana edulis (tobacco root) and Helianthus spp. (sunflower). Species mentioned most often as a source of edible berries include Amelanchies alnifolia (serviceberry), Prunus virginiana (chokecherry), Ribes spp. (currants or gooseberries), and Rosa spp. (wild rose). Pinus monophylla (pinyon pine) was an important aboriginal food source but is limited to the southern portion of the study area (Steward 1938:15). Farther north, Pinus flexilis or P. albicaulis may have been used in a similar manner (Steward 1938:190), although neither of these species ever attained the importance of pinyon.

In general, aboriginally important food plants are most abundant in areas higher and/or moister than the sagebrush steppe that dominates most of the study area. Within these arid areas at low elevations, food plants are concentrated along riparian features. The scarcity of food plants in this zone, with the possible exception of grasses, is emphasized by Steward (1938:17,137). Moister, prairie-like areas at higher elevations, such as Camas Prairie "abounded in food plants" (Steward 1938:18). Of the forested zones, the Douglas-fir zone contains the most parkland (Daubenmire 1952a:8), rendering it more favorable for both big game and horses, as well as exploitable plants. Douglas-fir and ponderosa pine forests contain more grasses and plants such as serviceberry, chokecherry, and wild rose, than do spruce-fir forests (Daubenmire 1952b:304; Table 1). Appendix 3 presents additional data on the seasonal availability and habitat preferences of some of the more common plant foods utilized by northern Shoshone groups. Figure 5 shows optimal camas habitat and the distribution of pinyon pine in the study area.

FISH AND WILDLIFE

Two groups of fish species were available in the study area: those that were anadromous and those that were year round residents. Anadromous species were limited to the westernmost portion of the study area, downstream from Shoshone Falls (Figure 5). Two anadromous species played an important role in the economies of aboriginal groups in the western part of the study area. Salmo garidneri (Steelhead trout) were available during March and April and Oncorhyncus

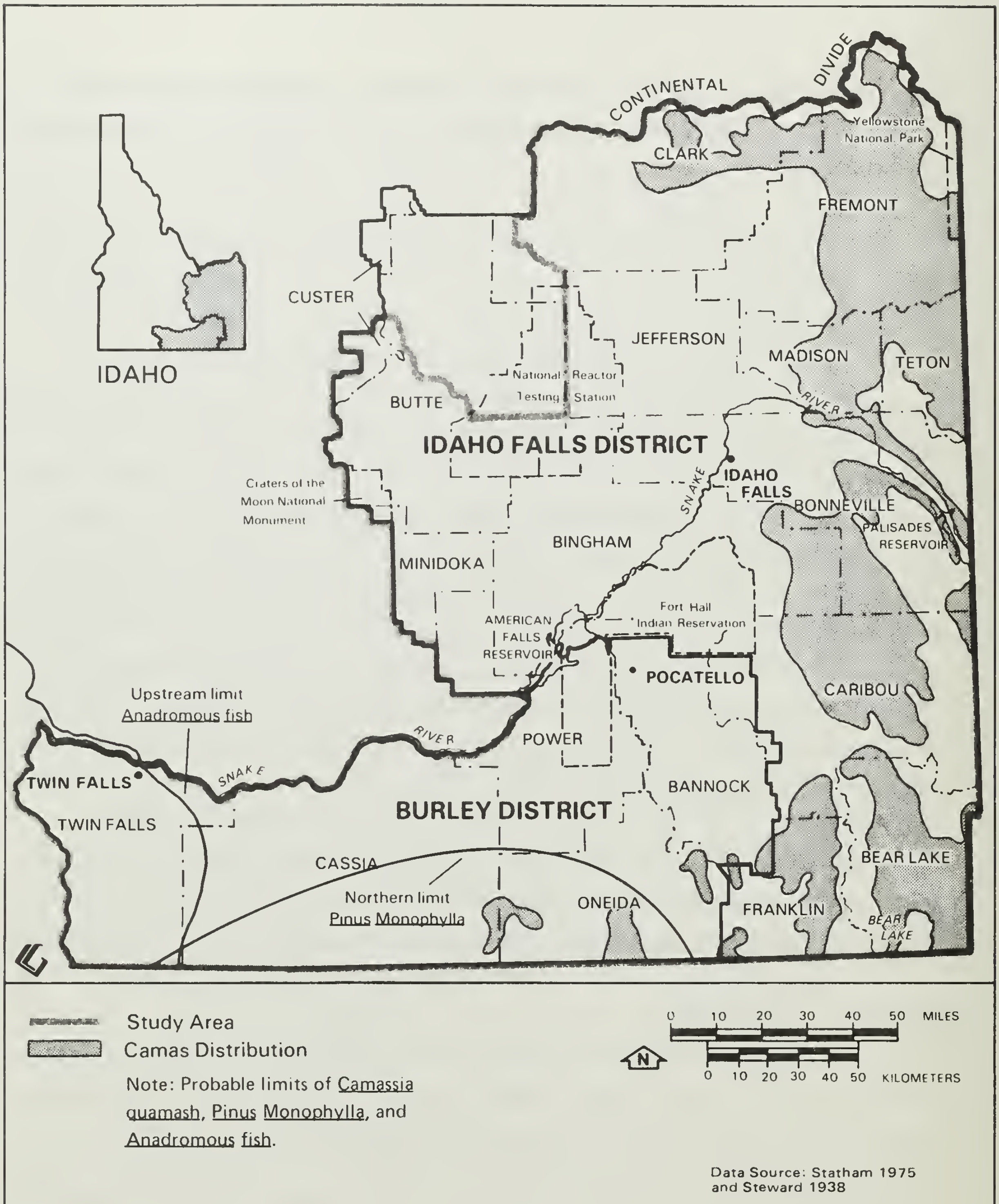

Figure 5

Camas, Pinyon and Salmon Distribution

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tshawytscha (Chinook salmon) were available during August and September (Steward 1938). A number of nonanadromous species were available and probably of considerable importance. Steward (1938:40) notes that fish could be very important food sources even among Basin groups without access to anadromous fisheries, although climatic fluctuations could cause considerable variation in fish availability. The Bear River-Great Salt Lake and the Snake River drainages each contained a characteristic group of nonanadromous species. These included sturgeon in the Snake River and several species of whitefish, minnows, suckers, and trout in both the Snake and Bear River-Salt Lake drainages (Steward 1938:41-43).

Although the large mammals of the study area are generally associated with either coniferous forest zones or the sagebrush steppe zone, the use of multiple zones and seasonal movement between zones does occur. Large mammals characteristic of forested zones include elk (*Cervus canadensis*), moose (*Alces alces*), mountain sheep (*Ovis canadensis*), mountain goat (*Oreamnos americanus*), and deer (*Odocoileus hemionus* or *O. virginianus*). Although moose are very large, they are solitary or aggregate only in small groups, even in the winter (Jochim 1976:32). Their movements are very erratic and unpredictable, which makes their pursuit difficult. Elk are also highly mobile and move erratically, but they aggregate into somewhat larger groups than do moose (Mackie 1970:23). Elk aggregations are roughly similar to those of deer, as are some of their other habits. The low density of mountain goats and their preference for extremely rugged areas probably minimized their importance as an aboriginal food source. Combined archeological, ethnographic, and biological data indicate that deer, mountain sheep, antelope, and bison were the most important large mammal food sources after the establishment of modern plant and animal communities.

During the summer, highest deer densities occur in the timber-brush vegetation type, a transition zone between open sagebrush-grassland and closed coniferous forests, and lowest densities are in the sagebrush-grassland zone (Trout 1963:6-7). During the winter, snow forces deer into lower elevations, although they still prefer forested or brushy areas. In northern Utah, records show that periods of mule deer scarcity are associated with overgrazed winter ranges (Richens 1967:651). Severe winters with heavy snowfall which force large numbers of deer into restricted areas are a likely cause of overgrazing. Although these severe winters tend to reduce future populations because of overgrazing, their immediate effect is to increase the effectiveness of aboriginal hunting because the deer are more concentrated and their mobility restricted. In northern Idaho, heavy snowfall during the winters of 1844-1845 and 1852-1853 resulted in large deer kills (Anastasio 1955:21).

Mountain sheep also are forced from their summer ranges in the coniferous forests down into lower zones during the winter. It can be expected that all species range into higher elevations on south facing slopes. Sheep generally inhabit rugged terrain and rocky outcrops for protection. The main factors controlling mountain sheep populations are overgrazing of winter ranges and disease. Drought is a controlling factor in desert areas and in other areas, restricted winter forage, deep snow, or drought act either singly or in combination to restrict the population (Buechner 1960:160-161). In the absence of these controlling factors, sheep population density increases until diseases act to curb this growth (Buechner 1960:160-161).

Antelope and bison are associated with the sagebrush steppe, rather than the forested zones. Up to several hundred antelope congregate during late fall, winter, and early spring (Frison 1978:252). Even though they remain in unforested habitats, antelope sometimes move to higher elevations during the summer. Antelope that winter in the Big Lost River Valley have been observed moving 1000-2000 feet higher into Copper Basin for the summer (Fichter and Nielson 1964:11). There are indications that antelope productivity is related to the water content of snowfall and in general to the moisture levels of the preceding ecological year (Fichter and Nielsen 1964:6-7). Another study indicates a significant relationship between fawn production and the precipitation received in the previous summer months (Beale and Smith 1970:570).

During the posthorse contact period to which ethnographic data pertain, bison (*Bison bison bison* or *Bison bison athabascae*) seem to be the most important mammal utilized by mounted Shoshone bands (Steward 1938; Murphy and Murphy 1960). A major activity in the seasonal cycle was the trip to Montana to participate in communal bison hunts with other groups. Bison became extinct in Idaho about 1840 (Steward 1938:191) and prior to this time apparently were still scarce enough to encourage travel to the Montana Plains. Because of the threat of warfare on the Plains, groups may have tried to avoid the trip by killing as many bison as possible west of the Divide (Murphy and Murphy 1960), and consequently aboriginal hunting could have been a factor in their extinction. Since the bison habitat in Idaho is considerably different from that of the grasslands of the northwest Plains, to some extent we must consider two sets of natural variables affecting bison availability.

It has recently been suggested that bison were exploited irregularly in the Challis area of the Upper Salmon River country because their availability was extremely unpredictable, sensitive to hunting pressure, and their aggregations were small (Epperson 1977:52). In the early nineteenth century,Euroamerican trappers noted that bison movements in the Upper Salmon and Snake River country were unpredictable and wide ranging, but some rather large aggregations were noted (Rich 1950; Williams 1971; Work 1971). Epperson (1977:52) suggests that during the contact and precontact periods, bison had a migratory pattern centering around aggregations on the Snake River Plain in spring and early summer, following which they were forced into the surrounding hills and valleys by a lack of grass in late summer, and that at least a few spent the winters there. Besides this horizontal movement, vertical migrations are also a possibility. A subspecies of bison found in the Rocky Mountains and in areas to the west are _Bison bison athabascae_ or mountain bison which "regularly wintered in valleys or open parklands of the Rockies and then moved into mountain meadows or tundra as the snow melted" (McHugh 1972:23); however,the data is inadequate to state that this was the only subspecies west of the Rockies (Christman 1971:46). Other than its altitudinal migrations, the mountain bison has other attributes that could significantly affect its exploitation. These are: extreme shyness, a tendency to seek refuge in forests or other areas where pursuit by horse would be difficult, agility and speed, and its occurrence in smaller bands than the Plains subspecies (Christman 1971:44-45). However, at present there is insufficient evidence to determine which subspecies inhabited Idaho during prehistoric times.

Perhaps the best data on bison behavior in Idaho comes from the journals of early nineteenth-century explorers and trappers. Christman (1971:45) suggests that the abundance of bison sightings during the winter as opposed to summer sightings is evidence for the altitudinal migrations characteristic of the mountain bison. However, because of the irregularity of early visits, the possibility of a form of sampling error exists. What is apparent from the trapper's observations is that although substantial aggregations did occur, they were unpredictable.

Ogden sums up this pattern:

> Thus it is in the Snake Country we find all animals most abundant in some parts, and again in others not one to be seen although the country is equally favorable for them (Williams 1971:23).

It seems likely that hunting pressure contributed to the irregular distribution of bison by causing stampedes and by actually depleting certain areas. Steward (1938:35) has observed that it took about twelve years for antelope populations in a given valley to return to huntable size after a successful hunt and Reher (1977:32) suggests that bison may also exhibit cyclical variation of this sort. Predation in one area can possibly be beneficial for populations in surrounding areas by allowing population expansion into the heavily predated areas (Reher 1977:32). Reher emphasizes that a number of complex feedback loops between predator and prey exist in the Plains which are presently incompletely understood, and the same is certainly true in southeastern Idaho.

The patchiness of bison availability could also be either wholly or in part a natural phenomenon. It has been stated that,in general,populations of hoofed animals in grasslands or savannas "tend to outgrow their available food supplies" resulting in "alternating areas of intense food depletion and recovery" (Petrides 1974:89, 87). Several early nineteenth-century trapper accounts of apparent bison overgrazing support this possibility. The introduction of the horse could certainly have contributed to this overgrazing cycle. Bison overgrazing patterns may also be interrelated with the availability of another herbivore. Bison grazing can shift grassland vegetation to forbs, which are preferred by pronghorn antelope. The pronghorns then put pressure mainly on the forbs, thereby allowing the grasses to recover and restoring a habitat favorable for bison (Dasmann 1964:80).

On the shortgrass Plains, Reher (1977:34) suggests that the essential variable controlling bison population density is the effective moisture level. He also suggests that there is a critical density level, or in systemic terms a threshold, below which cooperative drives or jumps would not be feasible (Reher 1977:34). Reher's model predicts that as bison density increases, the frequency, duration, and size of population influxes from areas surrounding the Plains increases, and dependence on bison increases while dependence on nonbison "buffer" resources decreases (1977:35). Conversely, when bison density is below the critical threshold, bison dependence decreases, reliance on mountain and riverine areas increases, and human aggregations decrease in frequency, duration, and size. The fact that Idaho groups chose to travel into Montana to hunt bison indicates that although occasional large bison aggregations did occur in southeastern

Idaho, apparently the area was still below the threshold necessary to sustain regular mounted hunting by large groups.

Smaller animals were no doubt utilized, but most likely were much less important than large mammals. Although Steward (1938:190, 205) minimizes the importance of communal rabbit hunts in Idaho during ethnohistoric times, Lepus Californicus (blacktail jackrabbit) is cyclically abundant on the Snake River Plain (Davis 1939:359). Davis (1939:359) mentions rabbit drives conducted by Euroamericans in southern Idaho in the first half of the twentieth century. In other parts of the Great Basin, aboriginal rabbit drives took place during the winter and were a communal activity (Steward 1938:38, 122, 176). Sylvilagus idahoensis (desert cottontail rabbit) is smaller than the jackrabbit and usually occurs in fewer numbers. Marmota flaviventris (rockchuck or yellow marmot) weighs 10 to 15 pounds and was especially favored as a source of food and fur in the fall (Steward 1938:40). Birds probably represent a minor source of food, with the possible exception of seasonal concentrations of waterfowl at places like Mud Lake, Sand Hole Lake, Market Lake, Grays Lake, and Bear Lake.

In a study involving the systems analysis and simulation of Shoshone subsistence patterns in central Nevada, Thomas (1972, 1973) makes an important distinction between food resources subject to significant annual variation and those which are not. Thomas (1973:160) considers most of the subsistence activities in the area he is studying to be "constants" whose annual variations need not be considered. More critical are the "essential variables" whose values have to be simulated statistically to determine their input into the system, while the input of constants can be simulated in a simple deterministic fashion (Thomas 1972: 682-683; 1973:160). Of course, the exploitation of both types of resources produces archeological sites, but each requires a different approach to understand its production.

Distinguishing between resources with significant and insignificant annual variation can be somewhat arbitrary in the absence of very detailed data. It appears that root crops were less sensitive to moisture fluctuations than other plant foods. Root crops were an important northern Shoshone plant food (Steward 1938:19), as they were among Plateau groups to the north, where root crops apparently never failed (Anastasio 1955:18-19). The Plateau environment is similar to that of the higher, northern portions of the study area, and subsistence cycles in southern Idaho are similar in many ways to that of Plateau groups (Anastasio 1955:27-29). Seed and berry crops in the Plateau were more variable than those of roots, and were susceptible to frosts and precipitation fluctuations (Anastasio 1955:18-19). Salmon runs never failed in the Plateau as a whole, but Anastasio (1955:19) mentions the possibility of minor fluctuations and local failures. Steward's (1938:234) work among the Shoshone in south-central and southwestern Idaho indicates that the salmon runs in the Snake River occasionally failed.

In the Plateau, "hunting was much more variable than fishing and gathering" (Anastasio 1955:21). In particular, mild winters resulted in poor hunting, while severe winters resulted in good hunting, since game was more concentrated and easier to hunt (Anastasio 1955:21). After a severe winter with good hunting, deer populations were said to be low for "a number of years" (Anastasio 1955:21). It is not clear whether this is a result of human predation, natural overgrazing of the winter range, or both factors. Thomas (1972:682) excludes the effect of negative feedback of hunting pressure on deer and mountain sheep in his analysis of Shoshone subsistence in central Nevada, but this may be an important factor in Idaho. Thomas (1972:683) also considers deer and mountain sheep to be inessential variables in that their availability is thought to be constant. However, based on ecological and historical data, it is assumed that deer and mountain sheep availability fluctuated significantly in relation to the economic system of groups in the study area.

ENVIRONMENTAL CHANGE

A consideration of environmental change is critical for understanding changes in cultural adaptations within the study area. Within the time span of human occupation, the major changes in the study area have been related to climate. A possible exception are the geomorphological changes caused by late Pleistocene or Holocene volcanism discussed previously. Evidence of climatic change in the study area comes from a variety of sources. In terms of influence on human affairs, the climate caused changes in the area's plants and animals are most important.

Vegetational changes are documented by dated pollen sequences from within the study area at Swan Lake (Figure 6) in southern Bannock County (Bright 1966), and from Lost Trail Pass (Mehringer, Arno, and Petersen 1977), approximately 120 miles northwest of the study area. In general, the sequence from Swan Lake shows coniferous tree species dominant before 11,400 BP, a transition between 11,400 and 8400 BP from

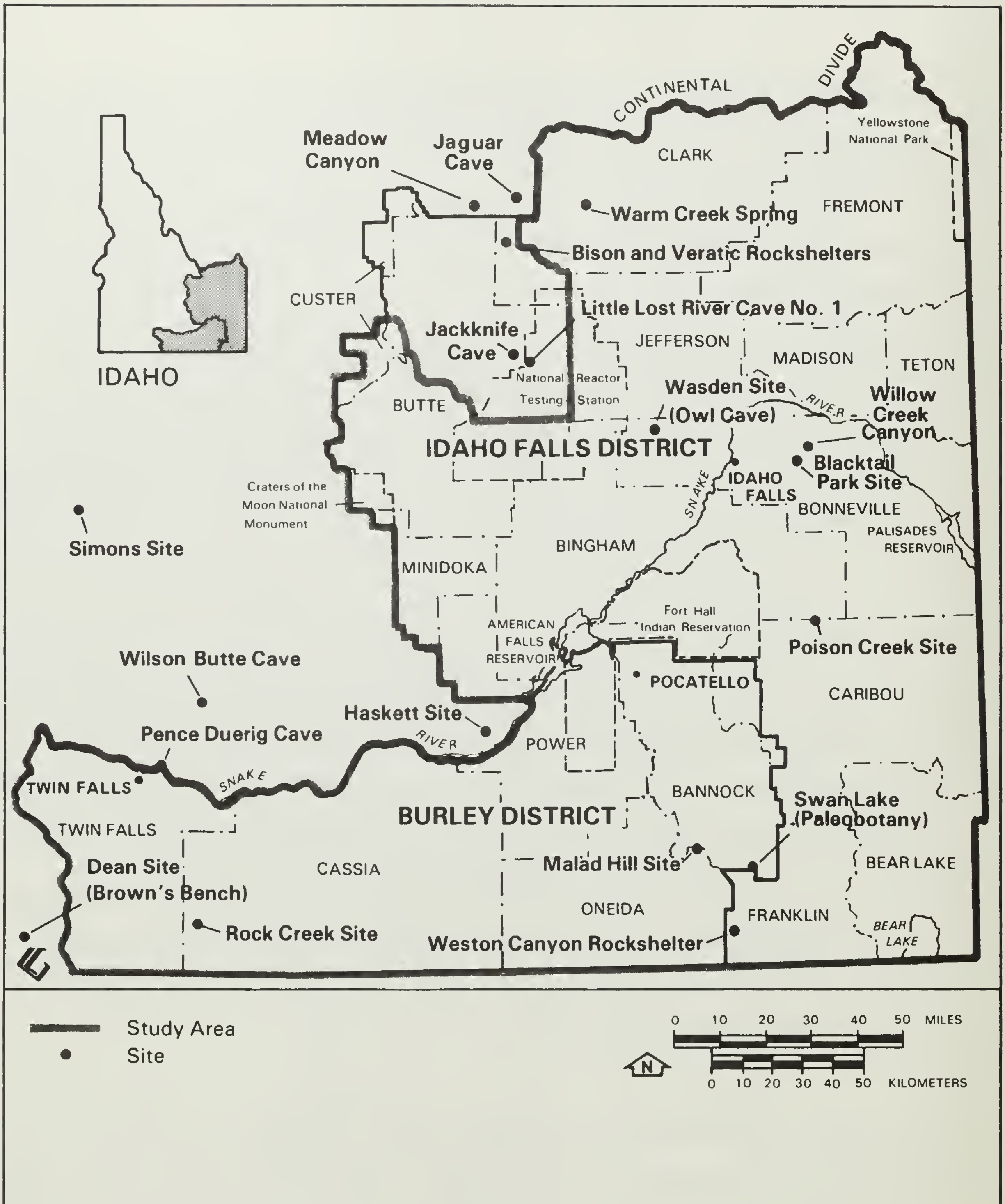

Figure 6

Major Archeological or Paleobotanical Sites

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coniferous forest dominance to the sagebrush steppe found in the area today, and an essentially modern vegetation and climate from 8400 BP to the present, except for a somewhat cooler period between 3100 and 1700 BP (Bright 1966). Swan Lake is located at about 4,765 feet above sea level.

Data from Lost Trail Pass Bog provides information on the climatic-vegetational sequence at higher elevations, since this site is located at nearly 7,000 feet above sea level in a coniferous forest. Following deglaciation around 12,000 BP, the Lost Trail Pass area was dominated by sagebrush steppe vegetation for 400 to 500 years. Forests dominated by whitebark pine, indicating climatic conditions slightly cooler than the present, were present from around 11,500 BP to 7000 BP. Between 7000 and 4000 years ago Douglas-fir and possibly larch were dominant with lodgepole and possibly some ponderosa pine also present. It is inferred that the climate during this period "was warmer but not necessarily drier than the present" (Mehringer, Arno, and Petersen 1977:366). About 4000 BP the climate became cooler and Douglas-fir was replaced by pines, with whitebark pine becoming more important. From 4000 BP to the present "there are no readily interpretable fluctuations in pollen content that suggest important changes in forest composition" (Mehringer, Arno, and Petersen 1977:367).

Dendrochronology provides a record of annual variability in climatic conditions for the mountains of south-central Idaho and southwestern Montana and parts of the Upper Snake River Plain (Pearson 1978). The most complete chronology is from an area along the East Fork of the Salmon River, approximately 40 miles northwest of the study area, and extends from AD 1090 to AD 1975. This sequence indicates major drought periods during the mid-1930s, the 1430s, and from about 1240 to 1290 AD, with the 1240 to 1290 AD drought being the most intense. No evidence of extended drought between 1290 AD and the mid-1930s was discovered (Pearson 1978:30). This seems to correlate with worldwide evidence for glacial advances and a cooler, moister climate beginning in the fourteenth century and a "Little Ice Age" from 1500 to 1920 AD (Denton and Karlen 1973:171).

Climatic and vegetational changes can be inferred from changes in fauna recovered from archeological and paleontological sites, and changes in large fauna obviously necessitated changes in prehistoric cultures. At Wilson Butte Cave, Assemblage I has a date of 14,500±500 BP and is associated with the remains of horse, camel, and possibly ground sloth. Assemblage II contained modern bison and camel, and dates to around 6000 BC. Assemblage III has a radiocarbon date of 4890±300 BC and _Bison bison_ is the only large herbivore present from this time onward (Gruhn 1961a, 1965).

The earliest cultural deposit at the Wasden Site, also known as Owl Cave, contains bison (_Bison antiquus_), mammoth (_Mammuthus_ sp.), camel (cf. _Camelops_ sp.), and pronghorn (_Antilocapra_ cf. _americana_). Radiocarbon dates obtained on bone collagen from this level are 12,200±150 BP and 12,850±150 BP (Butler 1972a:62). Bison remains dating to around 8000 BP (Butler 1968a) have been attributed to an evolving population intermediate between _Bison bison_ and _Bison antiquus_ (Butler 1971 and Butler, Gildersleeve, and Sommers 1971). Wilson (1974) has suggested that mid-Holocene bison vary on the basis of environmental and possibly cultural influences.

A deposit from Jaguar Cave, which is located at an elevation of approximately 7,440 feet along the northwest edge of the study area, contained a possible cultural feature dating to 11,580$\pm$250 BP years which included marten (Martes nobilis), Camelops sp. cf. hesternus and a lemming species characteristic of an arctic tundra environment (Dort 1977). Another deposit dated to 10,370$\pm$350 BP years contained Ovis canadensis and a number of extinct species including horse and lion. A final deposit thought to date between 10,400 BP and perhaps 9000 BP contains camel, horse, kiang, lion, and a number of modern species, including domestic dog (Dort and Miller 1977).

Although not of great economic consequence to humans, small mammals from archeological sites have been used as climatic indicators. Butler indicates (1978:35) that the northern pocket gopher (Thomomys talpoides) dominates the Wilson Butte Cave assemblage from 15,000 to 6500 BP, but is completely absent after this period. After this, ground squirrels (Citellus townsendi) are most abundant, indicating a shift to a dryer habitat. Butler (1978) also sees a shift in dominance at Wasden Site (Owl Cave) occurring at 7200 BP. This shift involves the replacement of pocket gophers characteristic of cool, moist, grasslands by pygmy rabbits and ground squirrels characteristic of dryer conditions.

Sediments from caves or rockshelters have also been used to reconstruct environmental change on the Snake River Plain. Swanson (1972) believes three cycles of change occurred between 12,450 and 7150 BP, 7150 and 3400 BP (includes altithermal from 7150 to 5000 BP) and 3400 BP and the present. Each of these three cycles begins dry, is followed by a cooler and moister episode, and concludes with a warming and drying trend which anticipates the beginning of the next cycle. Delisio (1970:98) cautions that rockshelter sediments may be affected by both local and regional climate. He emphasizes (1970:102) that rockshelter morphology can create a local microenvironment with a microclimate different from that outside the shelter. He also indicates (1970:103) that colluvium can accumulate under almost all conditions and consequently is not a good climatic indicator.

Landforms can be both directly and indirectly influenced by climatic change, and Walker (1964) has studied the alluvial terraces along the Snake River in Swan and Grand Valleys. Terraces 80 feet and 30 feet above the present river level are thought to have been formed during two Pinedale advances occurring between 11,000 and 9000 BP. A terrace 8 to 12 feet above the modern river is attributed to the Temple Lake advance after 4000 BP. Walker (1964) believes that the depth of loess deposits overlying alluvial deposits in these valleys is correlated with age.

Over the years, attempts have been made to draw on climatic and ecological data from various sources in order to define a sequence of recent or Holocene environmental change. The earliest model of environmental succession in the Desert West was that of Antevs (1948, 1955). His scheme included the Anathermal period from 9000 to 7000 BP, which was cooler and moister than the present; the Altithermal from 7000 to 4500 BP, which was warmer and drier than the present; and the modern climate Medithermal from 4500 BP to the present. Although later work has led to modification of this scheme and the identification of regional variation, in general it has been "refined rather than refuted" by later work (Aikens 1978:73).

Butler (1978:43-44) has formulated a series of nine climatic-ecologic periods for the Upper Snake and Salmon River Country, based on cultural and natural deposits at Wilson Butte Cave, the Wasden site, and Swan Lake. He (1978:45) admits that future work could alter this sequence, but believes that his concept of 2000 year climatic oscillations based on the numbers of pygmy rabbits at the Wasden site will prove accurate. Determining the magnitude of climatic change and associated changes in carrying capacity with changes in the frequency of various small mammals remains problematic. Butler's (1978:Figure 37) ecologic succession chart should be viewed with caution, because it can give one the impression that a 90 percent reduction in certain small mammal remains in owl pellets is indicative of a 90 percent reduction in the total environmental carrying capacity. Such a direct quantitative correspondence is unlikely, although a more general qualitative relationship between small mammal frequencies and carrying capacity is possible.

To avoid the unilinear, deterministic approach for which some cultural ecology has been criticized (Young 1974: 22-24), particular care should be taken to consider the influence of cultural activities on the environment, as well as the environment's effect on culture. In general, the effects of man on arid ecosystems increase with the advent of domestic herbivores (Noy-Meir 1974:223), which began in the study area with the introduction of the horse. In terms of energy consumption, pastoralism permits man to utilize a greater amount of the environment's primary production than would be possible at the pure hunter-gatherer level (Noy-Meir 1974:223). The effects of grazing may have been significant for the environment by affecting its vegetational capacity to support game.

Before and after the introduction of the horse, aboriginal groups may have significantly altered their environment by burning. While visiting the Lemhi in 1805, Lewis and Clark (Thwaites 1959:17, Vol. 3) observed that fire "is frequently kindled in these Plains by the natives." In a study of the fire history of Montana's Bitterroot National Forest, an area just northwest of the study area, the portion of the forest thought to have been most used aboriginally had the highest frequency of fires (Arno 1976: 7). This study, which utilized damaged tree rings for dating fire occurrence, spanned the period from AD 1600 to AD 1900. Citing accounts of aboriginal use of the area around 1900, Arno (1976:7) suggests that aboriginals set forest fires to improve forage for big game and horses. Charcoal in sediment cores from the Lost Trail Pass Bog indicates an increase in fire frequency during the last 2000 years that is also attributed to aboriginal practices (Mehringer, Arno, and Petersen 1977:367). Aboriginal burning has been studied extensively in California, where it was thought to have functioned to create manmade ecotones and shift vegetational zones of brush or trees to favor more productive mixed cover (Lewis 1973:83). Burning can also be beneficial in grasslands, especially those that are semiarid, by removing inedible grass, by stimulating "succulent and nutritious" new grass, and by stimulating seed production (Duffey 1974:197). Blaisdell (1953) has documented that on the Upper Snake River Plain repeated burning limits the woody species of the sagebrush-grassland zone and favors herbaceous species.

During the historic period, Euroamerican groups obviously had a profound effect on the environment of the study area. Although the earliest effects would be those of horse grazing, hunting, and trapping (Rusco 1976),the most dramatic changes were a result of the introduction of sheep and cattle in the mid-nineteenth century. A study in the central Great Basin indicates that grazing caused native shrubs undesirable for browsing to increase, reduced the amount of grasses and forbs, and caused an expansion of alien annual weeds highly adapted to intensive grazing into these ecological voids (Young, Evans, and Tueller 1976). Although historical records indicate that sagebrush was the dominant species on the Upper Snake River Plain before grazing was extensive, apparently grazing has reduced or eliminated the palatable grass and forb understory in most areas. This has reduced air-dry forage yields to less than 100 pounds per acre, compared with original yields of 400 to 800 pounds per acre (Tisdale, Hironaka, and Fosberg 1969).

CHAPTER 3

SUMMARY OF PAST AND CURRENT RESEARCH

This chapter includes all major projects known to have taken place in the study area. It omits many small surveys and minor testing programs conducted by or for federal agencies. It includes some projects that are actually outside the boundaries of the study area, but which contributed data important for understanding cultural resources within the study area. The research results of many of the projects mentioned in this chapter will be detailed in later chapters. Figure 6 depicts the major archeological sites mentioned in this and subsequent chapters.

Archeological research in southeastern Idaho was sporadic and conducted largely by nonprofessionals prior to the late 1950s. Most of this early work occurred outside the actual study area boundaries. In 1937 excavations were conducted at a cave near Howe, Idaho, at the mouth of the Little Lost Valley and at Pence-Duerig Cave north of Twin Falls. These excavations were directed by Dr. Charleton G. Laird, an English Professor at what is now Idaho State University. Ruth Gruhn (Gruhn 1961b) later analyzed the artifacts collected from Pence-Duerig Cave. This material generally appears to be late prehistoric and includes a number of perishable artifacts, but little provenience information is available. An amateur recovered a single burial and associated artifacts from a rockshelter near Bear Lake which were reported by Smith (1942).

To date, one of the most important events in the history of archeological research in the study area was the beginning of a program at Idaho State University, then Idaho

State College. The university first published the periodical which later became Tebiwa in 1957 and a monograph series was also begun (Swanson 1958). A major site survey was conducted in central and southern Idaho in 1958 (Swanson, Tuohy, and Bryan 1959). This survey focused on proposed reservoir pools on the Snake and Salmon Rivers, but other areas were also surveyed. About 650 sites were recorded in this survey and over 8000 artifacts were collected. In 1957 excavations began on a site on Browns Bench, in southwestern Twin Falls County (Bowers and Savage 1962; Barnes 1964). This work was conducted by students and faculty from the University of Idaho.

Excavations at Wilson Butte Cave conducted by Ruth Gruhn of Harvard University grew out of the Idaho State College Museum 1958 survey (Gruhn 1961a). Although Wilson Butte Cave is located outside the study area, Gruhn's (1961a) report greatly influenced later research. Butler (1978:9) refers to this as the "largest, most thorough and comprehensive report ever written on a single archaeological site in Idaho." Wilson Butte Cave contained stratified radiocarbon dated cultural deposits, and two of the earlier radiocarbon dates in the New World (Gruhn 1965).

Another outgrowth of the 1958 survey was the Birch Creek project, which was supported by the National Science Foundation, and directed by Dr. Earl H. Swanson. The Birch Creek project included site survey (Swanson and Bryan 1964), test excavation (Swanson, Butler, and Bonnichsen 1964), and large-scale excavation at several rockshelters (Swanson and Sneed 1966, 1971; Ranere 1971; Bucy 1971; Swanson 1972).

The main goals of the Birch Creek project were to archeologically determine the time depth of northern Shoshone occupation of the area and to correlate rockshelter sediments with environmental changes (Swanson 1972). Bison and Veratic rockshelters (Swanson 1972) contained radiocarbon dated stratified deposits that included a larger and more continuous sequence of cultural material than Wilson Butte Cave. Again, these rockshelters are just outside the study area, but are probably the most important source of cultural historical data for southeastern Idaho. The phase sequence derived from these sites has been used extensively in the study area. Along with Wilson Butte Cave, the Birch Creek sites provide the basis for comparative dating of diagnostic artifacts. Natural deposits from both Wilson Butte Cave and the Birch Creek rockshelters have been used in attempts to reconstruct past environmental conditions.

The excavations at the Wasden site (Owl Cave) should be mentioned along with those at Birch Creek and Wilson Butte Cave because these three projects constitute the bulk of grant-funded, research oriented work done in and adjacent to the study area, and are probably the three most important single sites in southern Idaho. Work at this site began in 1965 and continued through 1977, except for 1972 and 1973. The Upper Snake River Prehistoric Society played a major role in this work, which has been supported by the National Science Foundation and the Idaho State University Museum of Natural History. Directors of the project have included B. Robert Butler, Dr. Earl H. Swanson and Susanne Miller.

The site contained two radiocarbon dated Paleo-Indian components associated with extinct fauna and provided sediments and small fauna remains which have been used to reconstruct changing environmental conditions in the area (Butler 1968a, 1968b, 1969, 1971, 1972a, 1972b, 1976a, 1978;

Butler, Gildersleeve, and Sommers 1971; Dort 1968a, 1968b; Guilday 1969; Ore 1968; Burnett 1976; Miller 1975, 1977; Miller and Dort 1977; Dort and Miller 1977b). To date, post Paleo-Indian cultural material from the Wasden site apparently remains unanalyzed and unreported.

Ever since systematic and professional investigations began in the study area, federally funded contract studies have constituted a large proportion of the ongoing research. A tipi ring site located near Monida Pass was excavated in 1963 by the Idaho State University Museum (ISU Museum) under a highway salvage contract (Ranere, Ranere, and Lortz 1969). The site is located about 10 miles south of the continental divide on a terrace with a good view of three valleys. The tipi rings were 4.5 to 5.0 meters in diameter and 5 meters apart, and a hearth was located 15 meters from the rings. Based on the ring diameters, this site is tentatively attributed to the posthorse period, or AD 1725 to 1800. The site is unusual in comparison to most other tipi ring sites because of the relatively large amount of chipped stone tools and debitage associated with it.

In 1965, 47 2 x 2 meter squares were excavated at the Malad Hill site (10-OA-1 and 10-OA-2), under the direction of R. J. Fitzwater, who was then the Idaho Highway Salvage Archeologist (King 1965). A brief article was published on the site which described it as a "prehistoric hunting station" (Swanson and Dayley 1968:59). Bitterroot and Blue Dome phases were identified and each was associated with a fossil humus horizon and large mammal remains. Surface materials were not analyzed in the original report (Swanson and Dayley 1968), but a partial analysis conducted later indicated the presence of a large ground stone assemblage and a Late Archaic component

(Franzen 1977). A number of edible plant species occur in the riparian habitat around this site (Leroy n.d.).

In 1966, a reconnaissance survey of the Craters of the Moon National Monument was conducted by the ISU Museum for the National Park Service. The 15 days allotted to field survey for two or three individuals identifies the intensity of this survey. The goals of this project can be summarized as the identification of locational preferences, identification of migration routes, and information on cultural relationships between the Snake River Plain and the valleys to the north (Sneed 1967:37). Sneed (1967:40) classified the sites located as open sites, cave sites, rock structures, hunting blinds, and quarry sites. Certain preferred micro-environments associated with water and shelter were identified within the nonrandom site sample. Evidence is seen of east-west human movements being deflected north of the monument and artifact assemblages are thought to resemble that of the Birch Creek Valley (Sneed 1967).

During September of 1966, an Idaho State University Museum crew surveyed unspecified portions of the 28,000 acre Railroad Ranch (now Harriman State Park) (Swanson and Sneed 1967; Swanson and Ranere 1969). The area is dominated by the Henry's Fork of the Snake River and a large volcanic caldera. The article suggests that the highest site densities were encountered within the caldera and were associated areas of high effective soil moisture with open forest and wet meadow-land vegetation (Swanson and Sneed 1967:53-54). Of the 37 sites located in 1966, six were tested in 1967 (Swanson and Ranere 1969). This testing focused on obtaining a series of stratigraphic profiles along transects. The results of this testing are said to indicate that a drought between 5200 and 3700 BC caused channel cutting, silting in of springs, and an occupational hiatus (Swanson and Ranere 1969:27).

Excavations at sites in the Teton River Canyon were conducted by the ISU Museum under contract with the National Park Service in 1967. The canyon had been originally surveyed in 1958 and some additional survey was done in 1967. No cultural material was recovered during the testing of several depressions originally thought to be house pits. Several open campsites and rockshelters were also tested and found to contain very little cultural material (Gardner 1968).

Several sites within the proposed pool of the Ririe Dam were tested or partially excavated by the ISU Museum in 1966. Some of these sites, which were located in Willow Creek Canyon, were discovered in the 1958 National Park Service Survey (Swanson, Tuohy, and Bryan 1959). This project was undertaken largely to secure comparative stratigraphic information (Powers 1969:2). Willow Creek Rockshelter 10-BV-32 and the Harris site 10-BV-35 are described as yielding good stratigraphic sections and archeological sequences (Powers 1969:2). Three phases are defined which are compared to the sequences at Birch Creek and Wilson Butte Cave. No absolute dates were obtained from this sequence (Powers 1969:71) and the possibility exists of mixed deposits resulting in the combination of two phases into the Willow Creek III phase.

From 1967 to 1969 certain portions of the National Reactor Testing Station were surveyed to provide information on the topographic situations preferred for site locations and to complement the studies underway at the Wasden site (Butler 1970). It appears that survey efforts focused on certain topographic features where sites were thought to be most abundant (Butler 1970:60). Most sites were found on dunes, riparian features, or buttes, and shelter from the wind and elevation are suggested as determining factors (Butler 1970:60). A wide temporal range of projectile points were collected and pottery is widespread and abundant.

As part of the Highway Salvage Program, the ISU Museum excavated the Rock Creek site in 1970 with funds provided by the U.S. Forest Service. The final report on this project is James P. Green's (1972) M.A. thesis. A total of 30 2 by 2 meter units and five backhoe trenches ranging from 8 to 20 meters in length were excavated. No physical stratigraphy was visible and the site was excavated in arbitrary 15 centimeter levels. Since no radiocarbon dates were obtained, the chronological placement of materials was difficult (Green 1972:13). Consequently,a relative chronology was formulated based on comparisons with other sites (Green 1972:26). Five cultural occupations were defined based on correlations between material culture distributions and sediments (Green 1972:29). Projectile point types present at the site indicate approximately 8000 years of occupation, but little vertical separation occurred between types usually temporally distinct (Green 1972:Figure 10). Green observed relative stability within the sequence and concluded that the site is an open camp and workshop representing the utilization of an upland environment as part of a regional pattern of seasonal transhumance.

In 1978, the Forest Service contracted with Archeological Research Associates for an evaluation of the condition and significance of the Rock Creek site after the site was inadvertently impacted by activities associated with asphalt production (Bousman, Cheek, and Leonardy 1979). This study was based on the excavation of nine 1 by 2 meter test pits and 54 postholes. Ignimbrite hydration measurements were also obtained on artifacts recovered from the site in 1970. The vertical distribution of temporal diagnostics and recent materials, as well as the ignimbrite hydration measurements, indicate that archeological materials at this site have been vertically mixed. This mixing predates the impacts caused in 1978 which resulted in artifact breakage and poor bone preservation due to soil compaction (Bousman, Cheek, and Leonardy 1979). It is concluded that cultural strata are impossible to define and that Green's (1972) hypothesis of seasonal transhumance is impossible to test (Bousman, Cheek and Leonardy 1979:92-93).

During the 1960s, several small noncontract studies yielded important data on early occupations of southern Idaho. Just outside the study area, Paleo-Indian points related to the Cougar Mountain and Agate Basin types were recovered at the Haskett site, eight miles southwest of American Falls (Butler 1965, 1967). Farther from the study area, another Paleo-Indian type called Simons points were recovered from the Big Camas Prairie. These points are fluted and similar to the Clovis type (Butler 1963).

From the mid-1960s to the early 1970s, Idaho State University was a center of research in various aspects of lithic technology. This was in large part a result of the presence of Don E. Crabtree who was a Research Associate of the ISU Museum during this period. The National Science Foundation provided financial support for this experimental program. Much of this research was not specifically focused on the study area, and is relevant to lithic technology in general. However, this experimental program stimulated some research by graduate students dealing with lithic materials from the study area.

Muto (1971) included a cache of bifaces from the confluence of Spring Creek and the American Falls reservoir in a study attempting to define stages in the manufacture of stone tools. Another cache from near Sterling, Idaho, contained lanceolate blanks resembling Milnesand or Simonsen points (Pavesic 1966).

Miss (1978) conducted a study of wear patterns on morphologically defined endscrapers from Weston Canyon, Birch Creek, Blackfoot Reservoir, the National Reactor Testing Station, and Wilson Butte Cave. She observed rounding and perpendicular striations indicating the probable scraping of soft material such as hides, but detected no correlation between edge angles and specific wear patterns. Of the 325 endscrapers examined,92.3 percent were chalcedony.

During the 1970s a number of studies were completed by ISU students which are important for understanding the area's prehistory. Corliss (1972) measured the neck widths of 2,712 projectile points from a number of Great Basin sites, including some in the study area, and Plateau sites. He found significant differences between neck width means in each area in all time periods and the appearance of bimodal distributions in both areas which may result from the introduction of the bow and arrow. It is inferred that these neck width distributions indicate that in Idaho there were "no major or significant migrations of people during the past 6000 years" (Corliss 1972:25).

The deeply stratified Weston Canyon Rockshelter was tested in 1968 and excavated in 1969 and 1970 by Idaho State University field schools. The results of the 1969 excavations are reported by Mario Delisio (1970) in his M.A. thesis and Suzanne Miller's (1972) M.A. thesis includes data from both the 1969 and 1970 field seasons. Delisio (1970) provides a detailed discussion of sediments from the site, sediments from other sites in the region, and sediment analysis methodology. He refrains from making the sweeping correlations between sites and the climatic inferences offered by Swanson (1972) and suggests the importance of local factors (Delisio 1970:98). The sediments of Weston Creek Rockshelter are the products of mass wastage and eolian deposition, but it is suggested that colluvium is not a good climatic indicator (Delisio 1970:71, 103).

Miller (1972) focuses on the faunal remains, which are dominated by mountain sheep, and includes a great deal of historical and ethnographic background information on hunting techniques. Both Delisio and Miller analyze the cultural sequence, but Miller's is more useful because it includes data from both field seasons and several radiocarbon dates. Both Miller (1972:127) and Delisio (1970:196) see strong typological and adaptive similarities between Weston Canyon and the high plains and montane areas to the north and northwest. "Rapid" and "aggressive" field techniques were used without screening during both field seasons, because of the nature of the deposits, and as a consequence small fauna and other small scale remains were likely lost (Delisio 1970:31; Miller 1972:49). The only botanical remains from the site were several charred chokecherry seeds (Miller 1972: 118).

In 1973, Dawn Statham (1975) conducted a field reconnaissance in south-central, southeast, east, and central Idaho to identify the distribution of camas. Thirty-four camas locales were identified, which ranged in size from several hundred acre fields to the borders of small water courses. Based on this survey, probable limits of camas distribution are defined as the area where mollisols occur between 5000 and 7000 feet above sea level. Within this area, camas are characteristically found in level, low-lying areas. Statham (1975) believes that soil drainage is the factor limiting camas growth and development, and also notes a relationship between soil pH and flower color and bulb size. Because of its localized abundance, she (1975:79) sees camas as permitting a higher level of inter-group trade and social interaction than normally found in the northern Great Basin.

A dramatic increase in federally funded contract research occurred in the early to mid-1970s, and again most was conducted by the Idaho State University Museum of Natural History, later known as the Idaho Museum of Natural History. Many of these studies are published in the Museum's limited distribution Archeological Reports series, which began in 1976.

In 1973, the area of the Blackfoot Reservoir was surveyed under a National Park Service contract, and 8 of the 32 sites located were tested, some rather extensively (Miss 1974). A correlation between site density and distance from marsh areas is thought to imply a heavy reliance on plant resources (Miss 1974:41). Most sites are near the 6,120 foot contour and associated with marshes, meadows, and river banks. Chalcedony dominates the lithic assemblages and it is suggested this may relate to the importance of plant use (Miss 1974:141).

One of the sites located and tested during the Blackfoot Reservoir project was later partially excavated (Neudorfer 1976). The Late Prehistoric Poison Creek site is one of the few "open campsites" systematically examined in southeastern Idaho (Neudorfer 1976:1). The goals of this study were to identify internal variability at the site through stratified probabilistic sampling. A 1 percent stratified random areal sample was excavated and its effectiveness is discussed. Additional nonrandom excavation was conducted in areas containing constructional features and dense lithic concentrations. Several use areas were identified which appear to be associated with hearths or earth ovens. These features are thought to have been used for food preparation and chalcedony heat treatment. Relative waste flake density appears to decrease with distance from features. Most activity areas appear to date to the Late Archaic period, although several may date between 1450 BC - AD 1250 (Neudorfer 1976:36).

A survey of the Bureau of Reclamation's Upper Snake River project, Salmon Fall Division, in Twin Falls and Cassia Counties was conducted in 1975 under a National Park Service contract (Struthers 1976). A large-scale testing program was initiated in order to evaluate the sites located during this survey (Epperson 1977; Butler and Waite 1978). Eight sites were mapped and tested in 1976 by the excavation of .5 percent stratified unaligned samples of the area of each site. In general, the eight sites tested were primarily or exclusively "lithic workshops", with very limited indications of additional activities such as mussel shells, macerated bone, or an earth oven or hearth occurring at two sites. Sites tended to be "thinly occupied or utilized" (Butler and Waite 1978). This is illustrated by the fact that during three seasons of work,395 1 x 2 meter test pits were excavated and yielded 439 catalogued artifacts and 6,402 waste flakes, (Butler and Waite 1978:7), with the majority of this material coming from a small number of test units. None of these sites was recommended for the National Register.

The Bureau of Land Management contracted with the ISU Museum in 1975 for an archeological survey of the bottom and rims of the Salmon Falls Creek Canyon from Salmon Dam to Balanced Rock (Tucker 1976). This survey identified variations in site density and temporal variation between regions within the study area, which are thought to relate to climatic change (Tucker 1976:71-72). Projectile point neck widths from regions within the study area compared with each other and with those from other areas.

Portions of the Bureau of Land Management's Camas Creek-Little Grassy Planning Unit were surveyed in 1974 and 1975 by the ISU Museum. Certain areas were completely surveyed, others were sampled on a nonrandom judgmental basis, and others were subjected to stratified random areal sampling, with 7.5 minute U.S.G.S. quads used as sampling strata (Roberts 1976:3-5). Two-hundred meter transect intervals were used in this survey (Roberts 1976:6). Site types identified include a large cave with structures, large caves, large open sites, small flake and tool scatters and recent structures (Roberts 1976:57-58). It is concluded that locations "which provide water and/or at least minimal protection from the elements" were preferred for aboriginal utilization (Roberts 1976:55). Processes which impacted sites are described in detail in the survey report.

The investigation of the Warm Creek Spring site by Idaho State University in 1975 was partially financed by the Bureau of Land Management (Kimball 1976). This site, an ignimbrite quarry/workshop, is located in the foothills of the Beaverhead Mountains. Subareas within the site were subjected to controlled surface collection of randomly selected units covering from 5.3 to 12.8 percent of each subarea. Sample units which represented 4.3 and 4.5 percent of two subareas were excavated. Because of the volume of material recovered,only 29 percent of the provenienced lots were ultimately analyzed (Kimball 1976:50). Both task specific and multifunction activity areas were identified, with the main function of the site being the production of ignimbrite artifacts, especially biface blanks. The refinement of bifaces is the dominant production stage, with initial reduction of limited importance. The occupation is believed to have taken place between 1000 BC and AD 1300. A model of the role of lithic procurement in regional settlement patterns is also presented (Kimball 1976:111-114).

Additional research associated with the proposed Ririe Reservoir was conducted at the Blacktail Park site in 1975 (Butler 1976b). The site was stratified on the basis of geomorphology into springhead, floodplain terrace, alluvial fan, and canyon slope zones and a five percent random areal sample was surface collected. Sixteen randomly selected 1 x 1 meter and four 1 x 2 meter units were excavated, and 16 square meters were excavated adjacent to the springhead where cultural material was most dense. Deep testing was also conducted with negative results. It is concluded that the site was a "small, short-term workshop site for the production of ignimbrite bifaces," even though tools (mainly utilized flakes) are relatively abundant (Butler 1976b:19).

In 1977 the ISU Museum surveyed portions of a timber sale in the Twin Falls District of the Sawtooth National

Forest (Epperson 1977). This survey included coverage of the edges and roads within 20 percent of the forest plots and all of the roadways in the study area. No sites were located within conifer stands, but six of the 17 sites identified were located along the forest edge. Site functions suggested include exploitation of lithic resources, deer, and possibly plant foods (Epperson 1977:12).

Limited test excavation was conducted at the Bissell Spring site for the U.S. Forest Service in 1977, and the resulting report included analysis of surface material from the Malad Hill site (10OA 1 and 2), and material from test excavations at the Badger Hole Spring site (10OA32) conducted by the Bureau of Land Management (Franzen 1977). Obsidian debitage characteristic of the later stages of biface production and mammal bone were recovered from the Bissell Spring site, and comparisons with the other sites analyzed indicated variation in spring site function, possibly correlated with locational differences (Franzen 1977).

In recent years, private firms have conducted cultural resource investigations in the study area. Commonwealth Associates Inc., conducted a survey of the Teton Replacement Farmland for the Water and Power Resources Service in 1979 (Franzen 1980a). This was an intensive survey of 3,200 acres which located 22 prehistoric sites, three historic sites, and 56 prehistoric isolated finds. Prehistoric sites seem associated with sand dunes which have formed on the bed of ancient Lake Terreton. Lithic debris is indicative of the later stages of the reductive process, and bifacial tools, bone, and tooth enamel fragments suggest a hunting and butchering function for some sites (Franzen 1980a:52).

Another project conducted by Commonwealth Associates Inc., was a sample inventory of certain Bureau of Land Management lands on the eastern Snake River Plain (Franzen 1980b). Ten percent of 46,400 acres in selected environmental zones was surveyed using 55 yard transect intervals. The sample was stratified on the basis of geomorphic zones which included Buttes, Playas, Parks or Kipukas, and a lava tube. The Butte and Playa strata had the highest site densities, and buttes with the steepest or most imposing landforms had the highest densities within the butte strata. Paleo-Indian material was rare, and Late Archaic material was abundant in comparison to Early and Middle Archaic material. Preliminary indications are that the area was occupied during the spring and early summer for procurement of bison or antelope, using jumps, surrounds, or ambush techniques. Unauthorized surface collection was identified as posing a threat to the cultural resources in this area.

Many cultural resource surveys and some test excavation have been conducted in-house by federal agencies in the study area. Many of these are clearance surveys which failed to locate any cultural resources. A summary of U.S. Forest Service cultural resource investigations in the study area in 1975 and 1976 is included in Wylie and Flynn (1977). A summary of the 1977, 1978, and 1979 field seasons is accompanied by some working hypotheses based on survey results (Wylie and Ketchum 1980). The Forest Service has also prepared an overview study of the Centennial Mountains in Targhee National Forest (Sims 1979).

The first formal ethnographic fieldwork conducted in the study area took place during Robert Lowie's (1909) brief visit at the Fort Hall Reservation on his way to the

Lemhi Valley in 1906. Other than recording a few myths, this visit resulted in little useful information. The major ethnographic reference for the study area is Steward's classic Basin-Plateau Aboriginal Sociopolitical Groups (1938). Steward's fieldwork was conducted in the 1930s, and consequently had to rely on historic documents and "memory culture" that at best represented the already altered situation of the 1860s and 1870s. Sven Liljeblad conducted ethnographic fieldwork among the Fort Hall Shoshone and Bannock beginning in 1940 and continuing intermittently for over 25 years. A vast amount of raw unpublished data has resulted from this work (Davis 1970:11-12). Liljeblad's studies have focused on linguistics and mythology, although important data on all aspects of Shoshone-Bannock culture were obviously collected. An unpublished manuscript (Liljeblad 1957) and a special publication of the Idaho State University Museum (Liljeblad 1972) are based on his research. Between 1954 and 1957, Murphy and Murphy (1960: iii) conducted "salvage ethnography" among Northern Shoshone groups to obtain information on aboriginal subsistence and settlement patterns. Work with living informants was termed "unrewarding" and of limited reliability, and they based most of their work on ethnohistoric research.

Although obviously a great deal of historical research has been undertaken on the study area, little focuses on the physical remains of historic events or processes. The Idaho Historical Society has been involved in an extensive inventory of historic sites and properties, and has placed a number of structures on the National Register of Historic Places. However, these sites tend to be located in modern settlements and on private land. Studies of emigrant trails comprise the majority of past historical studies focusing on physical remains likely to be found on public lands.

A major ongoing research project being conducted in the study area by the Idaho State Historical Society focuses on the Mormon and Oregon Trails. This multidisciplinary study includes a review and synthesis of existing data in the trail corridors, aerial photography, and field survey. Another project currently underway in the study area is an historically oriented Cultural Resource Survey of the Arbon Valley sponsored by the Idaho State Historical Society and carried out by Idaho State University.

CHAPTER 4

RESEARCH ORIENTATIONS

Most past and present research within the study area focuses on the delineation of prehistoric cultural and environmental chronological sequences, the reconstruction of certain aspects of prehistoric lifeways, the identification of cultural relationships and/or boundaries with surrounding areas, and the definition of prehistoric subsistence and settlement patterns. Research at some sites and in certain regions has been oriented toward more than one of the above problem areas.

The earliest scientific research in and adjacent to the study area focuses on prehistoric cultural and environmental history. As a result, stratified caves and rockshelters were frequently selected for excavation. These studies tended to focus on specific sites, rather than regions, even when attempting to correlate cultural and environmental change. Recent attempts to formulate cultural historical classification units (Butler 1978, 1979a:8-9) indicate that certain cultural historical questions remain unsolved.

Gruhn (1961a:12) indicates that a prime reason for the excavation of Wilson Butte Cave was to enable the artifact types collected during the 1958 south and central Idaho survey (Swanson, Tuohy and Bryan 1959) to be chronologically ordered. Concern with the relationship between cultural and natural deposits indicating possible climatic changes was evident at Wilson Butte Cave, and this concern is still evident in the study area. A desire to recover perishable cultural materials influenced the decision to excavate at Wilson Butte Cave (Gruhn 1961a:12-13), and probably at other caves or rockshelters as well.

The Birch Creek project is significant not only for its own contributions, but it also influenced the orientation of research at many other sites. This project focused on culture history: it attempted to identify the time depth of northern Shoshone occupancy through prehistoric cultural remains (Swanson 1972). This goal involved the definition of a sequence of cultural phases and natural sediments. Attempts to obtain additional natural and cultural stratigraphic profiles along east-west and north-south transects running across southern Idaho grew out of the Birch Creek project. Excavations at Malad Hill (Swanson and Dayley 1968), Blacktail Park (Butler 1976b), Weston Canyon (Delisio 1970), and Willow Creek Canyon (Powers 1969), were directed, at least in part, towards obtaining natural and cultural stratigraphic profiles for comparative purposes.

Research at the Wasden site was originally undertaken to determine the identity and sequence of Early Big Game Hunting or Paleo-Indian cultures on the eastern Snake River Plain (Butler 1968a:4). As at Birch Creek and Wilson Butte Cave, the environmental history of the site was also explored through the analysis of sediments and faunal remains (Butler 1968a, 1969, 1976a).

Research at many sites also included attempts to reconstruct prehistoric lifeways. These attempts have been most successful in reconstructing the procurement and processing of big game and lithic raw materials. Excavation at the Wasden site revealed that during the Folsom occupation, Owl Cave was utilized for processing meat and bone from proboscideans and ungulates (Miller 1977:Figure 2). During a later Paleo-Indian occupation, Owl Cave was used as a trap and/or fall where approximately 150 bison were killed and processed (Butler 1968a). The utilization of mountain sheep at Weston Canyon has been detailed by Miller (1972) and Wright and Miller (1976).

The other aspect of prehistoric lifeways most frequently studied is the procurement and reduction of lithic raw materials. The use of space within the Poison Creek site for the processing of lithic material and food resources is documented by Neudorfer (1976). Kimball (1976) identified activity areas within a site associated with stages of lithic reduction, and Muto (1971, 1972) compared the products of different early stages in the reductive process. Attempts have also been made to identify raw material sources through trace element analysis (Wright, Griffin, and Gordus 1969; Gallagher 1979:105; 1980).

A great deal of research conducted in southeastern Idaho has attempted to define cultural relationships and/or boundaries with surrounding areas. Speaking of the Great Basin, Plateau, and Great Plains, Gruhn (1961a:10) stated that "a major problem in Idaho archeology is determination of the extent of relationships with each of these three major areas in different periods." The relative importance of Plains and Basin influences has been considered by Butler (1965, 1978), Miller (1972), Delisio (1970), and Swanson (1972). Corliss (1972) used projectile point neck widths to investigate the time depth of the Plateau-Basin boundary. The definition of this boundary was also the goal of the 1959 Southwestern Idaho Survey (Swanson, Powers, and Brvan 1964; Swanson 1965).

The nature of Fremont Culture influence in southern Idaho is a research topic of great current interest. Plew

(1979) defines a ceramic type called "Southern Idaho Plain" that suggests an extension of Fremont material culture into southern Idaho, and Butler (1979a) discusses the presence of Fremont ceramics and basketry in and around the study area. Many questions concerning the temporal and spatial distribution of these traits and an explanation for their presence remain unanswered.

Similar research questions relating to both culture history and cultural relationships and/or boundaries, focus on the origin of Numic or Shoshonean speakers in Idaho. Some of the debate on this question illustrates classic migration, diffusion, and in situ development arguments. Both linguistic and archeological data have been utilized in these arguments. Swanson (1972) and Corliss (1972) believe the archeological evidence indicates the presence of Shoshonean speakers since 7000-8000 BP. Swanson's (1972) assumption,that the material traits of the Bitterroot culture are the products of northern Shoshone ethnic groups, appears to have little basis and has been strongly criticized (Butler 1978:20). Others believe linguistic data and the presence of Paiute-Shoshone ceramics indicate a movement of Shoshonean speakers into the area relatively recently (Madsen 1975; Wright 1978). Butler (1978:20; 1979b:9) disagrees with both hypotheses and suggests the problem is more complex than others have allowed. He believes that a new language and material culture traits may have entered the area, but that the original inhabitants were not displaced (1978:71).

A potential goal for research in the study area towards which little progress has been made, is the explication and explanation of prehistoric subsistence and settlement patterns. In part, settlement pattern studies have been limited by the site specific focus of much previous research. Some contract surveys have attempted to determine what locations were preferred for prehistoric sites in general, but little progress has been made in identifying specific site functions and relating these to various locations (Sneed 1967; Butler 1970; Roberts 1976). The identification of site function and regional subsistence-settlement patterns is critical for management purposes, because it enables the prediction of undiscovered site locales, and permits significance evaluation in terms of specific research questions. Progress in identifying site types and in reconstructing settlement patterns has been made in other portions of the Great Basin (Thomas 1973; Bettinger 1977), and should be possible in the study area.

Ethnographic research in the study area has had a pronounced cultural ecological orientation for many years. Murphy (1970:152) emphasizes that "research into the relationship between environment and culture" has been the most important result of ethnographic fieldwork in the Great Basin. This tradition began with Steward (1938) and was continued by Murphy and Murphy (1960). Other fieldwork has focused on mythology (Lowie 1909), linguistics (Liljeblad 1972; Gardner 1967; Dayley 1970), and Indian-White relations and contemporary Indian problems (Liljeblad 1972).

Historical research in the study area has been oriented toward documenting the history of economic development and transportation networks. The fur trade era has been well studied in relation to its duration and the number of people it involved. A great deal of recent research focuses on the Oregon Trail and other associated emigrant trails (Harstad and Pavesic 1966; Cramer 1969, 1973a, 1973b, 1974a, 1974b; Haines 1973; U.S.D.I. Bureau of Outdoor Recreation 1975a, 1975b; U.S.D.I. Bureau of Land Management 1976).

CHAPTER 5

CULTURAL HISTORY

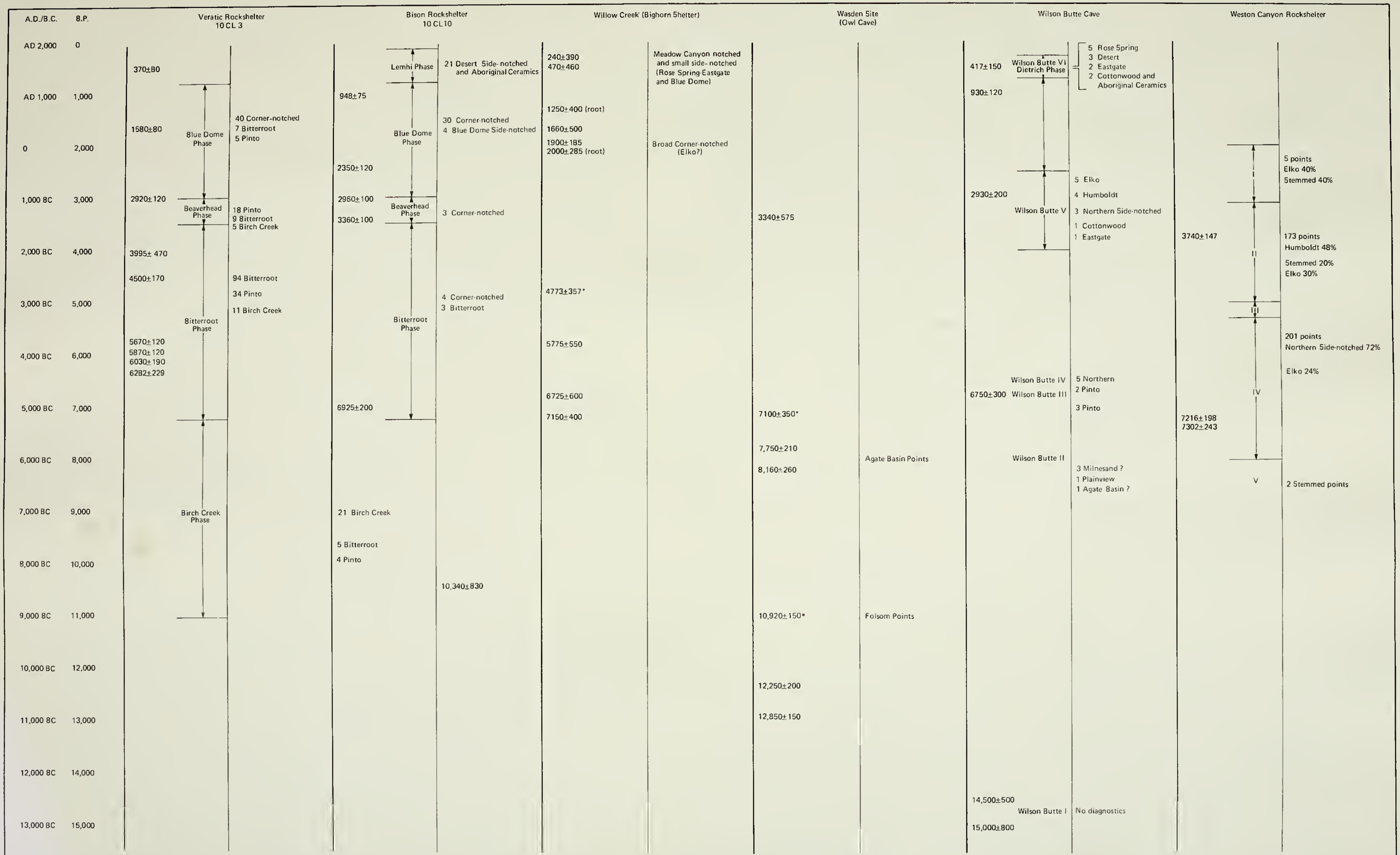
A number of different terms are used to classify archeological phenomena according to perceived similarities of varying spatial and temporal extent. It is important to understand how these terms have generally been defined in North America and how they have been used in the study area. This will enable different levels of classification to be distinguished and provide a basis for identifying possible equivalent units within levels.

Most of the basic units of archeological classification used in the study area and throughout the New World were discussed by Willey and Phillips (1958). They see all units of varying magnitude as based on three basic factors: formal content, distribution in geographical space, and duration in time (Willey and Phillips 1958:17), although the role of each factor in defining units can vary. Spatial units of classification commonly include the site, locality, region, subarea, and area. Both ethnographically and archeologically the study area has been included in the Great Basin Area. Because it is located on the edge of this area, questions of its relationship to the adjacent Plains and Plateau areas have always been important. Various authors (Heizer and Hester 1978; Holmer 1978) place the study area in either the northern or eastern Great Basin, but these subareas are loosely defined.

Willey and Phillips (1958:22) define a phase as "an archeological unit possessing traits sufficiently characteristic to distinguish it from all other units similarly conceived, whether of the same or other cultures or civilizations, spatially limited to the order of magnitude of a locality or region and chronologically limited to a relatively brief interval of time." Even though phases vary widely in their spatial and temporal extent, they tend to be "operationally manageable" because they are small enough "to be manipulated in area correlations and sequential schemes"(Willey and Phillips 1958:47). Well dated, continuous phase sequences are rare in and adjacent to the study area. Figure 7 correlates some relevant radiocarbon dates, phase sequences, and artifact types. Some type names listed in the original references for these sites have been renamed for this chart on the basis of illustrations and type descriptions.

The Birch Creek Valley Phase sequence, based on the stratified Bison and Veratic Rockshelters, is well dated and relatively continuous (Swanson 1972). Swanson (1972:65) bases this sequence on "changes in the proportion of recurring point types." To a certain degree, the Birch Creek sequence is difficult to compare with other phase sequences because certain point type names used by Swanson (1972) are different from the standard Great Basin type names (Heizer and Hester 1978; Holmer 1978). This, in turn, inhibits our ability to delineate broader regional sequences through comparison of local sequences. Figures 8,9, and 10 illustrate some major point types found in the study area.

Birch Creek points characterize the Birch Creek Phase (9000-5200 BC). Swanson (1972:65) divides this phase into two parts, with the second part representing the last 1000 years of the phase. Birch Creek points include three varieties. Birch Creek A points are earliest and have broad flat bases and extended corner tangs. Birch Creek B points have a narrow base and are similar to Haskett points. Birch Creek C points are widest near their tip, with the appearance of being stemmed or shouldered. All Birch Creek points share a lanceolate shape, broad co-lateral pressure flaking, and a lenticular cross section lacking a median ridge (Swanson 1972:90).



Note: some point types listed have been renamed on the basis of illustrations and descriptions in original reports

Figure 7
Culture History Correlation Chart
Class I Cultural Resource Inventory Of The Burley And Idaho Falls Districts Bureau Of Land Management

* discrepancy between radiocarbon date and stratigraphic position

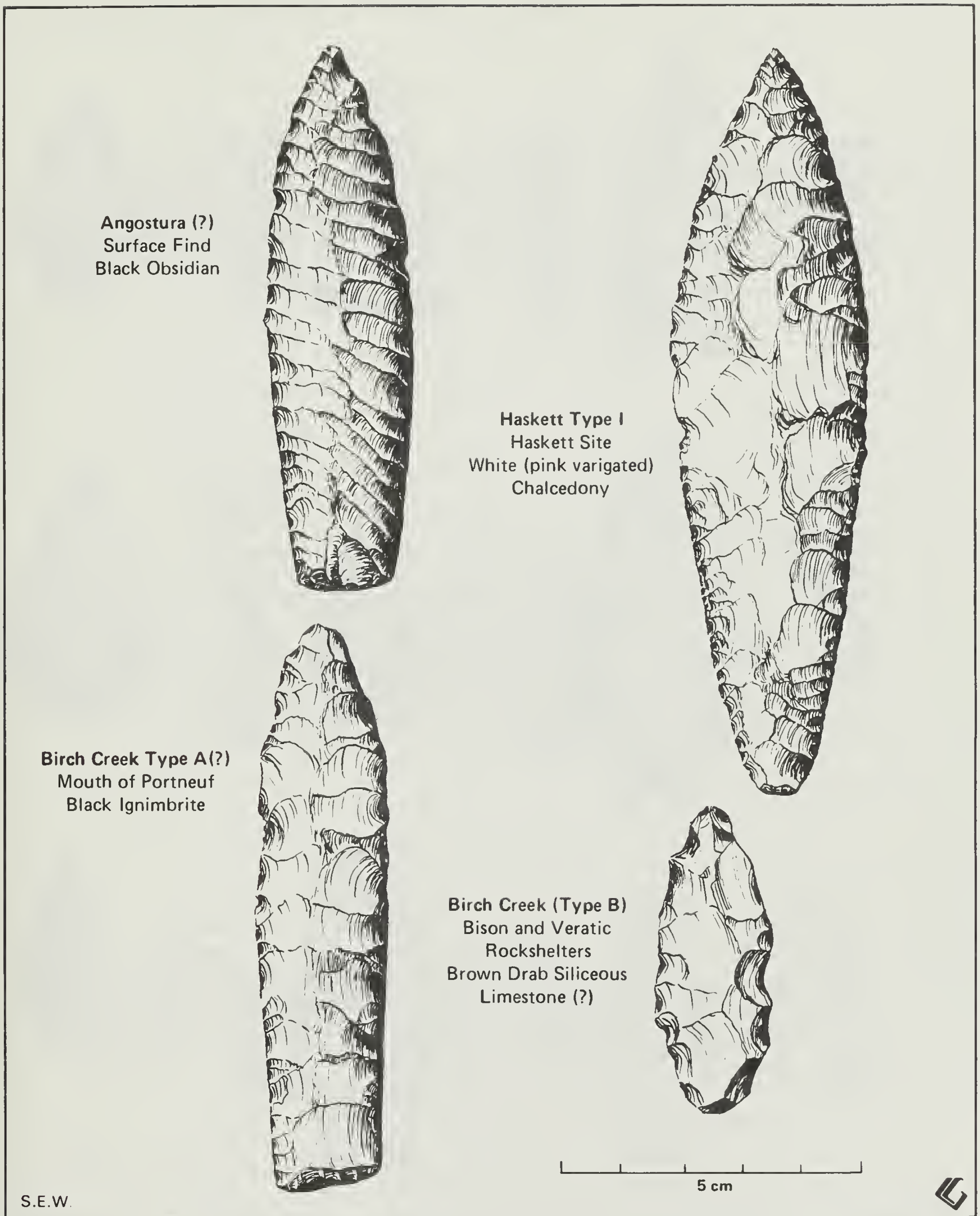


Figure 8
Common Point Types
Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

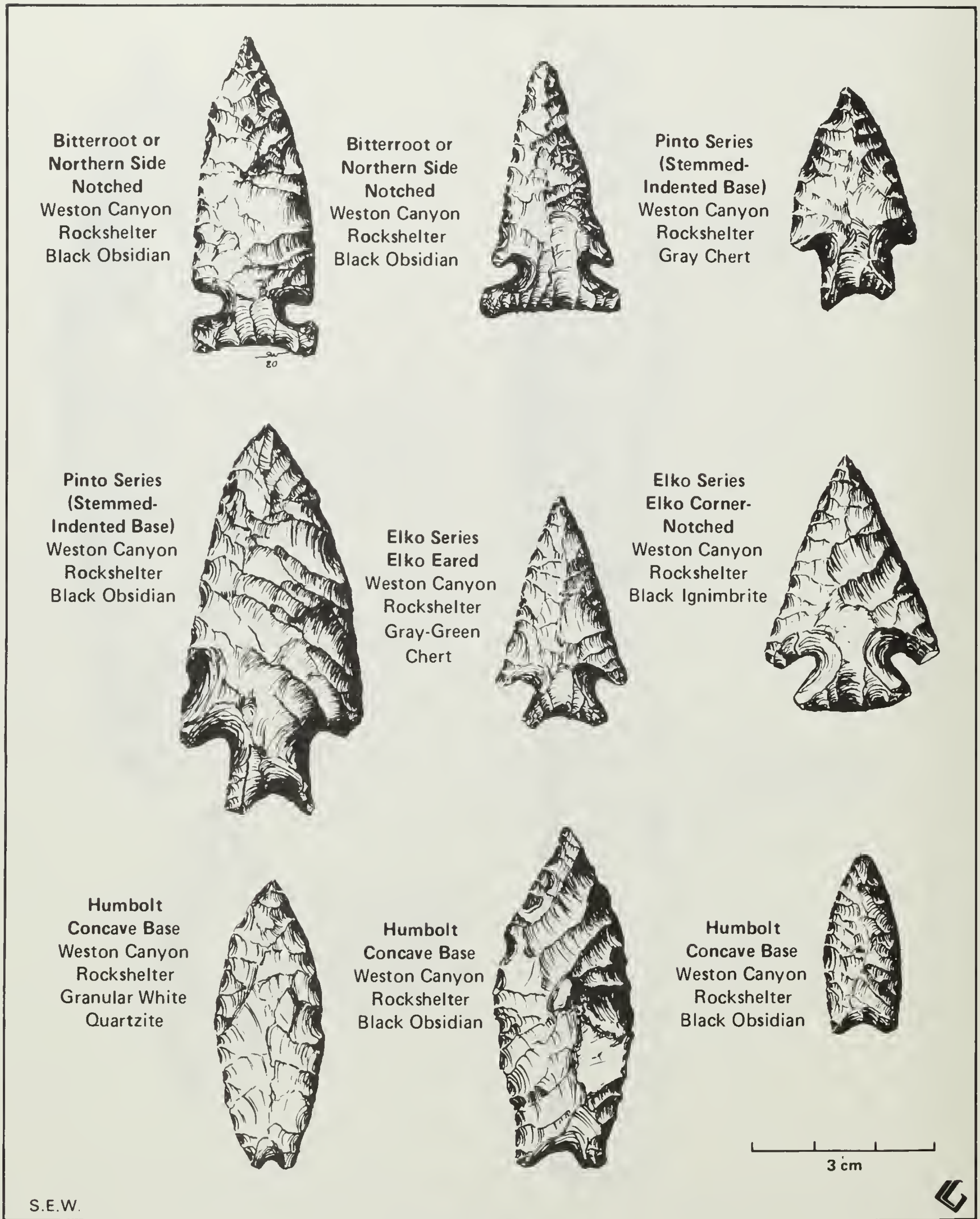


Figure 9
Common Point Types
Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

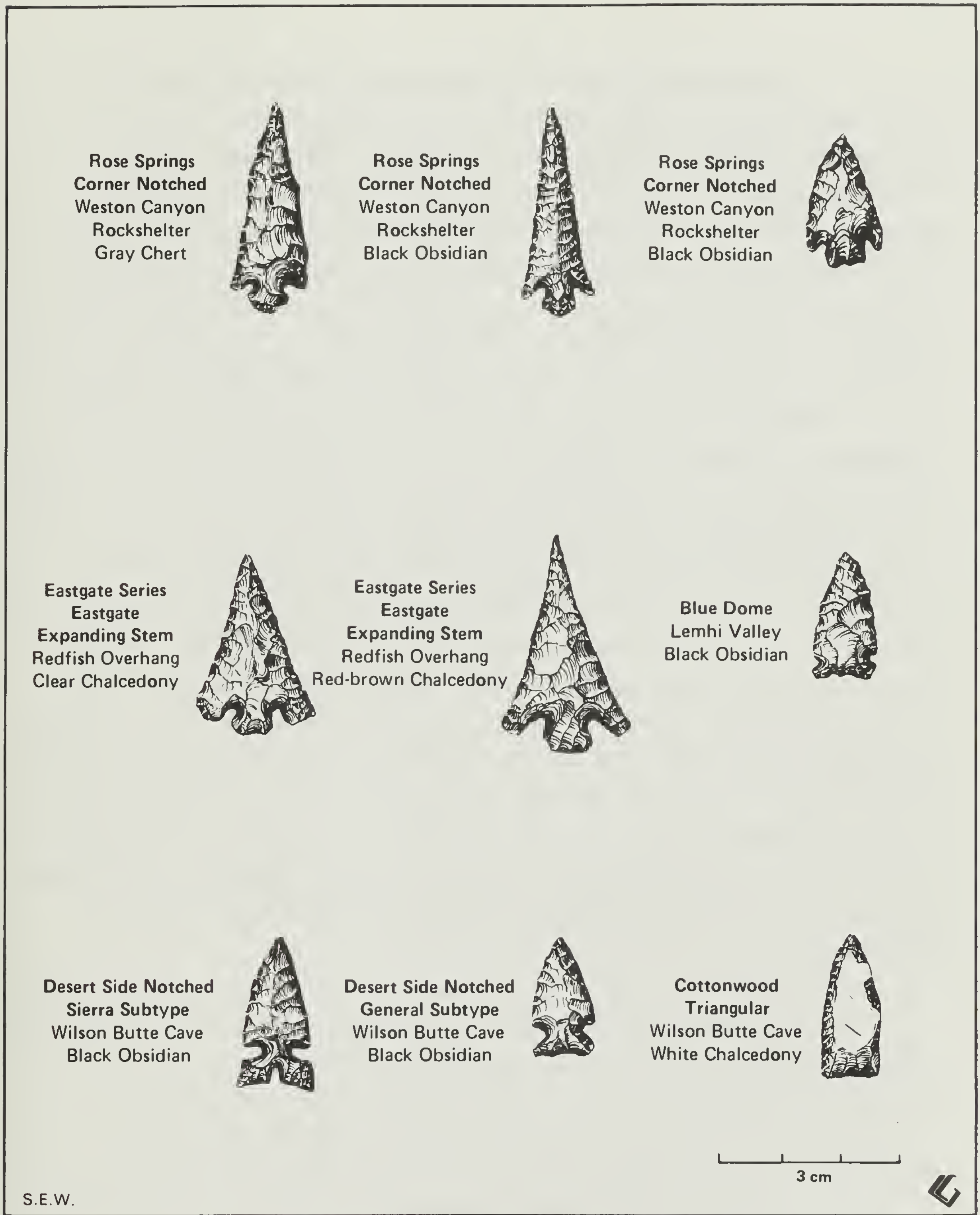


Figure 10
Common Point Types
Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

Bitterroot side-notched points characterize the Bitterroot Phase (5200-1450 BC). Gruhn's (1961a) use of the term Northern side-notch precedes the designation of similar points as Bitterroot side-notched by Swanson and Bryan (1964:10). A system for mathematical classification of Archaic points found no difference between points classified as Bitterroot and Northern side-notched (Holmer 1978). Northern side-notched points at Bison and Veratic Rockshelters share a flaking technique resulting in hinge terminations which create a well-defined median ridge. Swanson (1972:108) defines at least six varieties of these points based on variations in basal configuration and notching. He attributes this variation to spatial rather than temporal factors, and suggests that geographic differences should indicate the existence of culturally related populations (Swanson 1972: 109). He also suggests this type may represent the introduction of the bow and arrow and is stylistically ancestral to Desert side-notched points (Swanson 1972:109-110). Others suggest a much later date for the introduction of the bow and no evidence exists for direct historical relationship with smaller side-notched points. Pinto points attain importance in the Bitterroot Phase, labeled as either stemmed indented-base or Elko eared points (Swanson 1972:66-67, Figure 53, Figure 55).

In general, Swanson's Beaverhead Phase (1450-950 BC) seems defined on the basis of less substantial artifactual changes than other phases. The main difference between the Beaverhead and Bitterroot Phases is a reduced number of Northern side-notched points (and the related Beaverhead preforms) relative to Pinto series points (Swanson 1972:66-67).

Types labeled sharply-barbed,corner-notched and broad corner-notched dominate the Blue Dome Phase (950 BC -

AD 1250), along with a small number of Blue Dome side-notched points (Swanson 1972:66-67). Sharply-barbed corner-notched points have lenticular cross sections, frequent basal concavities, and regular, skillful bifacial flaking (Swanson 1972:114). Broad corner-notched points differ in being thicker, more irregularly flaked, with wider, less diagonal notching. Because he sees both corner-notched types as having similar spatial and temporal distributions, Swanson (1972:114) suggests they may be varieties of a single type. Swanson (1972:115) indicates that sharply-barbed corner-notched points are "common in the Great Basin as the Rose Spring corner-notched point." His avoidance of standard Great Basin type names even while suggesting type equivalencies like this one may stem from his hypotheses emphasizing _in situ_ cultural development in the Northern Rocky Mountains.

Illustrated examples of sharply-barbed corner-notched points from Birch Creek indicate that it is inadvisable to simply assume they are all identical to Rose Spring corner-notched. This type appears to also include Elko corner-notched and some side-notched or expanding stem points (Swanson 1972:Figure 54). Because at least two types have been combined, a reanalysis of this material would be necessary to clarify the stylistic relationships of corner-notched points at Birch Creek. Even though some Elko corner-notched and Rose Spring corner-notched may resemble each other morphologically, they are usually separated on the basis of size and/or weight (Thomas 1970; Aikens 1970). This relationship may result from the development of the Rose Spring (and Eastgate) series out of the Elko series, because of the need for smaller points following the introduction of the bow and arrow (Heizer and Hester 1978:163). Inclusion of Elko corner-notched in the sharply-barbed corner-notched type explains why this type is "rare" at Birch Creek (Swanson 1972:121).

Desert side-notched points are exclusive to the Lemhi Phase (AD 1250-1850), which also contained glass European trade beads. Variety "C" of Beaverhead preform points are also exclusive to the Lemhi Phase, and along with some Beaverhead "B" points conform to Cottonwood triangular or leaf-shaped points (Lanning 1963:252-253). Swanson (1972:107) suggests that the Beaverhead "B" point may be a preform for Desert side-notched points and Aikens (1970:51) suggests that Cottonwood triangular points may be preforms for Desert side-notched or Eastgate points. Beaverhead "A" points most likely are preforms for Northern side-notched points (Swanson 1972:107).

In contrast to changing point types and relative proportions of types, Swanson (1972:67) sees continuity and persistence in nearly all other artifact types. Traits extending from the Birch Creek to the Lemhi Phase include large oval earth ovens, hunting of wolves and coyotes, use of a wolf-size dog, and the use of Yellowstone obsidian and local ignimbrite. Other persistent traits include steep end scrapers, wedge scrapers, and perforators.

Less data was available for formulating a phase sequence at Wilson Butte Cave than at the Birch Creek Rock-shelters. As a result, Gruhn (1961a) used the term assemblage rather than phase in referring to five of the six strati-graphically distinct artifact associations.

Although it contains only five artifacts, Assemblage I is notable because it is among the earliest dated assemblages in North America (Figure 7). This assemblage includes a basalt biface which may have been used "as a punch or wedge for splitting wood, a parallel sided chalcedony blade with scars suggesting woodworking, and a utilized flake exhibiting a burin break (Crabtree 1969). A long bone splinter may be a flaking tool and a small bone splinter exhibits parallel cut marks (Gruhn 1961a:118).

The first diagnostic artifacts appear in Wilson Butte II and consist of lanceolate, parallel flaked points resembling Milnesand, Agate Basin, and Plainview types. Although these types are attributed to groups with a big game hunting orientation, this assemblage also contained a mano fragment (Gruhn 1961a:127). Remains of modern bison and camel were associated with this assemblage.

Assemblage III contains Pinto points, referred to as stemmed indented base points, which are interpreted as the earliest evidence of Great Basin culture at this site (Gruhn 1961a:149). Assemblage IV is only slightly younger than Assemblage III. Pinto series points are still present but are accompanied by Northern side-notched points. The presence of these two types is interpreted as a blending of Great Basin and Plains influences (Gruhn 1961a:149).

Although Pinto series are not present, Northern side-notched points continue in Assemblage V. A variety of other types also appear in this assemblage. An examination of type descriptions and illustrations of points in this assemblage indicates that the following types are probably present: Elko corner-notched, Cougar Mountain, Parman, Humboldt, Cottonwood, and Eastgate. Although Gruhn (1961a: 149) estimates this assemblage to date between 2000 and 500 BC, the stratum containing this assemblage has radiocarbon dates of AD 1000 and 1000 BC (Gruhn 1961a:120-121). An interplay between Great Basin and Plains influences is seen in this assemblage (Gruhn 1961a:149-150).

Only the material from Assemblage VI was thought sufficient for defining a named phase. Pottery called Wilson Butte Plain Ware and Rose Spring, Eastgate, Cottonwood, and Desert Side-notched points characterize the Dietrich Phase. Perishable material from this phase includes Shoshonean traits such as composite firedrills and wrapped bark coils, as well as composite and single shaft arrows, knotted bark strands, and bone gaming pieces (Gruhn 1961a:143-144). Similarities are obvious between the Dietrich Phase and protohistoric Shoshonean sites in Nevada and California (Gruhn 1961a:144).

Weston Canyon Rockshelter included 17 strata containing 371 classifiable points. A paucity of radiocarbon dates prohibits the definition of phases, but the site does provide data on the relative sequence of types. In general, Northern side-notched points are earlier than stemmed (Pinto series) and lanceolate (Humboldt) points, with the exception of two stemmed points in the deepest layer at the site (Miller 1972:Table 4). Elko series points occur in all but three of the 17 layers, inhibiting their use as temporal markers.

Very limited cultural historical data is available from other stratified sites. Powers (1966) defines three phases at the Willow Creek sites, but these are virtually useless because they are based on small artifact samples and lack radiocarbon dates. Absolute dates from the Bighorn Shelter (Ranere 1971) provide some data but again samples are small and not temporally extensive. Most significant are an occupation terminating around 0-300 AD characterized by broad corner-notched points, which appear similar to Elko series points and a later occupation dominated by Meadow Canyon notched points. All of these small corner-notched points illustrated by Ranere (1971:Plates 6, 13) would be included in the Rose Spring or Eastgate series elsewhere in the Great Basin (Aikens 1970; Lanning 1963; Heizer and Hester 1978).

The radiocarbon dates for Rose Spring-Eastgate series points at Bighorn Shelter and Wilson Butte Cave indicate that these types persisted in southern Idaho at the same time as Desert side-notched points and Shoshonean pottery. This assemblage is contemporaneous with the Lemhi phase occupation at Bison rockshelter, which contained no Eastgate or Rose Spring series points (Swanson 1972:66-67). The proximity of these contemporaneous and functionally similar, but stylistically different assemblages raises interesting questions. The most obvious of these concerns the cultural relationship of the groups producing them.

The lack of well dated phase sequences poses difficulties in the definition of cultural periods, which tend to grow out of such sequences (Willey and Phillips 1958). In essence, periods correlate contemporary phases and consequently are strictly temporal units. Butler (1978:74) discusses Early, Middle, and Late Archaic periods in the study area, although he occasionally uses the terms "period" and "stage" interchangeably (Butler 1979b:8-9). Early Big-Game Hunting periods characterized by Clovis, Folsom and Plano point types are not explicitly defined, although Early and Late Plano periods are mentioned (Butler 1978:74).

Clovis material is present in southern Idaho but thinly scattered. Clovis-like points are present at the Simon Site and a Clovis point was found on the surface near proboscidian remains at the mouth of the Portneuf River. Test excavation at this site failed to provide any additional cultural material. Folsom points are widespread (Butler 1978: 59) but have only been recovered *in situ* at the Wasden Site.

A number of types occur which can be incorporated under the general rubric of Plano, such as Agate Basin (Miller 1977), Haskett (Butler 1965), Birch Creek (Swanson 1972), and Milnesand, Scottsbluff, Eden, Angostura, and Plainview (Gruhn 1961a:118). Butler (1978:65-66) perceives what he believes to be a "decline in the quality of workmanship" in later Plano points. Butler (1978) and Dort and Miller (1977) illustrate a variety of Clovis, Folsom, and Plano material from southern Idaho. The end of the Late Plano period and the beginning of the Early Archaic period is marked by the termination of Plano point types and the appearance of stemmed and notched types around 5200 BC.

The most common Early Archaic point types are probably Northern side-notched and the Pinto series, also referred to as stemmed indented base. Several authors have interpreted the extent of Plains and Basin influences in southern Idaho on the basis of which of these types appears earliest and is most abundant (Butler 1978:69). Northern side-notched are assumed to have originated on the Plains and Pinto series in the Basin. Elko series points are also abundant but are thought to be useless as chronological indicators because of their long span of occurrence (Holmer 1978; Aikens 1970).

Butler (1979:9) estimates that the Middle Archaic period begins between 2500 BC and AD 500, although he thinks AD 0-500 is most likely. This uncertainty reflects the lack of well defined and correlated changes in artifact types within stratified, radiocarbon dated deposits spanning these years. Throughout the Great Basin, Rose Spring and Eastgate series points are most abundant from AD 600-700 to AD 1100, but continue into historic times (Heizer and Hester 1978:162). Their initial appearance in southern Idaho could help define

Butler's Middle Archaic period, although they continue into the Late Archaic period. Butler (1978:72) speculates that the appearance of earth ovens might denote the beginning of the Middle Archaic period at Birch Creek, but admits that other defining traits are needed.

The Late Archaic period begins around AD 1250±50 and extends into historic times (ca. 1850). Aboriginal ceramics and Desert side-notched points commonly define this period and the phases it encompasses. It appears to be relatively well defined because of the correspondence of the Dietrich and Lemhi Phases. The identification of Fremont pottery in southern Idaho raised the question as to whether ceramics were exclusive to the Late Archaic period. Although Plew (1979:333) suggests that a "Fremont-Series tradition may have extended into southern Idaho prior to the Shoshonean expansion", no occurrences of possible Fremont traits of any type in southern Idaho appear to predate the thirteenth century AD (Harrison and Hansen 1980). Frison (1978:Figure 2-23) illustrates a bifacial tool, similar in outline to pentagonal knives from the Plateau, which is diagnostic of Shoshonean components in southwestern Wyoming contemporary with Late Archaic period components in southern Idaho.

Butler (1973) has also defined three historical-developmental stages for the portion of Idaho which includes the study area. In accordance with other stage formulations, (Willey and Phillips 1958) these stages are based on perceived broad similarities in economic adaptation. The Early Big Game Hunting Stage is characterized by Clovis, Folsom, and Plano point types and developed as an adaptation to the late Pleistocene grasslands environment (Butler 1973:14-16). The Proto-Archaic Stage is a transition between the Early Big Game Stage and the Archaic Stage, associated with the establishment of the modern or Holocene climate around 7800-7000 BP. Diagnostic traits of the Archaic Stage include the exploitation of a wider range of resources, side and corner-notched points, ground stone atlatl weights, milling stones, the teshoa, and fire-cracked rock (Butler 1973:18-20). The presence of Fremont pottery, basketry, and perhaps corn in the study area leads Butler (1979a:9) to suggest that a Nascent Formative (horticultural) stage may also be present.

Willey and Phillips (1958:37) define a tradition as a "(primarily) temporal continuity represented by persistent configurations in single technologies or other systems of related forms." Butler's (1978:74) use of the term tradition closely parallels his use of stages: Early Big Game Hunting and Archaic. He also includes an Equestrian tradition based on the introduction of the horse.

A final unit used to classify archeological phenomena in the area is that of "culture". Willey and Phillips (1958: 48) suggest that "culture" be used to reflect the most major segmentations of culture history. Swanson (1972:187) uses the term Bitterroot culture to refer to archeological evidence of "big game hunting and food collecting in the environment of high mountain valleys" of Idaho. He sees evidence of this culture extending from 8000-8500 years ago to historic times. On the basis of the persistence of side-notched points and the utilization of mountain sheep and bison, he attributes cultural material from this long time span to Northern Shoshone groups. Many authors strongly criticize the equation of these traits with a specific ethnic group (Epstein 1968; Aikens 1970; Butler 1978). Aikens (1970:71) points out that the transition from large to small side-notched points occurs throughout the west. In addition, basic economic adaptations may well persist in a given environment, regardless of the movement of different linguistic or ethnic groups at the same technological and socio-cultural level into or out of the area.

At the same level of archeological classification, Swanson (1972:210) sees the Desert Culture as an expression of the Bitterroot Culture modified by a marginal environment. In contrast, Jennings (1978:81) sees Bitterroot points from Birch Creek as evidence of a Desert Archaic extension into Idaho. The Desert or Desert Archaic Culture is "a manifestation of a broad continent-wide Archaic stage" characterized by milling stones, basketry, and the exploitation of a wide variety of plant and animal species (Jennings 1978:29). This general definition allows for the considerable regional and local variation within the arid west.

Occurences of Fremont material are relevant to the discussion of archeological cultures in the study area. Basic Fremont Culture traits include pit houses, plain gray ware pottery of southwestern technology, and heavier reliance on game and wild plants in comparison to groups farther south (Jennings 1978:156). Although Fremont material generally dates between AD 500 and AD 1250 (Jennings 1978:155), the Great Salt Lake variant of this culture, which may extend into the study area, persists in Utah until AD 1350 or later (Jennings 1978:162). This may be relevant to the occurrence of Fremont pottery and basketry in what may be Late Archaic period contexts in southern Idaho, contemporaneous with and possibly mixed with material thought to be diagnostic of Numic or Shoshonean groups.

Murphy and Murphy (1960:296) divide Northern Shoshone proto-history and history into five principal periods. During an early equestrian period from 1700 to 1750, Shoshonean speakers expanded north and south on the Plains. Between 1750 and about

1810 they were forced back into the Great Basin, as Plains groups such as the Blackfoot acquired horses and firearms. The fur trade period began about 1810 and continued until 1840. Seasonal exploitation of native resources continued during this period, but wild game supplies were declining. By the end of the fur trade around 1840, westward emigration had begun and the Bison were extinct west of the Divide. After this date winter food was increasingly sought on the Plains east of the Divide. Treaties signed in 1868 marked the end of an independent aboriginal existence. In rapid succession, gold was discovered, railroads were constructed, and open-range cattle grazing began. Permanent Euroamerican settlements were established and traditional aboriginal subsistence practices largely disappeared.

Many scholars consider cultural historical questions to be less important or exciting than questions concerning cultural processes. However, basic cultural historical knowledge is needed to provide a framework within which explanatory research can be conducted. To provide a better understanding of culture history in the study area ,more data is necessary. In addition, more rigor is needed in the use of classificatory terms. This need is not peculiar to southern Idaho. In discussing a similar situation, Mason (1970:814) stresses that "it is necessary to know (and not have to guess) when a term stands for a period or a typological taxon and when it represents a stage or a tradition, or some combination of these." A major problem in cultural-historical classification is to keep cultural units distinct from temporal units (Bicchieri 1975:264).

CHAPTER 6
PREHISTORIC LIFEWAYS

Advances in archeological methods and techniques have resulted in an improvement in our ability to reconstruct prehistoric lifeways. However, as is the case most everywhere , within the study area most reconstructions relate to technology and subsistence activities. Very little or no data on social, political, or religious aspects of prehistoric life has been generated by previous archeological studies. It should be noted that some have even suggested that "the goal of re-constructing past lifeways may be impossible and probably unrealistic" (Leone 1972:25). Whether or not this is true, it is obvious that within the study area,much more complete reconstructions than have been accomplished previously are possible using existing methods and techniques.

Within and adjacent to the study area there are several instances where aspects of the procurement and processing of lithic raw materials have been reconstructed. In her study of the Warm Creek Spring site, Kimball (1976) used a system for classifying debitage based on Bucy's (1974) study of the Midvale quarry in western Idaho, and determined that "with respect to the manufacture of ignimbrite tools, the various stages of production tend to be differentially located" (Kimball 1976:99). Other activities are identified, such as cooking, butchering, refuse disposal, and nonignimbrite tool production. The distribution of evidence for these activities is termed "coextensive," but varies in intensity in different portions of the site (Kimball 1976:100).

Of particular interest to future regionally oriented research is Kimball's (1976) model of the role of quarry/workshop sites in regional settlement patterns. This model is based on the assumption that "the exploitation of a particular potential quarry locale is as much a function of its central location with respect to other resources as it is a function of raw material quality" (Kimball 1976:112). The Warm Creek Spring quarry is seen as an example of this phenomenon because the presence of water, vegetable foods, and game is thought to be sufficient to compensate for the relatively low quality of the lithic raw material. Because of the increased mobility afforded by the horse, it is suggested that mounted groups would utilize high quality quarries "to the near exclusion of lesser quality quarries" (Kimball 1976: 113-114). However, the period during which mounted groups relied on lithic raw materials would be of relatively short duration because of the introduction of metal tools and firearms.

At the Poison Creek site, Neudorfer (1976) recovered information pertaining to the processing of lithic materials and other activities at an open Late Archaic campsite. A number of multifunctional activity areas were identified, with specific areas having a certain dominant activity. Most activities involved the manufacture or use of stone tools. Strong evidence of heat treatment co-occurred with a low incidence of tools and a high incidence of waste flakes.

High frequencies of chalcedony were associated with heat treatment and pot-lid fracturing decreased as the incidence of heat treatment increased (Neudorfer 1976:63). Hearths and earth ovens appear to be associated with both heat treatment of chalcedony and food preparation. At activity areas where there was a high frequency of projectile points, butchering, and hide preparation tools, obsidian was the dominant raw material (Neudorfer 1976:64). There is some evidence of centering activities around features.

The lithic assemblage from Weston Canyon Rockshelter (Miller 1972) indicates that a major activity at the site was the production of projectile points. Most "nonprojectile" tools are flake tools selected from the debitage produced by projectile point manufacture and formally consistent tool classes such as steep end scrapers, keeled or domed scrapers; thumbnail scrapers, or bifacial knives are rare (Miller 1972:91). It is suggested that this is the opposite of the Birch Creek sites where "finished scrapers" are abundant. Lithic tools other than points apparently remain uniform throughout the occupation of the site (Miller 1972:126).

Identification of raw material sources through neutron activation, x-ray fluorescence or other techniques can document lithic reduction patterns and relate these to overall settlement patterns. Using neutron activation analysis, the chemical composition of obsidian artifacts from the Veratic Rockshelter were compared with 16 flows in Yellowstone National Park, two locations in Idaho (Big Butte and Oneida Perlite) and other sources in Wyoming, Utah, Oregon, and California. Some of the Veratic Rockshelter specimens were definitely attributed to sources in Yellowstone National Park, and one specimen may be from Silver Lake, Oregon (Wright,Griffin, and Gordus 1969). Approximately 85 ignimbrite sources have been identified in the South Hills area and are being studied using x-ray fluorescence by Lee Sappington of the University of Idaho. Preliminary results based on an examination of ten elements indicate that it may be difficult to differentiate between intra and inter source variation (Gallagher 1980). Obsidian and ignimbrite from Weston Canyon Rockshelter, the Rock Creek site, and Malad Hill have been compared with a number of Idaho sources using x-ray fluorescence by Charles Nelson of the University of Massachusetts (Gallagher 1979:104-106), but the results of these comparisons have not been disseminated.

An aspect of prehistoric technology which has been relatively well studied is the association of different projectile points with either the atlatl and dart or bow and arrow. Corliss (1972) has identified the appearance of projectile point neck width means which are about 0.5 cm smaller than earlier means.This is thought to indicate the introduction of the bow and arrow. Within the area of Idaho occupied historically by speakers of Numic languages, arrowpoint means range from about .55 cm to .8 cm and dart point means range from 1.1 cm to 1.3 cm. To the north, in areas occupied by Sahaptin speakers, the respective means range from .45 cm to a little over .5 cm and from .9 cm to 1.05 cm (Corliss 1972:Figure 3).

Estimates as to when the bow and arrow first appeared in the Great Basin range from 3200 B.P. to 1450 B.P. (Hester 1973:34). Madsen and Berry (1975) believe that the bow and arrow appeared around 1500 B.P. and is associated with the Fremont Culture. In western Idaho, Webster (1980) believes arrow points appear as early as 3300 B.P. and are well established between 2400 and 1950 B.P. Webster bases this on the appearance of the Rose Spring-Eastgate type complex, although Corliss (1972:28) cautions that point function as indicated by neck widths may cross cut similarities in point morphology. Reduced neck widths possibly indicative of the bow and arrow appear around 950 B.C. or about 2900 B.P. in the study area (Butler 1973:18-20). In a study of hafted points whose mode of propulsion was known, Thomas (1978) has derived classification equations using length, width, thickness and neck width which enabled 86 percent of the known specimens to be classified correctly.

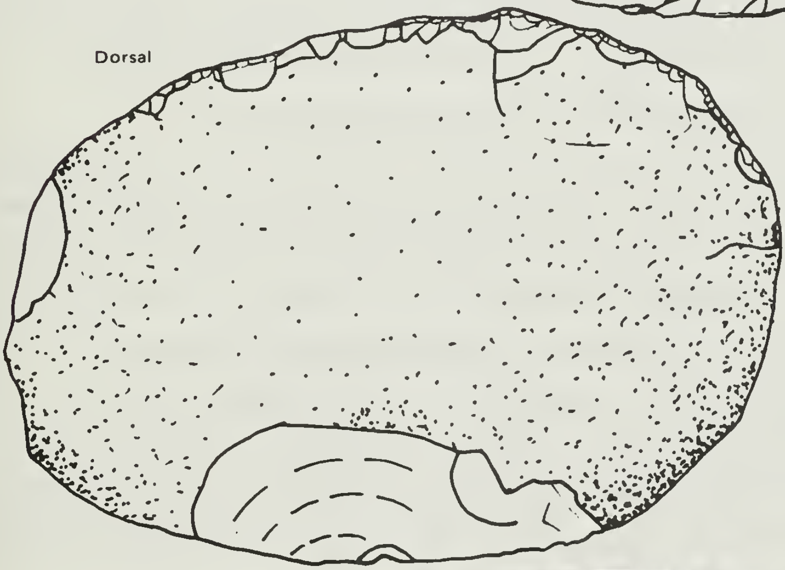
After a long period of only minimal consideration, there has been a recent arousal of interest in the aboriginal ceramics in Southern Idaho. To date, this research has focused on ceramics as an indicator of cultural relationships or boundaries and possible population movements. The role of ceramics in the everyday lifeways of the prehistoric inhabitants is still relatively unexplored.

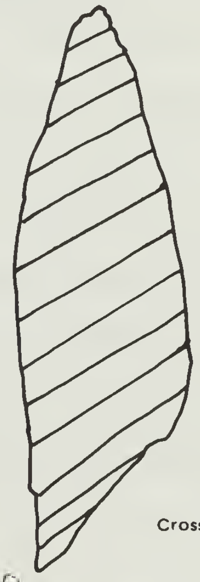
The major ceramic ware within the study area is known as Shoshonean or Intermountain Ware (Tuohy 1956; Coale 1963; Mulloy 1958). Coale's (1963) type description has proven the most useful and is included with other type descriptions in Appendix 2. Minor amounts of other wares or types have been documented in and adjacent to the study area including Paiute Utility Ware, Desert Grey Ware, Ivie Creek Black-on-White, and Promontory Ware (Butler 1979a, 1979b, 1979c). These last three categories are characteristic of the Great Salt Lake variant of the Fremont Culture. Paiute utility ware is similar to Intermountain Ware except for its globular shape, which contrasts with the truncated cone shape characteristic of Intermountain Ware. Plew (1979) has defined a ware that is smoother and thinner than Intermountain ware which he refers to as Southern Idaho Plain Ware. He suggests this ware is related to the Fremont-Sevier Tradition, although others believe Intermountain Ware includes both a thick, crude variety and a thin, well made variety (Butler 1979b:3).

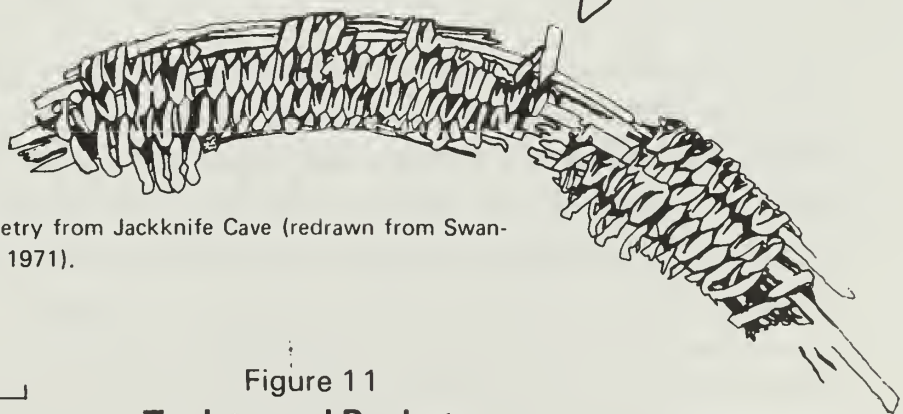
Besides the implications of ceramic data for problems relating to Shoshonean migration and Fremont relationships, it would be extremely useful if the function of ceramics in everyday life could be determined. Because the manufacture of aboriginal ceramics was discontinued long before anthropological studies took place in the northern Great Basin, Steward (1943:273-274) believes ethnographic descriptions of their use is of doubtful worth. These include seed boiling by Shoshoneans in general (Steward 1938:32), storage of fish, oil, and grease by Idaho Shoshoneans (Steward 1943:375), stone boiling by the Bannack (Steward 1943:357) and as a container for tanning agent by the Lemhi (Steward 1943:313). Butler (1979b:8-9) suggests that the distribution of pottery in Southern Idaho could be a function of sexual division of labor and the food resources being exploited. He suggests that aboriginal ceramics are most common in seed and root gathering areas such as the camas meadows on the north edge of the Snake River Plain, along the Snake River below American Falls, along the Salmon River, and in the Lost River sinks area (Butler 1979b:8). It should be noted that in nearby areas, ceramics have been associated with bison and antelope processing sites and could have been used in the boiling of bone for the extraction of marrow and fat (Frison 1971, 1978; Keyser 1977). Playas are mentioned by Steward (1943:375) as a source of clay for aboriginal pottery manufacture.

The teshoa is of particular interest because it is an element of prehistoric material culture which has also been observed in use during historic times. Most teshoas are large quartzite flake tools, often primary or secondary cortex flakes derived from river cobbles (Figure 11). Many teshoas have been retouched or resharpened. In the 1870s, the manufacture and use of these tools by Shoshone women

a. Quartzite Teshoa collected from Fort Hall Reservation in 1900 (redrawn from Eyman 1968).







b. Fremont Basketry from Jackknife Cave (redrawn from Swanson and Sneed 1971).

Figure 11

Teshoa and Basketry

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in Wyoming was observed by a paleontologist named Leidy (Eyman 1968:9). The tools were manufactured by the anvil or block on block technique and were used for butchering and skin dressing. In 1900, Stewart Culin collected five teshoas from the yards of houses occupied by Bannocks of the Fort Hall reservation (Eyman 1968:12). Teshoa replications have been used successfully to butcher deer (Roberts and Sant 1976). Butler (1973:18-20, cited in Epperson 1977) believes the teshoa may be a diagnostic trait of the Archaic tradition.

Perishable items of prehistoric material cultural occur relatively infrequently, although some samples were recovered from sites adjacent to the study area.

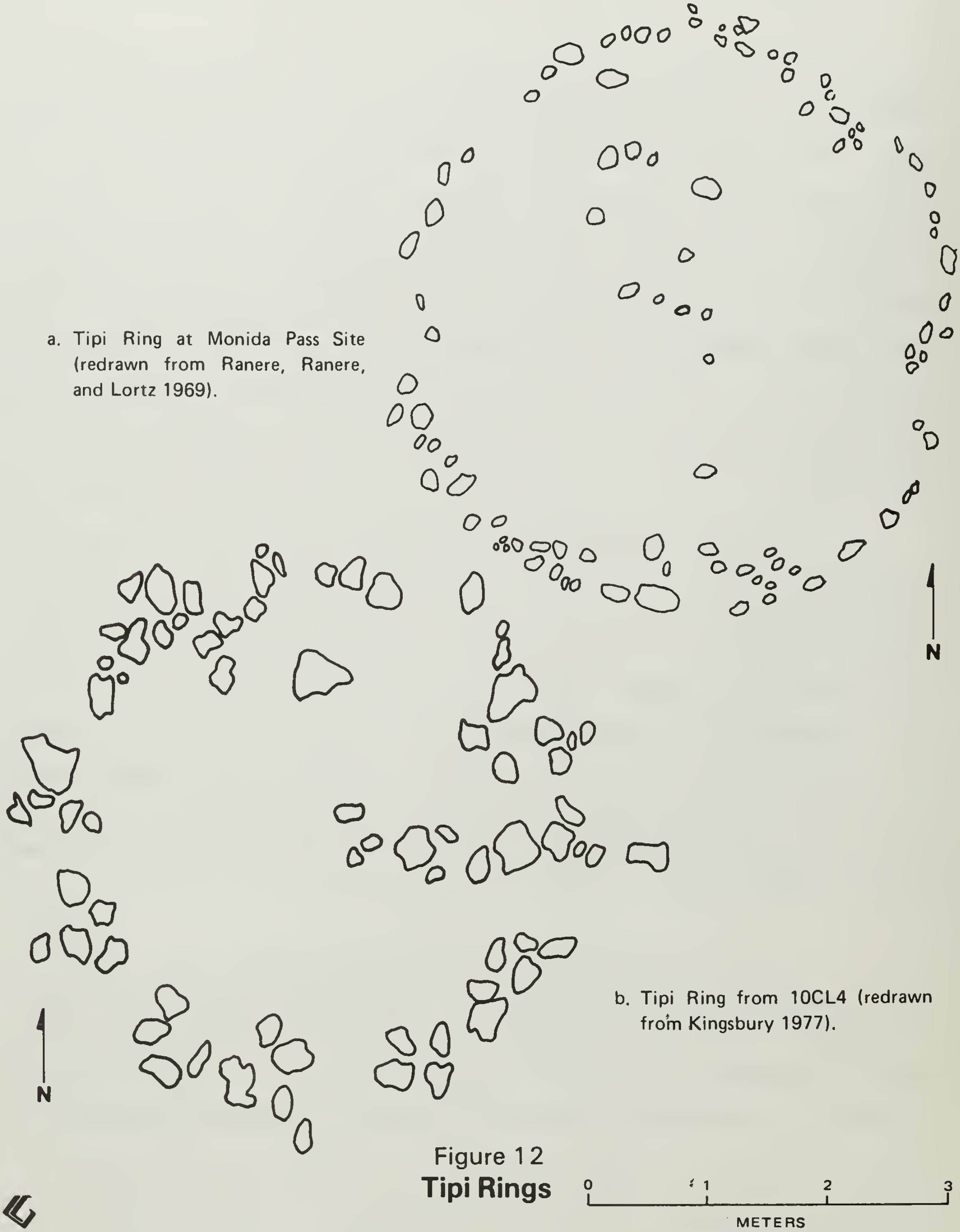
Basketry has been recovered from Little Lost, Pence Duerig, and Jack Knife caves which are included in Adovasio's (1971) Eastern Basin Complex (Figure 11). This is Fremont coiling foundation basketry most characteristic of later Fremont sites (AD 800-1300) and has no connection with Numic basketry (Adovasio 1971, 1975). Although the dating of these materials is uncertain, Butler (1979a:4) believes they may postdate the AD 1300 termination date of the Fremont culture in Utah.

No basketry was found at Wilson Butte Cave, but Assemblage VI there contained composite and single-shaft arrows, composite firedrills, short wooden cylinders which were probably game counters, and cordage of sagebrush bark and fine fiber (Gruhn 1961a:132). A collection from Pence Duerig Cave analyzed by Gruhn (1961b) contained wooden shafts, hoops, twisted willow wood, cordage, wrapped bark coils, wrapped bundles of grass, single piece soft soled moccasins, rawhide, sinew cordage, and strips of rabbit fur.

Several types of nonportable constructional features have been reported prehistoric sites in the study area. Tipi rings (Figure 12) have been found within and adjacent to the study area (Ranere, Ranere, and Lortz 1969, Kingsbury 1977). These are circular lines of stones thought to have been used to hold down tipi covers. Both single and multiple course rings have been identified (Kingsbury 1977). Average diameters of tipi rings located in the Birch Creek Little Lost planning unit range from 3.6 to 7.55 meters (Kingsbury 1977:67-69). Butler (1978:57) believes most tipi rings postdate the introduction of the horse.

Other remains of habitation structures are scarce. A possible Late Archaic stone house is located north of the study area along the Salmon River (Butler 1978:73) but these features seem relatively scarce. A few possible pit house depressions have been reported within the study area, but none have been confirmed by excavation (Gaardner 1968; Swanson and Ranere 1969). Pit houses appear to be common along the Salmon River and farther downstream on the Snake, but it seems that habitation structures were less substantial in most of the study area.

Smaller nonhabitation rock structures also occur in and adjacent to the study area. These have been interpreted as hunting blinds or windbreaks (Sneed 1967; Kingsbury 1977; Epperson 1977). These occur in two basic varieties. Some are circular or semicircular rows of stone, occasionally with several vertical courses, which are similar to, but smaller than tipi rings. Others are constructed in talus deposits by removing rocks and piling them around the front or edges of the depressions being created (Figure 13). The dimensions of man-made depressions interpreted as hunting blinds in the Little Lost-Birch Creek area range from .70 to 4.5 meters in



a. Tipi Ring at Monida Pass Site (redrawn from Ranere, Ranere, and Lortz 1969).

b. Tipi Ring from 10CL4 (redrawn from Kingsbury 1977).

Figure 12
Tipi Rings

Possible Hunting Blind in Big Desert Planning Unit.

Cairn in Big Desert Planning Unit. Approximate height four feet.

Figure 13

Rock Features

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diameter and from .10 to 1.4 meters deep (Kingsbury 1977:71-72). Rock cairns of prehistoric origin may also occur in the study area. There are, however, large numbers of historic cairns present, and determining the cultural affiliation of these features has proved to be difficult (Franzen 1980b, Cinadr 1976). Cairns vary from column-like stacks of single stones on top of each other to conical piles up to a meter wide at their base which taper to a point (Figure 13).

Earth ovens are a distinctive feature of prehistoric technology that occur in the study area (Butler 1978, Neudorfer 1976). The following description of an earth oven at the Poison Creek site is taken from Neudorfer (1976:55):

Constructional feature: A deep earth oven, semicircular and slightly concave (see Figure 14a).

N-S axis: 160 cm
E-W axis: 182 cm
Depth in cross-section: 38 cm

The earth oven consisted of approximately 115 angular and water-worn cobbles, ranging in size from 22x17x10 cm to 2.5x5x10 cm, piled on top of each other in an irregular fashion. Twenty percent of these cobbles were readily identifiable as fire-cracked, and most of the smaller fragments within the feature were also undoubtedly broken off larger pieces through heating. The bulk of these small, cracked cobbles was at the base of the feature, and these were surrounded by ash; concentrated charcoal was found only locally. A radiocarbon date from this earth oven places it at 720 $\pm$ 70: A.D. 1222 (WSU 1478). A large (10x30x28 cm) flat bottom cobble (see Figure 14a) with convex top was found 23 cm west of the feature; the base of the cobble was at 39 cm below datum.

Fill: Both unburnt bones (unidentifiable) and waste flakes were found among the earth oven cobbles. The preparation of meat by steaming could account for the presence of unburnt bone; once cool, the earth oven may also have been used for refuse. The presence of lithic debris in the fill indicates that the earth oven was either deliberately filled in immediately after use, or it was later filled by wind or water deposition.

Although ethnographic and historic sources indicate the use of similar features for processing plant foods, archeological evidence indicates the possibility of multiple functions including meat processing and heat treatment of chalcedony (Neudorfer 1976:55, 63). Butler (1978:72) has speculated that the appearance of earth ovens might help define the Middle Archaic period. Other rock features mentioned on site forms as present at prehistoric sites include hearths, rock clusters, rock lined pits, and fire circles.

Information on prehistoric subsistence activities in the study area is restricted to the procurement and processing of large mammals. Indirect evidence of plant utilization such as ground stone tools, earth ovens, and proximity to areas where plant resources are abundant have occasionally been cited (Miss 1974, Neudorfer 1976, Franzen 1977). However, most reports on previous work in the area do not mention the use of techniques adequate for the recovery of small scale botanical remains. Some fine screening and water screening was done at the Wasden Site (Miller 1977) but the results of this work are only partially reported. Evidence from surrounding areas illustrates the nature of plant remains that might be encountered in the study area. Charred camas bulbs have been recovered from features interpreted as roasting pits in Teton County, Wyoming (Wright and Marceau 1978:5). Chenopod seeds and prickly pear cactus parts were identified in coprolites from Hogup Cave (Fry 1970), and several varieties of charred seeds were found at the Eden-Farson site in southwestern Wyoming (Frison 1971:261).

Several rockshelter sites in the study area provide rather detailed information on the procurement and/or processing of large mammals. The Folsom component at Owl Cave contained a large and well preserved faunal assemblage dominated by mammoth remains (Miller 1977:F-3). An analysis of breakage and butchering marks indicates bone was altered during butchering to obtain meat and during the processing of bone as a tool resource. Long bone epiphyses and diaphyses were smashed and opened and flakes (often utilized), "cores," and polished triangular and wedge-shaped pieces were produced from heavy-walled cortical dome.

During a later Paleo-Indian occupation, Owl Cave was used as a trap and/or fall to kill an estimated 150 bison (Miller 1977:F-5). A late winter to early spring hunt is indicated by the presence of fetal bone, although individuals of all ages were taken. It appears there were actually two separate kills occurring close together in time. The layer of disarticulated bison bone indicates that during butchering limbs were removed and stacked, heads were detached and the tongues and lower jaws were removed, and sometimes the brain was removed through a hole cut in the base of the skull (Butler 1978:67). Although more than 30 Agate Basin projectile points were recovered, Butler (1978:67) comments that "no knives or other butchering tools were found among the bony remains of the bison."

Weston Canyon Rockshelter provided a great deal of information on the prehistoric processing and utilization of mountain sheep. The estimated duration of occupation at this site extends from 6000 B.C. to A.D. 1 (Miller 1972:Table 10). Throughout this period, mountain sheep dominated the faunal assemblage with a minimum of 300 individuals represented. Elk, bison, deer, porcupine, and marmot were also utilized for food, but always remained of secondary importance. The ages of juveniles when killed indicate that most hunting was done during the spring, summer, and fall (Miller 1972:50).

Butchering practices are reconstructed in detail (Miller 1972:49-55), with all long bones, metapodials, and phalanges being extensively smashed and split. It appears that hide, meat, bone, and marrow were completely utilized. Metapodials were often split longitudinally for the manufacture of awls and pressure flakers. Because elk, bison, and deer are assumed to have been relatively more abundant in the area than their remains indicate, the dominance of mountain sheep is seen to reflect "cultural taste and hunting orientation" (Miller 1972:57). The restricted range and small herd size of mountain sheep in comparison to bison is thought to have contributed to this preference because these traits are more appropriate for hunting by the small social groups characteristic of the area (Miller 1972:84-85).

It is acknowledged by both Delisio and Miller that the importance of mountain sheep hunting in the annual economic cycle of the rockshelter's inhabitants remain unclear. Sheep hunting could reflect either "one phase in the yearly cycle of nomadic peoples" or "the occupance of peoples whose primary economic mainstay was big game hunting"(Delisio 1972:195). In any event, it is suggested that the abundance of mountain sheep and the absence of small fauna and grinding implements differentiates the site from those typifying the Desert Culture (Delisio 1972:195).

Although occasional episodes of large mammal hunting and processing have been well documented, in general prehistoric settlement patterns in the study area remain poorly known. Given the ethnohistoric record and the nature of the area's environment, some form of seasonal transhumance can be assumed. Some general models of varying site density have been suggested, but these have tended to be descriptive rather than explanatory. For example, sites have been observed to be more frequent in certain macro and micro-environments, but little progress has been made in correlating variation in site function with locational variation.

The most basic site distribution models used in and adjacent to the study area are based on elevational differences. These models are,at least in part, indirectly based on vegetational differences.

Early in the Birch Creek project, Swanson and Bryan (1964:8) suggested that differences between the desert zone and the middle course of Birch Creek might be due to seasonal differences in occupation. Later, Swanson (1966:97) suggested that the Douglas fir community was important prehistorically because of its "rich plant and animal life suitable for use by man." Stathan (1975:70-72) indicates that most Shoshone root gathering was done in the zone between 5000 and 7000 feet. Swanson (1972:193) suggests that before and after the Altithermal both bison and mountain sheep were available between 5000 and 7000 feet above sea level, with only bison present below this and only mountain-sheep present above this. Although this is obviously a gross generalization, the transition zone or ecotone between the sagebrush steppe and higher forested areas may have contained resources relatively more diverse and abundant than both higher and lower zones. In the Mount Bennett Hills Planning Unit of the Shoshone District, a survey of randomly and nonrandomly selected sections indicate highest site densities occur in intermediate elevational zones. Elevations within the area surveyed ranged from about 2500 to 7438 feet, but the area between 3800 and 5400 feet had the highest site densities (Cinadr 1976:53). Many sites were located below 3000 feet, but all were adjacent to the Snake River. Variation in "vegetable resources" may influence these differences (Cinadr 1976:53).

An elevational model was also utilized to examine site distribution in northwestern Utah and northeastern Nevada, adjacent to the study area (Wylie 1972; Dalley 1976:5-6). The results suggest that the zone between 5000 and 7000 feet had a heavy and diverse utilization and the areas above and below this zone were used seasonally and less intensively. Exposure, water, and vegetable resources are seen as possible factors controlling this variation.

Other models relate differences in site density to landforms and water sources, without reference to elevation. An intuitive survey of the Craters of the Moon National monument provides information on site distribution, but the distribution and intensity of the survey is not stated, leaving open the possibility of a nonrepresentative sample. The sites found during this survey tend to be located on older land surfaces with sagebrush-grassland climax vegetation, rather than recent lava flows. These recent flows tend to have little vegetational cover and scarce or inaccessible sources of water (Sneed 1967:39). Recent features such as caves or craters were utilized for shelter when accessible. Many of the sites in the central section of the monument were located in or adjacent to kipukas, and several obsidian quarries were found in eroded cinder crags (Sneed 1967:39-40). Rock structures interpreted as hunting blinds and others interpreted as windbreaks were also observed. The hunting blinds overlooked water sources or game trails while the windbreaks were in or adjacent to craters, sinks, or tunnels (Sneed 1967:40-41).

During a survey of the National Reactor testing station, diagnostic artifacts were collected from 41 localities (Butler 1970:61) although again, the intensity and distribution of survey efforts is not specified. It is stated that nearly all the artifacts collected during this survey came from "the surface of sand deposits, either on the lee side of lava ridges and embayments, in craters, or on dunes." A number of sites which appear to be associated with sand dunes were also located near Mud Lake (Franzen 1980a:52).

In a sample of 37 sites from randomly selected areas in the Camas Creek-Little Grassy Planning Unit in the Idaho Falls District,only 13.5 percent were "totally open and devoid of adjacent water sources" (Roberts 1976:53). Only 12.5 percent of the 80 sites located by all survey methods lacked both water and shelter. Open sites comprised about 50 percent of the total, but about 75 percent were adjacent to water. Sites located in lava embayments were less likely to be associated with water. Cave sites represented about 20 percent of the total, and consistently provided both water and shelter.

A representative sample of sites from a portion of the Big Desert Planning Unit and adjacent areas indicates a relatively high density of sites near Buttes and Playas in comparison to parks, Kipukas, and lava tubes (Franzen 1980b). Buttes with the most imposing, protective, or steepest features had the highest site densities, possibly because of a desire for good observation points and game drive or ambush facilities. A strong preference for locations with low or gentle slopes was detected, and of the partially protected sites, no tendency to seek shelter from the prevailing southwesterly winds was detected. A spring or early summer occupation of the portions of the eastern Snake River plain away from major rivers is suggested, although winter hunting also may have occurred in this area.

Sims (1979) has formulated a model for site distributions in the Centennial Mountains. Features assumed to be critical in determining the presence of archeological sites included Pliocene silicic welded tuff and flow rock, areas with less than 10° slope, major streams, optimum camas habitat, natural routes of travel, and a southern aspect (Sims 1979:35). Based on the frequency of these features, the Centennial Mountains were stratified into areas of varying potential. In examining the sample of known sites in the area, most of which have been located during timber sale surveys, it was found that most sites were located in areas of moderate to high potential (Sims 1979:35-36).

Clearance surveys conducted by the U.S. Forest Service provide some additional tentative settlement pattern data indicating variation in prehistoric utilization of upland environments. High site densities have been observed in the South Hills area of Sawtooth National Forest in Twin Falls and Cassia Counties which may be the result of its use as a cool, moist refugia during hot, dry periods, and the presence of abundant ignimbrite sources (Wylie and Ketchum 1980). The mountains along the Idaho-Wyoming border in Caribou National Forest are characterized by a low site density which is presently unexplained.

Considerable debate has taken place over the influence of climatic change on aboriginal settlement patterns in the Great Basin and Plateau areas. Most of this debate centers around the influence of the Altithermal, the warmer and/or drier period dated between 7000 and 4000 BP in the Lost Trail Pass area. In southeast Oregon, Fagan (1974) suggests that during the Altithermal the area of most intense human utilization shifted to higher elevations, especially to higher spring sites where he believes game was concentrated.

Closer to the study area, Swanson (1972:189) believes that precipitation is the critical variable causing settlement pattern change in Birch Creek Valley. Based on the scarcity of certain projectile point styles in surface collections, it has been suggested that the lower end of Birch Creek Valley and the northern edge of the Snake River Plain were abandoned between 5000 and 1000 B.C. (Swanson and Bryan 1964:9). Six thousand feet is given as the upper limit of desiccation severe enough to cause abandonment because the Bison and Veratic Rockshelters, located between 6000 and 6100 ft above sea level, show no evidence of a decrease in occupational intensity during the Altithermal (Swanson and Bryan 1964:8, 10). These interpretations should be viewed with caution because the samples upon which they are based may not be representative of the environmental zones being compared. The lower elevation "desert zone" is represented by surface collections recovered using unspecified survey techniques, while the higher elevation "middle course" of Birch Creek Valley is represented by material excavated from two adjacent stratified rockshelters (Swanson and Bryan 1964:7).

Archeologists working in some portions of the intermountain West do not see much evidence for settlement pattern change induced by the Altithermal. In northwest Utah, an area assumed to be marginal and susceptible to Altithermal influence, Fry and Adovasio (1976:70), see "no basic changes in human adaptation" and interpret the Altithermal as an "event of little or no consequence." Elsewhere, it is suggested that the Altithermal caused "minor adjustments in the exploitive range" of the inhabitants of the Great Basin rather than "widespread regional abandonment" because these groups were already preadapted to fluctuating resource availability (Weide 1976:182). Although small changes in the ratio between precipitation and evaporation can drastically affect Great Basin lakes, source-specific hydrologic systems such as drainage basin catchments, springs, and marshland, are thought to have varied no more during the Altithermal than they do today (Weide 1976:175). While long-term climate change should be considered as a potential factor influencing aboriginal subsistence-settlement systems in the study area, the Altithermal should be used as an explanatory device with a great deal of caution because of the apparent variability in its perceived effect in different areas, depending on the investigator and the particular area being studied.

Rock art is perhaps the most abundant source of data which might pertain to prehistoric religion, magic or mythology. Burial practice data would also be relevant to these aspects of culture, as well as social differentiation, but is notably scarce or absent in the study area. Descriptions and illustrations of specific rock art sites in the study area are provided by Erwin (1930). All of the Burley District and the southern portion of the Idaho Falls District are located in Boreson's (1976) Area IV, which is dominated by petroglyphs. A concentration of petroglyph sites occurs along Marsh Creek and the Portneuf River (Boreson 1976:106; Erwin 1930:46). The northern portion of the Idaho Falls District is located in Boreson's (1976) Area II, which is dominated by pictographs. No nonspeculative interpretation of Rock Art in the study area is currently available, but Boreson (1976:116) lists a number of research questions that might help guide future work.

In other parts of the Great Basin, there have been recent advances in methods for dating and interpreting rock art potentially applicable in the study area. Projectile point representations have been used to date some pictographs in Nevada (Thomas and Thomas 1972) and Erwin (1930:80) illustrates a pictograph along the Blackfoot River which includes a corner notched projectile point. Other subject matter, such as horses (Erwin 1930:72), may enable rock art to be dated. Recent work indicates that it may be possible to date some petroglyphs through a patination dating technique utilizing neutron activitation and x-ray fluorescence analysis (Bard 1979). Rock art function has been studied in Nevada and California and some instances are thought to relate to hunting magic (Heizer and Baumhoff 1962, Thomas 1976).

CHAPTER 7
HISTORIC NATIVE AMERICAN LIFEWAYS

This chapter describes the lifeways of historic aboriginal groups utilizing the study area, and is derived from ethnographic and historic references. These references pertain to the nineteenth century. Limited historic documents are available which mention the early to mid nineteenth century, and the "memory culture" of informants utilized by twentieth century ethnographers at best reflects the situation of the mid to late nineteenth century.

Some of the lifeways described in this chapter may have existed for less than 300 years because of the introduction of the horse and euroamerican trade goods. However, the existence of social and economic similarities with nonmounted groups suggests that mounted groups retained elements of prehorse culture.

Our discussion of protohistoric lifeways will focus on three aboriginal groups whose activities seem to be centered in the study area: the Fort Hall Shoshone-Bannock, the Bannock Creek Shoshone (including the Goose Creek band), and the Snake River Shoshone. These groups are defined mainly on the basis of the locations where they spent the winter (Figure 14). The Fort Hall Shoshone-Bannock wintered along the Upper Snake River, especially in the Fort Hall Bottoms (Steward 1938:204). Often referred to as the Kamaduka (jack rabbit eaters), the Bannock Creek Shoshone occupied winter settlements along Bannock Creek, the Portneuf River and Goose Creek (Steward 1938:217). The Snake River Shoshone wintered below Twin Falls along the Snake River (Steward 1938:165). The Cache Valley Shoshone may have occupied a winter camp or village along Battle Creek, and no doubt utilized the study

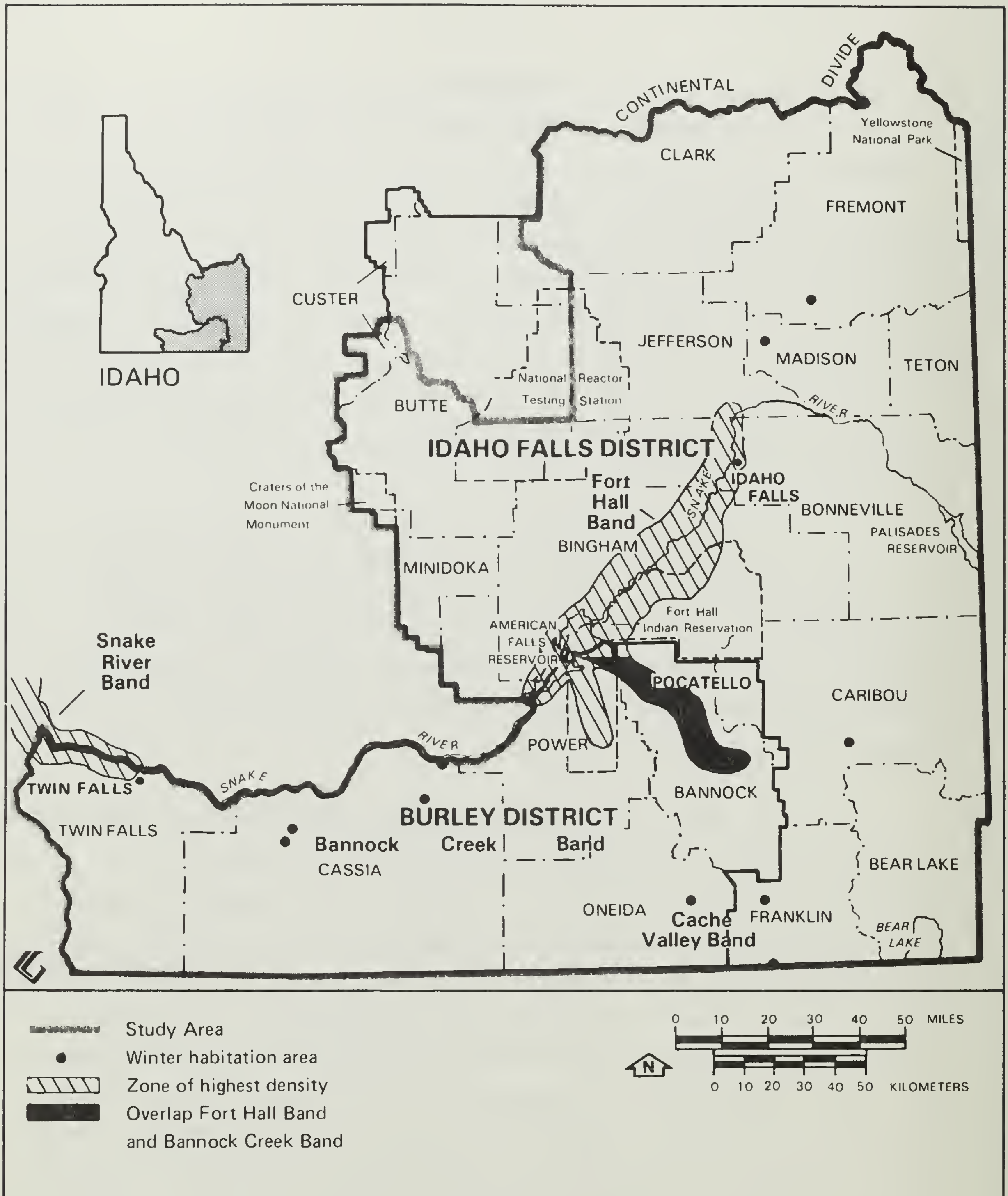

Figure 14
Winter Habitation Areas of Ethnographic Groups

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area, but very little information is available for this group (Steward 1938:218).

Membership in these groups was not rigidly defined and during other seasons they were often mixed in task specific groups taking advantage of seasonally abundant food resources. Liljeblad (1972:18) points out that none of the several dozen groups named after specific foods can be thought of as a stable ethnic unit because of this mutual cross-utilization of resources. The phenomenon also led to the occasional utilization of the study area by groups who spent the majority of the year in other areas. The Lemhi and tukaḋuka no doubt used the study area and even Blackfoot, Nez Perce, and Pend Orielle were observed occasionally (Murphy and Murphy 1960:325). A Blackfoot winter camp is listed on Henry's Fork near the present site of St. Anthony (Murphy and Murphy 1960:327). When using ethnographic or historic data for archeological research, what is important is the association of certain economic activities with environmental zones, rather than specific ethnic identities. Flexible group composition and the mutual cross utilization of resources in the study area could make it difficult to positively attribute even late sites to a specific ethnic group on the basis of geographic location.

All the groups in the study area speak languages included in the Uto-Aztecan stock. All Shoshone groups in the area speak mutually intelligible dialects of the Shoshone-Commanche linguistic subfamily. The Bannock of Fort Hall are an exception in that they speak northern Paiute, a Mono-Bannock language (Murphy and Murphy 1960:293-294).

The social organization of these groups lacked bounded and corporate kin groups and individuals or families could easily leave or join different bands. Murphy and Murphy (1960:334) see "some tendency toward matrilocality" but Steward (1938:214) states that after the first few years of marriage, couples had the option of bilocal residence. Because couples did not necessarily have to live near either spouse's parents, the pattern could even be termed neolocal (Murphy and Murphy 1960:334). Descent was traced bilaterally and over wide areas. Some tendency towards more centralized organization among mounted groups is indicated by the presence of rudimentary police or soldier societies and chieftancy.

However, these traits are associated with groups of a temporary nature, specifically those associated with bison hunting. The relative absence of centralized organizational institutions is thought to have contributed to the westward retreat of Shoshonean groups from the plains during protohistoric times because it placed them at a disadvantage in conflicts with Plains groups (Murphy and Murphy 1960:334).

Religious rituals of Shoshoneans in general were "exceedingly limited" according to Steward (1938:45), although religion and mythology were definitely not the focus of Steward's work. Major rituals occurred at birth, girl's puberty, and death. These rites involved only immediate family, and the only group ceremony was the round dance, which was thought to bring rain, crop fertility, or general well being. The sun dance is characteristic of the Fort Hall Band, but seems to be recently introduced (Steward 1938:211).

The material culture and technology of northern and Gosiute Shoshone groups is described by Steward (1943) as part of the culture element distribution studies. The Snake River band is included in the lists pertaining to the Nevada Shoshone (Steward 1941). Selected items from these lists may help model or interpret the physical remains of both prehistoric and historic aboriginal groups. Traits of the promontory group include those of the Cache Valley band (Steward 1943:265) and Grouse Creek Shoshone traits are probably similar to the Kamuduka or Bannock Creek Shoshone (Steward 1938:217).

In terms of archeological research, an important aspect of historic aboriginal lifeways are subsistence and settlement patterns. This data has been used as source for hypotheses which can be used to study prehistoric groups (Thomas 1973). It should be noted that the major references on settlement patterns (Steward 1938, Murphy and Murphy 1960) occasionally mention different activities or emphasize the importance of different activities. In general, however, the overall settlement patterns presented in these studies are similar.

The Snake River band wintered in scattered small camps of two or three lodges along the Snake River bottoms on both sides of the river below Twin Falls, where wood and shelter were available. It is emphasized that these camps were relatively small and could be as far as six miles from the river (Steward 1938:165). The area between Shoshone Falls and American Falls had few, if any, winter inhabitants because of lack of resources (Steward 1938:165). The Snake River band is notable for their relative lack of horses and reliance on salmon. Steward (1938:167) lists their winter foods as dried salmon, insects, and roots.

Anadromous fish runs occurred in March and April (steelhead), and May or June (Chinook Salmon). Seeds and roots were also procured along the river during this period. Large aggregations took place at fishing locales with 17 lodges occupied by about 200 people observed in August, 1863, and some 100 lodges in 1812 (Murphy and Murphy 1960:320). During the summer, plant foods were important, especially the roots available at Camas Prairie. Groups as large as "300 tents" were observed at this time (Murphy and Murphy 1960:320). Hunting also took place during the summer, especially in the country south of the Snake River which was shared with the Paiute (Murphy and Murphy 1960:321).

In the fall, there was another salmon run and hunting continued, with deer important around Camas Prairie and south of the Snake River, and deer, elk, and sheep north of Hailey (Murphy and Murphy 1960:322). Because the family or a small group of related families was the economic decision making unit, the annual cycle was not identical each year for every group. For example, some families remained near unusually abundant resources rather than wintering on the Snake River (Steward 1938:162).

The Goose Creek band is listed as the only group inhabiting the vast territory between Shoshone Falls and Bannock Creek (Murphy and Murphy 1960:322). Pine nuts were abundant enough in this region to attract other groups during the fall and along with deer, they formed the subsistence base of this area. Details of their seasonal round are uncertain and it is not known whether they fished below Shoshone Falls (Murphy and Murphy 1960:322). During the nineteenth century it appears that they were incorporated into the Bannock Creek Band under Pocatello (Steward 1938:217).

The Bannock Creek band utilized not only the southeastern corner of Idaho, but also portions of northern Utah. Although information on the location of their winter habitations is unclear, the following locations are mentioned: Bannock Creek, the Portneuf River between Pocatello and McCammon, and the Bear River near the Idaho-Utah line (Murphy and Murphy 1960-324). During the warm season, the Bannock Creek band split into small camp groups. Not all of these small groups pursued the same resources in a given year, with choices being made on the basis of preferences or circumstance. Warm season subsistence activities include salmon fishing below Twin Falls, root digging at Camas Prairie, hunting and/or gathering in the vicinity of the Bear River or Bear Lake, and pine nut gathering in the Goose Creek or Grouse Creek Mountains in late September (Murphy and Murphy 1960:324). Those with enough horses could even travel to Wyoming and participate in bison hunts with the Eastern Shoshone. The amount of interaction between the Bannock Creek band and groups from northern Utah and western Wyoming was sufficient to make it difficult to separate them for analysis. In fact, during the mid-nineteenth century, at certain times all of the Shoshone between Bannock Creek and the Great Salt Lake, were loosely organized into a band led by Chief Pocatello (Steward 1938:216-217). This has been described as a "predatory band" formed in response to the acquisition of horses and passage of Euroamerican immigrants through the area (Murphy and Murphy 1960:324).

Steward's (1938:204) statement that "there was no segregation of Bannock and Shoshones in winter encampments" is contradicted by Murphy and Murphy (1960:327) who state "the Wihinait, or Shoshone of the Fort Hall area, were said to have wintered apart." Locations preferred for Bannock winter camps listed by Murphy and Murphy (1960) include the Snake River bottoms above Idaho Falls and at the mouth of Henry's Fork near Rexburg, near Blackfoot, and at the mouth of the Portneuf River. Besides the Fort Hall bottoms listed by Steward (1938:204-205), Murphy and Murphy (1960:327) mention Shoshone winter camps on the Portneuf River between Pocatello and McCammon and as far south as Malad City, Idaho. Some confusion is indicated by the listing of both Fort Hall and Bannock Creek winter camps along the Portneuf by Murphy and Murphy (1960). Steward (1938:204) lists additional winter camps on Lincoln Creek, the mouth of the Blackfoot River, upstream on Ross Fork Creek, and on the Portneuf as far upstream as Lava Hot Spring. Winter camps were reportedly scattered, with groups of around six related families building dwellings in a cluster (Steward 1938:205). Stored supplies of dried meat, fish, roots, and berries provided the main winter food source. Hunting antelope, and perhaps bison on the plains west of the Snake River and deer in the mountains or bottomlands supplemented stored food.

The population dispersed in the spring, and groups of a few lodges or families hunted and gathered in the mountains of Caribou County or along Bear River and Bear Lake. Waterfowl and fish were also available during this time (Murphy and Murphy 1960:328). Again, some variation occurs in warm season subsistence pursuits. Some families traveled below Twin Falls for salmon and others went to Wyoming. After the salmon run, some went to Camas Prairie, but others utilized areas closer to Fort Hall. In the late summer and fall, some with sufficient horses hunted bison on the Plains while small groups hunted elk, moose, and deer west of the Divide. Antelope hunting required somewhat larger groups than hunting cervids, but smaller groups than participated in the bison hunt (Murphy and Murphy 1960:329). A number of plant foods were also procured during the late summer and fall including seeds, roots, berries, and pine nuts (Steward 1938:204).

As mentioned previously, Shoshone groups such as the Lemhi and Tukaduka no doubt utilized the study area. All elements of their seasonal cycles are also found among other Shoshone groups. The Lemhi possessed sufficient horses to participate in bison hunts east of the Divide and in many ways, their overall settlement pattern resembles that of the Fort Hall band. Their subsistence and settlement patterns are described in detail by Franzen (1978). The Tukaduka or Sheepeater Shoshone generally lacked horses, and the economic cycle of those residing in the central Idaho mountains featured warm season fishing villages and winter villages along the Salmon River and dispersed hunting and plant food gathering at other times of the year (Murphy and Murphy 1960:322-323 Steward 1938:186-189). Both the Lemhi and central Idaho Tukaduka were heavily dependent on anadromous fish, but a separate Tukaduka population occupied the mountainous areas of western Wyoming and possibly eastern Idaho. They subsisted on hunting timber buffalo, elk, deer, mountain sheep, and occasionally antelope, plant food gathering, and some fishing for nonanadromous species. During the winter they lived on stored food supplemented by hunting, but remained in areas higher than the valley winter camps of the mounted bison hunters (Murphy and Murphy 1920:310).

Various technological aids to procurement tend to affect proportional resource use (Jochim 1976:31), and it is important to understand the influence possession of horses may have had on prehistoric settlement patterns. The horse was probably acquired by Idaho Shoshone groups between A.D. 1700 and 1750 (Murphy and Murphy 1960:294; Steward 1938:201).

Perhaps the most important influence of the horse is that it "increases the search radius and other characteristics of predation by several orders of magnitude" (Reher 1977:23). One consequence of this could be the modification of the effects of annual fluctuations in resource availability. The system would still be influenced by climate but the mobility afforded by the horse could permit a greater latitude in adjusting to the effects of patchy resource distributions.

Obviously, one of the more important effects of the horse would be a reduction in the influence of resource mobility on procurement. As a result it produced the characteristic Northern Shoshone reliance on bison, a highly mobile resource. Some variation exists among different groups in the influence of the horse on the procurement of other herbivores. Steward states that the horse "contributed little" to the hunting of antelope or deer (1968:76) and the use of the horse in hunting mammals other than bison was rare among the Blackfoot and other upper Missouri groups (Ewers 1955:170). However, groups in the southern Plains and Plateau apparently used the horse to hunt deer and antelope when the terrain permitted (Ewers 1955:170). Terrain would be a crucial factor controlling mounted hunting, favoring the pursuit of bison and antelope as opposed to deer and especially mountain sheep, because of habitat preferences.

The horse also had a number of less direct influences on subsistence and settlement patterns. During the winter, grazing needs would influence site placement. Some figures can be used to indicate potential aboriginal grazing needs. For 100 horses, 300-500 acres of pristine big sage/ bluebunch wheatgrass is needed for winter forage and as much as 3000-5000 acres is needed if snow cover is a problem (Rusco 1976:170). The effects of grazing are also cumulative, with an area supporting 100 horses for a month being able to support them for only a week the following year (Rusco 1976: 160). Like the Euroamerican trappers, the aboriginal groups probably had to relocate their camps during the winter as local resources became depleted.

Grazing pressure resulting from the introduction of the horse may also have affected the availability of game in some areas. In a study of wild horses in the Challis area, it was determined that their diet substantially overlapped that of cattle (United States Department of Interior 1977: 2-74). Since cattle are roughly equal to bison in grazing pressure (McHugh 1972:222), the introduction of the horse could have reduced bison availability, especially in the vicinity of winter camps. Competition between horses and antelope is apparently insignificant, while horse and deer diets overlap in spring, but not in other seasons (United States Department of Interior 1977:2-73).

The influence of the horse on various aspects of Northern Shoshone life has been much discussed, often in terms of the resulting spread of Plain's material culture traits (Murphy and Murphy 1960:293). In general, the more important changes resulting from the introduction of the horse seem to parallel those of the Plains: an increased dependence on bison and an increase in the incidence of warfare (Murphy and Murphy 1960:293-294). As a result, Northern Shoshone groups like the Fort Hall Shoshone and Bannock tended to aggregate into larger political units than their nonmounted colinguists and exhibit more cohesiveness and centralized control (Murphy and Murphy 1960:333). These larger aggregations, however, were temporary, and the "basic structure of Shoshone society remained diffuse and atomistic" (Murphy and Murphy 1960:333).

The process of change related to the introduction of the horse can perhaps be viewed profitably using a systems concept employed by Flannery (1972) in his study of economic change in Mesoamerica. This concept is that relatively "minor deviations in one small part" of a system can result in major changes because of a process called "deviation amplifying positive feedback" (Flannery 1972:223). In the case of Idaho Shoshone, acquisition of a few horses would initially have little effect on the economic cycle, other than increasing the efficiency with which the more mobile resources, such as bison, could be exploited. Because of the desirability of bison, any increase in the efficiency with which they could be procured would probably be translated into their increased utilization. Increased utilization would then encourage the acquisition of more horses through trade or breeding, which would in turn further increase the efficiency of bison procurement and utilization, and the desire for more horses. These are "mutual causal processes" (Flannery 1972:234) and could quickly amplify the acquisition of a few horses into a major shift in economic strategy. Any depletion of local bison availability resulting in the need for increased mobility or an increase in warfare would further accentuate this process.

Flannery (1972:232) observed that increased reliance on a particular resource among hunters and gatherers who differentially utilize a number of resources according to a seasonal cycle can cause scheduling conflicts. According to Clark (1968:116), a changing economic system tends to function to "minimize the maximum immediate dislocation in the change trajectory." In the case of some groups, the scheduling conflict or dislocation caused by increased reliance on bison seems to have been partly resolved by postponing the communal bison hunt until after the summer salmon run, but ethnographic accounts suggest that in later times at least some families skipped the summer run to extend the bison hunt (Liljeblad 1957:106).

Reher (1977:35) mentions an influx of people from surrounding areas into the Plains as a response to increases in bison availability due to either increases in their natural productivity or man's procurement efficiency, as well as increased dependence on bison among groups already on the Plains. Since bison became extinct in Idaho around 1840 and probably were never as dense there as they were east of the Divide, an increased utilization of the Plains was necessary as Idaho groups increased their dependence on bison. These expeditions often resulted in conflict with the Blackfoot, and it appears that warfare was the variable which limited the deviation amplifying positive feedback process related to bison hunting. By limiting these deviations, warfare appears to be responsible for the fact that no mounted Shoshone groups were "completely dependent" on bison, and maintained social and economic ties to the West (Murphy and Murphy 1960:332). Warfare appears to be an important variable, at least during the posthorse period.

CHAPTER 8

HISTORIC THEMES

EXPLORATION AND EARLY SETTLEMENT

At the turn of the nineteenth century, the Pacific Northwest was a vast expanse of land that lay between the Upper Missouri River and the Pacific coast. The Russians and the Spanish had built settlements on the coast and had been trading with one another for years. British and American ships had also sailed the coast and explored the mouth of the Columbia River, but nothing was known about the interior of this huge area. This, however, was soon to change.

Lewis and Clark - John Colter

In 1803 the United States acquired a piece of land from France known as the Louisiana Purchase. Soon after this purchase, President Thomas Jefferson, an expansionist and firm believer in manifest destiny, commissioned an expedition led by Meriwether Lewis and William Clark to explore the headwaters of the Missouri and the lands to the west. The expedition reached the Pacific Ocean in November of 1805, built the first American outpost on the Pacific, and started home again in 1806.

On the return trip they were met by two men who were headed up the Missouri to try their hand at trapping. John Colter, a member of the expedition, became interested in accompanying them. Lewis and Clark felt that he had served well and was no longer needed for the trip back to St. Louis so they allowed him to leave with the two trappers. William Clark's journal of August 15, 1806 states:

> Colter one of our men expressed a desire to join Some trappers who offered to become shearers with (him) and furnish traps &c. the offer (was) a very advantagious one, to him, his services could be dispenced with from this down and as we were disposed to be of service to any one of our party who had performed their duty as well as Colter had done, we agreed to allow him the priviledge provided no one of the party would ask or expect a Similar permission...(Thwaites 1959:341).

The three men spent the winter of 1806-1807 trapping in what is believed to be the Yellowstone area (there is no exact record). However, Colter soon became disappointed with his partners and set out by himself to trap and explore. He spent the next two and one-half years in the Yellowstone region, and from descriptions he gave to others, it is believed that he spent some time in the Island Park area of Idaho which borders on the Yellowstone country, thus making him the first white to travel in what is now the eastern part of Idaho.

Andrew Henry and Fort Henry

When word of the great resources discovered by Lewis and Clark began to spread, people started making plans to enter this rich region and capitalize on those resources.

One such person was Manuel Lisa of St. Louis. Competition in the fur trade was becoming fierce, and the small fur traders were being forced out. Seeing this, Lisa organized the leading fur traders of St. Louis, and incorporated under the name of the St. Louis Missouri Fur Company in 1808. Andrew Henry was chosen as field captain, and with 300-400 well equipped men, left St. Louis in the Spring of 1810 to trap along the Missouri headwaters. Soon however, Henry and his group began to suffer from numerous Indian attacks. To gain relief from the attacks, Henry began to move his group from place to place in search of safer lands to trap. They eventually crossed a low pass and came upon a lake (Henry's Lake), and then followed the outlet of the lake through country rich in beaver for about fifty miles until the river entered a wide valley. It was here that they decided to establish camp. Thus, the first American outpost west of the Rockies was built in July of 1810 at a site some five miles downstream from the present town of St. Anthony. The men spent the winter trapping and trying to survive. Food was scarce and the men were forced to eat their horses to stay alive.

In the Spring of 1811 the group made its way out of the mountains and delivered what furs they had managed to gather to Lisa. However, "the stories that Henry told caused a slump in the fur business as far as the Upper Missouri was concerned, and caused the trappers to concentrate on the eastern slopes of the Rockies and into the Southwest" (Clements 1974:29).

The Astorians

The next group to visit Southeastern Idaho were the "Overland Astorians". John Jacob Astor, a rich fur dealer from New York, planned to establish a trading post on the Pacific coast and capitalize on the Northwest fur trade. He sent one expedition by sea and one by land.

Led by Wilson Price Hunt, the Overland Astorians departed St. Louis in the Fall of 1810. They wintered north of St. Louis and, in April of 1811, began their journey up the Missouri. They travelled by boat until July and then started overland by horse until they reached the Snake River. Judging the river unnavigable, they continued westward on horseback, crossed the mountains through Teton Pass, and came into what would later become known as Pierre's Hole.

They subsequently turned northwest, passed over some low hills, and came upon Henry's Fort on October 8th:

> It was very cold all day on the 8th; the wind from the west blew with force, a little snow fell. We arrived at the fort of Mr. Andrew Henry. It consists of several small buildings which he had erected so as to spend last winter there on a tributary of the Columbia, 300 to 400 feet wide (Rollins 1935:289).

The party spent a few days here building canoes, and then headed off downstream. From this time on the journey became a test of survival. Many boats, and a few men, were lost before it was decided to leave the river and continue once again on land, following the Snake River west across the Snake River Plain. The group split into two smaller groups just east of present day Twin Falls, and each group left to find their way to the Columbia. "All of them suffered great hardships and starvation before they finally arrived at the mouth of the Columbia" (Clements 1974:40). Some members made it to Fort Astoria as early as January, while Hunt and his group arrived on February 15, 1812 (Irving 1964:320-321).

When Hunt's party arrived they discovered that a fort had already been built by the seagoing Astorians. It was soon decided that a party should be sent eastward to inform the Pacific Fur Company's head office of their activities. Robert Stuart was chosen to lead this group, which departed Astoria on June 29, 1812 (Rollins 1935:3). The "returning Astorians" crossed Oregon and southern Idaho and continued upstream on the Snake until they reached the Portneuf River. They followed the Portneuf, crossed over to the Bear River, then headed into western Wyoming. At this point in their journey they were attacked by Indians who stole their horses. Left without horses, Stuart decided to float down the Snake until horses could be obtained from friendly Indians. After floating the river for a period of days, they headed northeast to the forks of Moody Creek. They continued on to Canyon Creek, then into Pierre's Hole before crossing the mountains at Teton Pass. After turning south they managed to obtain horses and supplies and headed toward St. Louis where they arrived on April 30, 1813. Their route later became the Oregon Trail.

North West Company - Hudson's Bay Company

The British North West Company had been active in working the upper Columbia for many years, but the War of 1812 allowed them to extend their operations to include the entire Northwest.

During this brief war, the British sent a frigate, along with a North West Company ship, to seize Astoria from the Pacific Fur Company. However, when the British arrived at Astoria, the Americans, believing they could not withstand an armed attack, offered no resistance. The fort was sold to the British, thereby giving them almost complete control over the Northwest.

In 1816 the North West Company decided to open the Snake River area to the fur trade, and chose Donald McKenzie to lead the first Snake River Brigade. McKenzie had been Astor's partner and had joined the North West Company after their purchase of Astoria. There is no record of his 1816-1817 expedition, but in the fall of 1817 he set out with a party of Iroquois, pushing far into the interior to "a rich field of beaver in the country lying between the great south branch (Snake River) and the Spanish waters (Green River)" (Ross 1956:135). He returned to this fertile region again in 1818-1819 and wrote a letter dated at "Black Bear's Lake

(Bear Lake) September 10, 1819" (Ross 1956:135). It was during this expedition that Michel Bourdon distinguished himself by exploring the Bear River southward into the Cache Valley. McKenzie led the 1820-1821 Snake River Brigade into the same area, and upon completion of this trip was promoted and replaced by Bourdon.

In April of 1821 the North West Company and the Hudson's Bay Company merged, taking the name of the Hudson's Bay Company. Bourdon led the Snake River Brigades for the Hudson's Bay Company for the next two years, but had troubles with deserters and Indians. In 1823 Finnan McDonald took over, and it was during this expedition that Michel Bourdon was killed by the Blackfeet in the Henry's Fork area of Idaho. McDonald was quite disgusted with the Snake country upon his return, and swore that he wouldn't return to it.

British - American Competition

The western slopes of the Rocky Mountains had been neglected by American trappers after the collapse of the Pacific Fur Company and the economic difficulties of the St. Louis Missouri Fur Company. By 1820, however, improvements in the fur market caused interest to be renewed in this vast British-ruled area. Andrew Henry, of the Missouri Company and William Ashley decided in 1821 to capitalize on the rich resources of the western slope. They also decided to use methods different from those used by Americans in the past. Instead of having Indians gather furs they hired white men, and instead of collecting the furs from many different trading posts, they collected them once a year at a predetermined spot or rendezvous.

In the March 6, 1822 issue of the Missouri Republican, Ashley ran a notice which read as follows:

To Enterprising Young Men

> The subscriber wishes to engage one hundred men to ascend the river Missouri to its sources, there to be employed, for one, two, or three years. For particulars, enquire of Major Andrew Henry, near the Lead Mines, in the County of Washington (who will ascend with and command the party) or the subscriber at St. Louis.
>
> William H. Ashley (Morgan 1964:1)

In April of 1822 Ashley and Henry obtained licenses to trade on the Upper Missouri and quickly set out to establish themselves on the western slopes of the Rockies. For the next few years Ashley and Henry fared well in the Snake country, and until 1824 were not fully aware of the fierce competition being supplied by the British.

It was in 1824 that Jeddiah Smith, leading a party of Henry's trappers, came upon a group of Iroquois trappers in the Salmon country. The Indians offered Smith pelts for safe escort back to their camp. Smith helped them find their camp, and upon doing so, discovered that the Iroquois were part of the 1824 Snake River Brigade which was led by Alexander Ross. Ross, not knowing how to rid himself of Smith and the Americans, allowed them to tag along while he returned to the Flathead Post. This gave Smith the opportunity to view British operations and to explore some new country. Smith found that the British had been attempting to create a "fur desert" in the Snake country in order to discourage the American trappers, and also that there were still plenty of beaver to be had. Smith reported his findings to Henry and Ashley, who when hearing this, expanded operations, making the competition even more fierce.

The British were not pleased with Alexander Ross for bringing Americans into their camp, and quickly replaced him with Peter Skene Ogden. Ogden led the Snake River Brigades from 1824 to 1829, spending much of his time in what is now eastern Idaho.

With American trappers coming into the Snake country in ever increasing numbers, confrontations were inevitable, as was discovered by Ogden during his 1825 expedition. He had trapped the Blackfoot and Portneuf Rivers, and had followed the Bear River through Cache Valley, when, on May 23, 1825, he was confronted by a group of American free trappers led by Johnson Gardner. Gardner accused Ogden of being on American soil, and Ogden accused Gardner of being on British soil. (They were both on Mexican soil.) When nothing came of the argument, Gardner attempted to persuade Ogden's men to join his group and get better pay for their beaver. The following day, twelve of Ogden's men deserted to the Americans, taking their furs with them (Rich 1950:234-235). After this occurrence Ogden turned north, entering the Snake River Valley near present day Pocatello. The group followed the Snake and Henry's Fork upstream and spent the remainder of the summer trapping beaver in Montana.

When Ogden returned from his 1828-1829 expedition, he was replaced by John Work. Work left Fort Nez Perce on August 22, 1830, intent on following Ogden's earlier path and continuing to create a fur desert to discourage the American trappers. The Americans were not easily discouraged however, and in his journal of October 10, 1830, Work writes:

> Cloudy weather a good deal of thunder and some light rain. Continued our rout up the river about 10 or 12 miles. Several of the people were out with their traps 5 beaver were taken. One of the hunters

> who was farthest up the river brought the news that he had met a party of 20 American hunters who had arrived from the Snake River and were two days without water... (Haines 1971:30).

The increasing number of Americans and the scarcity of beaver are noted throughout Work's journal. Upon reviewing Work's report following the 1830 expedition, the Hudson's Bay Company decided to cancel any future Snake River expeditions and instead turn their efforts toward building and maintaining forts to capture the trade of the free trappers and the Indians.

The Rendezvous

As British strength in the Northwest declined, American strength was increasing. This increase was due in part to the rendezvous system established by Henry and Ashley in the early 1820s. The rendezvous was a yearly meeting of all trappers. The trappers would bring their furs to a destination that had been determined the summer before, sell them to a buyer, then purchase the goods and supplies needed for the next trapping season. The rendezvous was also the yearly social gathering for the trappers and Indians. They would come to the rendezvous and spend a few weeks relaxing and playing games before heading into the hills for the next season.

The first rendezvous was held on the Henry's Fork of the Green River in 1825 and was supplied by pack train. In following years the rendezvous were held at various places, decided on the previous year. The 1829 and 1832 rendezvous were held in Pierre's Hole. The 1832 rendezvous has become quite well known because of a battle which took place there between the trappers and a band of Gros Ventres Indians. This was also the first rendezvous for a Boston merchant named Nathaniel Wyeth, and a greenhorn trapper named Osborne Russell. The rendezvous continued as a means of supplying trappers through the 1830s. By this time furs were becoming scarce, and the fur market was declining. These factors, as well as others, contributed to the demise of the great Rocky Mountain fur trade. The last rendezvous was held on the Green River in 1840.

Nathaniel Wyeth and Fort Hall

Nathaniel Wyeth came west to look for business opportunities in 1832, and returned east in 1833 with plans for starting a salmon industry at the mouth of the Columbia River and supplying goods for the 1834 rendezvous to be held on Ham's Fork. After securing backing for his venture he departed Independence on April 28, 1834 for the Rocky Mountains and the mouth of the Columbia.

Wyeth supposedly had made a deal with William Sublette and the Rocky Mountain Fur Company to supply the rendezvous of 1834 on Ham's Fork, but, upon arriving he discovered that Sublette had arrived first and had already taken care of the trappers' needs. Wyeth was able to dispose of some of his load however, and, after spending a few days at the rendezvous, set out for the Columbia again on July 2. The party journeyed west, passing the present site of Soda Springs. Russell described the area as follows:

> On the right hand or East side of the river about 2 miles above the rock is 5 or 6 mineral Springs some of which have precisely the taste of soda water when taken up and drank immediately others have a sour, sulperous taste: none of them have any outlet but boil and bubble in small holes a few inches from the surface of the ground (Russell 1954:4).

From here they continued to a point near the confluence of the Snake and Portneuf Rivers. There Wyeth decided to stop and build a fort to deposit the rest of his merchandise and to establish trade with the Indians. The fort was named Fort Hall in honor of the senior partner of Wyeth's company, Henry Hall. Wyeth left some men at the fort and continued on to the coast to establish his salmon fishing business. Things did not go as planned however, and the fishing venture never really got off the ground. Meanwhile, trappers and Indians who came to Fort Hall found that it did not offer all that they needed. Wyeth had a hard time securing enough supplies to keep his enterprise going, and finally sold Fort Hall to the Hudson's Bay Company in 1837.

Benjamin L. E. Bonneville

Even though Captain Bonneville was not an official member of the Army during his years in Idaho, he obtained a leave of absence from the Army with the understanding that he would collect information about the Indians and the country in which he travelled.

Captain Bonneville came to Idaho in 1832, leading the first wagon train to traverse the South Pass. He headed for Pierre's Hole, but arrived too late for the rendezvous of 1832. He then continued on to the Salmon River where he wintered amongst the Nez Perce and Pend Oreille Indians. In the Spring of 1833 he moved his camp to the Snake River. The party rested here for a few weeks before attending the rendezvous at Green River. Following the rendezvous the group split, some men exploring a route to California, while Bonneville trapped in southern Idaho. He spent much time on the Portneuf and Bear Rivers in the next year, finally returning to civilization in 1835.

John C. Frémont

The first official government expedition into Idaho after Lewis and Clark was that of John C. Frémont in 1843. Frémont's mission was to discover the best routes of travel across the plains and mountains. During his second expedition he travelled into Idaho. He left Kansas City in May of 1843 and followed what was to become known as the Oregon Trail. Soon after entering Idaho, his party was attacked by Snake Indians, described by Frémont as:

> with guns and naked swords, lances, and bows and arrows - Indians entirely naked, and warriors fully dressed for war, with the long red streamers of their war bonnetts reaching nearly to the ground -- all mingled together in bravery for savage warfare (Frémont 1845:134).

The Indians thought that the troops were hostile because of the way in which they approached, but quieted down after discovering Frémont and his men to be friendly. The expedition spent some time in the Soda Springs area while their guide, Kit Carson, went ahead to Fort Hall to obtain supplies. After leaving Soda Springs, Frémont traveled south through the Malad Valley to see the Great Salt Lake. Carson met the rest of the group there with the supplies. Afterwards they returned to Fort Hall before continuing on to Fort Boise, Fort Vancouver, Oregon, California, Nevada, Colorado, and finally back to Kansas City in July of 1844.

Captain Howard Stansbury

Following Frémont, an expedition, led by government engineer Captain Howard Stansbury, was sent out by the Bureau of Topographical Engineers to survey the Great Salt Lake and to determine the best routes for roads.

The expedition left Fort Leavenworth in the Spring of 1849. Upon reaching the Great Salt Lake, Stansbury left the main body of the party under a Lieutenant Gunnison, while he took a small group and explored a route from Salt Lake to Fort Hall. The group moved up the Malad River until they reached a fork. Here they camped until late September of 1849 (Braun 1932:312). They then headed west until reaching Hudspeth's Cutoff, which they followed until they reached the headwaters of the Portneuf River. Continuing west, they reached Fort Hall in early October, and then returned to the Great Salt Lake by way of the Bear and Malad Rivers. A later wagon road between Salt Lake and Fort Hall followed the Bannock - Malad route recommended by Stansbury.

NATIVE AMERICAN HISTORY

White - Indian Trade

The idea of trading is not new to the Indians. Long before white men entered their territory, inter-tribal trade had been carried on at annual gatherings. One such gathering was a yearly inter-tribal rendezvous, in the country where the Boise, Payette, and Weiser Rivers empty into the Snake. Tribes from all over congregated to trade and to celebrate the opening of salmon fishing season. The Nez Perce brought horses, the Umatilla and Cayuse brought seashells from the Pacific coast which were used for decoration, the Shoshoni offered hides and dried meat gathered during their annual buffalo hunt, and the Paiutes came with arrowheads made from obsidian.

With the arrival of white trappers and fur traders, new dimensions were added to this age old system of native trade. Trading started slowly with the British, but by the 1820s, with the number of trappers and traders constantly increasing, the Indians had become heavily involved in the fur trading system of the whites. During the 1820s and 1830s the Indians experienced a period of relative prosperity. From 1825 to the end of the rendezvous, bands of Indians from all over attended the yearly gathering of trappers. Known good hunters, the Shoshoni, Ute, Flathead, and Nez Perce gladly came to the rendezvous to trade their pelts for the American products brought from St. Louis: guns, ammunition, hardware, cloth, beads, paint, and tobacco (Beal and Wells 1959 (I): 52).

As well as attending the yearly rendezvous, the Indians traded their furs to American and British companies when they encountered them in the field. References to trade with the Indians are numerous in the journals kept by trappers. For instance, John Work wrote on Friday, January 21, 1831:

> ...Moreover here we are in the neighbourhood of the best of the Indians & they tell us that the most of the scamps who would be most likely to steal have moved down the river. The scarcity of meat also rendered it necessary to not omit the opportunity of getting a supply of the buffaloe that are now about Blackfoot hill. In the evening 8 or 10 Indians arrived from below, and traded 5 or 6 beaver, a sort of chief among them, who is known to several of the men & represented as a good Indian, expresses himself indignant as the Indians stealing our hordes and states we may be under no apprehension of any of his people taking any of them...(Haines 1971:68).

But, by 1840 the fur trade era was at an end, and the Indians found themselves dependent on the white man's goods. To fulfill their need for these goods, the Indians began to trade more frequently at southern Idaho forts.

Fort Hall, built by Nathaniel Wyeth in 1834, was the major trading post in southeast Idaho. When purchased by the Hudson's Bay Company in 1837, the fort had not been so successful as Wyeth had hoped. The British however, planned to change this. By maintaining strict discipline, the Hudson's Bay Company was able to stay on good terms with the Indians. "The company would not allow its men to cheat an Indian, and to wantonly kill one was unheard of" (McComber 1951:20). Of course this policy was motivated by economic interests rather than a love for the Indians, as every effort was made to encourage the Indians to spend more time trapping, thereby increasing the number of furs taken in by the company. This number however, was never very large, since the Indians rarely exerted themselves more than was absolutely necessary.

Another method employed by the Hudson's Bay Company to obtain furs from the Indians was to send men along with the Indians as they migrated. This method was explained by John Dunn, an early writer of the Oregon territory:

> The commander of the fort always keeps in the field companies of men, often under the command of an American mountaineer, to follow various migratory Indian tribes in the adjacent Mexican and American domain to collect whatever furs they may chance to have. By these and various other means more than thirty packs of beaver were collected in the year 1839 (Dunn 1844:334).

This system remained in use until 1856, at which time Indian hostilities caused the British to abandon Fort Hall.

Indian-White Confrontation and Peacemaking

From 1840 to 1860, the Indians in southeast Idaho remained relatively undisturbed. Except for the independent traders and trappers at Fort Hall, white men were simply passing through the Shoshoni and Bannock lands on their way to California and Oregon. The Shoshoni and Bannock had become the unchallenged lords of their home territory.

The principal bands of these tribes eventually developed a certain amount of solidarity, and learned to submit to a more or less temporary leadership of trusted tribal members. "Militarization of these mounted bands had as a protective measure, a consequence of the buffalo hunting expeditions to the High Plains" (Beal and Wells 1959 (I):52). During these hunting expeditions they were often attacked by the Blackfeet, which resulted in the banding together of different tribes for mutual protection.

These groups were not, however, concerned about the whites that were passing through their territory at this time. Immigration along the Oregon Trail had been crossing Shoshoni territory for more than a decade without any real trouble. The reasons for this are twofold: first, the Shoshoni were at their fall hunting grounds in Montana by the time Oregon bound settlers reached Idaho, and second, raiding parties on whites were looked upon as private affairs by the Indians, and were not approved of by responsible chiefs. Attacks that did take place were usually committed by young renegades and were not sanctioned by their tribe.

However, with the discovery of gold, and the 1860 settlement of Franklin, the regions first permanent settlement, conflict began to arise between these two distinct cultural groups.

Troubles began when the Mormons established the community of Franklin in the Bear River Valley in 1860.

Contrary to United States' policy at the time, the Mormons started to settle the area before Indian title to the land had been extinguished and the Indians justly compensated. Therefore, the whites took over the wintering grounds of the local Shoshoni population. The fish and game that the Indians depended on for food became less plentiful, and the Indians' existence was threatened.

At the same time, the territory experienced an influx of miners who indiscriminately staked claim to lands. They took away the Indians' means of subsistence by grazing their animals on the roots and plants that were used as food by the Indians, fishing out streams, and depleting the stock of game. The miners were also ruthless, and many defenseless Shoshoni and Bannock were killed for no apparent reason.

Moving about and foraging became more difficult for the Indians, and they began to feel more and more pressured. Once again the Indians banded together for safety, but this time it was to defend themselves against the whites. Raids on white settlers, immigrant wagons, and miners became more common. When the number of raids increased, the settlers demanded protection from the government. Then, in 1863 the United States made an effort to conciliate the Shoshoni groups along the immigrant routes in Idaho.

In the Spring of 1863 the United States began to sign treaties with all of the different Shoshoni and Bannock tribes. The first in this series of treaties was signed at Fort Bridger on July 2, 1863, between the Eastern Bands of Shoshoni Indians and the United States of America. On July 30, a treaty between the United States and the Northwestern Bands of Shoshoni was signed at Box Elder, and on October 14, the final treaty was signed at Soda Springs between the United States and mixed bands of Shoshoni and Bannock. These treaties temporarily preserved peace, but the Indians soon became discouraged. They believed that promises made them in the treaties were never fulfilled, and wanted compensation from the United States. To maintain peace, and to stay on good terms with the Indians, the United States agreed to write a new treaty. The new Treaty of Fort Bridger was signed on July 3, 1868, and superceded all former negotiations.

It was under the terms of this treaty that the Fort Hall Indian Reservation was established, and the assimilation to white culture began.

White Men - Indian Women

An area in which a great deal of interaction occurred between Whites and Indians, was that of male-female relations. From the earliest times, white fur trappers were taking Indian women for their wives. The women would travel with the men during the trapping season, taking care of the children, cooking, and helping to care for the pelts. In most cases, marriages between a white trapper and an Indian woman were carried on with the blessing of the tribe. However, in many instances, Indian women were simply abducted by whites for their own pleasure. Captain Bonneville's men are known to have taken exceptional advantage of the local Indians during their stay in southeast Idaho.

Indian women were also offered for sale at the annual rendezvous. If a trapper felt he had need for a woman, and couldn't secure one through normal methods, he could often purchase one at the rendezvous. Quite often these women had been taken from other tribes during battle, and were not wanted by the selling tribe. Indian wives were also sold by trappers, who in many instances had received women as presents from friendly Indians. On his return trip east in 1837, W. H. Gray, a missionary who had gone to Oregon with the Whitmans and Spaldings, attended the rendezvous on Green River in July of that year. "Gray was shocked at the buying and selling of Indian wives by the white trappers, and at the drinking and carousing" (Hafen (I) 1965-72:159).

POLITICAL, DIPLOMATIC, MILITARY AFFAIRS

Rival Claims

At one time, four nations, Russia, Spain, Great Britain, and the United States, lay claim to that part of the world known as the "Oregon Country". Spanish claim to the area went back to a Papal encyclical issued in 1493 by Pope Alexander, in which he authorized Spain to rule over "all countries inhabited by infidels" (Hawley 1920:89). Other claims were the result of Spanish explorers sailing along the Pacific coast and claiming all the land that they viewed in the name of Spain. For instance, in 1530 Balboa crossed the Isthmus of Panama and claimed for Spain all the land that bordered the ocean, and in 1774 Perez sailed from about latitude 55 degrees south to the California coast (Hawley 1920:89; French 1914:5). Spain retained her claims to the area until 1790, at which time she relinquished her rights to Britain in a treaty known as the Nootka Sound Convention (Hawley 1920:90).

Russia lay claim to the entire Pacific coast via a Danish navigator by the name of Vitus Behring, who had sailed the northwest coast under the Russian flag in the 1740s (Hawley 1920:90). Russia also based her claims on the right of sovereignty and the fact that Russian fur traders had occupied the area for many years (Hulett 1938:6).

British claim to the area went back to 1579, the year that Sir Francis Drake had sailed along the Oregon Coast. The next British penetration into the Northwest was in 1776 when Captain James Cook was sent both to monitor Russian activity, and to explore and map the area (Hawley 1920:90). In 1796, Alexander McKenzie traveled across the continent from Montreal to British Columbia, adding even more support to the British claims.

America's claim to the Northwest went back to 1792, when Captain Robert Gray, a seaman from Massachusetts, sailed the ship Columbia into the mouth of what was later to become the Columbia River (Hulett 1938:8). Americans argued that since Gray was in the area before McKenzie, they therefore had legal claim to the area. Even though this was a weak argument, it was later used by John Quincy Adams in negotiating with the British. America's claims were strengthened by the Lewis and Clark expedition in 1804-1806, and again in 1811, when Fort Astoria was established on the Oregon coast by the Pacific Fur Company of John Jacob Astor.

Negotiations to settle the dispute over the Oregon Country were begun in 1803. At this time, a treaty defining American and British boundaries was sent to London, but the British Government refused to ratify it. Four years later another treaty was drawn up, but this time President Jefferson rejected it without even referring it to the Senate for approval (Hawley 1920:92).

Before any further negotiations took place, the War of 1812 broke out. During this conflict the British obtained Fort Astoria from the Americans, along with control of the Northwest. However, when the Treaty of Ghent was ratified in 1814, it stipulated that all lands would remain as they were before the war, bringing America back into the

Northwest, but still not answering the international boundary question (Hawley 1920).

In 1818 the question of the Northwest boundary once again became a subject of debate. This time Britain and the United States signed the now famous "Joint Occupancy" treaty, which concluded with the following provision:

> That any country claimed by either nation on the northwest coast of America, together with its harbors, bays and creeks, and the navigation of all rivers within the same, shall be free and open, for the term of ten years, to the subjects, citizens and vessels, of the two powers, without prejudice to any claim which either party may have to any part of said country (Hawley 1920:93).

This treaty also extended the British-American borderline from The Lake of the Woods, across the 49th parallel, to the ridge of the Great Stony Mountains (Rocky Mountains).

America's claim to the Northwest was further strengthened in 1819 when she signed a treaty with Spain, in which Spain ceded Florida to the United States, and relinquished all rights on the Pacific coast north of the 42nd parallel. In 1824 the United States signed another treaty, this time with Russia, stating that Russia claimed no territory south of the 54' 40" north latitude line (French 1914:7).

With both Russia and Spain backing out of the Northwest, the territory was now left to Britain and the United States. In 1827, the joint occupancy treaty was renewed between the two nations, and America and Britain continued to share the Northwest, even though at this time the only Americans active in the area were fur trappers and traders.

By the 1840s however, large numbers of Americans had settled in the Oregon country, and the question of an official boundary line was raised once more. John C. Calhoun, Secretary of State at the time, proposed that the 49th parallel, as mentioned in the Treaty of 1818, be continued across the mountains to the coast and used as the boundary; Great Britain would not consent. American enthusiasm for "manifest destiny" was now at a fever pitch. Americans wanted all of the Oregon country or nothing at all. In the Presidential race of 1844, James K. Polk was nominated by the Democrats, who adopted the famous slogan "Fifty-four Forty or Fight". This was in reference to the boundary line that the Russians had drawn in 1824, and the Americans wanted this line to become the boundary between the United States and Britain.

Polk was elected President and negotiations were resumed in 1845. Britain, fearing that Polk would not settle for anything but 54' 40" as the boundary line, now offered to establish the boundary at the 49th parallel that they had earlier refused. The United States accepted this offer and the Senate ratified the treaty on June 18, 1846, thus establishing the 49th parallel as the international boundary, and leaving the United States in complete control of the Oregon Territory (Hawley 1920:96-97; French 1914:6).

ECONOMIC, SOCIAL, COMMERCIAL AND DEVELOPMENT HISTORY: 1840s TO 1920s

The Fur Trade

By the 1840s, the spectacular fur trade of the two previous decades had virtually ended. The Green River rendezvous in June of 1840 was the last of these great events, and it was so obscure that many trappers failed even to locate it. Fort Hall, now run by the Hudson's Bay Company, assumed the

the job of supplying the fur trade, and trappers gradually left the Snake Country, which was no longer producing large numbers of furs (Beal and Wells 1959 v.I:195). For instance, during the 1842-1843 trapping season, American trappers and Indians sold nearly 2500 beaver skins to the Hudson's Bay Company at Fort Hall, but by the 1845-1846 season this number had fallen to 1600 (Grant 1940:38).

With beaver becoming scarce, and the price paid for pelts declining, many trappers decided it was time to try their hands at other enterprises. Some took jobs as guides for emigrant wagon trains, others became scouts for the military, and some moved to the "Oregon Country" to pursue the peaceful life of the farmer.

Buffalo

Prior to the influx of white emigrants, large herds of buffalo ranged on the Snake River Plain and in the lush valleys of southeast Idaho. They were hunted by Indians and trappers, who used the meat for food, and the hides for clothing and shelter.

The establishment of Fort Hall created an outlet for the Indians, whereby they could trade skins and buffalo meat for the white man's goods. When buffalo were plentiful, a ninety pound piece of dried meat could be traded at the fort for a knife and a foot of rope tobacco (Brown 1932:255). However, by the mid-1830s the situation had begun to change. Osborne Russell, a trapper who spent many years in the Fort Hall region, noticed that game was getting scarcer, and that little of the once plentiful buffalo herd remained. In the 1840s Russell found the situation even worse, and in his journal states:

> ...the only traces of them which could be seen were the scattered bones of those which had been killed. Their deeply indented trails which had been made in former years were overgrown with grass and weeds. The trappers often remarked to each other as they rode over these lonely plains that it was time for the white man to leave the mountains, as the beaver and game had nearly disappeared (Russell 1914:94-95).

When Captain Frémont came into the area in 1843 to survey roads for the Federal Government, he too noticed the great decline in the number of buffalo, saying:

> ...A great portion of the region inhabited by this nation (Shoshone) formerly abounded in game; the buffalo ranging about in herds, as we had found them on the eastern waters, and the plains dotted with scattered bands of antelope; but so rapidly have they disappeared within a few years, that now, as we journeyed along, an occasional buffalo skull and a few wild antelope were all that remained of the abundance which had covered the country with animal life.
>
> The extraordinary rapidity with which the buffalo is disappearing from our territories will not appear surprising when we remember the great scale on which their destruction is yearly carried on. With inconsiderable exceptions, the business of the American trading posts is carried on in their skins... (Jackson and Spence 1973:490).

In his travels, Captain Frémont met a Mr. John F. A. Sanford, a partner in the American Fur Company, who estimated the number of buffalo robes traded yearly by fur companies as follows:

American Fur Company	70,000
Hudson's Bay Company	10,000
Other Companies	10,000
Total	90,000

Sanford considered these figures to be representative of an average annual return for the preceding eight to ten years. In addition, many animals were killed for sport, left to rot, or used by the Indians for food, clothing, and shelter. The huge numbers thus decimated nearly caused the buffalo's extinction.

Mining and Mineral Development

As late as 1860, Idaho's few permanent settlers resided primarily in the missions and Mormon communities of the southeast. However, the discovery of gold in this same year brought about immense changes: the population multiplied, new sections were opened, new towns sprang up, new roads were built, and outside capital flowed into the state (Bolino 1957:33).

The early discoveries were at Oro Fino Creek, the Boise Basin, and the Owyhee District. Gold mining in southeast Idaho came into its own much later, with claims being worked in the Cariboo District and at Bonanza Bar on the Snake River in the 1870s.

Gold Mining Methods

Gold extraction techniques varied according to the geography of the area and the amount of gold available. Methods included panning, rockers and sluices, hydraulics, dredging, and milling and smelting.

Panning was the simplest method, requiring only a pick, a shovel, an axe, and a pan. The miner would fill the pan with what he believed to be gold bearing gravel, add water, and then swish the mixture around in the pan; the lighter materials would be floated out, and the gold left in the bottom.

A rocker was basically a sieve mounted on rocker legs. The miner would put gravel in the sieve, then pour water over the gravel with one hand while rocking the device with the other. The water dissolved the clay and sand, the finer particles fell through the sieve, and the heavier gold particles were caught in a set of riffles. The larger pieces that didn't fall through were picked out of the sieve by hand.

The tom was a tapered wooden trough about twelve feet long. Gravel was put in at the top and washed down to the bottom, separating as it went. At the bottom of the run it would fall through small holes onto a set of cleats, or riffles, that would catch the heavier gold. Large rocks were thrown out by hand, and undissolved clumps were sent back up to be washed again.

In a sluice operation, water was diverted from a nearby stream into the placer pit. Workers would shovel the gold bearing gravel into the water where it would be carried to a long flume. The clumps of dirt would break up as they travelled, and the gold would settle to the bottom and be caught in riffles in the bed of the flume.

Hydraulic mining developed later, and was used to move large quantities of gold bearing soil into flumes. This procedure consisted of running water through ditches from a high elevation to a low elevation in order to build up a good head. The water was then channeled into a pipeline with a hydraulic giant attached (similar to a large hose and nozzle) which would spray the water out under tremendous pressure. When directed at an area of gold bearing gravel, the column of water washed away great amounts of gravel and clay. This mixture of soil and water was then directed into flumes, and as the mixture passed through the flume the gold sank to the bottom and was caught in riffles.

In some areas huge dredges were used to move bedrock. These were shovel-type machines that moved along a vein or riverbed scooping up ore, dumping it into an apparatus that extracted the gold, then piling the waste gravel behind itself.

Ore brought out of the ground from quartz, or hard rock mines, was milled in many ways. The first type of mill was known as an arastras mill. A hole was dug and lined with rocks, then a large stone was placed in the hole and a horse was hitched up to provide power. As the horse walked around the hole, the large stone crushed the ore, making it ready for the smelter.

When it was believed that a lode would yield a great deal of gold, people invested in stamp mills, enabling them to process huge quantities of ore. Stamps (large weights) weighing from 500 to 700 pounds, were powered by steam and moved up and down from sixty to eighty-five times per minute, crushing the ore into small pieces to be smelted (Bolino 1957: 46-49; Beal 1942:232-233).

Mining Activities in Southeast Idaho

While Idaho is known for its many famous gold rushes, only three areas of real significance ever developed in south-eastern Idaho. Gold was mined at Cariboo Mountain and along the Snake River at Bonanza Bar, and silver and lead were mined at Black Pine.

Though there seems to be some disagreement as to who was the first to strike gold in this area, it is agreed by most that the area was named after Jesse Fairchilds. Fairchilds had worked in the Cariboo mines in British Columbia, where he got the nickname Cariboo Fairchilds, and happened to be prospecting in this area when gold was discovered (Idaho State Historical Society (I.S.H.S.) No. 205).

S. F. Babcock and F. McCoy filed the first claim in September of 1870 and the rush was on. Within a year, five hundred white miners and four hundred Chinese had arrived to work the mines. The following year Keenan and Cariboo City (originally Iowa City) had sprung up. Keenan died out early, but Cariboo City became the largest city in the district, rivaling Eagle Rock (Idaho Falls). It had all the usual buildings--gambling halls, bars, and saloons-- but its real pride and joy was a three-story hotel known as the "Green House".

Placer methods such as panning, sluicing, and hydraulic giants were used when there was enough water, and a few arastras mills were operated to crush the ore from the quartz lodes. The main veins were worked out by the 1890s, although some people continued to work for many years later (Daughters of Utah Pioneers 1958:113-117).

Located on the north bank of the Snake River, just west of American Falls, Bonanza Bar was one of many mining camps that sprang up along the Snake. Miners came to work the sand bars along the Snake for the flour gold that had washed down from the mountains. Some were quite successful, but most worked briefly before moving on to the next strike (Hawley 1920:112).

Black Pine was originally thought to be a rich silver and lead district, but the ore never materialized and consequently the area never developed. It was discovered in 1870 but attracted little notice. Twenty-five to thirty miners were working the area by 1880, with limited production occurring in 1894 and 1914 (Idaho State Historical Society (I.S.H.S.) No. 9; Daughters of Utah Pioneers 1977:291).

Around 1900, prospectors digging for coal in the Cariboo National Forest discovered phosphate. These deposits have been analyzed as the richest and largest in the world, and are situated primarily in Bannock, Cariboo, and Bear Lake Counties. With phosphate such an important element in the maintenance of fertile, productive soil, the phosphate industry in southeastern Idaho has expanded dramatically in post World War II years (Hawley 1920:497).

The Oneida Salt Works were an important part of the early commercial development of southeastern Idaho. First noticed in 1843 by emigrants passing on the Lander Trail, the Salt Works were located about eighty-five miles east of Idaho Falls, and fifty miles northeast of Soda Springs, on the present day Idaho - Wyoming border. Emigrants passing over the Lander Trail utilized Salt Spring as a source of salt until 1866, when Benjamin Franklin White and J. H. Stump began commercial development of the spring. In 1866, 15,000 pounds of salt were produced, and by 1879 this figure had risen to nearly 2,000,000 pounds. The Oneida Salt Works operated for about thirty-five years, until transportation costs, and a diminishing salt supply brought the operation to a halt (Beal 1942:235; Daughters of Utah Pioneers 1938:109-112).

Cattle Industry

Missionaries brought the first cattle to Idaho, in order to supply themselves with milk, butter, and cheese (Kingston 1923:176); however, Idaho's earliest cattle business occurred at Fort Hall. The area afforded excellent grazing, and cattle were raised for trade with both Indians and emigrants travelling the Oregon Trail (Beal and Wells 1959 (I):422).

The 1860s Idaho gold rush created a demand for beef which could not be met by the limited local sources. The beginning of the cattle industry in Idaho was an attempt to meet this new demand (Dale 1960:74). In 1866 E. R. Hawley and his brother drove a large herd of cattle from Nebraska to the Lost River and Lemhi River valleys. With good grazing and mild weather, the herd multiplied rapidly and was sold for a handsome profit a few years later. The first Texas cattle arrived the same year under the supervision of John Q. Shirley and Charles S. Gamble, and soon thereafter the ranching era began in earnest.

By the 1870s crowding of the Great Plains caused cattlemen to eye the rich grazing lands of Idaho. In 1871, 300-400 head were driven into the Twin Falls area and did very well. In 1882 A. J. Harrell brought 4,000 head into the Goose Creek area and developed them into one of the region's largest herds. He later sold his holdings to John Sparks and John Tinnin for $950,000, thus making them the largest landowners in the state. Including Harrell's holdings, Sparks and Tinnin controlled the range bordered by Goose Creek on the west, Devil's Creek on the east, the Snake River on the north, and Nevada on the south.

The 1880s were boom years for the Idaho cattle industry. A good water supply, large quantities of good grass, and mild winters made it economical to raise large herds. In 1885 the Oregon Short Line was completed and cattle could now be shipped directly to eastern markets, eliminating the need to drive the cattle long distances to shipping points, and stimulating the industry even more (Bolino 1957: 126-128).

But, this fantastic growth was soon to come to an end. In 1886 and 1887 the Idaho Territory experienced the worst winters ever recorded for the area. Deep snows covered the grass that the cattle depended on for food, water supplies froze solid, and thousands of cattle perished. Such conditions, combined with a slump in beef prices, led to the decline and subsequent stabilization of the cattle industry in Idaho. Ranchers were now forced to maintain smaller herds, and to grow hay and other feed crops to sustain the cattle during the winter months. Overexpansion, the end of economical grass feeding, and poor markets had caught up with the cattle industry. There was however, a growing market for sheep at this time, and many ranchers sold their cattle and invested in sheep (Bolino 1957:134-135).

Development of the Sheep Industry

As with other industries, the sheep industry was late in coming to Idaho. During the 1830s and 1840s sheep, as well as cattle were brought to Idaho with missionaries and emigrants to provide food and clothing.

With the discovery of gold in California in 1849, sheep that had been selling for seventy-five cents to a dollar a head, were suddenly selling for twelve to fifteen dollars, making it economically feasible to drive them long distances to the gold fields. Established emigrant trails across Wyoming, Idaho and Nevada thus became sheep trails as well. After the discovery of gold in Idaho in the 1860s, sheep began to be raised locally to supply meat and wool to the mining communities. In 1860 a flock of sheep were driven to Franklin, Idaho from the east, resulting in the establishment of one of the first permanent flocks in the state. Also during this period, settlers began migrating to Idaho to take advantage of the Homestead Act. Australian sheepherders, miners who hadn't met with success in the goldfields, and others started gathering and tending flocks to help meet the new demand, and made a handsome profit while doing so. By 1870 the sheep industry had become fairly well established in Idaho (Bolino 1957:137).

Even though the sheep industry had expanded rapidly and had become well established, it was not without its share of problems. By the early seventies the placers were beginning to be played out and miners were leaving the territory. The Panic of 1873 caused a depression with a corresponding drop in the wool market, and in 1878 the Bannock Indian War resulted in the loss of many flocks to raiding parties. By the summer of 1878 however, the Indians had been controlled, and the economy was beginning to recover from the panic. The sheep industry bounced back rapidly from the setbacks, and permanent flocks developed in the Bear, Malad, and Raft River Valleys. Also, herds from Utah came into the Soda Springs and Preston areas, as well as to Rexburg and Sugar City. Another boost was given to the industry in 1882 and 1883 when railroads were brought to the territory, providing inexpensive transportation to the eastern markets (Wentworth 1948:286-291).

The industry continued to expand throughout the 1880s and 1890s, and many industry firsts were accomplished by Idaho sheepmen. In 1896 A. J. Knollin of Soda Springs, and Frank and Fred Gooding of Shoshone, became the first sheep ranchers to use sheds for the lambing of commercial bands (Wentworth 1948:411). The same year Frank M. Merrill and George W. Gorton put the first steam-shearing plant in the United States into operation eighteen miles north of Soda Springs (Daughters of Utah Pioneers 1958:128).

As the western sheep industry expanded, huge flocks began to be driven to eastern markets via well-established trails, many of which crossed Idaho. One such trail, the famous "middle route" out of California, led from Independence, California, down the Owens River, across Nevada via Esmeralda County, the Ralston Desert, and Humboldt Wells, then into Idaho at either Goose Creek or Raft River. From here the trail followed the Snake River east and crossed the Continental Divide between Idaho and Montana (Wentworth 1942:512). An optional route crossed Nevada, continued east into Utah, and turned north into Idaho at the Little Malad River. From here the trail went to Oneida (Arimo), the Portneuf, the Snake to Eagle Rock (Idaho Falls), the west bank of the Snake to Market Lake (Roberts), and then up the old trail to the Montana gold fields.

Sheep destined for Wyoming would leave Idaho by three routes: the Bear River, crossing the mountains north of the Bear River then on through Star Valley, or the Lander Cutoff (Wentworth 1942:529-530).

The other major trail through Idaho was used by flocks that originated in Oregon. Starting with sheep from eastern Oregon, drovers would move east picking up sheep from the Weiser, Payette, and Boise regions of Idaho, the Bruneau and Wood River areas, the Lost River and Pahsimeroi countries, and finally adding sheep from the Upper Snake and Soda Springs regions. Problems concerning the width of the trail, or frontage, were common with these drives as a result of the huge numbers of animals that were being moved. One frontage extreme occurred in the Soda Springs area, where the trail would often be as much as fifty miles wide. Because of this, great sums of money were paid to farmers and ranchers as compensation for such things as trampled fields and broken fences (Wentworth 1942:29, 517).

EARLY SETTLEMENT

The first permanent settlements in Idaho were established by Mormon pioneers, who, in keeping with church policy, went forth to foster colonization outside of the Salt Lake City area (Sudweeks 1937:137). In November of 1859 a small group of Mormons settled in the Cache Valley, and the following year this settlement became known as Franklin. Because mining was forbidden by the church, these early settlements were based on agriculture. During the decade of the 1860s many other settlements were established on the Bear River, and in the Bear Lake and Malad Valleys, transforming the region into a rich agricultural district. But even though the Mormon communities were prospering, farming as a whole developed slowly due to the facts that: (1) people paid attention to minerals first; (2) people were prejudiced against the Idaho soil and climate; (3) there was a constant threat of loss to the Indians; and (4) isolation and lack of transportation made the production of perishables very risky (Bancroft 1890:540).

When gold was discovered in Idaho and Montana, trade developed between the mining districts and the agricultural communities. Flour, butter, eggs, and grains were exchanged for gold dust, and with the demand for food growing at a tremendous pace, the Mormon communities flourished. By 1880, Cassia, Bear Lake, and Oneida Counties contained principal agricultural settlements. Through cooperation, the 4,000 inhabitants of the Bear Lake Valley grew large crops of wheat, oats, and barley. The Paris Cooperative Institute was formed in 1874, assuring economic success and stability, and helping to make the valley extremely fertile by 1885 (Bolino 1957: 97-101).

The upper Snake River Valley was another region which developed rapidly at this time. The first whites to settle the area were Hiram C. Lapham and his family in 1882, with the majority of settlers coming from the Salt Lake City area after 1887. It was in 1887 that a group of Mormons travelled to the Teton Valley in search of good grazing lands. Finding abundant grass and water they returned to Salt Lake City and advertised their discovery. Shortly thereafter wagons headed for the Teton Valley, and it wasn't long before the best farmlands were claimed (Driggs 1926:129).

Settlement of the Raft River-Goose Creek area was preceded by the Pony Express and the stage lines, which were established between Brigham City and Boise in the early 1860s. In later years permanent agricultural settlements were established by Mormon pioneers in the same manner as those of the Bear Lake and Malad River Valleys (Sudweeks 1937:148).

Irrigation and Agriculture

The greatest single factor in the agricultural growth of Idaho is the development of irrigation. When the first Mormon settlers arrived in Idaho they discovered that there was insufficient rainfall to grow crops without irrigating. Before irrigation, the Magic Valley region was essentially void of human inhabitants. Irrigation, however, changed all of this. When people saw previously arid, desert land, bloom with the addition of water, they flocked to Idaho to settle and farm (Beal and Wells 1959 (II):155).

Credit for the development of irrigation in America belongs to the Mormons, who, in 1847, diverted the water from City Creek, in Salt Lake City, into a ditch and out onto a parcel of land. The process was perfected and later used by Mormon pioneers to aid in the establishment of settlements in previously uninhabitable regions (Beal and Wells 1959 (II):119).

When pioneers arrived to settle Franklin, Idaho in 1859, one of the first things they did, after building houses and corrals, was to construct irrigation ditches. The first ditch was surveyed by William Nelson and James Packer, and brought water to the fort from Spring Creek. Other canals were later built from High Creek to "South Field", and from Oxkiller and South Canyon. Water from these canals was used to irrigate the first crops and resulted in abundant yields (Daughters of Utah Pioneers 1930:20).

Subsequent settlements put the principles of irrigation to good use. In 1863 Charles C. Rich began reclaiming land in the Bear Lake Valley, and in 1864 a group of men began farming the Malad Valley utilizing irrigation techniques. Preston housed the first canal company in 1871; the Cub River and Worm Creek Canal Company built a canal fifteen miles long which watered 15,000 acres (Beal and Wells 1959 (II):120).

After 1879, canal building boomed in the Snake River Valley. Canals were named after the builder, the water source, or the area in which they were built. Examples include Stewart, Smith, Long Island, Eagle Rock, Willow Creek, and Anderson Brothers. By 1885 28 canals had been started, and by 1906 264 canals had been constructed.

Pioneer irrigation was a cooperative undertaking, as communities found it to their advantage to work together for the furthering of their enterprises (Lewis 1924:30). When the first families settled in a community it was fairly easy to get water because they settled close to the water source. But, as other families arrived, and the community became more spread out, only cooperative efforts would suffice for bringing water to the more distant lands. In the Snake River Fork area for example, a group of homesteaders settled in the 1880s and were soon busy digging a ditch to carry water to their fields. Finding the initial flow insufficient to support all of their crops, they widened the ditch. As other families moved in they continued to widen the ditch until it became the Reid Canal (Beal and Wells 1959 (II):125). This pattern repeated itself all along the Snake River frontier.

In later years smaller canals were combined for more efficient operation. The Teton Island Feeder Canal was a consolidation of ten smaller canals, and the Great Feeder Dam was the result of a joint effort by many small companies. Construction of the Great Feeder Dam began in the Fall of 1894. When completed in June 1895 it represented the largest single irrigation project in the world, and was built and owned by the people (Carter 1955:177). With the exception of the Oakley area on Goose Creek, and the Raft River canal systems which were built by Mormon pioneers, irrigation projects south of Pocatello were mainly sponsored by large companies.

The earliest pioneer canals were built using hand plows, slip scrapes, and shovels; consequently some of the larger canals took long periods of time to build. As the demand for irrigation grew, and projects became larger and larger, machines such as the Godevil and Elevator were employed in canal building. The Godevil was a large V-shaped ditcher, similar to a snow plow, that was pulled by as many as 32 teams of horses. The Elevator, also pulled by horses, plowed, and then elevated the dirt on a revolving belt, making the job cleaner and faster (Carter 1955:9).

The agricultural industry in Idaho grew rapidly until brought to a halt by the Depression of 1893. The West was just beginning to recover when passage of the Carey Act in 1894, and the Reclamation Act in 1902, brought about what many believe to be the most important period in the history of irrigation. These two acts provided for the federal funding of projects that were far too costly to be undertaken by state or private institutions (Lewis 1924:61).

The Carey Act, provided each western state with one million acres of land from the federal government. In return, each state was supposed to induce private construction of irrigation works, set prices charged by the companies for the water and land, and supervise the projects. The first Carey Act project in Idaho was proposed by the American Falls Canal and Power Company in 1896. The result of the project was the construction of the 70 mile long Springfield-Aberdeen canal, which brought 80,000 acres west of the Moreland-Thomas district under irrigation. In 1898 the Marysville Canal Company proposed a project to irrigate 6,500 acres in Fremont County. By 1906 their canal was serving an thirteen-mile long, five mile wide, area in the vicinity of Ashton.

In 1907 the Portneuf Marsh Valley Irrigation Company began a project to reclaim 20,000 acres of land near Downey. A reservoir was built near Chesterfield to capture the waters of the Portneuf, and in 1908 the land was opened to entry.

The most successful project undertaken was the South Side Twin Falls, sponsored by the Twin Falls Land and Water Company in 1898. Ira B. Perrine convinced a group of financiers of the feasibility of irrigating thousands of acres of land south of Twin Falls, and acquired the acreage under the terms of the Carey Act. In 1900 Mr. Perrine paid a two dollar fee on a claim for all of the water in the Snake River, and by 1909, through the use of many different promotional procedures, had sold 202,000 acres of land, with a gross income of $5,055,000 (Beal and Wells 1959 (V. II):137-145; Lewis 1924:62-72).

In 1902, Senator Newlands of Nevada introduced a bill in Congress, which called for the federal government to undertake reclamation projects on arid and semi-arid public lands in the West. On June 17, 1902 the Reclamation Act was signed by President Roosevelt, and the gears were set in motion. Through the building of dams and reservoirs and the diversion of this water, the government planned to irrigate the largest possible area at the least possible cost to settlers and landowners for construction, maintenance, and operation. The Reclamation Act was designed with settlement as well as reclamation in mind, and small parcels of public lands were opened to entry under the homestead laws (Lewis 1924:89).

The Reclamation Act benefitted Idaho greatly. The many projects carried out resulted in the opening of thousands of acres of land for settlement. Examples of reclamation projects built in Idaho are: the Minidoka Project which created the Lake Walcott Reservoir; the American Falls Project with the American Falls Reservoir; the Milner-Gooding Canal system; the Fort Hall Irrigation Project; and the Palisades Project. These projects played an important role in the development of southeastern and southern Idaho.

Railroads

Prior to the construction of railroads in southeastern Idaho, the residents of the region were, for the most part, "out in the cold." With gold discoveries in Idaho and Montana, and the development of a thriving freighting business in the 1860s, people became interested in a railroad that would connect them to other communities.

With freighting business on the rise and the sale of goods to miners in the north increasing, the people of the Cache Valley felt that there could never be a better time to build a railroad. So in the summer of 1871, William B. Preston of Logan proposed to Brigham Young the addition of a northern section of track to those already operated by the church. Brigham agreed with Preston's proposal, encouraging the church leaders of northern Utah to go ahead with the project, and directing his son, John W. Young, to initiate the enterprise.

Backing was soon obtained from eastern sources, but Preston was skeptical, writing the following to Brigham Young:

> Will it be wisdom for us in Cache country to grade and tie a railroad from Ogden to Soda Springs, with a view to Eastern capitalists ironing and stocking it? The people feel considerably spirited in taking stock to grade and tie, expecting to have a prominent voice in the control of it; but to let foreign capitalists iron and stock it will, if my judgement is correct, give them control (Beal 1962:7).

Brigham Young reassured Preston with the following telegram:

> The foreign capitalists in this enterprise do not seek control; that is understood. What they want, and what we want, is to push this road with all possible speed, if you decide to have one, so that it shall run through and benefit your settlements and reach Soda Springs as soon as possible (Beal 1962:7).

With their minds at ease, the leaders organized the Utah Northern Railway Company on August 23, 1871. The plan was to branch off the Central Pacific tracks at Three Mile Creek, four miles south of Brigham City, build to Logan and Franklin, then head northeast to Soda Springs. Church members living along the right of way were asked to do the grading and supply the ties in return for stock. Narrow gauge was chosen because the cost of standard gauge was prohibitive without a land grant and government aid. Narrow gauge had also proven itself in other mountainous regions, where its 220-foot minimum radius of curvature fit mountain and canyon contours better than the 955 foot radius of the standard gauge.

Construction was launched at Brigham City on August 26, 1871, and by May of 1872, Willard and Brigham City had been connected. With William B. Preston as the principal contractor the tracks reached Logan on January 31, 1873, and Franklin, Idaho on May 2, 1874. The grade was extended 14 miles northeast of Franklin before the panic of 1873 brought construction work to a halt (Beal 1972). Construction ceased for two years, during which time the railroad was sold to Jay Gould. When construction was resumed it was decided that the original route was not feasible, so the route was changed to go through Marsh and Portneuf Valleys, never making use of the 14 miles of grade that had been built past Franklin towards Soda Springs (Bolino 1957:174).

In April of 1878 the company was refinanced and reorganized under the name of the Utah and Northern. Survey work on a new route was completed and work was resumed. Washington Dunn was now the general superintendent, and had "mail order houses" built in the East and shipped west, ready to be bolted together. The Lewis House and the Corrinne House were two examples of this type of building. Others were busy establishing saw mills and logging camps to supply ties, and construction stations were built as the work progressed. As each new construction station was built, it quickly flourished into a small town due to its status as the terminus of the railroad at the time. Battle Creek, Dunnville, Oxford, Oneida, Black Rock, Tyghee, Gibson Jack, and other communities along the line developed in this manner.

When the railroad reached Pocatello work was halted once more. The Indians were upset because the railroad was trespassing on reservation land, so work was stopped during negotiations with the Indians. The Indians finally decided to grant the railroad a two hundred foot right of way in return for five hundred cattle and the promise of free rides on the "iron horse".

When work recommenced, rapid progress was made. The tracks reached Blackfoot by Christmas of 1878. In the Spring the railroad forged ahead with all possible speed. Eagle Rock (Idaho Falls) was reached by April, and tracks were soon extended to Market Lake and Dry Creek, with Beaver Canyon (Spencer) being reached by September of 1879. The following spring the tracks were as far as Humphrey, Idaho, and on May 9, 1880 they reached the summit of the Rocky Mountains, and the Montana border (Bilger 1969:1-10).

The Utah and Northern remained a narrow gauge railroad until 1887. A device called a "ramsey" was used at McCammon to transfer cars from standard gauge to narrow gauge and vice versa. On the morning of July 24, 1887, work began on changing the Utah and Northern rails from narrow to standard gauge, and by the end of that same day, all 262 miles of track, from Pocatello to Garrison, had been switched over (Bilger 1969:16).

The Utah and Northern was the first railroad to serve southeastern Idaho, and its impact was tremendous. In addition to fostering new business, the railroad served as an agent of colonization. Ranchers enlarged their herds, stockyards and warehouses were built, county seats were established on the line, and staging and freighting operations were enlarged.

In December of 1862, Mormon leaders urged their followers to colonize the Snake River Country. Many people boarded the train and came to Idaho to settle, spurred by ample opportunities and transportation (Beal 1962:117-132).

In 1881 the Oregon Short Line Railway Company was established as a subsidiary to the Union Pacific Railroad. Its purpose was to build and operate a rail line from the main overland route, across Idaho, and into Oregon. This route was designed to capitalize on the expanding Northwest trade, as well as secure trade with the Asiatic countries (Bolino 1957:177). Work began in Granger, Wyoming, and paralleled the Oregon Trail. The railroad reached Montpelier, Idaho in June of 1882, followed the Oregon Trail to Soda Springs, and the Portneuf River to Pocatello. The section between McCammon and Pocatello had three rails, because the standard gauge Oregon Short Line shared the same tracks with the narrow gauge Utah and Northern. The railroad was completed as far as Shoshone by March of 1883, and had reached the Idaho-Oregon border by 1884 (Bilger 1969:14-15).

Several other small railroads were built in Idaho by private interests. In some cases capital was provided by the Oregon Short Line. The lines mentioned below are those that were built and operated in southeastern Idaho, contributing greatly to the development of outlying areas.

The Malad Valley Railroad Company was incorporated in 1902, and built a line from Corinne, Utah to Malad City, Idaho. Work was begun in 1903 and completed in 1905, providing Malad Valley farmers with an outlet to the Utah markets. It was operated under lease by the Oregon Short Line (O.S.L.), until purchased by the O.S.L. in 1910 (Beal and Wells 1959 (I):531; Bilger 1969:20).

When the Federal government released its plans for the Minidoka Reclamation Project, planning began immediately for the development of a railroad to serve the impacted area. The Minodoka and Southwestern Railroad Company was incorporated in January of 1904, with plans for lines from Minidoka to Buhl, Rupert to Bliss, Burley to Oakley, and Twin Falls to Rogerson. The line from Minidoka to Buhl was started in 1904 and completed in 1907. The Twin Falls to Rogerson section was begun in April of 1909 and finished in the spring of 1910. The Rupert to Bliss branch, and the Burley to Oakley branch were started and completed in 1910, with the finishing touches being done by O.S.L. crews (Beal and Wells 1959 (I):532; Bilger 1969:20).

The Salt Lake and Idaho Railroad Company was incorporated in 1909 with plans to build a line from Burley, Idaho to Kelton, Utah. The line was started at Burley in May of 1911, and was completed as far as Declo by the fall of 1912. Plans for the Declo to Kelton section were abandoned. The Burley to Declo line was managed by the Oregon Short Line under lease until August of 1914, at which time the line was purchased by the O.S.L. (Beal and Wells 1959(I): 533).

This company was incorporated on May 11, 1899, with the main objective being the extension of a 39 mile main line from Idaho Falls to St. Anthony. Construction began in July of 1899, and the line was completed in the spring of 1900 (Beal and Wells 1959 (I):533).

In 1905, citizens in the St. Anthony area, and stockholders in the St. Anthony Railroad Company, decided to build one line from St. Anthony to the West entrance of Yellowstone National Park, and another from Ashton to Driggs. The park line was begun in October of 1905 and finished by the fall of 1909. Those sections finished by July of 1906 were leased to the Oregon Shore Line, with subsequent sections being leased as they were completed (Beal and Wells 1959 (I): 534).

The sudden growth of mining towns in Idaho and Montana resulted in a surge of freighting activities along the trade routes to the mines, with the era of large scale freighting occurring between 1864 and 1884. The principal freight routes in southeast Idaho were the Montana Road, which ran from Corinne, Utah to the mining districts of western Montana, and the Kelton Road, which ran from Kelton, Utah to Boise, Idaho. The Montana Road was heavily travelled, with approximately one thousand freighters hauling between Franklin, Idaho and the Montana mines in 1873. The Kelton Road was originally established as a stage road by John Hailey, but soon became the main shipping route between Boise and the Central Pacific terminal at Kelton. Kelton was replaced as the main distribution point when the O.S.L. reached Shoshone in February of 1883. By March of 1883 all traffic previously running out of Kelton had been transferred to the new O.S.L. terminal in Shoshone.

These roads were generally poor; even in sections where charters had been granted to toll operators for the upkeep of the road, improvements were minimal. A large section of the Montana Road in Idaho was controlled by the Murphy-Harkness and Taylor-Anderson charters. Toll was charged for improvements in McCammon and Portneuf Canyons and along the section from Eagle Rock to Pleasant Valley. It cost an average freighter $17.00 to pass through these sections. The rate varied depending on the size of the team, based on the following schedule:

> McCammon - $6.00 for a twelve animal team
> Blackfoot - $2.00
> Eagle Rock - $6.00
> Beaver Canyon - $6.00
> (Beal and Wells 1959 (I):404).

After the completion of railroads, freighting declined rapidly. In those regions not served by the railroads, freighting continued as a basic means of transporting goods and supplies until the advent of the automotive age (Bolino 1957:58-63; Beal 1942:271-281).

<u>The Stage Coach</u>

Before railroads took over, the bulk of passenger transportation, stages were the principal carriers of westward-bound passengers and mails. Carrying the mail was a lucrative business, and was pursued as a private enterprise before government contracts were awarded.

The first transportation company to operate in southeast Idaho was that of Oliver and Conover, with service between Salt Lake City and the Bannock region of Montana beginning in 1863. Oliver and Conover put the first Concord stage into service on the Montana Road in the fall of 1863 (Daughters of Utah Pioneers 1958:138). Ben Holladay purchased the Oliver and Conover line in 1864 and quickly established himself as the transportation leader in the region. The same year, Holladay received a government contract to provide mail service between Salt Lake City and Walla Walla. From Salt Lake City, the lines to Boise and Virginia City ran over the same route as far as Bear River Junction. At Bear River Junction the road forked, with the road to Montana going north through Fort Hall, and the Oregon route veering northwest through Malad and Boise (Hafen 1969:280).

The most prominent stations on the Salt Lake City to Boise route were:

Salt Lake City	Rock Creek
Ogden	Malad Station
Bear River	Mountain Home
Curly Station	Boise City
City of Rocks Station	

Stations located along the Montana Trail in Idaho include:

Malad	Big Bend
Devil Creek	Market Lake
Mosquito Springs	Sand Holes
Carpenters	Hole in the Rock
Harkness "Robbers Roost"	Camas
Blackrock	China Point
Pocatello Creek	Beaver Canyon
Blackfoot	Pleasant Valley
Corbett	Burnt Station
Eagle Rock	Cedar Point

Holladay sold his business to the Wells Fargo Express Company in 1866, who, in turn, sold to Gilmore and Salisbury. The latter company maintained regular service until the Utah and Northern was completed in 1881. John Hailey operated a major line between Kelton, Utah and Boise, Idaho over the Kelton Road. His stages operated for many years, providing service into the 1880s.

To complement the larger, major lines, many smaller ones provided service to communities away from the main lines. Alexander Toponce started a branch line from Blackfoot to Arco, Challis, and Bellevue in 1879, with stations at Danilson Springs, Big Butte, Arco, Andersons Pass Creek, Battleground, Willow Creek, Long Pine, and Antelope Springs. The Oxford-City-Iowa Bar stage line operated from 1878 to 1884, carrying passengers from Oxford, the railroad terminus, to Iowa Bar, in the Caribou mining district, and the Malad and Samaria mail and stage line made several trips each week between Malad and Samaria (Beal 1942:274; Daughters of Utah Pioneers 1958: 140; Howell 1960:95).

<u>The Pony Express</u>

When mention is made of the Pony Express, most people envision brave young men riding at full speed, carrying the mail between St. Joseph, Missouri, and Sacramento, California on the route established in 1861 by the firm of Russell, Majors, and Waddell. There were, however, routes operated by other companies, one of which was located in Idaho.

The same year that Russell, Majors, and Waddell initiated their famous service, Ben Holladay organized a Pony Express line in Idaho to capitalize on mail service to the western Idaho gold fields. The route started at Brigham City, Utah, entered Idaho at Raft River, then continued across to Goose Creek and the Old Rock Creek Station. From Rock Creek Station the riders continued west, crossing the Snake River at Three Islands Crossing, then branching off on trails which led to the various mining camps. Holladay operated the line as a private enterprise without benefit of a government contract, and even though his rates were high (fifty cents to one dollar per letter) he could not make a profit. The service stopped after two years of operation (Beal and Wells 1959 (I):397).

Telegraph Lines

The first telegraph line to run across Idaho was completed in 1860, and connected Virginia City, Montana to Salt Lake City. A few years later, the Mormons built a line, and formed the Deseret Telegraph Company. The line had been extended from Logan, Utah to Franklin, Idaho by December of 1869, and was completed to Paris, Idaho, the northern terminus, by 1871. The Mormons operated the line until 1900, when it was sold to the Western Telegraph Company. The Deseret Telegraph was unique, in that it was the only major line ever built, and operated, as a public enterprise (Arrington 1951; Daughters of the Utah Pioneers 1930:35).

River Ferries

As wagon trains began to enter Idaho and traverse the state on the major emigrant trails, it was soon discovered that as dry as the land was, there were many streams and rivers that needed to be crossed. The shallower waters with sound bottoms could normally be forded; however, larger and deeper waters were a different story.

On rivers that couldn't be safely forded, ferry boats were constructed to haul people and goods across. The ferry was usually a wooden platform 20 to 30 feet square and two to three feet deep. A railing was built around the platform to prevent the loss of property and life, and dropping gates were installed at each end to allow loading and unloading. The ferry was powered by the current of the river. To accomplish this, tall pilings were placed on each side of the river with a heavy cable stretched between them. The ferry was then hooked to the cable with an iron bar, one end of which was attached to the cable, while the other end was fastened to the platform. When the operator wanted to cross, he pushed off and headed the boat upstream. The force of the current would attempt to turn the boat downstream, but since the platform was attached to the cable, the effect was to move the boat across the river (Bolino 1957:165-166).

An act passed by the First Idaho Territorial Legislature gave private individuals the authority to build and operate toll roads, bridges, and ferries, thus helping to stimulate the construction of ferries in early territorial days. Some of the more prominent ferries in southeastern Idaho include: Meeks Ferry at Ferry Butte, ten miles below the present day town of Blackfoot; Gibson Ferry at the mouth of the Blackfoot River; the Eagle Rock Ferry across the Snake River, a few miles above Idaho Falls; and the ferry at Bridgeport on the Bear River, about two and one-half miles northwest of Preston. Prominent ferries in the Magic Valley region include: Payne's Ferry in Hagerman Valley; Montgomery's Ferry and Starrah's Ferry, to the east and west of Burley; and the Perrine's Blue Lakes and Shoshone Falls ferries.

As bridges were built, the number of ferries operating in the state began to drop. Ferries could not compete with bridges, although some ferries continued to operate well into the twentieth century. The Shoshone Ferry, for instance, operated until 1937, when the Perrine Memorial Bridge became toll free (Beal and Wells 1959 (II):159).

<u>Bridges</u>

Bridges contributed much to the development of Idaho by facilitating traffic, shortening routes and aiding in the opening of new regions.

A franchise to build a bridge over the Snake River was granted to a group of men by the Second Territorial

Legislature in 1864. The Oneida Road Bridge and Ferry Company chose a site at Black Rock Canyon, and construction began in 1866. Timber for the bridge was hauled 80 miles from Beaver Canyon, and iron was salvaged both from old freight wagons and from a steamboat wreck on the Missouri River near Great Falls, Montana. The bridge was completed in 1867 but was washed away by high water the first spring. It was rebuilt in 1869 and, when opened, replaced the Eagle Rock ferry (Bolino 1957:167).

The first bridge across the Bear River was completed in May of 1869, replacing the ferry that had been operating at Bridgeport. The new toll bridge was named the "Packer Bridge", after the man who had been in charge of the ferry, Nathan Packer (Daughters of the Utah Pioneers 1930:50).

A bridge across the Malad River was built in the early 1860s, 15 miles north of the junction with the Bear River. It was operated by Joseph Young Senior as a toll bridge, under authority granted by the Legislative Assembly of the Utah Territory (Howell 1960:93).

An important factor in linking the north and south sides of the Magic Valley was the construction of the Perrine Memorial Bridge near Twin Falls. Work on this bridge was started in 1926 and completed in 1927; spanning the 1400 foot wide chasm of the Snake River was considered to be a great feat of engineering. The bridge is a cantilever network of steel towers rising 502 feet above the river, containing 29,000 tons of structural steel and 3,000 barrels of concrete. It was opened with great celebration in 1927.

Other bridges connecting the Magic Valley are the Hanson Suspension Bridge, and the Snake River Bridge east of Burley (Beal and Wells 1959 (II):157).

Industrial and Commercial Development

The beginnings of manufacturing in Idaho were similar to that of most frontier areas. Raw materials were lacking, transportation was poor, there were no developed power sources, and technical efficiency was low. The first manufactured goods were produced in the home, later moving to mills that were powered by water. Production was limited to personal necessities or for distribution in a local market (Bolino 1957:204).

The early development of southeastern Idaho required cooperation of the highest degree from the pioneers. For this reason early manufacturing was dominated by Mormon cooperatives. Their point of view was expressed by the founder of Bear Lake County, Charles C. Rich, when he said:

> I cannot say much in favor of stores, although it is necessary that we have such institutions. The grand object before us is to make what we need, and dispense with outside importations as much as possible. We must not be content to buy and sell what we get abroad; we want to establish a factory and make our own clothing. We don't want our wool to go abroad and be manufactured for us; we must make the necessary preparations to make it up ourselves
> (Beal 1942:359).

The first cooperatives were established in St. Charles, Paris, and Montpelier in 1874, and expanded to become important manufacturing institutions.

Because of the importance of bread as a food source, flour mills were usually one of the first industries to develop once a community had been settled. For the first few years the pioneers used coffee mills to grind wheat, but finally, in 1863, James Howarth, John Goasland, L. H. Hatch, and

Alexander Stalker Sr., built the first gristmill in Idaho. It was located at Franklin and was wholly constructed of wood, with the exception of the turbine well and the grindstone. This mill operated for 18 years before being succeeded by the John Mack mill. By 1865 there were three grist mills in Bear Lake and one in Malad, and by 1885 Oneida City had become the flour capital of southeast Idaho with six grist mills.

The clothing industry came out of the home and into the factory in 1878, when Edmund Buckley built the first woolen manufacturing company. The North Star Woolen Mill was built northeast of Franklin, and produced flannel, jeans, linsey, and woolen goods.

With leather constituting a great part of pioneer clothing and tack, it seemed logical to build a tannery to supply these items. The first tannery in the area was constructed in Paris, Idaho in 1871 by D. P. Kimball and H. Duffin, and by 1872 was producing 2,870 pairs of boots and shoes, and 900 pieces of leather yearly.

The dairy industry has also played a major role in the development of southeastern Idaho. A cooperative dairy was started in Paris in 1874, and by 1876 was producing more than a quarter of a million pounds of cheese yearly; six creameries existed by 1883. In 1898 a creamery was established in Franklin by the Oneida Mercantile Union. It was later purchased by the Utah Condensed Milk Company which operated the creamery until operations were moved to Richmond, Utah in 1922 (Beal 1942:354-359).

The settlement of a community usually necessitated the establishment of businesses such as general stores, saddle and harness shops, blacksmiths, hardware stores, and hotels. A good example of this is the town of Malad, where by 1882, there were two hotels, six stores supplying dry goods, two blacksmith shops, and two saloons and billiard halls (Howell 1960:100). Two of the earliest stores established in this area were James Bacon's on Rock Creek, and Robert and I. C. Anderson's at Eagle Rock, both being started in 1865. Other pioneer stores were Dennis Wilson's at Preston, A. M. Hobson's in Marsh Valley, Henry Peck's in Malad, and Theodore Danielson's at American Falls (Beal 1942:360).

Lumbering Development

The lumber industry in southeast Idaho never developed to the extent that it did in the north, simply because the timber resources of the south were not so great as those of the north. Still, the lumber industry contributed greatly to the development of southeastern Idaho.

As communities were established, the initial demand for lumber was met on the local level by the use of primitive style pit saws. This method of production was quite simple: a pit was dug, a log was rolled over the pit, one man stood at the bottom of the pit, one man stood at the top, and together they pulled a saw up and down, working their way slowly through the length of the log. This method had been used in America since Colonial times, but was first put to use in this area by Joshua Meservy of Franklin in 1861 (Daughters of the Utah Pioneers 1930:28).

As communities grew, so did the demand for lumber. Lumber was needed for homes, public buildings, factories, mining, and agriculture. Because the antiquated method of pit sawing could not keep up with the great demand, a more modern type of water powered sawmill was introduced. The first of this type in southeastern Idaho was built by Samuel R. Parkinson and Thomas Smart in 1863 in Franklin. In 1864 a mill was built on the Cub River, and in 1866 a mill was constructed in Paris Canyon, about three miles above the settlement.

In 1871 Brigham Young purchased a steam sawmill and had it shipped up the Missouri River to Fort Benton, Montana. Flavious Green picked the machinery up at Fort Benton and hauled it overland to Franklin, where he set it up in Maple Creek Canyon. In 1872 the mill was moved to Soda Springs where it operated for a few years before being brought back to Franklin. By 1883 there were approximately 30 sawmills operating in southeastern Idaho, many of which had been built along the route of the railroad to supply ties, timbers, and boards (Beal 1942:353-354; Sudweeks 1937: 143-145).

OVERLAND MIGRATIONS

Interest in migration to the Oregon Country was kindled in 1813, when the "Returning Astorians" arrived in St. Louis after a ten month journey from Fort Astoria on the Columbia. Newspapers printed the story of the trip, and announced that the party had discovered a route across Nebraska, Wyoming, Idaho, and Oregon that could be crossed by wagons. This route later became known as the Oregon Trail, its early use as an emigrant trail, however, was slight. Trappers and fur traders on horseback first travelled the route but not until 1832 did Captain Bonneville take the first wagons across the trail. In 1834 Nathaniel Wyeth came cross country for the second time, and with him on this trip were two missionaries named Marcus Whitman and Samuel Parker. After the missionaries arrived in Oregon, Whitman returned to the East to get his and Parker's wives. In 1836 the group returned to Oregon, proving to the American people that it was possible to safely move a family to Oregon.

In the years following, the missionaries actively recruited people to settle in Oregon. Response to the missionaries' advertising was minimal in 1838, but by 1842 organized colonization was well on its way. By the years 1843-1844, "Oregon fever" had become widespread, and people started migrating to the West "en masse".

The major trail used by emigrants headed for the Northwest was the Oregon Trail, which began in Independence, Missouri and snaked its way 2000 miles to the Pacific coast. When the trail reached Idaho the emigrants either chose to continue toward Oregon on the Oregon Trail, via Fort Hall and Fort Boise or to branch off on to the California Trail at Soda Springs, Fort Hall, or Raft River.

With the discovery of gold in California in 1848, use of the main emigrant trails increased sharply, and other trails developed as shortcuts or connecting trails. The Hudspeth's Cutoff developed as a shortcut, while the Salt Lake - Oregon Trail Connection, and the Salt Lake - California Trail Connection opened up as connecting trails for traffic from the Salt Lake City area.

Despite the fact that huge numbers of emigrants were passing through Idaho in the two decades between 1840 and 1860, none of them stayed to settle. The threat of Indians, and the dry, unproductive-looking desert lands, had no appeal whatsoever to emigrants who had the lush, green valleys of Oregon, or the glitter of California gold on their minds. This is exemplified by one traveller, who, while crossing the Snake River Plain,stated:

> Thus far, in our journey, we had seen a good bit of country called Oregon, but as yet we had seen nothing, not even the smallest district of country, that we thought would ever be inhabited by white people (Brown 1932:228).

Not until the discovery of gold in Idaho in 1860, combined with the later development of irrigation and agriculture, did people begin to settle in Idaho (Beal and Wells 1959; Beal 1942; Brown 1932).

The Oregon Trail

After travelling nearly 1200 miles from Independence, emigrants on the Oregon Trail entered for the first time the region that is now the State of Idaho.

The trail entered Idaho near the present town of Border, Wyoming, followed the Bear River to Montpelier, then went north to Soda Springs. At this point the Bear River makes a sharp turn to the south, and the trail forked; the trail to California continued south along the river, and the route to Oregon, northwest. After leaving Soda Springs, the trail crossed the mountains near Mt. Putnam, then continued westward across a stretch of sand to Fort Hall. The fort was a welcome sight to the emigrants, as it was a place where they could rest, repair their equipment, and purchase supplies, if any were available.

From Fort Hall the trail crossed the Portneuf near its confluence with the Snake, continued along the south bank of the Snake to American Falls, through Massacre Rocks, and then on to Raft River. At Raft River a trail branched off to California, and was taken by those emigrants headed for California who hadn't turned off at Soda Springs.

After fording the Raft River the trail continued in a westerly direction, crossing the Raft River Plain, then coming near the Snake River in the area of present day Burley. This dry volcanic terrain, virtually devoid of grass and water, proved one of the most difficult sections of the trail. Conditions on this section were summed up by a Major Cross when he recorded:

> Every days journey brings us into a worse country, if not for ourselves, certainly for our teams. Many of our mules were carried into the canon last night; the balance were driven down, early this morning, after much trouble, to get water. As we had to travel sixteen miles today before either grass or water could be obtained, over an uneven country, or encamp where we would have to fare worse than last night, our march was commenced as early as the state of things would permit; but the whole train did not get off until 10 o'clock, as we had trouble in collecting the mules this morning, and still greater to get them out of the canon, many of them being unable to ascend the bluff, and therefore were abandoned (Brown 1932:223).

After leaving the Burley area, the trail went through the Twin Falls and Filer regions, then continued on to Buhl, where it moved into the hills before coming out at the Snake River near Glenns Ferry. Emigrants crossed the Snake River at Three Island Crossing, then continued their journey west to Fort Boise and the Oregon Country (Brown 1932; Bureau of Land Management, Department of the Interior 1976).

The California Trail

In 1841, an emigrant party en route to Oregon, left the Oregon Trail at Soda Springs and headed to California via the Great Salt Lake. They eventually reached California via this route, but were forced to abandon their wagons to do so.

In 1843, Joseph Chiles, a member of the 1841 party, returned to the area to try to find a better route. This time, instead of leaving the Oregon Trail at Soda Springs, he continued on to Raft River before turning south. He then followed Raft River upstream, passed through the City of Rocks, crossed the Goose Creek Range to Goose Creek, and finally turned south again, leaving Idaho. This route proved to be practical, and later became the route used by emigrants on the Oregon Trail who wished to go to California (Bureau of Land Management, Department of the Interior 1976; Stewart 1962).

Cutoffs

By 1849 traffic on the Oregon Trail had increased dramatically due to the discovery of gold in California. Campgrounds became crowded, and grass for grazing animals was in short supply. Tiring of these conditions, two Missourians, Benoni M. Hudspeth and John J. Meyers, decided that leaving the main trail might provide better grass and relief from the crowds.

On July 19, 1849, near Soda Springs, Hudspeth left the main trail and led his group of Missourians directly west. With Meyers scouting ahead, they forged on, breaking trail through the sagebrush and lava rock as they went. Evidence suggests that Meyers didn't know where he was going, but pushed on, continually heading west. With lady luck on his side Meyers found a route through the mountains, and on July 24 rejoined the main road, approximately 70 miles from Fort Hall, and 25 miles from the intersection of the Salt Lake Cutoff. Other emigrants heading for California began using the trail immediately, and it was soon well established and well worn. Whether or not the route was actually shorter remains a point of debate, though some believe that "the cutoff" was no cutoff at all (Bureau of Land Management, Department of the Interior 1976; Stewart 1962).

There were two main Salt Lake Cutoffs used by the emigrants, the Salt Lake to California Trail, and the Salt Lake to Oregon Trail.

The Salt Lake to Oregon Trail Connection was not used much, and as a consequence, little is known about it. The trail entered Idaho from the south near Strevell and continued northwesterly through Malta and Albion. It then joined the Rock Creek Road and followed it until joining the Oregon Trail at Rock Creek.

The Salt Lake to California Trail Connection differs from most of the emigrant trails in that it was opened from the west rather than from the east. In 1848, the Mormon Battalion was returning east to Salt Lake City from California, via the California Trail, when they were met by Samuel J. Hensley, who was travelling west from Salt Lake City. Hensley told the Battalion about a trail that ran north of the Great Salt Lake, connecting with the California Trail near the City of Rocks, which would considerably shorten their trip by passing south of Fort Hall. The members of the Battalion thought this a good idea, and upon arrival at the Twin Sisters, continued eastward through Emigration Canyon, across the Upper Raft River Valley, through the Narrows, then southeast to the Raft River Mountains. The route was later used by west-bound travellers who wished to visit Salt Lake City while avoiding the southwest desert (Bureau of Land Management, Department of the Interior 1976).

Lander's Cutoff was not actually a trail blazed by emigrants in an attempt to discover a shorter route to the West, but a road that was surveyed and built by the Federal government to improve the transportation system in the Northwest. The Fort Kearney, South Pass, and Honey Lake Wagon

Road was originally surveyed in 1857 by Frederick West Lander, a Department of the Interior engineer. When completed, the road entered Idaho in southeastern Caribou County, headed west towards Gray's Lake and the Blackfoot River, and joined the Oregon Trail along Ross Fork Creek (National Forest Service 1966).

First used by emigrants in 1862, Goodale's Cutoff branched from the Oregon Trail near Fort Hall, crossed the Snake River Plain to Lost River, then continued west, re-joining the main trail just east of Boise (Idaho State Historical Society, Reference Series No. 51).

MILITARY AND GOVERNMENT - INDIAN AFFAIRS

Indian Wars and Campaigns

As mentioned earlier, problems between whites and the Indian tribes of Idaho were minimal prior to the large-scale white migration in the 1860s. In the 1840s and 1850s, military posts were established along the major trails to protect emigrants from the raiding Indians. Most of the actions that took place, however, were minor skirmishes between U.S. troops and small bands of renegade Indians. The major battles of southeastern Idaho occurred at Bear River in 1863, and at Camas Meadows in 1867. The Bannock War of 1878 resulted from discontent at Fort Hall, but the campaign against the Bannocks took place in other parts of the state.

By 1863, a number of Indian depredations in the Bear River area had occurred, and the guilty parties had received warrants from the California Volunteers at Fort Douglas, Utah Territory. However, in January of 1863, raids against freighters and settlers increased, and many whites were killed by the Shoshoni bands who wintered in the valley. Due to this increased activity, warrants were issued for the arrests of the Shoshoni chiefs, Bear Hunter, Sagwitch, and Sandpitch, and Colonel Conner and the California Volunteers made preparations for an expedition against the Indians with no intention of taking them prisoner.

On January 22, 1863, a company of infantry left Fort Douglas for Franklin, Idaho, followed three days later by the Second California Cavalry. Even as the troops approached Franklin, the Indians continued to harass the settlers, adding more fuel to Connor's fire. On the morning of January 29, Connor moved his troops to the Indian encampment at Battle Creek, 12 miles north of Franklin. The Indians were well entrenched in a ravine about a mile from the river, and when the cavalry came into range the Indians commenced firing. At first the Indians appeared to have the upper hand, but with the arrival of the infantry, and the leadership of Connor, the battle soon turned into a massacre.

When the battle was over, between three and four hundred Indians were dead, women and children included. The Battle of Bear River was the worst loss, in numbers, ever suffered by any Indian tribe in a major battle against the whites (Madsen 1958; McComber 1951; Barta 1962).

In their flight from the U.S. Army in 1877, the Nez Perce passed through the study area approximately 20 miles south of the Montana border. At this point in the chase, General Howard and his men were close behind the Indians, but decided to stop and establish camp (Camp Callaway) at Camas Meadows, near Camas Creek. The horses had good grass and water, and the men had the opportunity to relax.

Prompted by a warrior's dream, the Nez Perce attempted to sabotage the Army by freeing their horses, however, because of a series of strange events the soldiers were alerted and mass confusion broke out. During the confusion the Indians set the mules free instead of the horses and thus allowed the soldiers to gather themselves together and begin pursuit. The chase covered about eight miles before the Indians decided to dig in and confront the Army. After four hours of fighting the Indians withdrew and returned to their tribal camp (Beal 1963).

Indian Removals and Reservations

In the late spring of 1866, a special Indian agent, George C. Hough, was sent from Washington, D.C., to investigate supposed Indian depredations along the stage and emigrant trails of southern Idaho. After investigation, he was convinced that Nevada Paiutes, not Bannock and Shoshoni, were responsible. He also discovered that the Bruneau, Boise, and Camas bands of Shoshoni were willing to move peaceably to a reservation, if provided with land, food, and clothing. Acting upon the advice of Hough and Governor Ballard, the Indian Commissioner instructed the Governor to establish a reservation for the southern Idaho Shoshoni. On June 14, 1867, the Fort Hall Indian Reservation was established by executive order of President Andrew Johnson, with the following boundaries:

> Commencing on the south bank of Snake River at the junction of the Portneuf River with said Snake River; then south 25 miles to the summit of the mountains dividing the waters of the Bear River from those of the Snake River, thence easterly along the summit of said range of mountains 70 miles to a point where Sublette road crosses said divide; thence north about 50 miles to Blackfoot River; thence down said stream to its junction with Snake River; thence down Snake River to the place of beginning (Madsen 1958:152).

By a proclamation of July 30, 1869, the reservation became home for the Fort Hall Bannock and Shoshoni under the provisions of the Fort Bridger Treaty of July 3, 1868. The Lemhi Shoshoni (Sheepeaters) were moved to Fort Hall in 1907 (Madsen 1958; McComber 1951).

Army Activities Other Than Warfare

Aside from its role in Indian affairs the Army also provided protection and aid to settlers and emigrants.

For instance, in May of 1864, General Patrick Edward Connor, stationed at Camp Douglas, Utah Territory, ordered Captain Samuel P. Smith to proceed with a company of cavalry to Raft River. The following dispatch gives an idea of Army activities:

Headquarters District of Utah
Camp Douglas, Utah Ter.,
May 9, 1864

Capt. Samuel P. Smith
Co. K, Second California Volunteer Cavalry
Comdy. Expedition:

> Captain: You will proceed by easy marches to Raft River, Idaho, Ter., or vicinity, where you will establish a depot for your supplies, and then return four of your wagons (driven by citizens) to this post. After establishing your camp you will take steps to capture or kill the male adults of five lodges of Snake Indians who have for years infested the roads in that vicinity, and who have of late been stealing from and attacking emigrants to Idaho. You will be particular that friendly Indians are not molested, but treated kindly by your command... You will render ample protection to emigrants south of Snake River and between the City of Rocks and the Port Neuf River, and at the same time thouroughly prospect the country for precious metals, particularly placer gold, and

> report from time to time the result to this office. You will be particular that your horses are taken good care of and kept in good order, and you will return to this post, unless otherwise instructed, on or about the 1st day of August next.
>
> By command of Brigadier General Connor:
>
> M. G. Lewis
> Assistant Adjutant-General
> (Sudweeks 1941:303).

As a result of these Army activities, many military posts and camps were established in Idaho Territory. The following descriptions cover those located in the study area:

Fort Connor was established at Soda Springs, May 20, 1863, for the protection of settlers and emigrants. For a while, members of the Morrisite faith were escorted from the Salt Lake City area to the Idaho Territory by soldiers from Fort Connor. As conditions improved in the region, the need for the fort lessened, and the fort was abandoned in 1865 (Daughters of the Utah Pioneers 1958).

Not to be confused with the Fort Hall built by Nathaniel Wyeth in 1834, the "new" Fort Hall was built in May of 1870 to house troops assigned for the protection of stage and freight routes. It was located where Lincoln Creek flows out of the canyon 12 miles east of the Snake River, and 15 miles from the Fort Hall Indian Agency and manned until February of 1883. The Department of the Interior then took control, and eventually moved the buildings to Ross Fork Creek, where they were used by the Indians for a school, etc.,(Brown 1932).

This camp was located on the Portneuf River near old Fort Hall to provide protection for emigrants travelling in the region. It was established in June of 1860 by a Major Howe, and was abandoned three months later (Idaho State Historical Society Reference Series No. 63).

This camp was established in May of 1864 by Captain Samuel P. Smith, from Fort Douglas, Utah Territory, near the mouth of the Raft River. Captain Smith and his men had been dispatched to arrest certain Indians, provide protection for emigrants, and search for precious metals (Sudweeks 1941).

Lieutenant J. W. Allen established this camp on Rock Creek on July 3, 1865. Its purpose was to guard local stage and emigrant roads. The soldiers moved camp to Salmon Falls Creek near the Snake River in August of 1865, and stayed until May of 1866 (Brown 1932).

Camp Lander was established by the military in 1865 for the protection of emigrants in the Fort Hall region. Located at the junction of the Salt Lake - Virginia City and Boise roads, three miles southeast of Fort Hall, it was abandoned in May of 1866 (Brown 1932).

The earliest post used for the protection of emigrants, Cantonment Loring was established by Colonel Loring in August of 1849, about five miles above Fort Hall. The post was abandoned in May of 1850 (Brown 1932; Beal and Wells 1959).

NON-WESTERN PEOPLES

Chinese

Prior to the discovery of gold in California, Chinese immigration to America was slow. By the early 1850s, however, Chinese immigrants began arriving in California ports by the boatload. They came to work the gold fields and to offer their services as cooks, housekeepers, and laundrymen.

As gold was discovered in other states, the Chinese began to migrate, following the gold strikes from region to region. This migration reached Idaho in 1860 with the discovery of gold at Oro Fino Creek, and in the Boise Basin.

Throughout the early years, the Chinese in Idaho were met by stiff opposition from white miners and businessmen; hostile legislation was passed to prevent the Chinese from taking work away from the whites. However, as the placers declined and white miners began to leave, the Chinese were allowed to work in the mines, as well as in other trades. The Chinese miners were willing to work a claim for a more modest return than were whites, and as claims played out, whites became eager to sell to the Chinese. This pattern was repeated many times in Idaho, and is summed up in the following account:

> Notwithstanding early regulations against Chinese working in the mines, when the Nez Perce gold fields had yielded up their rich deposits, these more patient toilers were permitted to take what remained by paying six dollars a month tax, one-half to go to the territory, and the remainder to the county in which they resided, the sheriff being empowered to pursue into another county any one attempting to evade the act. In June 1864 there were not enough white men in the Oro Fino district to work the claims well supplied with water and wood, which was another motive for the admission of the Chinese... Florence, for a few months the central attraction of the country, was almost depopulated by 1863, without recovering its population in any subsequent period. In 1864 the mines were pretty well abandoned by white miners, and the Chinese were allowed to come in (Lee 1978:78).

In 1870, 4274 of the 14,999 people in Idaho were Chinese (Paul 1963:144), many of whom resided in the Caribou district of southeastern Idaho. Within a year following the gold discoveries at Caribou, there were approximately 500 whites, and 400 Chinese in the area known as Caribou City, and the town of Keenan housed a population of 300 to 400 Chinese (Daughters of the Utah Pioneers 1958:113).

When the railroads came to Idaho, many Chinese decided to give up mining and work for the railroads. The building of the railroads also aroused the interest of Chinese living in other regions, and soon another wave of Chinese migrants arrived in Idaho. This new influx brought about the development of areas that had a very high concentration of Chinese (chinatowns). One such concentration was at Pocatello, a large Union Pacific junction town. Upon arriving in Pocatello in 1903, a young Chinaman wrote: "Arrived at Pocatello. I had not intended to detrain but countrymen from my home district begged me, so I stayed overnight. There are over 100 Chinese here" (Elsensohn 1971:112).

When the railroads were completed the Chinese population began to decrease. By 1890 the Chinese population in Idaho had dropped to 2007, and by 1900 it was down to 1467. This decline has been attributed to many factors: (1) intensive labor unrest which did not subside until the late 1890s; (2) the emphasis on agriculture in the state; and (3) the absence of large cities which limited the occupational opportunities for Chinese (Lee 1978:79).

<u>Japanese</u>

As the Chinese population of Idaho decreased, the Japanese population increased. The West needed a supply of laborers to replace the Chinese who had left, and the Japanese filled the gap very well. Like the Chinese, they served as domestic servants, railroad workers, lumbermen, miners, and farmers.

As early as 1891, the first Japanese came to Idaho to work on the railroads. One account by an early migrant states:

> In those days more than a thousand Japanese were working on the railroads in Idaho. As early as 1891, forty or fifty Japanese had gone there, led by Tadaschichi Tanaka of San Francisco. They constructed the Oregon Short Line from Huntington, Oregon to Wyoming. This was the beginning of Japanese doing railroad work all over the states. Since their reputation as workers was so good, other companies also began to hire Japanese competitively and solicited Japanese workers even in Hawaii, to go to Idaho. In Nampa district Japanese were doing not only railroad work and constructing urban electric railways, and working for sugar refineries, but also had hotels, stores, laundries and pool halls. The Japanese numbered five or six hundred men and ten women
>
> (Ito 1973:466).

Inota Tawa, one of the oldest living railroad workers (still alive in the 1960s), states in an account of his experiences:

> It was 1893 when I entered Idaho as a member of Tadashichi Tanaka's group of workers; then later I moved around the railroad sections in the vicinity of Shoshone, Tuppenish, and Huntington for three and a half years...
>
> (Ito 1973:293).

The next large migration of Japanese to Idaho was in the early 1900s, when the sugar beet industry was established.

Japanese were good agricultural workers and were in great demand. According to Ito:

> ... But beginning in 1903 many Japanese began working in the sugar-beet fields. The Nichibei Kangyosha (a Japanese-U.S. industrial promotion company) with Kyutaro Abiko as president, and located in San Francisco, sent more than 110 Japanese to 8000 acre farms belonging to sugar refineries and located in Idaho Falls and Garland (Ito 1973:465).

Though Japanese workers were in demand, and many migrated to Idaho, the Japanese population in Idaho prior to World War II was still low. However, with the completion of the Minidoka War Relocation Center at Hunt, Idaho in 1942, the population increased many fold. Over 9000 Japanese were sent to Camp Minidoka from the Seattle-Portland area during the war. During the war many Japanese-Americans from Camp Minidoka worked in the potato and sugar-beet fields of the Snake River Valley, and upon their release in 1945 many stayed to start a new life in Idaho (Hausler 1964; Beal and Wells 1959; Ichihashi 1969).

FEDERAL GOVERNMENT ACTIVITIES

Territorial Government

The movement for the creation of a new territory came about as a result of the gold rushes to the Clearwater, Salmon, and Boise Basin regions in the early 1860s. Because of these gold discoveries, the population of the area increased dramatically, making it difficult for the Washington Territorial capital of Olympia to efficiently control the entire territory. A political struggle ensued, ending on March 4, 1863, when President Abraham Lincoln signed the Idaho Territorial Organic Act and established the Idaho Territory.

President Lincoln appointed William Wallace as the first Territorial Governor, and Wallace arrived in Idaho four months later to establish the territorial government. Sectionalism developed immediately as a result of Wallace's choice of Lewiston as the capital, and the territory became divided between the north and the south. Adding fuel to an already bad situation was the fact that Congress apportioned almost no funds to the new territory, and much of the money that was sent was embezzled.

After a brief stay in Idaho, Wallace decided to run for Congress as the delegate from the Idaho Territory. He won as the result of an election filled with fraud, and departed for Washington, leaving William B. Daniels as acting Governor. Daniels appointed a few officials in an attempt to provide some organization, but sectional quarrels were still a large problem.

In February of 1864, President Lincoln appointed Caleb Lyon as second Territorial Governor. Upon reaching Lewiston in August of 1864, Lyon was appalled by political conditions in the Territory, and to make matters worse, he decided to try to move the capital to Boise, which by this time had become the population center of the Territory. After a bitter fight over relocation, Lyon fled Idaho, and Clinton DeWitt Smith (the new secretary under Lyon) took the Territorial Seal and the archives to Boise and established the capital. Smith became acting Governor until Lyon returned from the east in November of 1864, and resumed his previous position. However, Lyon soon lost support, and was replaced by David Ballard in May of 1866.

Ballard served until 1870, and somehow managed to form the first stable government, amidst political turmoil and financial crises. Following Ballard as Territorial Governors, were Samuel Bard, Gilman Marsten, Alexander H. Connor, Thomas H. Bowen, Thomas W. Bennett, David Thompson, Mason Brayman, John Hoyt, John Neil, John Irwin, Edward Stevenson, and George L. Shoup. Bard, Marsten, Connor, and Bowen, were all appointed as Governor, but each resigned the position without ever serving (Beal and Wells 1959; Hulett 1938; Houston 1951).

Political Development

In its earliest years Idaho was predominately a Republican State, with the majority of the population coming from the gold fields of California. But, as refugees from the war-torn South began arriving in the mid-1860s, the political base became more Democratic. This Democratic base was strengthened in the 1870s by the addition of farmers from the Midwest, and Mormons from Utah.

The factionalism that first surfaced during the early 1860s continued to dominate the political scene, and battles were being fought continuously. Issues such as franchisement, the test oath, carpetbaggers, and anti-Mormonism were a few of those more hotly contested (Beal and Wells 1959; Limbaugh 1966).

Administration of the Public Domain

When organized as a territory, the entire area of Idaho was public domain, to be surveyed and disposed of under the laws of the United States. As settlers and miners poured into the West, the federal government, in addition to caring for displaced Indians, provided ways to distribute the land upon which migrants built homes and businesses (Alexander 1965:13). The Homestead Act, passed in 1862, provided homestead lands for settlers; the Desert Lands Act, passed in 1877, provided larger parcels of arid and semi-arid lands to those willing to irrigate, while land grants to railroads, and townsite grants to cities, provided other means of disposing of the public domain.

To handle the disposition of land more efficiently, the General Land Office (GLO) was established in 1812 to handle all public land matters, including surveys, sales, and other transactions. The GLO remained in charge of the administration of all lands until the late 1800s, when the organization became stagnant and began to lose its effectiveness. At this time other federal agencies were developed to help with the administration.

Land Surveys

Before any government land passed into private hands, surveys were necessary. However, some pioneers were too restless to wait until surveys had been made, and settled on unsurveyed land. The government required cadastral surveys of all land, and prescribed a rectangular system for general land surveys, and surveys by metes and bounds for mineral claims and outboundaries of townsites. These surveys were not highly accurate, but provided for rapid disposal of land.

When the Idaho Territory was organized in 1863, people asked for a new surveying district, and for the extension of surveys to the new area. Funds were finally appropriated in 1866, and a new district headquarters was established in Boise. In the spring of 1867, Surveyor General LaFayette Cartee located the base line and principal meridian near Boise, and let contracts to survey the area.

In Idaho, the lands taken for settlement between 1863 and 1876 resembled a long U. Claims were made and surveys requested on the Clearwater in the north, on the Weiser, Boise, and Payette further south, on the Owyhee in southwestern Idaho, in the Bear River Valley, and on the Salmon River. The Surveyor General attempted to survey all these areas between 1868 and 1876, but since the area was so large, and settlement was occurring so rapidly, he could not keep up with the demand (Alexander 1965:76). Surveying of mineral lands and railroad land grants only added to the problems of the Surveyor General.

The biggest dispute during this period of surveying was over the location of the Idaho-Utah boundary. When the Bear River Valley was first settled by the Mormons in the 1860s, they believed that they had settled in Utah. Many Mormons refused to consider themselves citizens of Idaho, and would not pay taxes to Idaho until the government traced the boundary. The dispute was finally settled in 1872, when the boundary was fixed by a government survey (Alexander 1965; Clawson 1951; Donaldson 1970; Carstensen 1963).

Development and Conservation of Natural Resources

While the United States was disposing of a large share of the public domain, another basic policy emerged, that of reserving much of it for conservation and use under Federal administration (Clawson 1951:95). Problems such as soil erosion, soil exhaustion, and destruction of forests, were of great concern to some citizens, and it was through the efforts of these far sighted people that agencies were developed to protect and manage the forests, rangelands, soils, and other natural, and cultural, resources of the nation.

National Parks

When established in 1872, Yellowstone National Park was the first major reservation of Federal land (other than Indian reservations) in the United States. This area was reserved by a special act of Congress to provide "for the preservation, from injury or spoilation, of all timber, mineral deposits, natural curiosities, or wonders within said park, and their retention in their natural conditions" in order that the area should serve "as a public park or pleasuring ground for the benefit and enjoyment of the people" (Clawson 1951:99). In later years, other areas were withdrawn from the public domain and established as National Parks, creating an extensive system whereby the natural heritage of our country was saved for all.

Along with the National Parks, a system of National Monuments evolved, classified according to five categories: (1) archeological sites; (2) historic sites; (3) geological examples; (4) botanic reservations; and (5) wildlife reservations. The Antiquities Act of 1906 gave the President the authority to create national monuments out of public lands, if they met with certain standards of national interest and importance. Craters of the Moon National Monument is an example within the study area.

The National Park Service was established on August 25, 1916 as part of the Department of the Interior. Its job is to administer the National Parks, monuments, historic sites, and recreation areas, so that they are conserved and enjoyed by all, now, and in the future (U.S. Government Manual 1978-79; Clawson 1951).

National Forests

In 1891, the first legislation dealing with forest land administration was passed by Congress. The Act of 1891 provided for a system of forest land reservation, repealed pre-emption laws, and abolished public sale and private entry disposals of land. This bill was designed to protect America's forests from further damage, and to manage them so that they would be more productive in the future.

In 1897, another act was passed, which provided the basic plan by which the newly established forest reserves were to be administered. The forest reserves were administered by the General Land Office of the Department of the Interior until 1905, at which time they were transferred to the Forest Service of the Department of Agriculture. Reserves were withdrawn fairly slowly during McKinley's administration, but, when Theodore Roosevelt became President, the situation changed dramatically. Roosevelt was a great believer in conservation, and with Gifford Pinchot directing him, he made many withdrawals of public lands for forest reserves, and firmly established the national forest system, a large part of which is in Idaho (Robinson 1975; Clawson 1951).

The Grazing Service

In June, 1934, the Taylor Grazing Act was passed, providing a system of management for Federal grazing resources through grazing districts, and limiting the amount of grazing permitted on the land in an attempt to preserve its long-term productivity (Clawson 1971:34).

Out of this new act came the Division of Grazing, which was responsible for the administration of grazing activities. In 1939 the Division of Grazing was renamed the Grazing Service, and in 1946 the Grazing Service was consolidated, along with the General Land Office, to form the Bureau of Land Management (Clawson 1971).

The Bureau of Land Management

In July of 1946, the Grazing Service and the General Land Office were consolidated, and a new agency, the Bureau of Land Management (BLM) was created. Today the BLM is responsible for the administration of over four million acres of Federally owned land in the United States. Its duties include management of grazing lands, cadastral surveys, land records, and mineral leasing (Clawson 1971).

The Soil Conservation Service

The Soil Conservation Service of the Department of Agriculture was established under authority of the Soil Conservation Act of 1935. This agency is responsible for developing and carrying out a national soil and water conservation program in cooperation with land owners and operators, as well as other land users and developers (Clawson 1951).

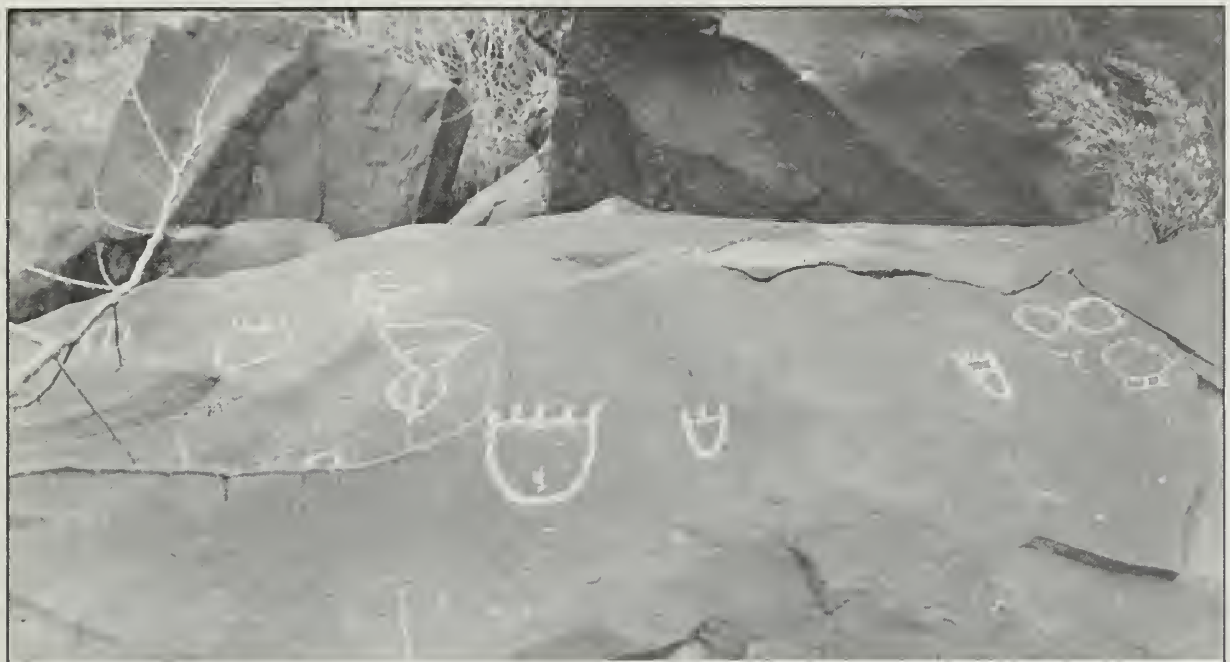

Photo Source: Idaho Historical Society

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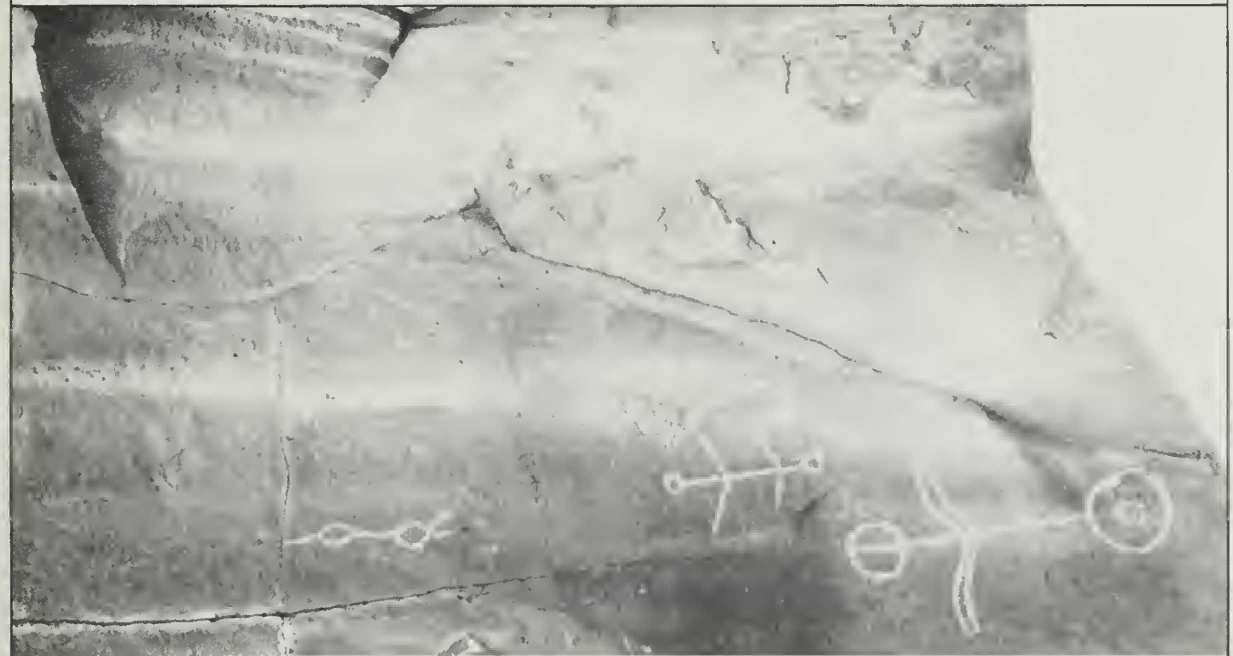

Photo Source: Idaho Historical Society

Petroglyphs Near Pocatello, Idaho

Figure 15
Historic Photos
Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

Photo Source: Idaho Historical Society

Bannock Indians, Summer Tipi Made of Interwoven Rushes and Willows

Photo Source: Idaho Historical Society

Indians and Tipis at Fort Hall Reservation

Figure 16

Historic Photos

Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

Photo Source: Idaho Historical Society

Camp of Ferdinand V. Hayden at Fort Hall, 1871

Photo Source: Idaho Historical Society

Shoshoni Camp Near Pocatello

Figure 17
Historic Photos
Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

Photo Source: Idaho Historical Society

Mule-Drawn Team on Desert South of Burley, c1908

Photo Source: Idaho Historical Society

Kelton Stage Station, South of City of Rocks

Figure 18

Historic Photos

Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

Photo Source: Idaho Historical Society

Bancroft, Idaho — Railroad-Station

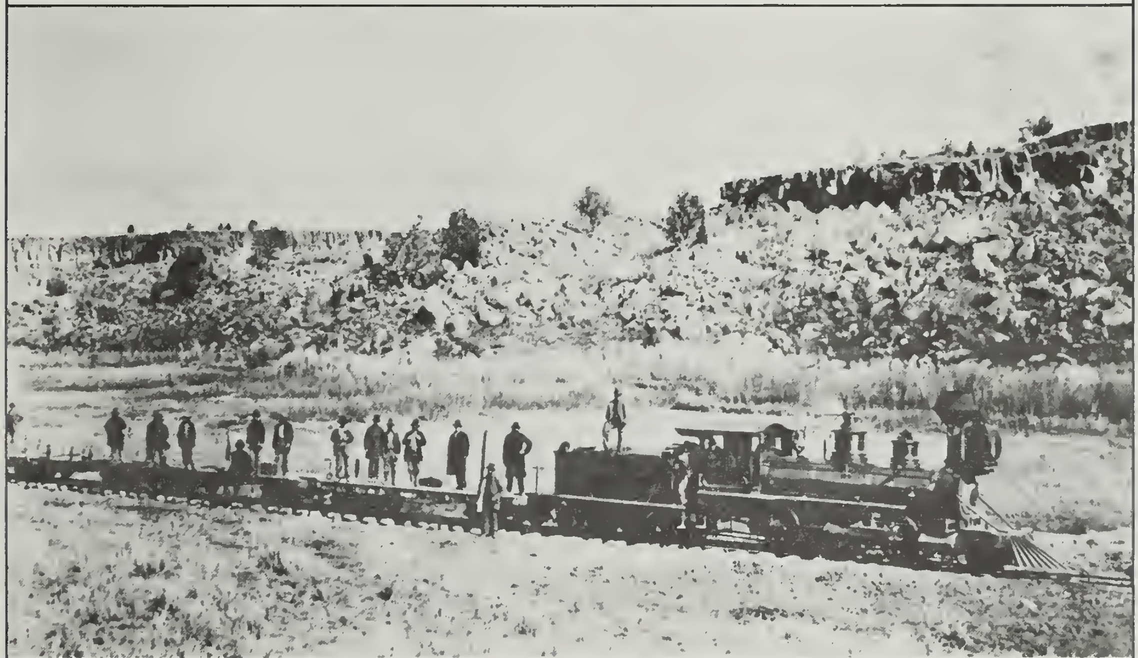

Photo Source: Idaho Historical Society

Utah-Northern Railroad Near Inkon, Idaho c 1889-1893

Figure 19
Historic Photos
Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

Photo Source: Idaho Historical Society

Burley, Idaho, 1908

Photo Source: Idaho Historical Society

Opening of Townsite Lots May 1, 1905

Figure 20
Historic Photos
Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

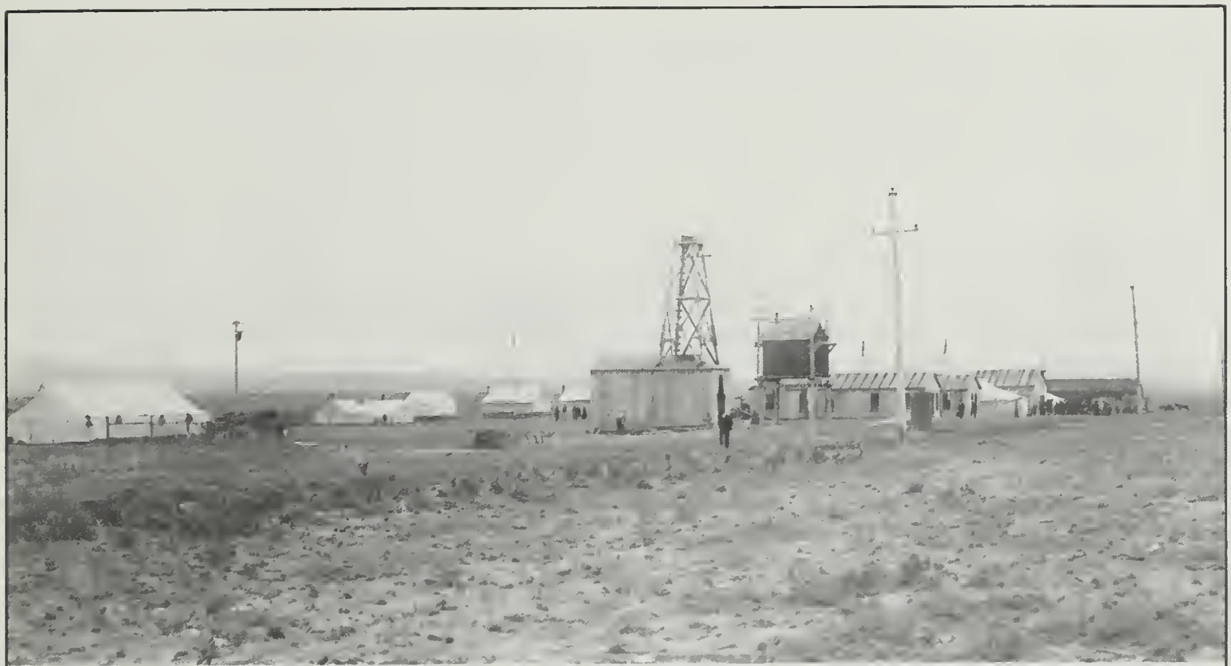

Photo Source: Idaho Historical Society

Hollister, Idaho, 1909

Photo Source: Idaho Historical Society

Oldest House in Idaho Falls Photo Taken June 24, 1908

Figure 21
Historic Photos
Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

Photo Source: Idaho Historical Society

Store Room on Rock Creek on Old Overland Road, 1878

Photo Source: Idaho Historical Society

Dryland Homestead Near Hansen, Idaho

Figure 22

Historic Photos

Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

Horse-Drawn Sagebrush Grubber

Tractor-Drawn Sagebrush Grubber

Figure 23

Historic Photos

Class I Cultural Resource Inventory Of The Burley
And Idaho Falls Districts Bureau Of Land Management

CHAPTER 9

LIFEWAYS OF NONNATIVE GROUPS

THE FUR TRAPPERS

White trappers and fur traders were the first nonnative historic group to occupy the study area. They began coming into the northwest in the early 1800s, bringing with them the white man's material goods. These included guns, knives, steel traps, and other paraphernalia associated with the lifestyle and the work of the trapper.

Though there were many different categories of trappers, they all used similar equipment and supplies. This commonly included a flintlock long rifle, a pound of powder, four pounds of lead, a bullet mold, seven to ten traps, an axe, a hatchet, a knife, an awl, a camp kettle, two blankets, and perhaps some flour. The trapper's powder horn and bullet pouch, with steel and other "fixin's", were usually carried over his shoulder, ready for action. Each trapper also required from two to four horses, for himself, his supplies, and pelts (Brown 1932; Beal 1942).

Joe Meek, a trapper in this region for many years, gave the following description of the kind of trap employed:

> He (the trapper) has an ordinary steel trap weighing five pounds, attached to a chain five feet long, with a swivel and a ring at the end, which plays round what is called the float, a dry stick of wood about six feet long. (Neihardt 1920:147).

An idea of the type of goods that were purchased by the trapper at the annual rendezvous, can be obtained from lists of supplies cached by William Ashley at different locations prior to the 1825 rendezvous at Randavouze Creek, on Henry's Fork of the Green River. One cache, located at Bridger bottom, six miles below Buckboard Wash and fourteen miles above Henry's Fork, included the following:

2 bags coffee
ham goods
3 pack powder - 1 1^{s} qt
2 tobacco
3 B. lead
horse shoes
Beads small & large
2 packs sugar
1 pack cloth with some knives therein
1 pack 7 doz knives
(Morgan 1964:107).

Another cache, located two to three miles below the mouth of Ashley Fork, consisted of:

2 1/2 Kegs Tobacco	150 lbs
14 doz knives	
2 peaces scarlett Cloth	
2 ditto Blue Stroud	
Bale & Bag Sugar	200 lbs
3 packs beaver	
pack of beads assorted	
vermillion	
assortment of Indian trinkett, mockerson, alls do.	
2 Bags gun powder	150 lbs
3 Bars lead	120 lbs
Bag Flint	1000
Bag Salt	10 lbs
pack cloths-	
pack containing a variety of Indian trinsketts	
Ribbons Binding & C	
axes hoes & C	

(Morgan 1964:112-113).

An example of the huge amount of goods and supplies carried by a Hudson's Bay Company Snake Country Expedition is seen in the Account of Sundries supplied the Snake Expedition of 1827-1828 (Appendix 5).

The types of housing utilized by the early trappers included leather tents, temporary huts and lean-to's, and log cabins. Generally, American trappers built lean-to's, or small huts, out of brush and branches for stays of extended duration. Their operating method is described by Captain Bonneville as follows:

> When two trappers undertake any considerable stream, their mode of proceeding is, to hide their horses in some lonely glen, where they can graze unobserved. Then they build a small hut, dig out a canoe from a cotton-wood tree, and in this poke along shore silently, in the evening, and set their traps.
> (Brown 1932:173).

The Snake Country Brigades of the Hudson's Bay Company, on the other hand, used leather lodges supplied by the company. The Snake Expedition of 1827-1828 used five of these lodges, which are listed on the Account of Sundries supplied the expedition (Appendix 5). In reference to these lodges, Peter Skene Ogden wrote in his journal on Friday, September 13, 1827:

> ...All hands have been this day busily employed in making poles for their leather tents, indeed in leaving this we shall probably not for months find wood suitable, so this is a necessary precaution and our day is not altogether lost...
> (Williams 1971:5).

On Tuesday, the 17th, he wrote:

> On raising the traps this morning four were found with their springs broken, and three beaver taken. The drying of our leather tents detained us until 10 o'clock when we started and shortly after crossed over the second fork of Powder River, and one mile further we crossed the main branch...
> (Williams 1971:7).

The type of housing which offered the most protection from the elements during the harsh winter months was the log cabin. The earliest recorded log structures erected in the study area by whites are the buildings constructed in 1810 by Andrew Henry and his men near the present day site of St. Anthony. Depending on which report one reads, there were from three to five log buildings erected, in which Henry and his men spent the winter and which were known as Fort Henry.

Log cabins were more permanent structures and required time to build. For these reasons they were constructed predominantly by trappers who planned to return to the same spot every year, using the cabin as a base camp, or by fur trading companies as trading posts. During the 1834 construction of the Fort Hall trading post, Osborne Russell recorded in his journal:

> On the 18th we commenced the actual construction of the fort, which was a stockade eighty feet square, built of cotton wood trees set on end, sunk two and one-half feet in the ground and standing about fifteen feet,above, with two bastions eight feet square at the opposite angles.
> (Haines 1955:11).

THE PIONEERS

The pioneer exodus to and through Idaho is extensively documented in pioneer journals and other contemporary accounts. The rough, dry inhospitable nature of Idaho

Territory caused numerous hardships to early travelers on the emigrant trails; trailsides, strewn with abandoned articles, new-made graves, and the skeletons of horses, mules and oxen, became vivid testimonies to the difficulty of the journey.

A large majority of these early emigrants left their old homes provided with everything they thought they might need in a new country. But the way was long and as their teams grew jaded everything that could possibly be dispensed with was cast away "to lighten the load." This was especially true after the discovery of gold in California, when all were in haste to reach the diggings and secure a paying claim. Captain Howard Stansbury, who was then engaged in making some explorations in the West for the Government, says in one of his reports:

> "The road was literally strewn with articles that had been thrown away. Bar iron, steel, blacksmith anvils, bellows, crowbars, drills, augers, gold washers, chisels, axes, lead, trunks, spades, plows, grindstones, baking ovens, cooking stoves without number, kegs, barrels, harness, even clothing, bacon and beans were found along the road in pretty much the order named (Hawley 1920:81).

The pioneers' lifestyle demanded resourcefulness in order to provide the minimal subsistence necessary for maintaining a homestead. The first homes had to be built quickly. At times crude huts, or dugouts, served until time and weather allowed construction of a more substantial home. In forested areas, the pioneers could make use of logs for cabins, the typical log cabin being:

> ...made of cottonwood logs, chinked with mud; the roof was of willows and dirt, while muslin served as a window pane. There was a rock fireplace, and the dirt was packed hard underfoot to serve as a floor (Beal 1942:284).

Oiled, undressed deer skins were also used for windows. In more arid regions where forests were some distance away, houses were quite often built of baked mud bricks, or adobe. These houses were fairly easy to construct, and remained sound for a number of years. Most pioneer homes lacked extensive furnishings. Homemade furniture such as a table, a flour box, a cupboard, beds, and a few chairs, were the norm in the average pioneer home. An item common to each household was the spinning wheel, which the housewife used to make yarn that was later woven into cloth on a hand loom. Articles such as organs or pianos, settees, and dressers, were prized possessions owned only by a few. The cupboards of most pioneer cabins were filled with tin dishes, forks, and spoons; earthenware dishes were uncommon on the frontier. Stoves were also quite rare, and the family that did have one possessed a luxury item indeed.

In the Mormon communities of southeastern Idaho, distinctive settlement patterns arose, largely dictated by the leaders of the church. The following speech by Brigham Young to the settlers of Paris, Idaho in the spring of 1864 described the ideal settlement:

> I do not design to spread but merely to express my feelings in regard to this valley; we find it to be an excellent valley as far as we can judge from present appearances. It is a fine place to settle and raise grain, to build houses, make farms, set out orchards, raise fruit, and all the necessities of life, to make ourselves happy here as well as in other places. Elder

> Charles C. Rich one of the Twelve Apostles has been appointed to dictate the settling of this valley. We wish to have the brethren abide his counsel, and if he needs instructions he will receive them from the proper source... Build mills to facilitate the building up of your towns and settlements, and let there be no selfish monopoly in this. Let the brethren not burn up any timber that will make lumber, but bring it down to your mills, and saw it up for your fences, to build your houses and to make improvements of the best kind. My opinion is that the adobie is the best building material if it can be well protected from moisture which is an easy matter where plenty of lumber is to be had, and when they have stood one year they are prepared to stand for five hundred years as well as not. When you build your perma-dwelling, build nice commodious habitations and make your improvements as fast as you can... When you form your settlements get together pretty close, let there be at least ten families on ten acres of land. When you start to build upon a block (brother Charles C. Rich please remember this), have the brethren build upon that block until every lot is occupied before you touch another, that if you are attacked by Indians, one scream will arouse the whole block (Ricks 1964:98).

Acting upon the advice of their leader, the people of the various colonies built stone, mud, or log stockades, as a means of protection against the Indians. As communities increased in population, and the Indians seemed more friendly, the pioneers built towns to replace the forts. Lots were divided among the settlers, new homes were built, or the old ones moved from the fort and improved. The most outstanding buildings, the churches, were built by cooperative labor and served as schoolhouses as well (Sudweeks 1937:146).

Farm output on the frontier increased slowly during the 1870s, and farmers continued to rely on primitive tools to work their lands. But, with the advent of new technologies in the 1880s, farm output began to increase, and life began to change. The invention of cheap, cold chilled steel facilitated development of a plow that could withstand the constant pounding against subsoil rocks, and allowed the farmer to work more ground in less time. During the 1890s, irrigation technology introduced by the Mormons advanced by leaps and bounds, and mechanized farm equipment became widely available as well.

The results of these advances were the growth of larger farms, the spreading out of ranches away from the central townsite, and a new affluency among the farmers and businessmen. Combines and thrashers were purchased, making work easier and more productive, and initiating a new pattern of equipment and tool useage. The farmer was no longer cultivating a small plot by hand methods. Larger horse drawn equipment became standard on the smaller farms, and the larger landholders used steam-powered equipment to increase their yield.

Housing changed from small log cabins to more substantial frame houses. Large single-story and multiple-story town, ranch, and farm houses were built with the finest materials, and equipped with the latest "necessities" (Bolino 1958; Fuller 1928; Beal and Wells 1959).

MINING CAMPS

Of the many mining camps located in Idaho during the gold rush days, the Cariboo operations are among the least known. Nonetheless, the sudden exodus to the area influenced lifeways not only in the mining district itself but also in the Upper Snake River Plain at a time when there were few inducements for settlement. At one point, Cariboo supported several thousand miners, all of whom needed supplies. Gradually, the Snake River Valley developed agricultural, craftsmen, and merchant facilities to service the mines.

The Cariboo camps were somewhat atypical of Idaho mining establishments because of their high elevation (Cariboo Mountain rose to a height of 9,803 feet.) Heavy winter snows halted operations for much of the year, so "miners lived at home and worked during the placer season only, resting comfortably in the winter" (Doane 1976:26). During the early phase of placer operations, Cariboo Mountain had two mining districts, the larger centered on the west side at Keenan City and the smaller on the east at Iowa City, later Cariboo. Iowa City consisted of little more than a few scattered log cabins which even miners found difficult to locate (Idaho Yesterdays 19/4, 1976:12). Keenan City, however, was a more substantial settlement composed of a dozen or more log cabins, a store, saloon, post office, lodging house and restaurant, blacksmith shop, and stables. John Codman captured the town's atmosphere in this 1874 account:

> ...But the wretched, woebegone look of Keenan City! The street was nearly knee-deep with mud, and the miners were already wading through it to their work, with their picks, shovels, and pans on their backs. I went to the restaurant and found it was kept by a Scotchman and his wife, an Englishwoman. It was an agreeable disappointment to find it very neatly arranged, and my breakfast of toast and fresh butter, and a tender beefsteak with potatoes, was well cooked, and served. It was far better than anything I had had at Soda Springs (Codman 1976:19).

Codman's sleeping accommodations were considerably less pleasant and perhaps more typical of frontier conditions in early mining camps:

> It was consequently after 2 A.M., when we were shown to our "apartment." This was a loghouse of one room, twenty by fifteen feet, in which two gentlemen were already sleeping on a shelf under a blanket. Two other double shelves were provided for us. Neither of them had a mattress upon it, but they were furnished with horse-blankets, and pillows were not. I selected the least inebriated of my fellow-passengers for a bedfellow, and turned in after placing my coat and pantaloons on an empty box, using my monkey-jacket for a pillow, and walking to my shelf over the bare ground, for the apartment had no floor (Codman 1976:19).

Codman described the miners' cabins as attractive log structures "tastily decorated with spruce boughs." Most were roughly kept and sparsely furnished, but at one home where Codman was a dinner guest, the neatness and civility were exceptional:

> ...Mr. Perkins, who I should have said is the merchant of Cariboo, invited Jeff and myself to take tea with him. His log cabin on the outside is like all the rest, but on entering there was an air of neatness which certainly none of the others could boast. In fact, there was a woman in the house, and a very lady-like young woman is Mrs. Perkins. She had muslin curtains for her windows. She had a sewing machine in one corner of the room, and in the middle of it she had a table set for herself and her husband on which she speedily put two more plates. It was spread with a spotlessly clean cloth, clean napkins in rings, a nice stonewear tea-equipage, with plated forks and teaspoons and even a butter knife (Codman 1976:21-22).

Obviously, such luxuries reflect both the wealth of the owner and the "womanly touch." Women, other than prostitutes, were a rarity in mining areas, and the harsh, rowdy conditions of the camps reflected their absence. While staking a claim many men lived in tents furnished only with a few tin eating implements - a bedroll, an axe, a fry pan. Supplies were difficult to come by, and the area was too rocky to support either livestock or much subsistence farming. Despite isolated reports of potato cultivation on the mountain, most foodstuffs and mining equipment arrived by mule or later by wagon.

Although a few men panned gold in the old style, hydraulic methods soon predominated. "Hydraulic giants were installed to obtain placer gravel to feed the sluices. Giant streams of water, shot out of nozzles fed by metal pipe leading from ditches at higher elevation, cut away surface gravel and swept the gold bearing placer gravel into sluice boxes. Within a year or two, a number of giants were at work in the region and by the fourth season eight of them had gone into production" (Idaho Yesterdays 19/4, 1976:13). In addition to aiding gold recovery, the use of sluices also spurred the construction of Sawmills to provide the necessary wood.

Gold recovery at Cariboo proved erratic. Between 1870, when the mines first opened, and 1886, production values may have amounted to a million dollars. In view of the high altitudes, short working season, scarcity of water, and the small number of miners, even this figure is difficult to substantiate. Nonetheless, a modest number of miners did leave the area with a reasonable profit (Idaho Yesterdays 19/4, 1976:13).

THE CHINESE IN IDAHO

During the mid-to-late nineteenth century, many Chinese came to seek their fortunes in the mines of Idaho; nearly 800 miners lived in the Cariboo district alone. Since the Chinese worked cheaply, they were a popular labor source, but eventually white prejudice and resentment over competition spawned a vicious anti-Chinese movement. Unlike miners in most Idaho districts, however,

> "those at Cariboo made no effort to exclude the Chinese. They never seemed to get enough white miners to come to work the ground available, so driving out the Asiatics seemed pointless. Chinese companies owned claims and operated giants along with everyone else--apparently without discrimination. That way, unlike other camps that kept out Chinese competition during the more productive early years, Cariboo had white and Chinese at work on adjacent claims most of the time and did not become strictly an Oriental camp after a few seasons of early excitement" (Idaho Yesterdays 19/4, 1976:13).

As the gold fever died out, many Chinese went to work on the railroad and as domestics, laundrymen, and water carriers. Most intended only a temporary stay in the West and hoped to return home with sufficient wealth to support a comfortable and respected existence in China. Thus, while in the United States, they preserved their cultural traditions and, like most immigrants, lived in a separate neighborhood. Chinese communities were predominantly male, since few individuals planned to settle permanently. Many of the Oriental women who did come to Idaho were prostitutes.

"Chinatowns" existed in nearly every mining camp and larger towns in Idaho and usually consisted of:

> "a welter of small shacks, a few stores, a Joss house (or temple), and maybe a Masonic hall.... Clusters of small 8 x 12 foot cabins huddled together, each one housing ten to twelve persons. Inside, double bunks lined the walls, nearly filling the limited space, and scattered about in indiscriminate confusion were a few necessary utensils, provisions, and tools....

Chinatown had its own peculiar stamp. The smell of dried fish and herbs, and sometimes the pungent odor of opium, hung heavy on the air.

> Tiny men in wooden shoes, wearing long blue cotton blouses over wide-legged floppy trousers, trotted through the streets. Jet black queues swung behind under wide-brimmed coolie hats. They might be water carriers, laundrymen, miners, or vegetable peddlers, but they all dressed essentially the same. Only the merchant, who outclassed everyone else, dressed in elegant mandarin silks (Deng 1972:18).

The store served as the social center for the community and stocked many of the items unique to the Chinese culture. Tea, teapots, tins of opium, lanterns, fans, fireworks, incense, confections, candied coconut and ginger, numerous herbs and medicine, clothing, rice and foodstuffs, and countless other items crowded its shelves. The store also commonly supplied the materials used in Chinese festivals and religious ceremonies. Among the most spectacular was the Chinese New Year:

> The highlight of almost every New Year's celebration was a grand parade. Everybody turned out to march through the streets to the...rhythm of cymbals, gongs, and drums. The darling of any parade was the great dragon--a writhing, brightly colored paper monster engineered from within by paraders who made the body twist and undulate all the way down to its ten-foot silken tail. Its head, a masterpiece of papier mache, turned from side to side hissing and breathing smoke. The whole entourage serpentined through the streets to a fusilade of firecrackers (Deng 1972:19).

Chinese religious practices centered around the Joss House or temple. Here the worshippers came to pay deference to their idols and give offerings of tea and incense.

> A later Joss house, in its twilight years, is described by one writer when Old Shovel Handle was caretaker. An elegant idol presided over the altar. He was carved from wood and had "glass eyes, a black goatee, a symbolic crown and heavy robes." Placed before him were hand-wrought silver candle holders and incense burners. On either side were lesser statues of lesser idols. "The gleam of burning peanut oil shone through the lattice work of a teakwood lantern hanging in the center of the ceiling. The faint blue smoke of incense, sandalwood and myrrh trailed around the peacock fans and pottery vases on the floor." Drapes of green, red, and blue silk gave a rich touch to the interior, which must have been a surprising contrast to the rough wooden exterior. Old Shovel Handle rang the temple gong morning, noon and night even though the hills were silent and the worshippers long gone (Deng 1972:22).

Little physical evidence of the Chinese presence remains today. Like most structures of the period, Chinese buildings were constructed of pine and fir, often laminated with pitch; fires consumed many dwellings. Other material objects have proved equally ephemeral. Those few Chinese artifacts which survive serve as valuable reminders of an important aspect of Idaho and Western history.

THE STAGECOACH STATION

Prior to the advent of the railroad, stagecoach service provided the principal means of mail and passenger transport in and to Idaho Territory. A number of main line and branch stage roads passed through southeastern Idaho, and located along all of them at 12 to 15 mile intervals were the stage or relay stations where fresh horses were obtained. In particularly dry regions, the stations were spaced more closely.

Stage stations were sturdy, simple, one-room log structures designed to both resist Indian attack and to shelter both men and horses under one roof. The home stations, where drivers and stages were changed, offered meals and lodging for drivers and passengers. Thomas Donaldson reminisces on the home stations as follows:

> The home stations...were 50 to 60 miles apart. The driver's daily work averaged this 50 or 60 miles at a rate of about five miles an hour. The stages kept on day and night, and so of course the drivers had both daylight and darkness.... The stage company's employees were boarded at these home stations. The coaches stopped forty minutes at the home stations and about five minutes at the other stations, time enough to change horses or teams. The home stations were houses built of logs and usually occupied by families. They were rich in little save dirt.... The dining room... was the main room of the house, and it held an open fireplace which burned sage-brush or logs in cold weather. The table was of rough pine boards, and the benches or chairs were equally rough. The table furniture was of iron, stoneware, and tin, with iron spoons and heavy knives....
>
> The meals were uniformly bad and one dollar each. Bacon and "white lead" bread were the staple articles of food....Pie was another staple article and such pie! It consisted of sole-leather, lard-soaked lower crust, half baked, with a thin veneer of dried apples daubed with brown sugar. A large pot of mustard containing an iron spoon which had partially succumbed to the attack of vinegar always decorated the center of the table....The butter was canned and the milk was condensed. Cows in plenty were browsing about in the brush, but the milk was kept for the calves....
>
> When the home station people chanced to be educated and had known good living in the States, you could see it in every feature of the station. The food service and cooking showed it, and the walls of the houses were decorated with chromos. Books were lying about and in a corner one could perhaps see a parlor organ....(Donaldson 1941:86-88).

The material possessions of the home station thus differed little from that of the typical pioneer home.

RAILROAD CAMPS

Railroad construction brought large numbers of men to southeastern Idaho. Chinese, Japanese, and Mexicans joined ranks with other laborers in building and repairing the Utah and Northern, the Oregon Short Line, and various branch lines during the late nineteenth and early twentieth centuries. Mary Henshall describes her Japanese father's life repairing the railroad as follows:

> It was August. The rails were burning hot, and it was a muscle-straining job to pull out and replace an old tie. First they dug away the gravel with pick and shovel, then knocked the tie loose, then pulled it out like a long tooth. A new tie was forced in place with a railroad hammer, heavy as a sledge hammer but with a longer head, and the whole place tamped down carefully. And so it went, workin' on the railroad--all the livelong day.
>
> Sixteen workers lived in a section house, a rectangular room with double-deck bunks all around the walls. They took turns cooking on a coal-burning stove, and again they did not have to endure a constant diet of dango-jiru, (flour dough-balls boiled in water) (Henshall 1975:21).

Actual construction posed different and equally difficult working conditions. In areas where the track traversed lavabeds, construction was particularly difficult. Men had to blast the rock with explosive powders, scrape out a bed a foot below grade, and fill it in with sand and gravel. In addition, the climate was hot, the land largely dry and barren, the sagebrush full of rattlers and scorpions, and outlaws were always anxious to commandeer the payroll. Such conditions necessitated a Spartan lifestyle.

The various contractors set up camps for their men along the road or lodged them in nearby towns. James Kyner, a contractor for the Oregon Short Line, describes life in Idaho rail camps in his book End of Track:

> Doty, Stitt, and I left camp in my buckboard, with Jim, a pacer, and Frank, a trotter, hitched to it, and nine or ten hours later arrived at end of track. There was, of course, no town there, but men were constantly going and coming, with the result that a kind of tent village had been set up. A couple of men had set up a business with two tents--one a stable tent, where horses were stabled for their absent owners, and the other a "bunkhouse" or "flophouse" where, within the confines of the walls of the big tents, the sagebrush and the cactus had been cleared away so that men could spread their bedrolls on the ground. There was a charge of one dollar for that privilege, but I have forgotten what fantastic figure was set upon the "stabling" of horses in the stable tent. (Kyner 1960:157).
>
> ...One big cook tent in the Kilpatrick camp supplied food for several dining tents, in each of which several long tables stood--tables with boards along each side to serve as seats. Entering one of these one day just after the noonday meal I saw the tin plates spaced with such extraordinary precision about the tables as to arouse my interest....
>
> ...My next glance showed me plainly that the plates held the remains of the meal that had been served, and then, to my amazement, a man appeared with a pail of water and a stick with a rag fastened to its end. He soused the swab into his pail and swabbed out a plate or two, and sousing the swab again, continued down one side of the table, giving each tin plate a lick and a promise...
>
> ...Every one of those scores and scores of tin plates was nailed securely through its bottom to the table (Kyner 1960:150-151).

Railroad work required tremendous amounts of supplies, much of which had to be freighted into remote areas or railed up the completed stretch of track. Horses, harnesses, wagons, scrapers, tools, tents, explosive powders, hay and oats, tin eating implements, pots and pans, and cases of other supplies were among the materials used. It required 31 boxcars to ship out Kyner's team after completion of his Oregon Short Line contract (Kyner 1960:171). Clearly rail operations left few permanent objects or structures behind.

LIVESTOCK DRIVES AND CAMPS

During the great eastward sheep and cattle drives of the late 1800s, men and animals occupied countless temporary camps in southeastern Idaho. Sheep drover trail bands usually consisted of three to six thousand head. Often two bands traveled together to save on expense. Owners required one cook and approximately three drovers per herd. Trails tended to follow established emigrant trails; however, the frontage allowed the band varied considerably. Occasionally, roadside farm property was fenced to protect a homestead, and farmers were often hostile when animals inevitably damaged their fields. "The other extreme for frontage occurred in the southeast Idaho country around Soda Springs where the trail was as much as 50 miles wide (Wentworth 1942:516-517).

Numerous hazards plagued the drover, among them flooded rivers, stampedes, outlaws, Indians, lack of water, and coyotes and other predators. Between the Sinks of Lost River and Idaho Falls lay the Snake River Desert, a hot waterless area described by some as the "toughest piece of trail between Oregon and Wyoming"(Forsling 1964:29).

The sheep generally stopped twice a day, once at noon to rest during the heat of the day, and again at night. Although temporary corrals of wood posts and muslin were sometimes used to keep the sheep from roaming, drovers usually had to remain alert to movement throughout the night.

In keeping with the nomadic lifestyle of the drive, all equipment used by the men was constructed as compactly and efficiently as possible. Bedrolls consisted of a blanket contained in a sheet of wide, stout canvas which served as both groundcloth and rain protection (Shepherd 1885:191). The mobile chuckwagon which became the central supply depot during the drive is described below:

> ....The canvas cover was spread over five or six hickory bows, fitted into sockets on the outside of the wagon box and drawn right so as to protect the contents from rain. A chuck box was constructed which fitted exactly into the rear of the wagon box when the endgate had been removed. This was about four feet tall and was held in place by the wagon rods which ordinarily held the rear endgate of the wagon box in place. The chuck box was about eighteen inches or two feet deep from front to rear at the bottom, but the sides were sloped upward so that it was not more than six inches deep at the top. It was fitted with shelves which were in turn divided into compartments by partitions. The deeper compartments at the bottom held the "sour dough jar," flour, and other bulky groceries, while the middle ones, not so deep, contained sugar, rice, beans, coffee, and syrup, and the small upper ones tin cans of soda, baking powder, salt, pepper, and other articles used from day to day in cooking. The rear wall of the chuck box was hinged at the bottom and was fitted with a hinged leg at the middle of the upper edge so it could be lowered, forming a table at which the cook could work while preparing a meal. It is doubtful if any better form of camp kitchen has ever been devised than was the chuck box at the rear of a trail driver's wagon.
>
> ....The bulk of the food supply was, of course, carried in the wagon box. A ten-gallon keg for water was attached to the side of the wagon, and the heavy Dutch ovens, pots, and other cooking utensils were carried on a rack built beneath it. With a wagon thus equipped, it remained only for the drover to purchase supplies for the journey and to employ a cook, horse wrangler, and a sufficient number of men to handle the herd. (Dale 1942:43-44)

Along the trail, the life of the cowboy was very similar to that of the sheep drover. The cowboys, however, also served as range riders, protecting the common law boundaries of rancher's holdings. Along these borders, the riders established campsites to serve as home during their stints of duty:

> ....The camp itself usually consisted of a one-room dugout or half dugout with the door at one end and a fireplace for heat and cooking at the other. This must be kept clean and in order. Contrary to popular opinion the cowboy's camp was seldom dirty and disorderly. In some cases a line rider was as careful as the most meticulous housewife in the matter of housekeeping. With an improvised broom made of a large bunch of tall grass tied to a stick, the earthen floor was swept until it was entirely clean. The tin plates, cups, and pans were washed and polished until they shone like new silver. On the bedstead made of poles or rough lumber was placed a "straw tick" filled with dry prairie grass. This covered with blankets made an excellent bed. A table was made of the boards from old boxes and chairs or stools from willows or empty wire spools (Dale 1942:120).

Thus, the cow camps, like the sheep camps, were generally transient establishments which disappeared with the end of the open range period in the West.

CHAPTER 10

CHRONOLOGICAL SUMMARY AND PROCESSUAL SYNTHESIS

This chapter summarizes the major prehistoric and historic events occurring in or affecting the study area. Using a cultural historical framework, it presents a synthesis of major changes over time in settlement patterns, land use, land tenure, and cultural systems. For the prehistoric era, archeological visibility limits our discussion to only the more major events. Existing data also restricts most explanations of prehistoric change to the status of hypotheses. For the historic era, detailed sequences of events and explanations for certain changes abound in documentary sources, but the potential of material manifestations toward understanding this era remain unexplored.

The earliest traces of man in Southern Idaho dating to about 15,000 years ago lie outside the study area at Wilson Butte Cave. They provide only a dim perception of his lifeways and the processes by which the study area was initially occupied. The chipped stone and bone artifacts from this occupation lack any stylistic traits identifying their relationship to other early sites. Fluted, lanceolate Clovis points occur occasionally in the study area, and may represent the earliest temporally distinct style in the area. However, none have been found in dated contexts in southeastern Idaho. Elsewhere in western North America Clovis points have been dated most frequently between 11,000 and 11,500 BP and many have been associated with Mammoth remains.

The earliest radiocarbon dated <u>in situ</u> diagnostic material is from the Wasden Site and consists of fluted Folsom Points and other stone tools which appear to be about 11,000

	13,000 BC	
Earliest Evidence of Man in Southern Idaho (Wilson Butte Cave)	12,000 BC	Climate cooler and moister than present Glacial Ice extensive in mountain areas gradually decreasing (approx.)
	11,000 BC	
		Glacier Peak Ash (approx.)
Folsom Elephant kill at Wasden Site (approx.)	10,000 BC	
	9,000 BC	Cerro Grande Lava Flow
	8 000 BC	Elephants extinct
	7,000 BC	Camels and horse extinct
Plano Bison kill at Wasden	6,000 BC	Essentially Modern climate and vegetation established at Swan Lake
Archaic Stemmed and Notched points replace Plano types	5,000 BC	Small animals preferring arid habitat become dominant at Wasden Site Mt. Mazama Ash
Warm and Dry Altithermal period (variable evidence) approx. 7,000-4,000 BP	4,000 BC	
	3,000 BC	
	2,000 BC	Hell's Half Acre Lava Flow Maximum warmth and aridity on Snake R. Plain (Butler 1978)
	1,000 BC	Temple Lake Neoglacial begins (approx.)
Intro of Bow and Arrow (approx.)		King's Bowl and Wapi Lava Flows Craters of the Moon Lava Flow
Fremont Culture present in Utah by this time		
	AD 1,000	
Hypothesized appearance of Numic languages		13th Century drought Gannett Peak Neoglaciation begins (approx.)
Appearance of Desert Side-notched Points and aboriginal ceramics (approx.)	AD 2,000	Native peoples acquire horses Euroamericans enter Study Area Bison extinct

Figure 24
Time Line
Class I Cultural Resource Inventory Of The Burley And Idaho Falls Districts Bureau Of Land Management

years old. This material is associated with the remains of elephant, camel, and an extinct form of bison. A variety of point styles referred to as Plano types characterize the next major prehistoric period or phases in the study area. Plano points associated with a species of bison with traits intermediate between modern and extinct forms date to 8000 BP at the Wasden Site. Researchers dealing with Paleo Indian materials from Southern Idaho uniformly draw parallels with contemporary styles and adaptations on the Plains, implying a movement of people into Idaho from the East, but no directionality of influence or related temporal variation is yet clear.

Significant environmental changes were taking place during the Clovis - Folsom - Plano transition. By 8000 to 10,000 years ago species of elephant and camel became extinct and the climate and vegetation were becoming more like that of the present. As climatic conditions moderated, vegetational zones shifted upward, forests and grasslands on the Snake River Plain became less extensive, and Alpine glaciers contracted.

A major change in material culture and possibly in subsistence and settlement patterns occurred around 5200 BC. Stemmed and Notched point styles replace lanceolate Plano styles and many researchers see a concurrent shift toward the exploitation of more diverse resources, including an increased emphasis on plant foods. However, little evidence for this subsistence change occurs in assemblages from the study area. In fact, through historic times aboriginal groups of southeastern Idaho depended more on large mammals than plants, especially in comparison to groups farther south.

Styles, economic adaptation, and various time periods from 5200 BC to ca. AD 1850 in the study area are labeled "Archaic whereas those immediately preceding the Archaic are labeled "Paleo Indian".

Paleoecological indicators document that the post-glacial climatic amelioration culminated in the establishment of basically modern environmental conditions shortly before or at about the same time as this cultural transition. Following this transition, material culture in the study area is most frequently compared with areas farther south in the Great Basin, but varying degrees of similarity to Plains material continue to be cited. Although these material culture similarities indicate interaction of some sort, the nature of these relationships in sociocultural or biological terms is unknown.

Many items of material culture remain relatively constant throughout the Archaic Stage, including many non-projectile chipped stone tools and even some major point types (Elko-series). Continuity in subsistence and settlement patterns is less obvious except at a very general level. Variable evidence exists for climatic conditions warmer and dryer than the present between 7000 and 4000 years ago. Although other areas in the arid west show evidence of range shifts or abandonment during this period, no such changes have been substantiated in the study area.

Any broad, relatively synchronous changes in material culture or adaptations between 5200 BC and AD 1250 are presently poorly defined. Several cultural phases have been defined on the basis of changing proportions of point types at some sites, but these phases have not yet been correlated with a sufficient number of other sites to define any area-wide discontinuities. A decrease in projectile point neck widths marks the introduction of the bow and arrow sometime around 2900 years ago. South of the study area in Utah, a major change occurs around 1700 years ago with the appearance of the Fremont Culture. Although Fremont ceramics and even agricultural traits may extend into the study area, they remain poorly dated and appear to be coextensive with traits in southern Idaho diagnostic of Shoshonean occupations.

The best defined change in the Archaic Stage occurs around AD 1250 with the introduction of ceramics associated with historically known Shoshonean speakers and the appearance of small side-notched points. These traits are used to define the Late Archaic Period. Linguistic evidence supports an arrival of Shoshonean languages in Idaho at about this time. Controversy exists however as to whether gene flow accompanied these material culture and linguistic traits. On the basis of the relative number of components in comparison to earlier periods, it appears that population density increased during the Late Archaic Period. Some hypothesize that this increase resulted from higher effective moisture levels and an increase in large mammal populations.

The introduction of the horse around AD 1700 led to significant changes in aboriginal settlement patterns and, to varying degrees, in other aspects of culture. These changes almost certainly included increases in exploitive range, bison utilization, interaction and trade with other groups, warfare, and at least temporary increases in the level of social organization and formal leadership. Mounted groups acquired many traits resembling those of Plains groups.

Although an important event, the initial intrusion of Euroamericans into the study area early in the nineteenth century probably caused less change than the horse. Fur trappers and explorers did introduce additional material culture traits through trade and no doubt contributed to the extinction of bison west of the Continental Divide by 1840. By this time the fur trade era ended due to beaver scarcity and lack of demand for furs. Between the collapse of the fur trade in 1840 and 1860, the only euroamericans in the study area were passing through on their way to Oregon or California, and aboriginal lifeways remained relatively intact. Although initially little settlement except for army posts occurred along them, the emigrant trails passing through southern Idaho were extremely important to the development of the West.

Around 1860 the discovery of gold and the establishment of the first permanent agricultural settlement in southeastern Idaho at Franklin marked the beginning of euroamerican dominance. By 1868 a treaty establishing the Fort Hall Reservation was signed and the Native Americans were becoming a minority in their homeland and were rapidly being forced to give up most of their traditional way of life. Although initial gold discoveries in Idaho occurred outside the study area boundaries, freight and stage roads leading to these discoveries passed through the study area and helped open it for settlement. The cattle and sheep industries also began during this period to supply meat and wool for the mining communities. The Mormon agricultural settlements just beginning in the southeastern corner of the state marketed butter, eggs, flour and other grains at the mining towns and encouraged the development of railroads to facilitate this trade.

In the 1870s development of the study area was spurred by the discovery of gold at American Falls and Cariboo. Chinese miners became a major ethnic group in the study area during this time, later followed by Japanese railroad workers in the 1890s and agricultural workers in the early 1900s.

During the 1870s and 1880s railroads replaced stage and freight roads on major routes and further stimulated economic development. Crowding on the Plains had contributed to the Idaho cattle industry and with the completion of the Oregon Short Line in 1885, cattle could be shipped directly to eastern markets. The industry grew until severe winters in 1886 and 1887 forced it to stabilize at somewhat lower levels of production. A lumber industry also developed to supply the needs of the railroads and communities were established along major routes.

By 1880 the Mormon communities in Cassia, Bear Lake, Franklin, and Oneida counties were well developed and cooperative dairies, flour, and woolen mills were established. New communities were also being established along the Upper Snake River, mainly by settlers from the Salt Lake City area. Because of its aridity, the key to permanent agricultural settlement of most of the study area was the irrigation technology previously developed by the Mormons in Utah. Early irrigation ditches and canals were constructed by community-wide cooperative efforts. Later private companies became involved as larger projects were undertaken.

The Depression of 1893 slowed the growth of Idaho agriculture, but the Carey Act of 1894 and the Reclamation Act of 1902 resulted in the settlement of most of the remaining arable land by 1930. Increases in the scale of irrigation projects culminated with huge federally funded projects implemented under these acts which expanded agricultural settlement to the limits that natural water supplies would allow, or in some cases, beyond. During the 1930s some marginal areas were abandoned due to lowered water tables and a period of severe drought.

The period of Euroamerican settlement saw drastic changes in the environment of the study area, and during the twentieth century these changes increasingly affected land use decisions previously made as if natural resources were unlimited. In areas subjected to irrigated agriculture, nearly all native vegetation was destroyed and the natural hydrologic system was completely altered. During peak irrigation periods the majority of the Snake River was diverted into canals and ditches. On lands used for seasonal grazing, which includes most of the remainder of the study area, excessive cattle and sheep grazing reduced or eliminated palatable grasses and forbs and allowed an increase in less desirable species. Overcutting depleted forests, especially those at lower elevations which were easily accessible and most vulnerable because of their slow growth rate.

Participation in a continent-wide cultural system in settling the study area protected Euroamericans to some extent from the consequences of resource abuse and environmental fluctuations. Although severe drought or resource depletion may not threaten group survival as it did during the prehistoric era, a drought of the magnitude which took place in the 1930s can certainly still cause dislocations and great hardship, especially at the individual or family level. A drought of the magnitude of that occurring between AD 1240 and 1290 could cause drastic changes throughout the arid west.

In the late nineteenth and early twentieth centuries, some perceived the finite nature of natural resources and the need for development to be planned and sustainable. As the government was disposing of the lands most suitable for settlement, a policy of retaining certain lands for public use under federal administration emerged. This trend attempted to counter the depletion and/or damage of natural resources taking place as public lands were privately developed or used for relatively short-term economic gains. This trend led to the establishment of the Forest Service, the Grazing Service, the Bureau of Land Management, and the Soil Conservation Service. Concurrently an awareness grew of the desirability of conserving some of the remaining undeveloped lands in their pristine state for both symbolic and ecological reasons. This led to the establishment of the National Park Service and eventually came to influence the policies of other land managing agencies. An interplay between development to secure short-term gains and conservation in order to insure long-term economic security and environmental quality characterizes twentieth century land use in the study area up to the present. The conservation of cultural resources is part of this trend towards recognizing the complete costs of development. The resources themselves document the history of man-land relationships and thereby constitute a source of data for future land use decision making.

CHAPTER 11

SUGGESTED MANAGEMENT OPTIONS AND RESEARCH DIRECTIONS

RECOMMENDATIONS BASED ON INTERVIEWS

Suggestions relating to future cultural resource research and management naturally arise from an overview study such as this. The suggestions in this chapter are based on the results of both Parts I and II of this report. This chapter also incorporates input from a number of people, other than the author, who are knowledgeable about the history and prehistory of the study area. We asked professional and amateur historians and archeologists, consulted during the project, what research goals or questions pertaining to the study area they thought were most critical. In addition, we solicited recommendations concerning cultural resource management options.

Respondents with backgrounds in historical research listed the following research topics, goals, or questions as being most important: railroads in southeastern Idaho; Nez Perce War; old stage and wagon roads; nomination of more structures to the National Register of Historic Places; origin of the name "Idaho"; and the collection of oral history from pioneers before they are all gone. Respondents with backgrounds in archeological research mentioned the following topics, goals, or questions: prehistoric settlement patterns (3); prehistoric cultural relationships or boundaries between southeastern Idaho and surrounding areas (2); Shoshonean migration (2); paleo-ecology; aboriginal ceramics; point typology; restudy of some existing collections; the pre-projectile point Paleo Indian transition; lithic source identification; the Fremont presence in southern Idaho; and early transportation networks of the historic period.

Three respondents mentioned the large regional gaps in the prehistoric archeology data base. Butler (1978: 76) recommends additional investigation of the Medicine Lodge-Beaver Creek area, the Idaho National Engineering Laboratory, the Fort Hall Indian Reservation, the Curlew Valley and the Deep Creek-Blue Spring Hills locality. Other poorly known regions mentioned include the Arbon Valley and the Fort Hall-Big Spring locality. Regional gaps are also indicated by the extremely small number of sites recorded in the state archeological site files for Teton, Madison, Jefferson, Bear Lake, and Franklin Counties.

The most frequently mentioned management concerns relate to the need for a better data base in order to permit the evaluation of research potential and to facilitate planning. It was suggested that federal agency cultural resource programs became more research oriented and conduct more than project clearance surveys. Related to this is the suggestion of one respondent that clearance data can be used to resolve some research questions. Two respondents believed federal agency cultural resource programs were understaffed and lacked adequate support facilities and another saw a need for them to upgrade their existing personnel. Two respondents also saw a need for more interaction or communication between federal and academic cultural resource professionals. One respondent criticized the "no-collection" methodology used in some federal programs. Two mentioned the need to recover data threatened by unauthorized surface collection.

ADDITIONAL RECOMMENDATIONS AND OPTIONS

Whether one is involved in pure research or cultural resource management, similar needs are present with respect to prehistoric cultural resources. We need to improve our ability to place archeological materials in a cultural historical framework on the basis of artifact styles and our ability to identify and explain site function in a regional context. For those involved in pure research these needs may be ends in themselves or they may enable additional questions concerning adaptation and change to be addressed. For those involved in management, these improvements are necessary in order to provide a data base for regional planning and for significance evaluation of specific sites.

Some specific recommendations can be made relating to these needs. Although additional excavation of radiocarbon dated stratified sites would certainly be helpful, less expensive options are also available. A restudy of points from the Birch Creek Rockshelters using standard Great Basin type designations would aid in the correlation of phase sequences and the definition of temporal periods. Thomas (1970) and Holmer (1978) have developed explicit, reproducible methods of point classification that might aid in such a study. Methods for formulating and testing models of regional settlement patterns developed by Thomas (1973) and Bettinger (1977) may also be useful in the study area.

The current Emigrant Trail Study being conducted by the Idaho State Historical Society is important as the first large-scale, systematic research project in the study area emphasizing the material remains of historic groups. Because of the lack of previous work, models, questions, and problems from outside the study area could initially help guide management and research at historic sites. Remains of structures or communities in the study area built by Mormon pioneers could be examined relative to a study by Leone (1972) of spatial patterning in Mormon settlements elsewhere in the west. No doubt other aspects of Mormonism could be studied through material remains. Baker (1978) explores the prospects for studying late nineteenth and early twentieth century sites in the Rocky Mountain West as expressions of the Victorian era. In the context of American Victorianism, he suggests exploring topics such as the growth of urban areas in the west, the acculturation and interaction of diverse ethnic groups, social structure and class relationships, and material culture identification and dating techniques (Baker 1978). The research conducted at Silcott in western Washington provides not only a rare example of the archeological investigation of an early twentieth century site, but a source of comparative data for evaluating similar sites in the study area (Adams et al. 1975; Gaw 1975).

The results of site record compilation indicate the need for better recording techniques. It would be useful if site forms used by different agencies could be standardized to the extent that comparable data would be recorded. Providing specific blanks for each site attribute instead of leaving a general blank for many attributes, might increase the frequency with which attributes like elevation or vegetation are mentioned.

Site record compilation also confirmed that a number of ongoing destructive processes are threatening sites. These processes are critical because their damage cannot be controlled through the project specific in-house clearance process. Some mitigative or protective measures may be necessary outside the project clearance process, such as funding, testing and/or salvage excavations at rockshelters threatened by subsurface vandalism or salvage surface collection of threatened diagnostics.

Future Class II cultural inventories could provide some of the critically needed settlement pattern and site function data. Past Class II inventories provide information useful for planning those yet to be conducted. Because of the results of past sample based inventories stratified on the basis of townships, 7.5 minute U.S.G.S. Quads, and drainage basins, it is suggested that future sample inventories be stratified on the basis of ecologically significant variables such as soils, vegetation, landforms, and topography. These variables are more likely to be relevant to prehistoric settlement patterns and consequently the samples drawn from strata based on them are more likely to be behaviorally meaningful. In addition, it is recommended that artifact collection be incorporated into future Class II inventories and other similar studies. Although some vociferously attack the no-collection strategy (Butler 1979), we agree with Judge (1980:5) that no-collection surveys may be appropriate as part of a multistage research program. Judge (1980:7) cautions, however, that if collection is completely eliminated, "the lack of a reference collection and the inability to classify sites properly may actually be more destructive to the resource base in terms of long-range management procedures." The lack of behaviorally meaningful site classifications seriously hampers the use of existing data from the study area. Better stratification and collection techniques for Class II inventories and similar studies may help us understand the functional variability of lithic scatters, the most common site type in the study area. These sites currently pose a management dilemma because they no doubt encompass more than one functional type (Warburton and Hansen 1979; Butler 1978:76).

We also recommend that federal agency cultural resource management activities include a program for nominating more sites to the National Register of Historic Places. Certain types of sites are currently poorly represented on the Register. Making the range of properties included more representative of the area's data base would create a good comparative base line for future significance evaluations. However, the nomination of all eligible properties in the foreseeable future should be acknowledged as an unrealistic goal.

We also need information on contemporary groups presently recognizing, associating with, or utilizing cultural resource properties within the study area. This will permit the identification of sites with ethnic significance. Unpublished data collected by Sven Liljeblad may provide a wealth of information on cultural resource properties significant to Native American populations. In addition, properties significant to contemporary Chinese and Japanese are no doubt present. Subgroups within the euroamerican population, such as the descendants of Mormon pioneers may also identify with certain properties. Although some information on ethnic significance may be gleaned from documentary sources, oral history research appears more useful. Oral history not only provides information on the significance of properties to extant groups, but provides important information for evaluating historical and archeological significance.

It should be noted that the management options included in this chapter are not intended to be exhaustive. Likewise, there may be additional research and management needs left unmentioned, although an effort was made to encompass a broad range of concerns. In conclusion, we reiterate that the pursuit of a broad range of research goals is the key to effective management. It is in large part research potential that justifies the conservation of cultural resources, and consequently an understanding of this potential is necessary to formulate appropriate management procedures.

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APPENDIX 1

INFORMANTS, INSTITUTIONS, AND ORGANIZATIONS CONSULTED

INDIVIDUALS

Dr. Adrienne Anderson, Regional Archeologist, Rocky Mountain Region, U.S. Department of Interior, National Park Service.

Isaac Barner, District Archeologist, Burley District, Bureau of Land Management.

Dr. Merrill D. Beal, Retired History Professor and author.

Gary Bettis, State Archives, Idaho State Historical Society.

Madeleine Buckendorf, Oral Historian, Idaho State Historical Society.

B. Robert Butler, Curator of Archeology, Idaho Museum of Natural History.

Jim Davis, Photo Archivist, Idaho State Historical Society.

Dr. Mark Druss, Anthropology Professor, Idaho State University.

Joe Gallagher, Forest Archeologist, Sawtooth National Forest.

APPENDIX 1 (CON'T)

H. Leigh Gittens, Retired Teacher, historian, and author.

Dr. Tom Green, State Archeologist, Idaho State Historical Society.

Rich Harrison, State Archeologist, Bureau of Land Management - State Office.

Dick Hill, District Archeologist, Idaho Falls District, Bureau of Land Management.

Larry Jones, State Archives (Maps and Site Files), Idaho State Historical Society.

Dr. Bert Marley, History Professor, Idaho State University.

Jim Mote, Historian, Denver Service Center, National Park Service.

Ken Swanson, Museum Registrar, Idaho State Historical Society.

Dr. Merle Wells, State Historic Preservation Officer, Idaho State Historical Society.

APPENDIX 1 (CON'T)

Jerry Wylie, Boise Zone Archeologist, U.S. Forest Service.

INSTITUTIONS AND ORGANIZATIONS

Idaho State University Library, Pocatello

Idaho State Historical Society, Boise

Idaho Museum of Natural History, Pocatello

Oakley Pioneer Museum, Oakley

Cassia County Historical Society, Burley

Bannock County Historical Society, Pocatello

Bingham County Historical Museum, Blackfoot

South Bannock County Historical Center, Lava Hot Springs

The Norman Herrett Museum, Twin Falls

Boise State University Library, Boise

State Library and Archives, Boise

The University of Michigan Graduate Library

University of Michigan Museum of Anthropology Library

Michigan State University Library

APPENDIX 2

CULTURAL RESOURCE COLLECTIONS

Virtually all prehistoric artifacts recovered from controlled excavations in the study area are housed at the Idaho Museum of Natural History, on the campus of Idaho State University in Pocatello. Corliss (1974) lists the most significant collections held there as of 1974. Major collections from within the study area proper include Malad Hill (10OA1, 10OA2), Rock Creek (10CA33), Wasden (10BV30), Weston Canyon Rockshelter (10FR4), and Willow Creek Rock-shelters (10BV22, 10BV36). Collections from sites near the study area which are important for comparative purposes include Bighorn Rockshelter (10LH45), Bison Rockshelter (10LL10), Haskett Site (10PR37), Jackknife Cave (10BT46), Little Lost Cave No. 1 (10BT1), Pence Duerig Cave (10JE4), Simon Site (10CM7), Veratic Rockshelter (10LL3), and Wilson Butte Cave (10JE6). Major collections from the study area acquired by the Museum since Corliss' (1974) study include Warm Creek Spring, Blacktail Park, Poison Creek, and surface collected materials from the Camas Creek-Little Grassy Planning Unit. Surface collected material from surveys of the National Reactor Testing Station and Craters of the Moon National Monument are also available at the Museum.

Small collections of prehistoric artifacts are housed at the Burley and Idaho Falls District Bureau of Land Management

Offices and at National Forest Offices in the study area. The South Bannock County Historical Center in Lava Hot Springs has a large collection of prehistoric artifacts and some other local societies have collections of varying sizes. Lack of provenience information is common in these collections. There are numerous large private collections throughout the study area but lack of provenience and ready access also makes their utilization difficult.

Historic artifact collections, documents, and photographs pertaining to the study area are somewhat more dispersed than prehistoric artifact collections from the study area. The Idaho State University Library in Pocatello maintains archives, a government document collection, the Intermountain West Room, and a periodical collection useful for historic research.

A major source of historical data is the Idaho State Historical Society in Boise. This state agency maintains historical artifact collections which include material from the study area ranging in age from the Fur Trade Era to the present. They also maintain the State Archives, including a map collection and photo collection. The photo collection is statewide, and is indexed according to region, subject, and name. A notable part of this collection are the over 2000 photos taken by Clarence E. Bisbee in the Twin Falls-

Magic Valley area between 1904 and 1934. Oral history transcripts are also part of the Society's holdings.

Some local historical societies did not respond to inquiries and were assumed to be inactive. Artifact and archival collections at those societies consulted were highly variable.

The Oakley Pioneer Museum includes news clippings, books, a photo collection from the Oakley area and historical artifacts from the Round Valley-Oakley area. The Cassia County Historical Society maintains news clippings and books, railroad artifacts and other historical artifacts, and a photo collection, all focusing on Cassia County. Collections at the South Bannock County Historical Society in Lava Hot Springs include family histories, newspapers, approximately 1800 photographs, and a large number of historic artifacts. The Bingham County Historical Museum specializes in Blackfoot area history and contains a small photo collection and pioneer artifacts. The Bannock County Historical Society is located in Pocatello and specializes in the history of that area. They have a collection of city directories, a small number of photographs, newspapers, books and bibliographies on Idaho history, and historical artifacts.

Appendix 3. Season of Availability and Habitat Preferences of Major Native Plant Foods Utilized in the Study Area.

Storable Roots			
Scientific Name	Common Name	Season	Location
Cirsium spp.	Thistle	Flowers June-early August.	Moist to wet soil, open meadows, valleys to 8000 ft.
Carum gairdneri	Yamp	Flowers mid-June to late August.	Meadows, open hillsides, aspen woods, damp soil.
Valeriana edulis	Tobacco root	Flowers May, June, and July Poor quality in fall	Moist to wet soil on mountains and hills almost to timber line. Moist open places, dry meadows and slopes.
Calochortus _C. nuttallii_	Mariposa or Sego Lily	Blooms June, early July	Camas Prairie Low to timber-line, open slopes, plains, and meadows or in partial shade. Dry, well drained plains or hillsides at low elevations.
Camassia quamash	Camas	Best to eat in fall but can be eaten anytime. Best to identify when in flower, June-July, mid-April-mid July.	Camas Prairie Moist open meadows, streambanks.

Appendix 3 continued. Season of Availability and Habitat Preferences of Major Native Plant Foods Utilized in the Study Area.

Storable Roots			
Scientific Name	Common Name	Season	Location
Typha latifolia	Cattail	Available anytime but richer at end of season	Usually below 6000-7000 ft Moist or wet places.
Lappula or *Haekelia* spp.	Stickseed	Summer	Dry areas.
Lewisia rediviva	Bitterroot	Flowers late April-early July Root probably best before flowering	Stony hills, ridges, slopes plains to about 8000 ft sagebrush, grassland.

Appendix 3 continued. Season of Availability and Habitat Preferences of Major Native Plant Foods Utilized in the Study Area.

Storable Seeds			
Scientific Name	Common Name	Season	Location
Helianthus annus *H. aridus*	Sunflower	Late summer	Moderate-low elevation to 7000 ft open plains and valleys. Medium moist to arid ground.
Chenopodium rubrum *C. capitatum* *C. leptophylum* *C. fremonti*	Pigweed, Lamb's quarter, Goosefoot		Wet soil Dry soil Dry soil Dry soil
Sophia spp. or *Descurainia* spp.	Tansymustard		Dry soil, valleys.
Elymus	Rye Grass		Sagebrush-grassland
Oryzopsis	Indian Ricegrass		Sagebrush-grassland
Typha latifolia	Cattail	Summer	Usually below 6000-7000 ft moist or wet places.
Lappula occidentalis (possible *Hackelia* spp.)	Stickseed	Summer	Moist to medium dry, foothills to around 8000 ft often with sagebrush.
Rosa ultramontana	Wildrose	Late summer-fall	Moist soil along stream. Woods, plains, thickets, hills.

Appendix 3 continued. Season of Availability and Habitat Preferences of Major Native Plant Foods Utilized in the Study Area.

Storable Seeds			
Scientific Name	Common Name	Season	Location
Pinus flexilis *P. albecaulis*	Whitebark pine Timber pine	September	Spruce-fir zone, above 8000 ft.
Pinus monophylla	Pinyon or Pine Nut Pine	Early Fall	Mainly in Cassia, Twin Falls, and Oneida Countie[s], in uplands approx. 5000-7000 ft., usually associated with juniper but ha[s] more restricte[d] range.

Appendix 3 continued. Season of Availability and Habitat Preferences of Major Native Plant Foods Utilized in the Study Area.

Storable Berries			
Scientific Name	Common Name	Season	Location
Prunus	Chokecherry	Summer	Moist soil along creeks in valleys, on hills and mountain sides to about 8000 ft.
Amelancher glabra *A. alnifolia*	Serviceberry	Summer, July-August	Streambanks, moist hill-sides in woods or open places.

References for Appendix 3: Steward 1938; United States Department of Interior 1977; Daubenmire 1952a; Davis 1952; Daubenmire 1952b; Craighead and Craighead 1963; Hitchcock and Cronquist 1973.

APPENDIX 4

DESCRIPTIONS OF ABORIGINAL POTTERY

"Shoshoni Ware" (Plew 1979:330, after Rudy 1953:94)

Construction: Coiled and molded
Firing: Uncontrolled atmosphere (?)
Core Color: Generally reddish brown, ranging from dark gray through reddish brown to almost black.
Temper: Variable; when reviewed with a hand lens it appears as quartz sand ranging from fine to coarse, with occasional fragments of a light, opaque angular material and small amounts of mica. The thin section analysis shows the temper to be "crushed granitic rock or subangular sand that has been derived from granitic rock."
Core Texture: Coarse, occasionally medium.
Surface Finish: Poorly smoothed; scraped by a stick; striations common. Surface undulating. Occasional sherds well smoothed but not polished.
Surface Color: Reddish brown or buff, occasionally gray grading into dark brown; some almost black.
Vessel Walls: Strong to friable--principally friable.
Shapes: "Flower pots" and jars with pointed bases. Ethnographic reports also indicated bowls.
Rims: Straight and out-curved.
Wall Thickness: Average, 7 mm; range, from 4 to 8.5 mm.
Decorative Techniques: Occasionally fingernail impressions vertically placed in horizontal bands just below the rims; most sherds plain.

Tuohy's (1956:61-65) classification of "Idaho Shoshoni Wares" generally conforms to the type description given by Rudy.

"Southern Idaho Plain Ware" (Plew 1979:330-331)

Construction: Coiling and scraping
Firing: Reducing atmosphere
Core Color: Dark gray/black/dark brown
Temper: Fine Sand containing quartz/occasionally basalt or other crushed granitic material/mica. Material appears to be locally acquired.

APPENDIX 4 (CONT.)

Core Texture: Medium to relatively fine
Surface Finish: Smooth. Striations are usually not visible, with a light polish occurring on some sherds.
Luster: Dull to waxy
Surface Color: Gray/gray-brown/beige with occasional dark black sherds
Vessel Walls: Strong
Vessel Shape: Mainly body sherds representing what frequently appear to be bowl forms. Occasional evidence of globular vessels with vertical necks.
Rim Form: Straight to excurvate with occasional marked lips which are flat and well smoothed.
Wall Thickness: Average range is 4-5 mm in diameter. Occasional specimens may be 7 mm.
Decorative Techniques: None

"Great Salt Lake Gray" (Madsen 1979:80)

Construction: Coiled
Core Color: Predominantly dark gray with occasional buffs and reddish browns. Occasionally light gray.
Temper: Predominantly volcanic glass and small amounts of quartz. Ranges from fine to medium (0.1 to 3.0 mm). The paste is coarsely micaceous. Under a hand lens the temper appears as a medium-sized quartz.
Core Texture: Generally medium, ranging to medium coarse, occasionally fine. The sandy texture, due to large quantities of temper, results in a friable fracture. The temper makes up between 30 and 40 percent of the wall.
Surface Finish: Smoothed to slightly polished. Mica conspicuous on both surfaces. The exterior surface is usually smoother than the interior surfaces. The exterior surface is slightly pitted but is not identical with Lino Gray. Striations are generally found on the interiors.
Surface Color: Predominantly dark gray, ranging from light gray through dark gray to almost black. Some buffs.
Wall Thickness: Average 4.9 mm.; range, from 3 to 6.5 mm.
Rims: Out-curved
Decorative Techniques: Punching and applique (incising and fingernail impressions) (modified from Rudy (1953:81)).

APPENDIX 4 (CONT.)

"Shoshonean Pottery" (Coale 1963:1-2)

The most outstanding, and therefore perhaps the most diagnostic, characteristic of the ceramic ware under discussion, is its shape. Normally, vessels of this ware are generalized truncated cones, flat-bottomed with straight walls which are flared out of the vertical plane at angles of from approximately five to twenty-five degrees. The form of a vessel may vary from this norm in two respects without falling outside of the ware shape range. First, the shoulder formed by the juncture of the bottom and wall may constitute a simple angle, or it may have an annular flange development. Secondly, the wall may be slightly inverted at the mouth so that the greatest diameter of the vessel may fall at a distance approximately one-third of the vessel-height below the rim. In vessels which the writer has seen, body proportions approached the following ratio: greatest diameter equal to vessel height; base diameter equal to one-half height.

Ranking next most important as a diagnostic feature is tempering material. The temper consists quite regularly of grit, sand or crushed rock. In the case of grit and sand, the paste may not always have been intentionally tempered since these aplastics occur naturally in sedimentary clays. Quartz fragments may also be natively present in imperfectly decomposed residual clays. The temper is ordinarily quite coarse compared with Puebloan wares, but still there is a great deal of variability of temper-particle diameter within Shoshonean pottery as a unit. Douglas Osborne (unpublished Ms.) has proposed that the Washington State Museum collection of sherds from the Snake River Shoshone area represents two distinct wares, differentiated on the basis of temper coarseness, which he has tentatively termed "Snake River Shoshone Coarse" and "Snake River Shoshone Fine." The coarse ware tempered ranges in diameter from 2.5 to 3.0 mm while the fine ware has a range from 0.3 to 2.0 mm. It still has not been decisively proven, as yet, that these two wares represent anything more than variants within a single range. The pastes of both wares, for example, show essentially the same color and hardness.

APPENDIX 4 (CONT.)

The surface finishes do not demonstrate any consistent technical differences, and apparently most of the sherds of both types show some evidence of "paddling." Wall thickness (Coarse: 7.3 mm aver.; Fine: 6.8 mm aver.), bottom thickness, rim form, body shape are very nearly the same for both wares. The question of temper will be discussed at greater length below in connection with the analysis of other sherds at the Washington State Museum.

A further note with regard to paste characteristics is the friability and the tendency to crumble noted in Shoshonean pottery. This is more than likely the result of the coarseness of the aplastics in the paste together with the high quantitative content of temper and low firing temperatures. Occasional sherds also show a tendency to exfoliate which is the probable outcome of the paddling treatment noted above with the Snake River Shoshone wares.

The surface treatment of Shoshonean pottery, evidenced by numerous sherds, varies from roughly scraped to well smoothed and "floated" (manipulation of the paste surface with a moistened instrument). The smoothing and floating operation occurs generally on the exterior surfaces. Floating may impart a pseudo-slip appearance to the finish, but the finish is always plain, without the addition of a slip or wash. Pots are seldom decorated, ornamentation usually being limited to incised or indented geometric designs in a narrow zone around the firm, either inside or out.

As to methods of construction, both coiling and "modeling" techniques appear to have been used to fashion the vessels. In most, if not all, cases, construction has been completed by paddle-and-anvil treatment. According to Steward (1943:319), true coiling was limited among the Northern Shoshone to the Grouse Creek Shoshone and the Gosiute, both southerly groups, while further north the Lemhi and Bannock built up their vessels with pats of clay. The suggestion here is that coiling per se is indeed the result of Southwest influence, and that the non-coiled technique of construction can be isolated as

APPENDIX 4 (CONT.)

the method originally concomitant with the ware being described. Osborne reports coiling in his Snake River Shoshone collection, however, and Gayton (1929:246) reports the modeled technique for the Yokuts and Western Mono. The result is a badly skewed distribution and, for the moment, we must accept both methods of manufacture as allowable variants, establishing neither as a criterion.

Firing temperatures and methods appear to have been highly variable, but it would seem that compared with the technically superior potteries of the Southwest, firing of Shoshonean pottery must have been at consistently lower temperatures. The general grey or greyish cast of large numbers of sherds and pots suggests that a reducing atmosphere was the rule. Brown to buff sploches which are frequently present indicate oxidation at higher firing temperatures due to two possible causes: 1. uneven and poorly controlled firing, or 2. subjection to subsequent, higher temperatures in cooking use. Even so, examination of sherd sections shows that the zone of oxidation present in these cases seldom penetrates the thickness of the wall. Low firing temperatures coupled with reduction atmosphere, then, must be added to our list of characteristics.

Yet another feature of Shoshonean pottery is the occasional addition of a so-called filler on the rough interior of vessels to produce a smooth water-proof surface. This material is an organic gum or mucilage derived from the sap of several plant families. Its use has been reported among the Gosiute and Owens Valley Piaute (Chamberlin 1911:66; Steward 1933:266).

APPENDIX 5

Account of Sundries supplied the Snake Expedition
18 August 1827 (from Williams 1971)

		£	s.	d.	£	s.	d.
$8\frac{1}{2}$ Doz. Indian Awls	$3\frac{1}{2}d.$	–	2	6			
27 Lbs. fine Blue Glass Beads	4/6	6	1	6			
6 doz. large Horse Bells	11/–	3	6	–			
$\frac{1}{6}$ „ small „ do.	5/–			10			
8 Plain Blankets $2\frac{1}{2}$ points	6/–	2	8	–			
10 Gross W & metal Coat Buttons	5/3	2	12	6			
2 „ „ „ Jacket do.	3/–		6	–			
6 Lbs. Mould Candles	9d.		4	6			
$\frac{1}{4}$ „ Cinnamon	10/–		2	6			
$\frac{1}{16}$ „ Cloves	5/–			4			
4 „ Coffee	8d.		2	8			
3 p's. Ell wide Ind. figd. Cotton	28/–	4	4	–			
1 Pack Playing Cards				8			
$\frac{1}{2}$ doz. $\frac{1}{2}$ round Bastard files 14 In.	13/10		1	2			
$\frac{1}{2}$ „ flat do. 14 „	„		1	2			
$\frac{1}{6}$ „ Armourers do.	8/–		1	4			
$\frac{1}{6}$ „ Polishing do.	11/8		1	11			
$\frac{1}{12}$ „ Rattail do.				3			
$\frac{1}{12}$ „ Hand Saw do.	3/6			3			
$\frac{1}{12}$ „ Three Square do.	11/–			11			
1 Yard White flannel			1	4			
$\frac{1}{4}$ Gross Plain Garters	7/6		1	10			
$\frac{1}{4}$ „ Scarlet do.	10/4.		2	7			
1 Small Gimlet				1			
1 Spike do.				4			
6 doz. P.C. Looking Glasses	$2/4\frac{1}{2}$		14	3			
2 Com. NW Guns	25/6	2	11	–			
216 Gunflints	12/–		2	7			
208 Lbs. Gunpowder	7d.	6	1	4			
$\frac{1}{2}$ Gross Wire Gunworms	2/–		1	–			
50 Small Kirby Hooks M	8/9			5			
5 Lbs. Iron Hoop				10			
$7\frac{1}{4}$ „ Covered Copper Kettles	2/2		15	8			
Carried forward		30	12	3			

Appendix 5 (continued)

			£	s.	d.	£	s.	d.
& Amount Brought forward			30	12	3			
$2\frac{1}{4}$ Gross Scalping Knives		51/–	5	14	9			
1 Cod Line 24 thds.				2	–			
$\frac{3}{4}$ doz. fishing Lines		5/6		4	1			
$\frac{1}{12}$,, Chalk do.					3			
$\frac{1}{3}$,, Mackerel do.		6/6		2	2			
$\frac{1}{8}$ Lbs. Nutmegs		7/–			10			
$8\frac{1}{2}$,, Black Pepper		10*d.*		7	1			
$\frac{1}{4}$ doz. Tin Camp Plates		12/–		3	–			
1 Japd. Pot $\frac{1}{2}$ pint					5			
5 Gross Plain Brass Rings		3/10		19	2			
36 Lbs. Rope	Cwt.	51/–		16	5			
$\frac{70}{112}$ Cwt. Beaver Shot	,,	28/–		17	6			
$3\frac{50}{112}$,, L.I. do. Ball # 28	,,	31/–	5	6	10			
$\frac{1}{4}$ doz. Tutania Table Spoons		3/4			10			
2 ,, Oval polished Fire Steels		2/–		4	–			
1 Rag Stone					3			
1 Piece Corn Blue Strouds			3	8	–			
$1\frac{48}{112}$ Cwt. Crushed Sugar		43/–	3	1	5			
$8\frac{1}{4}$ Lbs. ,, do.		,,		3	2			
$5\frac{3}{4}$,, Hyson Tea		4/9	1	7	4			
4 ,, Twankey do.		3/8		14	8			
35 ,, Leaf Tobacco		$4\frac{1}{2}$*d.*		13	1			
$137\frac{1}{4}$,, Twist do.		1/–	6	17	3			
$\frac{1}{4}$ doz. Glass Tumblers		12/6		3	1			
1 Skein Holland Twine				1	5			
1 Lbs. Net Thread do.				2	3			
$2\frac{1}{2}$,, Brass Collar Wire		1/9		4	5			
$3\frac{1}{2}$,, Iron Wire		$4\frac{1}{2}$*d.*		1	3			
			62	9	2			
Advance 70 p. Cent			43	14	5	106	3	7
Stationery								
3 Basil Bod 8vo. Memo. Books		1/–		3	–			
1 Half ,, foolscap do. 2 quires				4	2			
1 Stiff sewed ,, do. $1\frac{1}{2}$,,				3	–			
$\frac{1}{6}$ doz. Black Inkpowder		3/6			7			
1 quire Cartridge Paper				1	7			
2 Qre. Plain folio Paper		1/10		3	8			
2 ,, ,, 4to. do.		9*d.*		1	6			
1 ,, Yell. wove uncut do.					7			
Carried forward				18	1	106	3	7

Appendix 5 (continued)

		£	s.	d.	£	s.	d.
& Amount Brought forward		–	18	1	106	3	7
$\frac{1}{3}$ doz. Slate Pencils				1			
$1\frac{1}{2}$ „ Mixed String Quills Cwt.	10/–		1	10			
1 Slate				6			
$\frac{1}{8}$ Lbs. Black Sealing Wax	5/–			8			
$\frac{1}{4}$ „ Red „ do.			1	3			
$\frac{1}{2}$ doz. Office Tape				3			
		1	2	8			
Advance 70 p. Cent			15	10	1	18	6
Provisions							
80 Lbs. Salt Beef	5*d.*	1	13	4			
3 Gallons Brandy	3/8		11	–			
3 Bushl. Indian Corn	5/–		15	–			
1 „ „ „ Meat			5	11			
$2\frac{76}{112}$ Cwt. Flour	20/10	2	5	10			
36 Bush. rod. White Pease	6/6	11	14	–			
1 „ split „ do.			10	6			
50 Lbs. Rice Cwt.	25/–		11	2			
21 Galls. Demerara Rum	2/4	2	9	–			
2 „ Jamaica do.	3/2		6	4			
$\frac{1}{8}$ Bush. Salt	2/3			3			
60 Lbs. Refined Tallow	$7\frac{1}{2}$*d.*	1	17	6			
		23	9	10			
Advance 70 p. Cent		16	8	10	39	18	8
Country made Articles							
10 Round Headed Axes Half	3/1	1	10	10			
2 „ „ do. Small	1/7		3	2			
7 Square „ do. „	2/7		18	1			
30 Corn Bags Osnaburgs		3	17	6			
2 Flour do. Sheeting	4/3		8	6			
6 Shot do. Canvas	2/6		15	–			
50 Lbs. Biscuit	4*d.*		16	8			
1 Tin Canister 6 lbs.			2	9			
1 Tin Canister 2 lbs.			1	8			
6 Assorted Cold Chisels	1/–		6	–			
2 Tin Cups 1 Pint	1/–		2	–			
Carried forward		9	2	2	148	–	9

		£	s.	d.	£	s.	d.
& Amount Brought forward		9	2	2	148	–	9
6 Drills	3*d.*		1	6			
1 Pr. Stirrup Irons			7	6			
24 large Hunters Knives	1/6	1	16	–			
16 Small „ do.	1/–		16	–			
2 Oval Tin Pans	2/–		4	–			
1 Pr. Pincers			1	6			
1 Tin Pot 3 pints with cover			2	–			
4 Punches	6*d.*		2	–			
18 Ell wide Calico Shirts	6*d.*	5	8	–			
4 Fire Steels with Screws	6*d.*		2	–			
140 Beaver Traps with Chains	12/6	87	10	–			
20 „ „ Chains	2/8	2	13	4			
170 „ „ Ketches	1*d.*		14	2			
10 Pr. „ „ Jaws	2/–	1	–	–			
50 „ „ Nuts	3*d.*		12	6			
20 „ „ Springs	2/–	2	–	–	112	12	8
Country Produce							
61 Appechemons	1/3	3	16	3			
24 Lbs. Butter	1/6	1	16	–			
1 Case p. Guns			10	–			
1 „ „ Irons			3	–			
2 Oak Kegs 9 Galls.	5/–		10	–			
1 „ do. 4 „ painted			4	6			
3 „ do. 3 „	3/6		10	6			
2 „ do. 2 „	3/–		6	–			
1 „ do. 3 „			2	6			
1 „ do. 2 „			2	3			
5 Leather Lodges	20/–	5	–	–			
18 dressed Red Deer Skins	2/6	2	5	–	15	6	–
10 Lbs. Canton Beads	1/–		10	–			
72 Yards Orice Lace	6*d.*	1	16	–			
1 Hand Hammer			2	8	2	8	8
437 Rations to Men	6*d.*	10	18	6	278	8	1
27 Regales „ „ on arrival	2/8	3	12	–			
28 „ „ „ „ departure	„	3	14	8	18	5	2
Sundries Supplied to Freemen not included in Genl. Shop Sales Vizt.							
⅛ Gross Indian Awls	3/6			5			
Carried forward				5	296	13	3

		£	s.	d.	£	s.	d.
& Amount Brought forward				5	296	13	3
$3\frac{1}{2}$ doz. Small Horse Bells	5/–		17	6			
$\frac{1}{12}$ „ House do.				6			
6 Plain Blankets 3 points	7/7½	2	5	9			
20 „ do. $2\frac{1}{2}$ „	6/–	6	–	–			
9 „ do. 1 „	2/8	1	4	–			
$\frac{1}{3}$ doz. Steel Tobacco Boxes	10/–		3	4			
$2\frac{5}{12}$ Gross W & Y Metal Coat Buttons	5/3		12	8			
3 „ „ „ Jacket do.	3/–		9	–			
1 Blue Cloth Capot $3\frac{1}{2}$ Ells			9	3			
2 Mixed „ do. 4 „	19/–	1	18	–			
6 Yards Scarlet printed Cassemire	5/–	1	10	–			
4 „ Blue Bath Coating	„	1	–	–			
$1\frac{1}{3}$ „ Red „ do.	4/–		5	4			
3 „ White do.	3/6		10	6			
$\frac{11}{12}$ doz. large horn Combs	2/6		2	4			
$26\frac{7}{8}$ Yards Furniture Cotton	1/2	1	11	4			
$32\frac{1}{2}$ „ Ell wide Ind. figd. do.	1/7	2	11	5			
$\frac{1}{2}$ Oz. Cochineal				7			
$\frac{1}{12}$ doz. Hand Dags 8 In.			1	2			
10 Yards 4d. Silk Ferrets	2*d.*		1	8			
$\frac{1}{3}$ doz. flat Bastard Files 9 In.	5/10		1	11			
$\frac{1}{4}$ „ „ „ do. 10 „	8/–		2	–			
$\frac{1}{6}$ „ „ „ do. 12 „	9/8		1	7			
$\frac{1}{4}$ „ $\frac{1}{2}$ round„ do. 8 „	4/7		1	2			
$\frac{1}{6}$ „ „ „ do. 10 „	6/8		1	1			
$\frac{1}{6}$ „ Three Square do. 10 „	8/3		1	4			
$\frac{1}{6}$ „ „ „ do. 12 „	11/–		1	10			
4 Yards Blue Flannel	1/4		5	4			
8 „ Red do.	„		10	8			
2 „ Corn White do.	1/2		2	4			
8 Yards fine White Flannel	1/4		10	8			
$\frac{7}{8}$ Gross Assd. Gartering	9/–		7	10			
$\frac{1}{6}$ doz. P.C. Looking Glasses				5			
6 Com. N.W. Guns	25/6	7	13	–			
$40\frac{1}{2}$ Lbs. Gunpowder	7*d.*	1	3	8			
90 Gunflints M	12/–		1	1			
$\frac{1}{3}$ Doz. Wire Gunworms				1			
$\frac{1}{12}$ „ Cambric Cott. pocket Handkfs.				6			
$1\frac{1}{6}$ „ Check Romall „	12/–		14	–			
$\frac{1}{3}$ „ large black silk do.	44/–		14	8			
$\frac{2}{3}$ ps. Romall pull. „ do. (15)	45/–	1	10	–			
3 Mens Water proof Beaver Hats	12/–	1	16	–			
Carried forward		37	15	11	296	13	3

Appendix 5 (continued)

		£	s.	d.	£	s.	d.
& Amount Brought forward		37	15	11	296	13	3
1 Boys wool do.			3	–			
19 Lbs. Open Brass Kettles	2/4	2	4	4			
$2\frac{1}{4}$,, ,, Copper do.			5	3			
$5\frac{1}{6}$ doz. Scalping Knives	4/3	1	1	11			
35 Yards Com. Irish Linene	1/6	2	12	6			
134 Brown Thread Needles				5			
24 Darning do.				2			
148 White Chapet do.				9			
14 Yards Tow Osnaburg	$6\frac{1}{4}$*d.*		7	3			
2 Lbs. Black Pepper	10*d.*		1	8			
$\frac{5}{24}$ doz. Pins	20/–		4	2			
$\frac{1}{6}$ ps. 4d. Ribbon	4/2			8			
$1\frac{1}{2}$,, 6d. do.	5/6		8	3			
$1\frac{1}{2}$,, 9d. do.	9/10		14	9			
$\frac{1}{4}$ Gross Plain Brass Rings	3/10			11			
$\frac{7}{12}$ doz. Womens Com. Scissars	2/9		1	7			
4 Yards Imitn. Sheeting	1/9		7	–			
18 ,, Russia do.	2/4	2	2	–			
6 Mens Com. Striped Cott. Shirts	$2/6\frac{1}{2}$		15	3			
19 Lbs. Beaver Shot	3*d.*		4	9			
80 ,, L.I. do. Cwt.	31/–	1	2	2			
29 ,, Yellow Soap	6*d.*		14	6			
$\frac{3}{4}$ Doz. Oval Polished Fire Steels	2/–		1	6			
$33\frac{1}{3}$ Yards Com. Blue Strouds	3/3	5	8	4			
$\frac{1}{2}$,, HB White do.			1	7			
66 Lbs. Crashed Sugar	43/–	1	5	4			
2 ,, All Color Thread	2/9		5	6			
1 ,, Wh. Bro. do.			2	9			
$1\frac{1}{2}$,, Stitching do.	5/2		7	9			
21 ,, Carrot Tobacco	7*d.*		12	3			
11 ,, Leaf do.	$4\frac{1}{2}$*d.*		4	2			
$36\frac{1}{2}$,, Twist do.	1/–	1	16	6			
1 pair fine Blue Cloth Trousers			17	9			
$\frac{1}{6}$ doz. Japd. Tumblers 1 pint	5/9		1	–			
$\frac{3}{4}$,, ,, do. $\frac{1}{2}$,,	4/–		3	–			
$\frac{5}{12}$,, Holland Twine	17/–		7	1			
$1\frac{1}{2}$ Lbs. Collar Wire	1/9		2	8			
		63	6	4			
Advance 70 p. Cent		44	6	5	107	12	9
Carried forward					404	6	0

		£	s.	d.	£	s.	d.
& Amount Brought forward					406	6	0
Provisions							
$1\frac{26}{112}$ Cwt. Flour	20/10	1	5	8			
6 Lbs. Molasses	3*d.*		1	6			
$1\frac{1}{8}$ Gall. Jama. Rum	3/2		3	7			
$\frac{1}{3}$ Bush. Salt	2/3			7			
32 Lbs. Refined Tallow	$7\frac{1}{2}$*d.*	1	–	–			
		2	11	4			
Advance 70 p. Cent		1	15	11	4	7	3
Country made Articles							
3 Round headed Half Axes	3/1		9	3			
1 Tin Kettles 1 Gall.			3	5			
4 ,, Pans ⅌ 4	1/6		6	–			
11 Ell Wide Calico Shirts	6/–	3	6	–			
1 Blue Flannel do.			7	8			
1 Pair Sheeting Trousers			5	6			
2 Gunlocks repaired			4	–	5	1	10
9 dressed Red Deer Skins	2/6	1	2	6			
36 ,, Chev. ,, do.	1/6	2	14	–	3	16	6
$22\frac{1}{2}$ Lbs. Com. Canton Beads	1/–	1	2	6			
$1\frac{1}{18}$ Gross Hawk Bells	3/–		4	10			
2 Yards White Bath Coating damaged	3/6		7	–			
2 Blue & Grey Cloth Jackets	9/3		18	6			
2 ,, ,, do. do. damaged	4/–		8	–			
1 Corduroy do.			8	9			
$38\frac{1}{2}$ Yards Orice Lace	6*d.*		19	3			
3 Com. Pistols	14/7	2	3	9	6	12	7
				£	424	4	2

PART II

CULTURAL RESOURCE SITE RECORD COMPILATION

CHAPTER 1

BACKGROUND AND METHODOLOGY

Sources utilized in compiling known cultural resource site records include: the Idaho Museum of Natural History in Pocatello, the Bureau of Land Management District Office in Idaho Falls, and the Caribou National Forest Supervisor's Office in Pocatello. It was determined that up-to-date records for the Bureau of Land Management's Burley District and for Targhee and Sawtooth National Forests were present in the Idaho Museum of Natural History Files. An historic site listing put out by the Idaho State Historical Society in Boise and the National Register of Historic Places were also consulted.

Site record data was compiled by Mark R. Luther and Steven E. Wright, working under the supervision of Dr. Mark Druss, who served as a consultant for site record compilation. The only major problem encountered during this portion of the study was a delay in securing access to site records at the Idaho Museum of Natural History in Pocatello. Since the maintenance of site files at this institution is supported by funds administered through the Idaho State Historical Society, the State Historic Preservation Officer was informed of this delay. Shortly thereafter access to the files was granted. Site record compilation began on January 21, 1980, and was completed on May 21, 1980. During this study all known cultural resource sites were plotted on BLM Planning Unit maps (Exhibit A).

The most centralized repository of site information for the study area is the Idaho Museum of Natural History. They maintain the state site files for the region including the study area, which includes site records submitted by the

BLM, and a separate file system for sites on National Forest Land. They also have a copy of the historic site list produced by the Idaho State Historical Society. Other site files are maintained at the Burley and Idaho Falls District Offices of the Bureau of Land Management, the Caribou National Forest Supervisor's Office in Pocatello, the Sawtooth National Forest Supervisor's Office in Twin Falls, and the Targhee National Forest Supervisor's Office in St. Anthony. All of these federal agencies periodically submit site forms to the Idaho Museum of Natural History. To the extent that these submittals are kept up-to-date, site file searches can be simplified by requiring only one source to be checked. However, it is recommended that researchers conducting file searches at least contact the various federal agencies to determine how up-to-date their listings are at the regional center in Pocatello.

Sites entered into the state files are assigned a Smithsonian number, with the prefix "10" for Idaho. County letter codes within the study area include BK (Bannock), BL (Bear Lake), BM (Bingham), BN (Blaine), BT (Butte), BV (Bonneville), CA (Cassia), CL (Clark), CR (Custer), FM (Fremont), FR (Franklin), JF (Jefferson), MO (Madison), OA (Oneida), PR (Power), TF (Twin Falls), and TN (Teton). The Bureau of Land Management's trinomial system includes a letter prefix for archeological (AR), paleontological (FS), or historical (HS) sites, a state number, a district number, and a site number. An example of the U.S. Forest Service site numbering system consists of a Forest Site Number (TG103) a district number (1560), and a county number (16033). Recorded cultural resource sites within the study area total 2025. Of these, 455 are listings from the state historic site print-out and the rest are from cultural resource site files.

The methodology used in compiling site record information centered around computer processing of coded information on each site. The SPSS subprograms FREQUENCIES and CROSSTABS (Nie et al. 1975) utilized for this study were run on the IBM 360 computer at the Idaho State University Computer Center. Basic information on each recorded site is included in a site summary table (Exhibit B).

Variables selected for this portion of the study included both cultural and environmental characteristics of sites. Our basic goal was to evaluate the quality of existing site data and in the process generate as much useful management information as possible. By permanently saving the SPSS system file created during this study a management and research tool will be available for future reference.

Even before research began we realized that the quality of site form data and the probable nonrepresentative nature of our site sample would make the search for meaningful environmental correlations of site location difficult. Nonetheless we coded environmental information from site forms in order to at least get an idea of the quality of the data present. Because of the variation in how the site information was originally collected, there is no way to statistically evaluate the representativeness of the 2025 sites in our sample. However, it does provide quantitative data to augment the impressionistic generalizations most archeologists use in thinking about the area's data base.

For each of the 2025 cases included in this study information was initially sought for 43 variables. Some additional variables were later created from information included in the initial variables. Table 1 presents variable names and acronyms used in this study. The following narrative discusses the rationale for variable selection, their definition, and their possible utility for management and research. Frequency distributions for each variable which include value labels and their codes are presented in Exhibit B.

The first 12 variables relate to locational information and are self explanatory. The variable OWNER documents the importance of federally owned sites, with the BLM and Forest Service respectively owning 18.6 and 24.5 percent of the known sites in the study area. In comparison to other variables, ownership was relatively well recorded, with only 15.7 percent not given.

The variable SITETYPE illustrates the broad range of cultural resources in the study area. In recording values for this variable, we were careful to preserve the actual type designations given by the site's recorders rather than attempting to infer consistent type labels from their descriptions. Consequently the frequency distributions for this variable show the complete array of site type designations used in the study area. Obvious redundancies are apparent in these designations. Phenomena ranging from isolated prehistoric artifact finds to historic euroamerican towns have been designated as cultural resource sites. No concise, mutually exclusive definitions of different site types are possible based on site form data. However, some tendencies are apparent and are discussed later in this report.

For prehistoric sites, virtually no explicit information on cultural affiliation was present on site forms. For the prupose of coding information from site forms on cultural affiliation, we only coded explicitly mentioned phases,

TABLE 1

VARIABLE NAMES AND ACRONYMS

OWNER	
SITETYPE	Site Type or Function
CULTHIST	Cultural Affiliation or Historical Theme
CHRONPLC	Chronological Placement
FORMLREC	Formal Recognition
RECORDER	
DATEREC	Date Site Recorded
ELEVATN	Elevation
SIZE	(square meters)
DEPTH	
CONDITN	Condition
LANDFORM	
WATERSRC	Type of Water Source
DISTANCE	Distance to Water
SITEVEG	On-site Vegetation
SURRVEG	Surrounding Vegetation
CHIPSTON	Chipped Stone (presence-absence)
GRNDSTON	Groundstone (presence-absence)
NATIVPOT	Aboriginal Pottery (presence-absence)
BONESHEL	Bone or Shell (presence-absence)
FEATURES	
PTTYPE 1	First Point Type Reported
PTTYPE 2	Second Point Type Reported
PTTYPE 3	Third Point Type Reported
PTTYPE 4	Fourth Point Type Reported
PTTYPE 5	Fifth Point Type Reported
PTTYPE 6	Sixth Point Type Reported
PTTYPE 7	Seventh Point Type Reported
PTTYPE 8	Eighth Point Type Reported
PTTYPE 9	Ninth Point Type Reported
QUALITY	Site Record Evaluation

TABLE 1 (CON'T)

ALTITUDE	(Elevation converted to 500 foot classes)
PERIOD 1	(prehistoric cultural periods)
PERIOD 2	(prehistoric cultural periods)
OCCUPATN	Occupational Intensity
ROCKART	(presence-absence)
ERA	(prehistoric and/or historic)
FUNCTION	(based on SITETYPE)
GEOMORPH	Geomorphology/Topography (inferred from LANDFORM)
FLORA	(based on SITEVEG)
PLANTS	(based on SURRVEG)

cultures, traditions, or ethnic names, such as Bitterroot Phase, Fremont Culture, Early big game tradition, or Shoshone. The possible confusion of this variable with the variable Chronological Placement reflects the actual uncertainties of prehistoric cultural historical classification in the study area discussed in Part I of this report. For historic sites we attempted to infer which of the major historic themes included in Chapter 8 of the Part I report was relevant, based on the site's description. The vast majority of historic sites in the study area relate to the Economic, Social, and Commercial development of the area between the 1840s and 1920s.

Relatively little information on the chronological placement of prehistoric sites was available. In coding this variable, we only considered strictly temporal terms, such as Paleo Indian period or Contact period. A number of sites were listed only as "prehistoric" and most had no explicit mention of their chronological placement. For historic sites, absolute dates, when available, were used to place sites in arbitrary 20 to 60 year periods. The small number of pre-1860 sites probably reflects their scarcity and the paucity of post-1920 sites probably reflects the lack of historical interest in later sites.

Information on landforms associated with sites was sought in an attempt to define locational preferences. A wide range of landforms were mentioned and there appears to be little consistency in recording this variable. This parallels the experiences of the Southwestern Anthropological Research Group, who have found that obtaining standardized definitions of landform terms is difficult. Plog et al. (1978:178-180) describes more precise and quantifiable alternatives for recording local landform variability.

In examining the frequency distribution for the variable Formal Recognition, it becomes apparent that virtually no information is present on site forms. Of the 63 National Register sites in the study area, most are either not in the site files or their National Register status is not noted on their site forms.

As would be expected the majority of sites in the study area have been recorded by the Idaho Museum of Natural History. The variable Date Site Recorded contains seven digits indicating the month, day, and year of recordation, but is not included in the frequency distributions because of its length. Absolute elevation is also not presented because of the length of the resulting frequency distribution. Because it is so easily obtained from a U.S.G.S. map, it is surprising that 78.7 percent of site forms lack elevation.

Size (in square meters) was converted to an ordinal level variable by the use of unequal size classes. This was done to avoid an unmanageable number of size classes, but in retrospect seems to have been unwise. Information on size was absent for 48.2 percent of recorded sites and 38.9 percent were 5000 square meters or less. The depth of 37.4 percent of sites was not noted and 57.5 percent were estimated to be surface sites. Of the sites where depth was measured rather than estimated, a much smaller proportion were discovered to be surface sites. This may also reflect the fact that sites in areas such as rockshelters or caves are more frequently selected for test excavation than open surface sites.

The variable CONDITN documents a number of impacting processes. In general the most serious threats appear to be unauthorized surface collection, vehicle traffic, and agricultural or grazing related activities. Natural processes seem to pose less of a threat than cultural processes.

WATERSRC identifies that many more sites are associated with streams than other types of water sources. It is, of course, unknown how many of the 38.8 percent of the sites where the type of water source was not noted, represent sites truly not associated with water, rather than field recordation errors. Listings of "ice" as a water source may refer to caves or lava tubes where year-round ice is present due to their insulating properties.

The variable DISTANCE (distance to water) is an ordinal level variable. This is because many forms use descriptives such as "near", "adjacent", or "far" rather than actual measurements.

Both on-site vegetation and the surrounding vegetation were utilized, if recorded, in order to accurately reflect cases where sites are located in microenvironments with different vegetation from the surrounding broad vegetational zone. If only one vegetational type was listed it was assumed to be characteristic of both the site and surrounding areas. The values for these variables preserve the exact wording of the site's recorders rather than attempting to infer equivalencies.

Presence-absence information on chipped stone, groundstone, aboriginal pottery, and bone or shell was coded in order to reflect some basic prehistoric site characteristics. These variables were chosen because it was hoped they would be relatively consistently recorded. Obtaining comparable, standardized information from existing site forms on other materials was considered hopeless. An exception was our inclusion of temporally diagnostic point types mentioned on site forms. This was done in order to supplement the cultural-historical and chronological information we knew would be rarely stated explicitly. Obviously, there are no assurances that type designations were consistently used by various recorders. Although space was provided for coding the first nine point types mentioned on a given site form, four were the most ever mentioned on a single site form.

The variable FEATURES was used to record features that were not reflected in the site type designation. For example, if pictographs were present at a site listed as a rockshelter, they would be mentioned under this variable, but they wouldn't be listed if the site type was listed as Pictographs.

The variable Site Record Evaluation was designed to reflect the impression of the coder as to the reliability of site information. This was designed for cases where the lack of reliability was not simply a matter of missing data, but cases where locational information was obviously contradictory or where the existence of any cultural material was questionable. It also accommodates the opinion of the coder as to when site information as a whole is lacking or sketchy.

A number of new variables were created from the information coded under the first 43 variables. Elevations were combined into 500 foot increments to create the variable Altitude. Information from the variables Cultural Affiliation, Chronological Placement, First through Fourth Point Types, and Aboriginal Pottery were combined to create to the variables Period 1 and Period 2. The only difference between these variables is the definition in "Period 1" of the middle Archaic period on the basis of Rose Spring, Eastgate and Blue Dome points, or the cultural historical labels Blue Dome, Fremont, and Promontory. In Period 2 the five middle Archaic sites defined on this basis are included in the Late Archaic period and the Middle Archaic period is eliminated.

The variable Occupational Intensity was created through the use of values for Site Type/Function, Features, Chipped Stone, Aboriginal Pottery, and Bone or Shell. Semi-permanent indicators were Site Types 35,37, or 29; site type 36 was considered a temporary structural feature (residential). Other structural features included nonresidential features of Site Types 31,32,33,34,30 and Feature value 10. Non-structural features were based on Site Type 38 or features 02,04,05,09,11,12,15, and 16. Multiple artifact Classes/ no features was indicated by the presence of chipped stone and pottery, groundstone, or bone/shell.

ROCKART was designed to indicate all sites where rock art was present, regardless of whether its presence was reflected in the variable SITETYPE or the variable FEATURES. The variable ERA was created on the basis of SITETYPE, CULTHIST, CHRONPLC, CHIPSTON, NATIVPOT, GRNDSTON, and PTTYPE 1 thru PTTYPE 4 values in order to accommodate any possible indicator of whether a site was prehistoric, historic, or both. The variable FUNCTION merely combines those values within the variable SITETYPE which were assumed to be equivalent. An example would be the inclusion of the values open campsite, campsite, and camp into a single value: campsite. In a similar manner, equivalent values from the variables LANDFORM, SITEVEG, and SURRVEG were combined to create the new variables GEOMORPH, FLORA and PLANTS.

CHAPTER 2

ANALYSIS OF EXISTING SITE RECORD DATA

Analysis of known site characteristics is complicated by two major factors: the relative lack of information provided on site forms for some variables, and the lack of standardization among recorders in assigning values for certain variables. Table 2 presents the frequency of missing information for variables, where it can be assumed that a failure to mention a variable is an oversight, rather than an indication that a given characteristic is absent. Although the lack of information for CULTHIST and CHRONPLC was expected, surprisingly few site forms included the site's elevation.

The subprogram CROSSTABS was used to investigate the relationship between variables. Four general problem areas were explored: the characteristics of sites with different owners; the nature of site type designations used in the study area; the variability of sites of different ages; and a search for correlations between environmental and cultural attributes of sites. Although this is a relatively inefficient "inductive pattern seeking approach", strictly deductive approaches tend to predetermine the results of analyses because of their narrow focus (Dean 1978:113). Trends or patterns observed in our data may eventually prove spurious, but they provide a quantitative profile of existing site form data which can be used to guide future research. Cross tabulations are presented in Exhibit B. A discussion in this report of all possible trends or patterns in these contingency tables is not possible or necessary. Many are self evident and require no narrative comment.

The differential characteristics of sites according to ownership can provide important management information.

TABLE 2

PERCENTAGE OF SITE FORMS WITH MISSING INFORMATION

Variable	Percent Missing
OWNER	15.7
SITETYPE	3.9
CULTHIST	69.8
CHRONPLC	69.6
RECORDER	18.1
DATEREC	19.6
ELEVATN	78.7
SIZE	48.2
DEPTH	37.4
CONDITN	22.0
LANDFORM	26.4
SITEVEG	53.2
SURRVEG	53.5

In addition, ownership serves as a gross form of environmental stratification. In general, BLM lands are arid sagebrush steppe and U.S. Forest Service lands are higher and more heavily forested. Sites owned by private individuals also have a tendency to correlate with lower elevations and the areas developed for agriculture. Caution should be used, however, in comparing site characteristics according to ownership. Surface visibility tends to be better on BLM and private lands in comparison to Forest Service lands. There may also be a strong tendency towards nonrepresentative recordation of sites on private lands, especially in cases where sites are reported by non-professionals.

Perhaps the most salient characteristic of ownership patterns relates to the variable ERA; 98.1 percent of BLM sites and 88.7 percent of Forest Service sites contain only prehistoric components. In contrast, on lands owned by private individuals 46.5 percent of sites are prehistoric and 52.2 percent are historic. Recorders tended to label relatively more BLM owned sites as campsites in comparison to Forest Service owned sites, but it is uncertain whether this is an actual indication of greater occupational intensity. The greater numbers of quarries, rock art sites, and caves or rockshelters on Forest Service lands are an obvious result of geological differences. BLM and Forest Service owned sites appear to vary little in size, but there may be a tendency for more buried sites on Forest Service lands. Among the possible indications of functional differences between prehistoric sites with different ownership is the relative abundance of ground stone; it is present at 8.6 percent of the prehistoric sites owned by the Fort Hall reservation, Bureau of Reclamation and private individuals, but at only 2.1 percent of sites owned by the BLM, USFS, and INEL.

Cross tabulations enable us to identify some of the variation within and between various site type designations used in the study area. Prehistoric site types with functional implications like "village", "campsite", and "lithic scatter" are potentially confusing. Cross tabulation of FUNCTION by GRNDSTON, NATIVPOT, and BONESHEL, indicate these artifact classes tend to occur most frequently at villages and least frequently at lithic scatters, with campsites intermediate. However, their presence at all three site types indicates they have not consistently been used in defining site types. There appears to be little difference in the size of these three site types. Structural and non-structural features tend to be relatively more frequent at villages and campsites, but again they are not exclusively associated with any site type label.

The search for temporal variation in the cultural characteristics and/or the environmental setting of prehistoric sites is of great interest, but is made difficult by the lack of relevant data. The frequency distribution for PERIOD 1 quantifies the relative abundance of Late Archaic sites intuitively assessed by past researchers. Although initial cross tabulations do not reveal any readily apparent temporal variation in site characteristics, the construction of 4 x 2 or 4 x 3 contingency tables for further exploration of specific questions might be profitable.

A similar situation was encountered in cross tabulating environmental variables with the variables ERA, FUNCTION, and OCCUPATN. A possibly significant relationship exists between prehistoric site types and distance to water. In examining cases where specific distances to water are mentioned, it was noted that no villages, 11.5 percent of campsites, 21.0 percent of lithic scatters, and 43.5 percent of quarries are greater than 100 meters from a water source. Relatively high occurrences of bone were noted at sites in volcanic tubes, crater bottoms, dunes, and escarpment bases. Again, additional exploration of basic locational relationships might be profitable.

The results of this computerized site record compilation can be utilized for a variety of purposes. The site summary table can be used for initial site record searches in conjunction with future surveys. Researchers interested in special topics, such as rock art or aboriginal ceramics can easily obtain lists of all known sites containing data relevant to their studies. Trends and patterns in existing data can be used to construct models that can be refined as more assuredly representative samples and better site data are acquired. The narrative portion of this study has only begun to explore these trends and patterns. Finally, it is hoped that quantifying and making explicit the inherent difficulty in using existing data will contribute to the generation of more usable data in the future.

CHAPTER 3

FORMAL RECOGNITION OF CULTURAL RESOURCE SITES

As of December 1979, the National Register of Historic Places included 64 properties within the study area and one additional property not on the Register was determined eligible for inclusion (Federal Register 1979, 1980). Three of these properties are also National Historic Landmarks. No properties in the study area recorded by the Historic American Buildings Survey or the Historic American Engineering Record are listed. Appendix 1 lists these 65 properties.

Standing structures dominate these listings, and most of these are privately owned and/or within urban areas. Of the 53 extant structural listings, three are districts in Montpelier, Twin Falls, and Blackfoot, which are dominated by domestic structures. Of the 50 remaining structural properties, 12 can be characterized as domestic or private residences, 12 as civic or governmental buildings, 13 as religious, and 8 as commercial. One listing combines a farm and a store. Three extant structures relate to hydro-electric power generation and one to nuclear power generation.

Seven non-architectural sites relate to early trails or transportation features, including the Eagle Rock Ferry, Goodale's Cutoff, Lander Road, Granite Pass, the Oregon Trail Historic District, Register Rock, and City of Rocks. These are a type of site more characteristic of National Resource Lands than are standing structures. Prehistoric archeological sites are the most common type of cultural resource site on National Resource Lands, but within the study area only the Wasden Site and Weston Canyon Rockshelter are on the Register.

Historic archeological sites (without standing structures) are also poorly represented on the Register; only two former sites of Fort Hall and the Bear River Battleground are listed.

Any site listed on the Idaho State Historical Society historic site print-out is technically on the "state register." This listing differs markedly from the National Register in the relative lack of information it contains. Even basic locational data are often missing, not to mention the frequent absence of historical information documenting the site's significance. The vast majority of entries on this register are standing structures located on private lands.

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APPENDIX 1

PROPERTIES IN STUDY AREA ON OR DETERMINED ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Bannock County

Fort Hall vicinity. Fort Hall, 11 mi. W of Fort Hall, Fort Hall Indian Reservation, (10-15-66) PH0037451 NHL.

Pocatello. Hood, John, House, 554 S. 7th Avenue, (12-14-78).

Pocatello. Pocatello Carnegie Library, 105 S. Garfield Avenue, (7-2-73) PH0037460.

Pocatello. Pocatello Federal Building, Arthur Avenue and Lewis Street, (10-5-77).

Pocatello. St. Joseph's Catholic Church, 455 N. Hayes, (8-29-78).

Lava Hot Springs. Riverside Inn, 112 Portneuf Avenue, (8-29-79); 79-11-20 079 0004810.

McCammon. McCammon State Bank Building, Center and 3rd Streets, (7-9-79); 79/11/02079 0003047.

Pocatello. Brady Memorial Chapel, Mountain View Cemetery, (5-1-79); 79/07/15 079 0001552.

Pocatello. Church of the Assumption, 528 N. 5th Avenue, (5-1-79); 79/07/15 079 0001553.

Pocatello. Standrod House, 648 N. Garfield Avenue, (1-18-73) PH0037478.

Pocatello. Sullivan-Kinney House, 441 S. Garfield, (11-9-77).

Pocatello. Trinity Episcopal Church, 248 N. Arthur Street, (2-17-78).

Bear Lake County

Montpelier. Bagley, John A., House, 155 N. 5th Street, (1-20-78).

Montpelier. Montpelier Historic District, Washington Avenue and 6th Street, (11-16-78).

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Montpelier. Montpelier Odd Fellows Hall, 843 Washington Street, (4-15-78).

Paris. Bear Lake County Courthouse, U.S. 89, (10-7-77).

Paris. Bear Lake Stake Tabernacle, Main Street, (12-8-72) PH0037486.

Paris. Dance Pavilion, Main and E. 1st South, (10-6-77).

Saint Charles. Nelson, Wilhelmina, House and Cabins, U.S. 89, (5-3-76).

Bingham County

Blackfoot. Blackfoot LDS Tabernacle, 120 S. Shilling St., (9-19-77).

Blackfoot. Blackfoot Railway Depot, N. W. Main St., (11-20-74) PH0037494.

Blackfoot. Nuart Theater, 195 N. Broadway, (10-19-78).

Fort Hall vicinity. Fort Hall Site, 16 mi. N of Fort Hall, (11-21-74) PH0037508.

Blackfoot. Blackfoot I.O.O.F. Hall, 57 Bridge St., (5-15-79); 79/07/15 079 0001554.

Blackfoot. North Shilling Historic District, N. Shilling Ave., (8-29-79); 79-11-20 079 0004811.

Blackfoot. St. Paul's Episcopal Church, 72 N. Shilling Ave., (5-15-79); 79/07/15 079 0001555.

Blackfoot. Standrod Bank (Brown-Hart Store Building), 59 and 75 NW. Main St., (8-30-79); 79-11-20 079 0004812.

Bonneville County

Idaho Falls. First Presbyterian Church, 325 Elm St., (3-29-78).

Idaho Falls. Trinity Methodist Church, 237 N. Water Ave., (12-16-77).

Idaho Falls vicinity. Eagle Rock Ferry, N of Idaho Falls on Snake River, (6-7-74) PH0037541.

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Idaho Falls vicinity. Wasden Site (Owl Cave), W of Idaho Falls off U.S. 20, (5-24-76).

Iona. Iona Meetinghouse (Stanger Memorial Gallery), (5-7-73) PH0037559.

Idaho Falls. Bonneville County Courthouse, Capital Ave. and C St., (7-10-79); 79/11/02 079 0003048.

Idaho Falls. U.S. Post Office, 581 Park Ave., (5-31-79); 79/10/24 079 0002046.

Ririe vicinity. Shelton L.D.S. Ward Chapel, SW of Ririe on Shelton Rd., (8-30-79); 79-11-20 079 0004813.

Butte County

Arco vicinity. Experimental Breeder Reactor No. 1, National Reactor Testing Station, (10-15-66) PH0037567 NHL.

Arco vicinity. Goodale's Cutoff, S of Arco off U.S. 20, (5-1-74) PH0037575.

Caribou County

Soda Springs. Lander Road, NE of Soda Springs in Caribou National Forest S of ID 34, (4-24-75) PH0120863.

Soda Springs. Hopkins, William, House, E. Hooper Ave., (1/12/79); 79/07/12 079 0000067.

Cassia County

Albion. Swanger Hall, Albion State Normal School Campus, (9-20-78).

Almo vicinity. City of Rocks, City of Rocks State Park, (10-15-66) PH0037613 NHL.

Burley vicinity. Granite Pass, SW of Burley, less than 0.5 mi. N of UT boundary, (6-28-72) PH0037621.

Franklin County

Franklin. Hatch, L. H., House, (5-7-73) PH0037664.

Preston. Cowley, Matthias, House, 110 S. 1st St. E., (7-19-76).

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Preston. Oneida Stake Academy, NW corner of 2nd South and 2nd East Sts., (5-21-75) PH0150037.

Preston vicinity. Bear River Battleground, NW of Preston off U.S. 91, (3-14-73) PH0037672.

Weston vicinity. Weston Canyon Rock Shelter, (7-25-74) PH0037681.

Fremont County

Big Springs. Sack, Johnny, Cabin, Island Park, (4-19-79); 79/07/15 079 0001556.

St. Anthony. Freemont County Courthouse, 151 W. 1st St. North, (1/9/79); 79/07/12 079 0000068.

Jefferson County

Roberts. Hotel Patrie, U.S. 91, (11-7-78).

Madison County

Rexburg. Rexburg Stake Tabernacle, 25 N. Center St., (5-3-74) PH0037834G.

Oneida County

Malad. Malad Second Ward Tabernacle, 20 S. 100 W. St., (7-27-79); 79/11/30 079 0004040.

Malad City. Co-Op Block and J. N. Ireland Bank, Main and Bannock Sts., (4-18-79); 79/07/15 079 0001557.

Malad City. Evans, D. L., SR., Bungalow, 203 N. Main St., (8-30-79); 79-11-20 079 0004815.

Malad City. Jones, Jedd, House, 242 N. Main St., (5-1-79); 79/07/15 079 0001558.

Power County

American Falls. American Falls East Shore Power Plants, ID 39, (10-29-76).

American Falls vicinity. Oregon Trail Historic District (Register Rock Area), SW of American Falls along U.S. 30N, (3-20-73) PH0037893.

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American Falls vicinity. Register Rock, W of American Falls on U.S. 30, (7-24-78).

Snake River. American Falls Power, Light, and Water Company Island Power Plant.

Twin Falls County

Buhl. Buhl City Hall, Broadway and Elm St., (2-8-78).

Buhl. Ramona Theater, 113 Broadway, (12-22-76).

Twin Falls. Idaho Power Substation, Van Buren St. and Filer Ave., (6-23-78).

Twin Falls. Smith, C. Harvey, House, 255 4th Ave. E., (4-3-78).

Twin Falls. Twin Falls City Park Historic District, 2nd N., 2nd E., and Shoshone Sts., 4th and 6th Aves., (3-30-78).

Twin Falls. Stricker Store and Farm, N of Rock Creek, (8-30-79); 79-11-20 079 0004816.