

Knudson

HERITAGE RESOURCES AND KNOWN GEOTHERMAL RESOURCES AREAS (KGRAs)
IN IDAHO: A PRELIMINARY EVALUATION

by

Ruthann Knudson and Meredith Pfaff

A Report in Fulfillment of Subcontract to the University of Idaho
Water Resources Research Institute, in Turn a Subcontract with
EG&G-Idaho to the U. S. Department of Energy [Contract EW-78-S-07-1764]

UNIVERSITY OF IDAHO ANTHROPOLOGICAL RESEARCH MANUSCRIPT SERIES No. 49

Laboratory of Anthropology

University of Idaho

Moscow

1978

[DRAFT, submitted 30 November 1978; not to be distributed or cited]

ABSTRACT

As part of the preplanning phase of development of selected Known Geothermal Resources Areas (KGRAs) in Idaho, a review has been conducted of the cultural and natural heritage resource data relevant to those areas. There is clear evidence of both known and potential paleontological, archaeological, historic, and architectural resources within most of these KGRAs, but the area actually field surveyed within these is usually less than 10%. Thus, the relevant site records and background information are provided here for each of the selected KGRAs (Vulcan, Crane Creek, Castle Creek, Bruneau, Mountain Home), for construction of more thorough and reliable accumulations of data to be used for resource impact evaluation.

ACKNOWLEDGEMENTS

Because of the short amount of time available for completion of this report, we have prevailed on many people to help us out long distance and provide information by telephone or mail. Larry Jones and Judith Austin of the Idaho State Historical Society, and Glenda Torgerson and Thomas Green of the Office of the State Archaeologist, have been patient and provident. Margaret Wyatt of the Boise District, U. S. Bureau of Land Management, and Sharon Deroin of the Public Lands Office, U. S. BLM, have provided us with hard-to-find information. Charles J. Smiley, William Bonnichsen, and William Rember have all assisted in finding unpublished papers on paleontology, and Roderick Sprague provided Oregon Trail material. Interagency Archeological Services (HCRS, USDI) in San Francisco sent us the obscure but valuable Bowers report. Max Pavesic helped us with information from the Weiser area. Henry G. Wylie of the U. S. Forest Service in Boise and Richard Harrison of the U. S. Bureau of Land Management have helped direct us to information sources. Finally, Diana Rigg of our Laboratory of Anthropology has been an invaluable assistant in figuring out map locations and tracking down sources and references. Margaret Henderson and Catherine Lubben typed the final report.

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HERITAGE RESOURCES AND KNOWN GEOTHERMAL RESOURCES AREAS (KGRAs)
IN IDAHO: A PRELIMINARY EVALUATION

1. INTRODUCTION

Proposed Geothermal Development

In March 1978 EG&G Idaho, Inc., acting for the U.S. Department of Energy, distributed a solicitation for proposals to assist them in compiling and evaluating the environmental data relevant to several Known Geothermal Resources Areas (KGRAs) in southern Idaho (Fig. 1, Table 1). EG&G wished to acquire "baseline site-specific" environmental data, for comprehensive planning and development of a statement of the impact of proposed geothermal development at these selected sites. The Laboratory of Anthropology, University of Idaho, proposed to subcontract through the University's Water Resources Research Institute to provide heritage resource data for this evaluation, and that proposal was accepted. Thus, this report is a statement of the known information on the cultural and paleontological heritage resources in the KGRAs described in Table 1, with an evaluation of the reliability, validity, and adequacy of those data in allowing a comprehensive assessment of development impact upon them. It is a preplanning statement, based solely on laboratory, library, and personal communication research without field assessment of the data. It is not an evaluation of proposed impacts, but rather of the data available for development of such an impact evaluation.

Relevant Federal Heritage Preservation Laws, Regulations

Heritage resources, be they paleontological, archaeological, ^{or} historical, ~~or~~ architectural, are a nonrenewable resource--once destroyed, they can never be reconstituted. Americans have been concerned with protection and preservation of those resources for several generations, as sites and buildings were seen to be eaten up by the development of a frontier-less nation, and consequently have supported the promulgation of nearly 2000 Federal laws and regulations that relate to such protection. Most of these differentially apply to cultural vs. paleontological resources, hence will be dealt with separately here.

Cultural resources. The Antiquities Act of 1906 (16 U.S.C. 431-433) is basic to the Federal cultural resource management program, with its proscription against destruction of "any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States...." This policy is made more explicit in the Historic Sites Act of 1935 (16 U.S.C. 461-467) that declares that "it is a national policy to preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States." Promulgation of the National Historic Preservation Act of 1966 (16 U.S.C. 470) and its accompanying regulations (36 CFR 800 [amended draft, October 1978], 36 CFR 60, 36 CFR 63 [interim regulations]) has provided a set of procedures for identification,

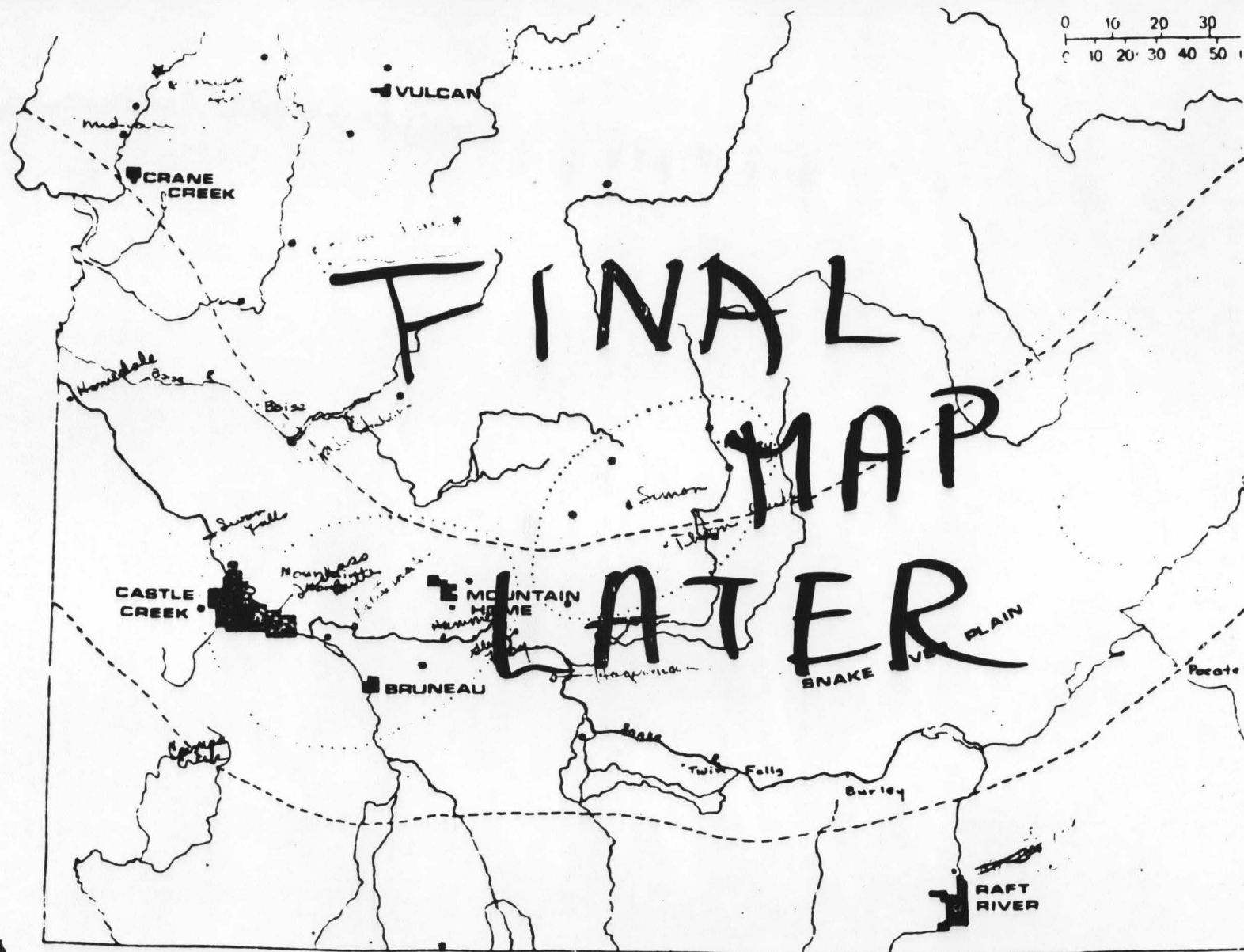


Fig. 1. General map of southern Idaho, indicating locations of selected Known Geothermal Resources Areas (KGRAs).

TABLE 1. Locations of selected Idaho Known Geothermal Resources Areas (KGRAs) discussed in this report

Name	Acreage (approx.)	Legal description
Vulcan	3,836	T14N, R16E, Secs. 1 (SW $\frac{1}{4}$), 2, 3 (SE $\frac{1}{4}$), 9-11, 12 (W $\frac{1}{2}$), 13 (NW $\frac{1}{4}$), 14 (N $\frac{1}{2}$), 15 (NE $\frac{1}{4}$)
Crane Creek	4,342	T11N, R3W, Secs. 5-8, 18 T11N, R4W, Secs. 1-12
Castle Creek	79,722	T3S, R1E, Secs. 23-26, 35, 36 T3S, R2E, Sec. 31 T4S, R1E, Secs. 1-3, 10-15, 19-36 T4S, R2E, Secs. 6-8, 17-21, 28-36 T5S, R1E, Secs. 1-4, 9-16, 21-26 T5S, R2E, Secs. 1-30 T5S, R3E, Secs. 7, 8, 13-36
Bruneau	5,120	T7S, R6E, Secs. 14, 15, 21-23, 26-28
Mountain Home	9,520	T3S, R8E, Secs. 34, 35 T4s, R8E, Secs. 1-3 T4S, R9E, Secs. 6-9, 17-21, 33

protection, and where possible preservation of significant cultural resources on Federal lands. This has also been explicitly extended to cover all Federal agency activities that affect non-Federal lands, as is implied by the Antiquities Act of 1906's statement that the Act applies to lands "owned or controlled by the Government" [*italics mine*]. Further procedural statements implementing the policy of Federal protection of cultural resources are found in Executive Order 11593 (3 CFR 1971, 36 F.R. 8921), which directs Federal agencies to identify and evaluate as soon as possible all cultural resources found on their lands or on lands over which they have licensing or permitting authority. This is further supported by the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 469), which directs the Federal agencies to themselves salvage any important cultural remains subject to adverse impact or to allow the Secretary of Interior the opportunity of directing such salvage. In supplement, the National Environmental Policy Act of 1969 (42 U.S.C. 4321) again declares that as a matter of national policy Agencies should attempt to "preserve important historic, cultural and natural aspects of our national heritage," and the Advisory Council on Historic Preservation has specified (36 CFR 800 [amended draft, October 1978]) how all these various laws and regulations should be integrated. Thus, there is a clear directive for any Federally supported development of geothermal resources to identify and protect any significant cultural heritage resources affected by that development.

Paleontological resources. The Federal statutes relating to protection of paleontological resources are not as clear as are those that define cultural resource preservation policies and procedures. While the Antiquities Act of 1906 does apply to "objects of antiquity" in general, it has generally not been applied to ancient plant and animal remains not part of our direct human heritage. However, the broad directive to preserve "important...natural aspects of our national heritage" is included within the National Environmental Policy Act of 1969. Further, the 1978 reorganization of the National Natural Landmarks Program (which had principal Federal responsibility for paleontological sites) and the Office of Archeology and Historic Preservation into a single Department of the Interior Heritage Conservation and Recreation Service is an indication of the Federal government's increasing consideration of paleontological resources within a heritage preservation program. The more frequent use of the term "heritage," rather than "cultural" resources, is a clear statement of the Department of the Interior's intent to include natural as well as cultural resources under the umbrella of stronger Federal protection. Consequently, while the Federal laws and regulations are less specific in their protection of paleontological as compared with cultural resources, it is evident that there is a concern for their identification and affirmative management. Thus, in assembling information about the potential heritage resources within the selected Idaho KGRAs under review here, paleontological as well as archaeological, historic, and architectural resources are addressed.

Relevant State and Local Heritage Preservation Laws, Regulations

Any project licensed by a Federal agency such as the Department of Energy must insure that heritage resources are protected within the project impact area, whether the land be Federally or non-Federally owned. However, since there are also State regulations that relate to heritage resource management, it is appropriate to identify those here.

The State of Idaho does not have a complete and explicit/prescribed set of procedures for management of heritage resources on State lands, but does have an Antiquities Act (Idaho Code 67-4114-4122) that specifies protection of "sites, monuments, and points of interest...which by reason of their history and connection with the history and development of the state preservation and protection" (67-4114) and "archaeological and vertebrate paleontological sites and resources on public lands in the state of Idaho" (67-4119). It also requires that a State permit be obtained before any antiquities on state lands may be excavated; a broad application of the word "excavation" here would mean that any destruction of such a property would have to have permitted approval of the Idaho State Historical Society or be subject to civil and criminal prosecution. This is supplemented by the 1978 ^{State} ~~Law~~ ^{Code} ~~State~~ ^{of} ~~Idaho~~ ^{Idaho} Planning ^{Code} (Idaho Code 67-6501-6529) that requires that as part of land use planning cultural resources be identified and protected where possible (67-6508). Thus, as with the Federal government, the State of Idaho has expressed a clear concern for and affirmative protection for its heritage resources.

Heritage Resource Management

Too frequently Federal and State heritage protection laws and regulations are seen as little other than obstructionist, as a directive to identify and preserve all such identifiable materials. Rather, the focus of these various programs is on effective and appropriate management of our heritage resources in concordance with management of all other natural and social assets. We clearly need to identify all natural and cultural heritage resources, so that we can evaluate the relative value or significance of each such entity. Only when we have a firm knowledge of the resource base can we make appropriate management decisions, determining which properties are indeed of such relatively great importance to our national or regional history that they merit preservation in contrast to those that are less valued. Heritage preservation laws written during the last fifteen years have been particularly directed toward planning for effective resource management. Thus, this report is an initial assessment of the heritage resource base for selected KGRAs for which development is proposed, in support of the planning needs of that development.

Heritage Resource Evaluation: Methods, Techniques

As stated previously, this report is a preplanning statement, not based on field evaluations of the KGRA resources. The method of data-gathering was a systematic review of the available literature on Idaho's known and potential paleontological, archaeological, and historic resources; consultation with relevant land-managing agencies which have been accumulating heritage resource data banks; and consultation with researchers who are either working within the selected KGRAs or who are knowledgeable about the past and present research there. Initially, 7.5 min. and 15 min. topographic U.S. Geological Survey quadrangle maps for the five study areas were acquired and the KGRA boundaries drawn on them. Subsequently, all identified heritage resources were also located on those maps. A search of the literature allowed construction of models of prehistoric, ethnographic and historic land use in the selected KGRAs, to allow some prediction of the resources that might yet be extant there. In addition, notes were compiled on the reliability and adequacy of the surveys that resulted in acquisition of the known site data, and finally evaluations were made of the significance and adequacy of the various heritage resources themselves. As a final analysis, recommendations of the need for further site identification and/or evaluation within any KGRA were drawn up.

Data presented in this report have been acquired from the University of Idaho Library (especially the Day-Pacific Northwest Collection), the University of Idaho Archive of Pacific Northwest Archaeology, the Idaho State Historical Society (including the Idaho Archaeological Survey), the Idaho State Library, and the U.S. Department of the Interior Bureau of Land Management's Idaho Public Lands Office. The National Register of Historic Places and the Idaho State Historic Preservation Officer have been consulted. Agencies or departments of assistance during this research include the University of Idaho Department of Geology, the U.S. Forest Service, the Interagency Archaeological Services-San Francisco office, the Bureau of Land Management's Boise District, the Idaho State Museum of Natural History, and the Boise State University Department of Societal and Urban Studies.

2. THE HERITAGE RESOURCE DATA BASE FOR SELECTED IDAHO KGRAS

Vulcan KGRA (Table 2, Fig. 9)

Paleontological Resources. No formal paleontological survey has been conducted here, and no paleontological materials have been reported from the locality. The bedrock here is the Idaho Batholith, a felsic Cretaceous pluton covered with Quaternary valley alluvium (Bond and others 1978) and has a low potential for producing significant paleontological remains.

Prehistoric Resources. In August 1977 Boise National Forest archaeologists conducted a brief reconnaissance of some segments of the Vulcan KGRA, particularly Tyndall Creek bottoms, the western segment of Stolle Meadows, the Rice Creek terraces where that creek breaks out into the South Fork Salmon valley, and the trail from the South Fork up to Vulcan Hot Springs (U.S. Department of Agriculture n.d.:BS-9, BS-10); the survey covered 6% of the total KGRA and approximately 22% of the alluvial bottomland. Two small prehistoric lithic scatters, 10-VY-102 and 10-VY-103 (Table 2, Fig. 9) were identified along Rice and Tyndall Creek respectively. In the survey report the staff archaeologists commented that the dense vegetative cover in the KGRA made ground inspection virtually impossible except on trails and roads and that not enough time was available for intensive investigation of the entire area. Prince in her comments on the survey (U.S. Department of Agriculture n.d.:Vulcan Hotsprings) stated that:

The discovery of only 2 limited-activity sites...is suggested to result from their fortuitous presence in areas of high visibility, rather than to be an accurate reflection of the number of sites actually present. Therefore, it is recommended that a 100% survey of this area be carried out before the proposed [geothermal] development takes place.

Henry G. Wylie, the Forest Service Southern Idaho Zone Archaeologist, concurred with this opinion and stated that "The sites appear to be significant for the scientific data they contain" (U.S. Department of Agriculture n.d.:Vulcan Hotsprings).

Ethnographically, both Nez Perce and Shoshoni Indians appear to have exploited the Vulcan area. Verne Ray years ago recorded ethnographic Nez Perce fishing and hunting camps at Warm Lake and on the Middle Fork of the Payette at the mouth of Bull Creek [north and south of the Vulcan KGRA respectively]. This is cited in Schwede (1966:47 [her site 262], 50 [her site 259]; see Fig. 10 in this report), used as a basis for defining Nez Perce territory by Chalfant (1974:Map 24A; Fig. 2 in this report), and acknowledged by the Indian Claims Commission (1974b:375). Marshall (1977:Fig. 2) includes the Vulcan area within his general map of Nez Perce territory. However, it was the recommendation of the expert ethnographers appearing for the Nez Perce in that tribe's claim against the United States Government that those camps did not represent exclusive use and continuous occupancy by the Nez Perce, hence were not territory meriting seizure compensation. One should expect, then, that the KGRA's Vulcan Hot Springs and Stolle Meadows were occasionally visited and used by the Nez Perce on their travels between Warm Lake and the Payette, but that they maintained no major residence there.

TABLE 2. Known heritage resource sites in selected Idaho KGRAS

KGRA	Site number ^a	Legal description ^b	General description	Reference ^c
Vul- can	VY-102	Sec. 12, T14N, R6E	Prehistoric lithic scatter	
	VY-103	Sec. 2, T14N, R6E	Prehistoric lithic scatter	
Castle Creek	AA-1	Sec. 31, T3S, R2E	Small prehistoric campsite	
	AA-23	Sec. 16, T3S, R1E	Small prehistoric campsite	
	AA-24	Sec. 22, T3S, R1E	Small prehistoric campsite	KK71
	AA-25	Sec. 22, T3S, R1E	Shoshone housepit vilalge	KK71
	AA-26,27	Sec. 22, T3S, R1E	Small prehistoric campsites	KK71
	AA-28-30	Sec. 22, T3S, R1E	Continuous prehistoric campsite	KK71
	AA-31-33	Sec. 22, T3S, R1E	Small prehistoric campsites	KK71
	AA-34-36	Sec. 31, T3S, R1E	Small prehistoric campsites	KK71
	AA-59	Sec. 15, T3S, R1E	Small prehistoric campsite	
	AA-60	Sec. 26, T3S, R1E	Small prehistoric campsite	KK71
	EL-77	Sec. 5, T4S, R2E	Substantial prehistoric village	
	EL-78	Sec. 8, T4S, R3E	Substantial prehistoric village	
	EL-79	Sec. 10, T4S, R2E	Small prehistoric campsite	
	EL-80	Sec. 11, T4S, R2E	Rockshelter	
	OE-23,24	Sec. 16, T3S, R1E	Small prehistoric campsites	
	OE-25	Sec. 21, T3S, R1E	Prehistoric housepit	
	OE-26-29	Sec. 22, T3S, R1E	Small prehistoric campsites	
	OE-30	Sec. 35, T3S, R1E	Substantial prehistoric occupation	
	OE-38	Sec. 1, T4S, R1E	Rockshelter with deep midden	
	OE-39	Sec. 31, T3S, R2E	Small prehistoric campsite	
	OE-257	Sec. 17, T3S, R1E	Rockshelter, possible hearth	
	OE-258	Sec. 16/17, T3S, R1E	Historic buildings, prehistoric campsite	
	OE-259-261	Sec. 36, T4S, R1E	Continuous prehistoric campsite	KK71
	OE-263265	Sec. 6, T4S, R2E	Small prehistoric campsites	KK71
	OE-266	Sec. 8, T4S, R2E	Small prehistoric campsite	KK71
	OE-267	Sec. 9, T4S, R2E	Extensive prehistoric campsite	
	OE-268	Sec. 10, T4S, R2E	Small prehistoric campsite	
	OE-269	Sec. 14, T4S, R2E	Small prehistoric campsite	
	OE-1004	Sec. 22, T4S, R1E	Prehistoric quarry, workshop	
	OE-1005	Sec. 33, T4S, R1E	Small prehistoric campsite	
	OE-1006	Sec. 33, T4S, R1E	Prehistoric quarry, campsite	
	OE-1007	Sec. 15, T4S, R1E	Small prehistoric campsite	
	OE-1133	Sec. 33, T4S, R1E	Prehistoric quarry, workshop	
OE-1385	Sec. 33, T4S, R1E	Historic homestead		
OE-1455	Sec. 19, T5S, R2E	Historic homestead		
19135	Sec. 31, T4S, R2E	Paleontological site, only one with certain new <i>Pliopholix</i> species	A65:188, 195	

TABLE 2. Continued

KGRA	Site number ^a	Legal description ^b	General description	Reference ^c
Castle Creek	19136	Sec. 32, T4S, R1E	Paleontological site with new <i>Pliophylox</i> , <i>Sphaerium</i> , <i>Thiaridae</i> , <i>Hydrobiidae</i> species	A65: 189
	19137	Sec. 1, T5S, R1E	Paleontological site with new <i>Pliophylox</i> and <i>Thiaridae</i> species	A65: 189
	19138	Sec. 11, T5S, R1E	Paleontological site with new <i>Sphaerium</i> , <i>Pliophylox</i> , <i>Thiaridae</i> species	A65: 189
	19139	Sec. 12, T5S, R1E	Paleontological site with new <i>Pliophylox</i> species	A65: 189
	19140	Sec. 12, T5S, R1E	Paleontological site with new <i>Sphaerium</i> , <i>Pliophylox</i> , and <i>Thiaridae</i> species; this is the reference site for <i>Anodonta</i> and <i>Oxytrema taylori</i> (Gabb)	A65: 189
	19188	Sec. 9, T5S, R2E	Paleontological site	A65: 190
	19923	Sec. 9, T5S, R2E	Paleontological site with new <i>Pliophylox</i> species	A65: 190
	19925	Sec. 31, T4S, R2E	Paleontological site with new <i>Sphaerium</i> , <i>Pliophylox</i> , <i>Thiaridae</i> , species	A65: 191
Bruneau	OE-359	Sec. 26, T7S, R6E	Prehistoric lithic scatter	PH73
	Roberson Cave	Sec. 22, T7S, R6E	Historic campsite	

^aArchaeological sites are registered in the Idaho Archaeological Survey, Office of the Idaho State Archaeologist, using the Smithsonian Institution system. Thus, all sites have a trinomial designation for state-county-sequence of registration within county, and Idaho is designated as ~~site-10~~ within the Smithsonian inventory. For brevity in this table the first segment of the site number has ~~been~~ removed, e.g., site 10-AA-1 (Idaho, Ada County, first site to be registered within the county) is here noted as AA-1. AA is Ada County, EL is Elmore County, OE is Owyhee County, and VY is Valley County. In contrast, paleontological sites have a sequential locality numerical designation.

^bMore specific legal descriptions of these archaeological sites are available on a "need-to-know" basis from the Office of the Idaho State Archaeologist, Boise.

^cKK71 is Keeler and Koko (1971); PH73 is Pavesic and Hill (1973); A65 is Anderson (1965).

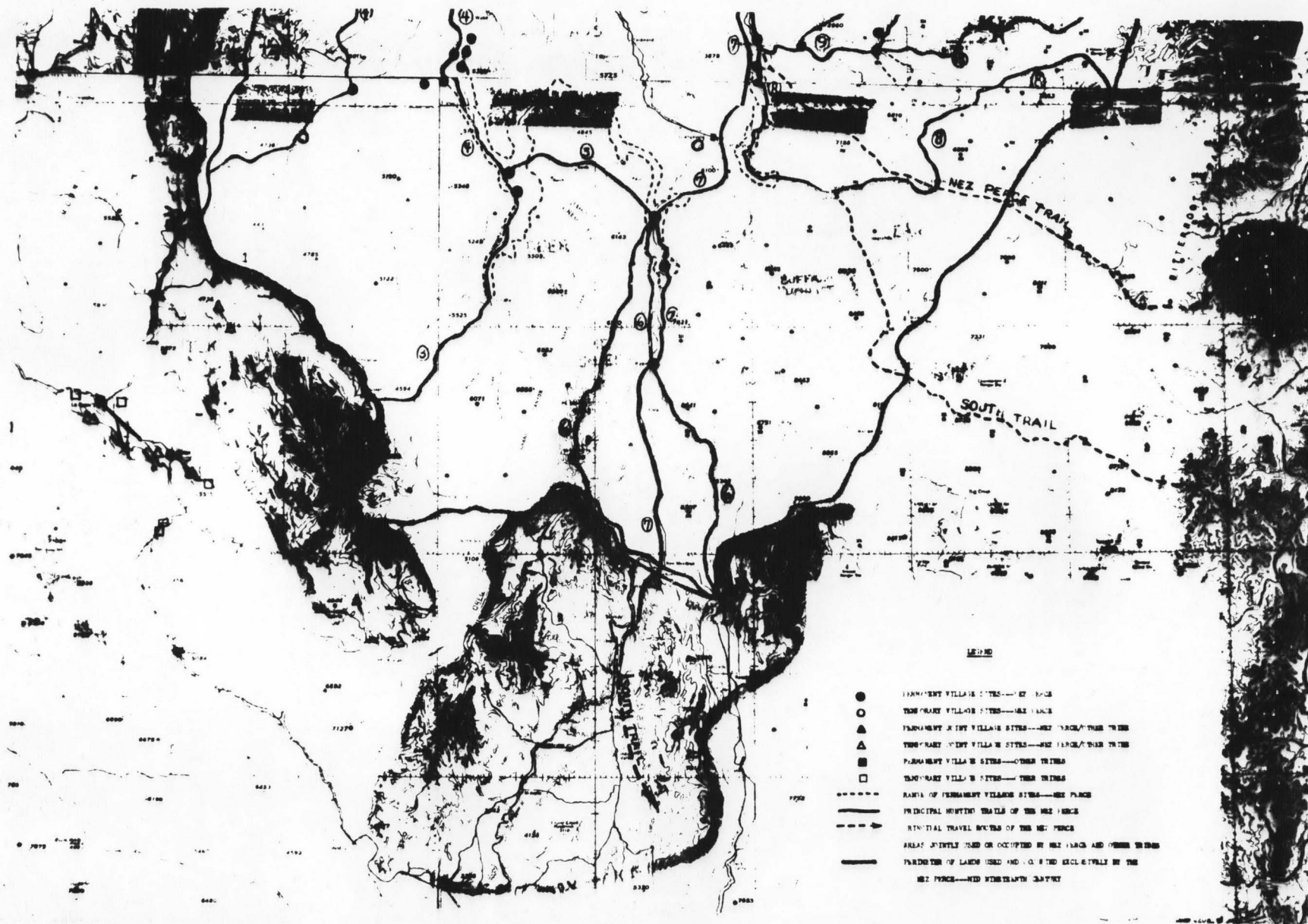


Fig. 2. Map of the southern portions of pre-AD 1800 Nez Perce territory (Chalfant 1964:Map 24A).

Much the same situation seems to apply to Shoshoni use of the Vulcan area. In most ethnographic accounts of the Lemhi or Western Shoshoni the mountainous area to the north of Boise is not ascribed to any particular group, certainly to no group as a major settlement area. The Indian Claims Commission (1974a:285) ruled that the Lemhi Shoshoni territory had its western border approximately in the Warm Lake-Vulcan area; they also draw the Western Shoshoni territorial boundary well to the south and west of Vulcan (Indian Claims Commission (1974a:285-286)). Most maps of ethnographic population distribution in central and southern Idaho simply label the Vulcan area "Mixed Northern Paiute and Shoshoni" without further discussion. The Vulcan Hot Springs area, and that valley portion of the South Fork Salmon in general, has varied plant and animal resources including camas, anadromous fish (spawning area), deer, and moose. Based on the ethnographic information, and in consideration of the locality's topographic position near the divide between the Salmon and Payette drainages, one can hypothesize that the area has also been marginal to permanent human settlements for most of prehistory. However, it could be expected to include remnants of a complicated pattern of cultural variation and mixing, with people from both north and south moving in and out of the valley either separately or in concert. Evidence from similar high elevation Salmon River headwaters areas indicates that central montane Idaho has been exploited by human populations for 10,000 years (Sargeant 1974) with fairly continuous use of spawning and hunting grounds over that time period (Gallagher 1976). Recent reconnaissance of the Middle Fork Salmon drainage basin (Stapp and others n.d.) indicates that a culturally complicated archaeological record should be expected to occur throughout these Salmon-Snake River headwaters area, and that that record has the potential of providing data for significant scientific research into human adaptability over time. Thus, while the Vulcan KGRA has received some brief archaeological survey, it needs more thorough reconnaissance and testing to evaluate the presence or absence there of significant prehistoric cultural resources.

Historic Resources. No historic resources were recovered during the archaeological survey discussed above, and no specific records of historic exploitation of the area could be found. The KGRA was probably used as at least an occasional camp during the 1820s and 1830s when fur traders were working in the area (Idaho State Historical Society 1972), since they frequently camped at Warm Lake and Vulcan Hot Springs are a nearby and attractive site. The earliest specific indication of Euroamerican use of the Vulcan KGRA is a map of the military route followed by Capt. Bernard and his troops during the Sheepeater Campaign of 1879 (Brown 1926:map; see Fig. 3 in this report) in which the location of the 21 July camp seems to coincide with Vulcan Hot Springs. However, Bernard's diary does not describe this camp in enough detail to determine whether or not it is indeed that site. In any event, the military camp was transient but is an indication of use of the Vulcan area as a travel route, perhaps for some time. A Forest Service road now follows a similar track, coming south from Warm Lake and running past the Vulcan area to the headwaters of the South Fork Salmon.

^{1890s} In the late ~~nineteenth century~~ the Vulcan area became part of Boise ^{U.S. Forest} National Forest, and consequently the area has never been homesteaded. The area was in fact not even surveyed until 1931 (U.S. Department of the Interior n.d.c). A Forest Service Guard Station was built on the eastern side of

~~The area was not surveyed by the G.H. Smith Co.~~
 Stolle Meadows (just east of the Vulcan KGRA) but we can find no record of its original construction date. The Eureka Silver King Mine 2 km south of the KGRA has been in operation since 1940. ^{Patent file, Valley County Courthouse, Cascade.} Thus, one should expect occasional use of the Vulcan Hot Springs as a picnic and camp area during the historical period, but such activity has probably left little in the way of archaeological or architectural remains.

Data Needs and Planned Resource Commitments. Obviously, intensive archaeological field reconnaissance is needed in the Vulcan KGRA, done in the spring as soon as the area is dry enough to get in and before the vegetation has grown up too much. Reconnaissance coupled with a testing program as a first step would be most practical, to map the landforms and sedimentary deposits and more effectively predict the possible occurrence of prehistoric archaeological materials in the area. The abundance of natural food resources, coupled with the presence of the hot spring, suggest that the area may have considerable depth of cultural materials buried within it. The two small sites that have been identified need better mapping and evaluation, and perhaps testing, in order to assess their relative significance in providing scientific information. At present, the Forest Service has made no commitments to either preserve or scientifically excavate the known cultural resources within the area (Henry G. Wylie 1978:personal communication).

Crane Creek KGRA (Table 1, Fig. 9)

Paleontological Resources. In the Weiser area (Shah 1968) Upper Miocene floral remains have been found in the Payette Formation, a set of sedimentary interbeds of white tuffaceous sand that are intercolated between members of the Miocene plateau basalts. This later Tertiary vegetation is unique within the Columbia Plateau. These Payette flora have not been specifically identified within the Crane Creek KGRA, but the latter is within the general area of the florally rich Payette Formation. Bond and others (1978) map the border between the Miocene igneous extrusive basalts and the contemporary sedimentary formations across the KGRA. Paleontological field reconnaissance of this area is needed before further plans can be developed.

Prehistoric Resources. As far as can be extracted from the literature and conversations with professional archaeologists active in the Weiser area, there has been no professional archaeological reconnaissance conducted within the Crane Creek KGRA to date. Surveys within the general Weiser River valley within the last three decades include an early reconnaissance of selected proposed reservoir areas by the Columbia River Project, River Basin Surveys, Smithsonian Institution in the late 1940s (Bowers with Fosberg 1967:2-3); and of proposed highway projects by Idaho State University in the early 1960s (Dort 1964; Warren, Wilkinson, and Pavesic 1971). In 1964-1965 Alfred Bowers of the University of Idaho conducted extensive surveys across Washington County as well as test excavations in the area of Mann Creek Reservoir west of the Crane Creek KGRA (Bowers and Fosberg 1967). Further excavations and analysis of the Midvale Complex (Bucy 1974; Dort 1964; Warren, Wilkinson, and Pavesic 1971), of the Mesa Hill site (Ruebelmann 1973), and within Hells Canyon (Pavesic 1971; Randolph 1976; Randolph and Dahlstrom 1977) to the north and northwest of the Crane Creek provide a framework for evaluation of the potential prehistoric archaeological resources of that KGRA.

Unfortunately, Bowers' (with Fosberg 1967) report of his reconnaissance of Washington County is brief, with terse site reports that essentially provide little more than site locational data. He does record the recovery of a mid-section of a Folsom projectile point at a mapped location that appears to be near Ant Butte, ca. 10 km east of the Crane Creek KGRA and just south of the Crane Creek Reservoir (Bowers with Fosberg 1967:32). Folsom points in eastern Idaho are found in archaeological contexts that are dated at approximately 10,900 years ago (Suzanne J. Miller 1977:personal communication). The Ant Butte isolated find does not constitute a significant archaeological site, and could have been dropped in the area by later inhabitants, but is an indication that considerable time depth could be expected of the cultural resources in the Crane Creek area.

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reference

Bowers had little way of establishing good temporal controls on the materials he found during his 1964 and 1965 surveys in Washington County though he did note considerable artifactual variation among the assemblages of his 116 recorded sites. He did test excavate one site within the proposed Mann Creek Reservoir take-line, the Spangler site (10-WN-30), and was able to date a significant cultural component there at 600 years ago (Bowers with Fosberg 1967:28) with additional cultural materials in place well below the dated level. The Spangler site and three other prehistoric sites near it are located in a topographic setting very similar to that of the Crane Creek KGRA--an alluvial valley that is tributary to the main Weiser River valley, near the valley wall created by erosion of the Miocene basalts, in the vicinity of good springs and a permanent stream. Thus, materials similar to those at Spangler could be remnant in the Crane Creek area.

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date

Bowers also noted the presence of an unusual set of artifacts spread across Washington County, well made bifaces and flake tools of a fine-grained basalt. These materials had first been noted in the Midvale area about 15 km up the Weiser Valley from the Crane Creek KGRA, and have been well described as a distinct prehistoric technical industry (Bucy 1974). Unfortunately these materials have never been dated, and the artifact assemblages associated with the Midvale Complex frequently do not include temporally diagnostic projectile points. Dort (1964) in his analysis of the Midvale sites' geology noted that the archaeological materials were deposited within a thin soil that could not be reliably dated and that was draped over a much older landform; the sites are usually associated with outcrops of fine-grained basalt and hence are not deeply buried if at all. Warren, Wilkinson, and Pavesic (1971:52) in their original analysis of the Midvale materials assigned a date of 4500-2000 years ago on the basis of the associated projectile points at 10-WN-4, the Midvale site, but that site yielded little stratigraphy to verify the assignment. Bucy (1974) has not questioned this determination. On the other hand, Reubelmann in his analysis of the Mesa Hill site, another fine-grained basalt quarry and workshop in the Weiser Valley upriver from the Midvale sites and approximately 30-35 km north of the Crane Creek KGRA, assigns this industry to the Cascade period at 7000-4000 years ago (Reubelmann 1973:106). This assignment is quite probable, since it reflects a general correlation of basalt technology and Cascade settlements in the southern Plateau. Coming back to Crane Creek, Bowers (with Fosberg 1967:20) noted the presence of this basalt assemblage at a series of prehistoric sites east and south of Crane Creek Reservoir, just east of the Crane Creek KGRA. When one reviews all the available data on

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the known prehistoric cultural resources in the Crane Creek KGRA vicinity, one must assume that there is a high probability of the KGRA having archaeological materials with considerable time depth, perhaps including the Midvale Complex materials, and reflecting a settlement pattern similar to that of the Spangler locality.

Ethnographically the lower Weiser valley was a focus of cultural exploitation and interaction, and this could be reflected in the Crane Creek KGRA resources. As with the Vulcan area, both the Nez Perce and the Shoshoni moved through the Weiser Valley. Verne Ray recorded Nez Perce temporary fishing and hunting camps at the confluence of the Little and main Weiser Rivers, the west end of modern Crane Creek Reservoir, and the confluence of the Weiser and Snake Rivers [ca. 30 km north, 10 km east, and 15 km west of the Crane Creek KGRA respectively]. This record is again referenced by Schwede (1966:49-50; her sites 292, 291, and 290 respectively [see Fig. 10 this report]), and Marshall (1977:2) includes the Crane Creek KGRA within his map of ethnographic Nez Perce Territory. The Indian Claims Commission (1974b: 375) accepted Ray's information as fact but drew their boundary of exclusive Nez Perce territory well to the north of Crane Creek. The Commission (1974b: 364) did note that one of the principal root digging grounds exploited by the Nez Perce was north and east of Weiser, perhaps in the area now inundated by the Crane Creek Reservoir, and that antelope abounded in this same area and further east and northeast. Chalfant (1974:119,124) noted that the Nez Perce traditionally rendezvoused in the spring with the Shoshone in the Weiser River Valley near modern Council before travelling to Wyoming to hunt buffalo. His map (Chalfant 1974:Map 1) of the Wyoming trail notes a route passing through the upper Crane Creek valley approximately 20-25 km east of the Crane Creek KGRA. Finally Chalfant (1974:119) commented that the Nez Perce obtained "black flint" from a small stream emptying into the Snake from the east, north of Weiser. Thus, the Nez Perce within the last two hundred years were exploiting the lower Weiser valley for stone materials, plant and animal foods, and social and economic interaction, and it is quite likely that that exploitation included the springs of the Crane Creek KGRA. *in quoting whom?*

The lower Weiser valley was also popular with the Shoshoni. Steward (1970:172) reported that the Shoshoni were exploiting the anadromous fish, root crops, and mild winters in that area, and Murphy and Murphy (1960:319) also note the presence of a Shoshoni camp site near the mouth of Crane Creek, within 1-2 km of the Crane Creek KGRA. Nearly all the trappers and traders who travelled along the western Snake River Plain in the early nineteenth century (Figs. 4,5) comments about finding "Snakes" [Shoshoni] near the confluence of the Weiser and Snake Rivers, and some such as John Work (Lewis and Phillips 1923:65,67) and Wilson Price Hunt (Rollins 1935:299 [16-17 December 1811]) comment on the numerous Shoshoni camps along the Weiser. Hunt (Rollins 1935:296) on 28 November 1811 encountered "some huts of Chochonis [Shoshoni]" on what appears to be the headwaters of Mann Creek, perhaps 15 km northwest of the Crane Creek KGRA, an indication that even in winter people were scattered over all elevations of the Weiser valley. *W.P. Hunt*

Reviewing the present archaeological, ethnographic, and ethnohistoric date relative to the Crane Creek KGRA, it is evident that there is a high probability of finding significant prehistoric cultural resources within the proposed area of development. Materials dating throughout the Late *✓*

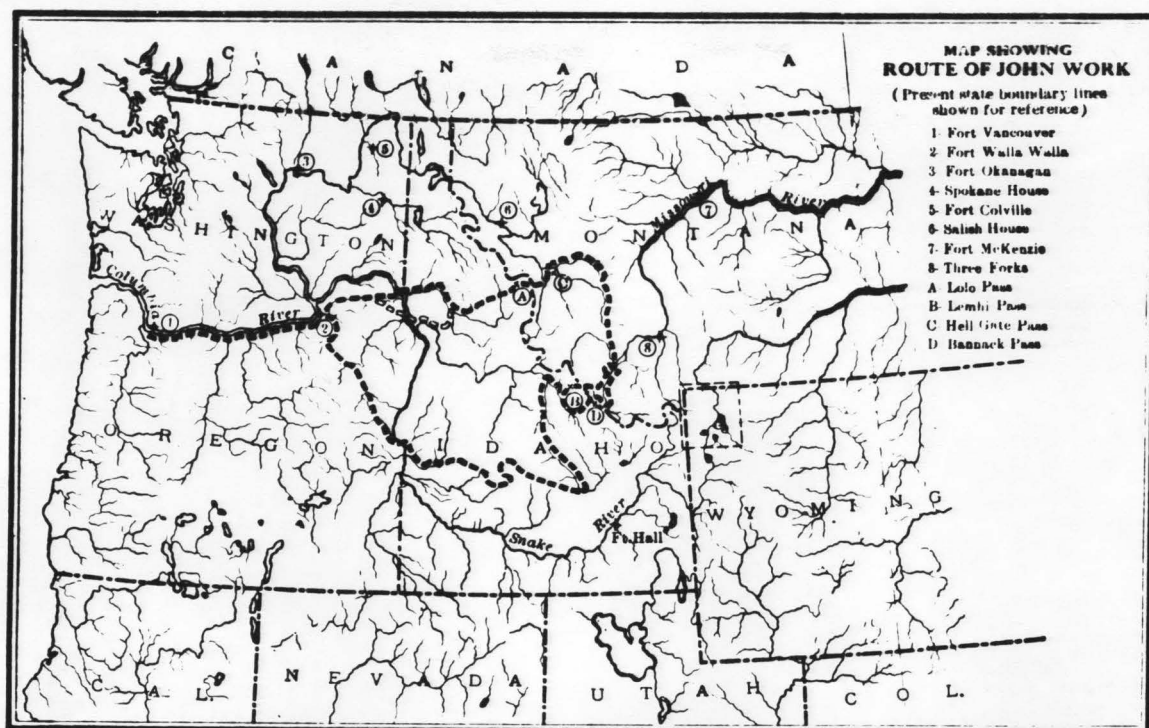


Fig. 5. Map of John Work's route across central Idaho (Lewis and Phillips 1923:191).

Pleistocene and Holocene could be found there, and the Midvale Complex could well be represented in that locality. Considering Chalfant's (1974: 143) comment that Nez Perce exploitation of the lower Weiser valley is relatively recent, a function of their aggressive strength with their adoption of horses, one would expect a more typical Shoshoni settlement pattern including winter villages to be represented in ^{the} ~~any~~ KGRA prehistoric resources. An intensive professional archaeological reconnaissance of the KGRA is a first planning requirement.

Historic Resources. Few specific comments about the Crane Creek KGRA are present in the literature, though several traders were in the general Weiser valley or its mouth in the early nineteenth century (Farnham 1843; Irving 1843a,b; Jackson and Spence 1970; Rich 1950; Rollins 1935; Thwaites 1905-06; Williams 1971; Young 1899). John Work and his Hudson Bay Company Snake Brigade may even have passed directly through the KGRA (Lewis and Phillips 1923:191; Fig. 4, this report). Apparently none of them settled there, however, and no major trading posts were established. The Oregon Trail passed well south of the Weiser valley (Idaho Department of Highways 1963) and it was not until the Boise Basin mines opened in the 1860s that major Euroamerican traffic began to funnel past the Weiser area. Olds Ferry (Foster 1946:50) was constructed in 1860 or 1861 approximately 20 km west of modern Weiser and ran across the Snake River from the Idaho side; it continued to operate until 1920 and brought many people to the Weiser area. The Abernathy trading post was built at the ferry site in 1862,

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 (Yester 1946:50)

and again attracted Euroamericans to the area. The first land surveys (U.S. Department of the Interior n.d.c) indicate that a house had been constructed within the Crane Creek KGRA by 1870, that there was a school there by 1901, and land titles were finally issued beginning in 1906. Settlement of the lower Weiser valley certainly was becoming well established by time the Bannock War campaigners travelled through there in 1878 (Brimlow 1938:inside cover; Fig. 6 in this report), and this was supported by construction of the Pacific and Idaho Northern Railroad from Weiser to New Meadows in 1899-1902 (Beal and Wells 1959:530). This railroad passed within 2-3 km west of the Crane Creek KGRA. As with the prehistory of the area, the historic archaeological and architectural resource potential within the KGRA is great and the area merits professional field reconnaissance before further development planning is carried out.

Data Needs and Planned Resource Commitments. As stated previously, there is a basic need for intensive reconnaissance of the Crane Creek KGRA to identify and evaluate any paleontological, archaeological, or historic architectural resources that might be present there. The potential for finding all of these is high. Max Pavesic of Boise State University, with support from the Office of the Idaho State Archaeologist, has been conducting archaeological survey in the general Weiser area but has not been in the Crane Creek KGRA; he has no specific plans to do so immediately. No other Federal or State office has any other reconnaissance plans insofar as we can determine.

Castle Creek KGRA (Table 1; Figs. 1,11,12)

Paleontological Resources. The Castle Creek KGRA is within a paleontologically rich area of Pliocene and Pleistocene deposits, though there is more description of fossil localities just outside of the KGRA borders than there are from within. The two basic references relevant to evaluating the KGRA's paleontological resources are both unpublished graduate theses and themselves focus on the area's edges, one being done on the Jackass Butte deposits (Middleton 1976) and the other on the bedrock geology of the Oreana quadrangle (Anderson 1965).

Briefly, the bedrock deposits of the Castle Creek KGRA (Anderson 1965) include basal Tertiary silicic volcanics, which apparently are evident only to the southwest edge of the area; the early-mid Pliocene Brown Creek or Chalk Hills Formation, including the Sinker Creek basalt member with sedimentary interbeds; the late Pliocene Oreana or Glens Ferry Formation of stream and lake sands and silts; the sedimentary mid-Pleistocene Montini or Bruneau Formation; and the Pleistocene Hart Creek Fan conglomerate. Molluscan, fish, and plant fossils are found in the sedimentary members of the Brown Creek Formation; clams, snails, fish, and plants [including silicified wood] are found within the Oreana or Glens Ferry Formation. It is the correlative Glens Ferry Formation that further east, in the Hagerman section of the Snake River Valley, has produced the famous fossil horse assemblages (Gazin 1936, Malde 1972). Finally, Anderson (1965:140) noted that the later Montini or Bruneau Formation has a full assemblage of molluscan and plant fossils accompanied by sloth, horse, camel, elk, and elephant remains

within the general area of the Castle Creek KGRA. The only recorded fossil localities we could find within the KGRA are Anderson's molluscan sites; nine of them are within our study area and are listed in Table 2. There appears to have been no systematic reconnaissance of the paleontological resources within the Castle Creek area, though several investigators have worked there, but there is high probability of finding more fossil-rich localities in the course of a thorough survey of the area.

Prehistoric Resources. Several professional archaeological surveys of prehistoric cultural resources have been conducted within the Castle Creek KGRA, most of them focusing on the Snake River portions of the area. In 1958, Donald R. Tuohy, under the auspices of Idaho State University Museum, conducted a reconnaissance of the proposed Guffey-Swan Falls Reservoir (Swanson, Tuohy, and Bryan 1959; Swanson 1965). Idaho State University Museum archaeologists recorded more sites in 1959 and 1961 (Swanson, Powers, and Bryan 1964), and in 1971 there was a much more extensive reconnaissance of the proposed reservoir area (Keeler and Koko 1971). Sharon Metzler (1976) surveyed upper portions of Brown Creek in 1975 and in 1976 recorded prehistoric sites within the KGRA as part of her long range Owyhee Project. In addition, U. S. Bureau of Land Management archaeologists have noted several historic and prehistoric sites within the Crane Creek unit (U. S. Department of Agriculture n.d.). Unfortunately, no sites have been well described yet within the KGRA, and none has been excavated to provide some idea of temporal depth.

Tuohy
reconnaissance

At present 46 archaeological sites (50 if you divide several of the continuous distributions of cultural material into separate units; Table 2) have been recorded within the Crane Creek KGRA; we estimate that 2% of the study unit has been surveyed and even those records as exist are minimal (site locations are provided, but practically nothing in the way of site descriptions). Of these 46 sites, two are historic, one has both historic and prehistoric components, and the rest are prehistoric. Of the prehistoric sites, three are apparently villages with or without obvious housepits; one is a single housepit; three are quarries, associated with a workshop or camp; four are substantial campsites [we are using the labels from the site reports; we cannot explain the differentiation of large village vs. large campsite]; three are rockshelters, one with an apparently deep midden; and 30 are small lithic scatters or campsites. Of the 46 sites, all but eight are down in the Snake River canyon; most of them cluster around Big Foot Bar. No statement of temporal depth of these KGRA sites can be made on the basis of the recorded descriptions on file in the Office of the Idaho State Archaeologist or the published comments (Swanson, Powers, and Bryan 1964:9; Swanson, Tuohy, and Bryan 1959:10,46,57,65) other than that there certainly are late period Shoshonean materials present in the Big Foot Bar area.

Even after 20 years of archaeological research in the Castle Creek KGRA, it is probably most appropriate to say that it remains relatively unknown territory. Extensive reconnaissance is needed along the Snake River valley outside of the Big Foot Bar area; apparently there has never been professional reconnaissance along the Snake from Jackass Butte up to and beyond Grand View. The Catherine Creek, Castle Creek, Garbutt Wash, Birch Creek, Vinson Wash, Jensen Wash, and Shoofly Creek valleys especially need attention. Metzler (1976) has worked in the upper Brown and Castle Creek drainages but has spent little time within the KGRA. Anderson (1965:30) in his report on

the geology of the Oreana quad, which includes the southwestern segment of the Castle Creek KGRA, notes the presence of medium grey or black vitrophyre within the Tertiary silicic volcanics that outcrop about 7-8 km southwest of the KGRA; he also comments that the ash beds of the lower member of the Brown Creek Formation (that outcrops in the same area as the Tertiary volcanics) include dense opalized concretions (Anderson 1965: 36). One cannot judge without actually examining sample specimens of these materials, but vitrophyre and opalite are common prehistoric tool stones. Anderson's passing comments suggest that the Castle Creek area might be rich in workable stone and hence have a high frequency of quarry or workshop sites, and Metzler (1976:12-13) records ten of these in the upper Brown Creek drainage. Site 10-OE-1133, one of the few recorded prehistoric sites up away from the Snake River (and in the general vicinity of Anderson's Tertiary and Brown Creek outcrops) is described as having a "large, moderately dense...[distribution of] obsidian and ignimbrite [i.e., vitrophyre] flakes" (U. S. Department of the Interior n.d.a:10-OE-1133). A similar site (10-OE-1006) lies within $\frac{1}{2}$ km of site 1133. In addition to these lithic resource sites, the abundance of plant and animal resources within the Castle Creek unit, and the identification even with minimal survey of large villages down in the Snake River Canyon, suggest that a rich prehistoric data base is present within the KGRA. Swanson's (1965:Fig. 11; see Fig. 7, this report) estimate of 20-25 sites per river mile downstream of the mouth of Castle Creek is a clear statement of the need for more survey in the KGRA as a first planning step.

Sites in the general southwestern Idaho area have tools of various ages exhibited in their surface collections, with a full range of projectile point styles representing at least 10,000 years of occupation (see Swanson, Powers, and Bryan 1964:Figs. 1-4; compare with Tuohy [1963:Pl. 22], Metzler [1976:41], and Plew [1976:57-58]). Without extensive surface site description, or excavations except for tests and small salvage projects (e.g., Bonnicksen 1964, Gruhn 1964, Shellbach 1967, Tuohy and Swanson 1960) it is difficult to postulate a model of cultural variability for the Castle Creek area within which future inventory and research could operate. However, Swanson (1965, 1974) has suggested that a *South Hills Culture* was extant in the western Snake River Plain (including the Castle Creek area) during prehistoric time, and this model will merit attention by any future archaeologists working in the KGRA. Briefly, Swanson has suggested that the plateau and bench lands between the Owyhee Uplands and the Snake River canyon were most heavily exploited during the late Pleistocene, that the Canyon itself was probably not used extensively as a habitation zone until 3000 years ago, that from 8000 years ago to the present there has been continuity of a South Hills cultural tradition in the canyon-plateau-uplands region, that this tradition probably represents Northern Paiute, and that about AD 1300 there was a major movement of Plateau peoples into southwestern Idaho. Pavesic (1974) disagrees with several aspects of the Swanson model, particularly with interpretation of Plateau population movements. The Castle Creek KGRA, with its inclusion of canyonlands, plateau or bench lands, and major stream valleys leading into the Owyhee Uplands, has high potential for producing archaeological data relevant to investigation of the Swanson or Pavesic models of local prehistoric cultural developments and adaptations.

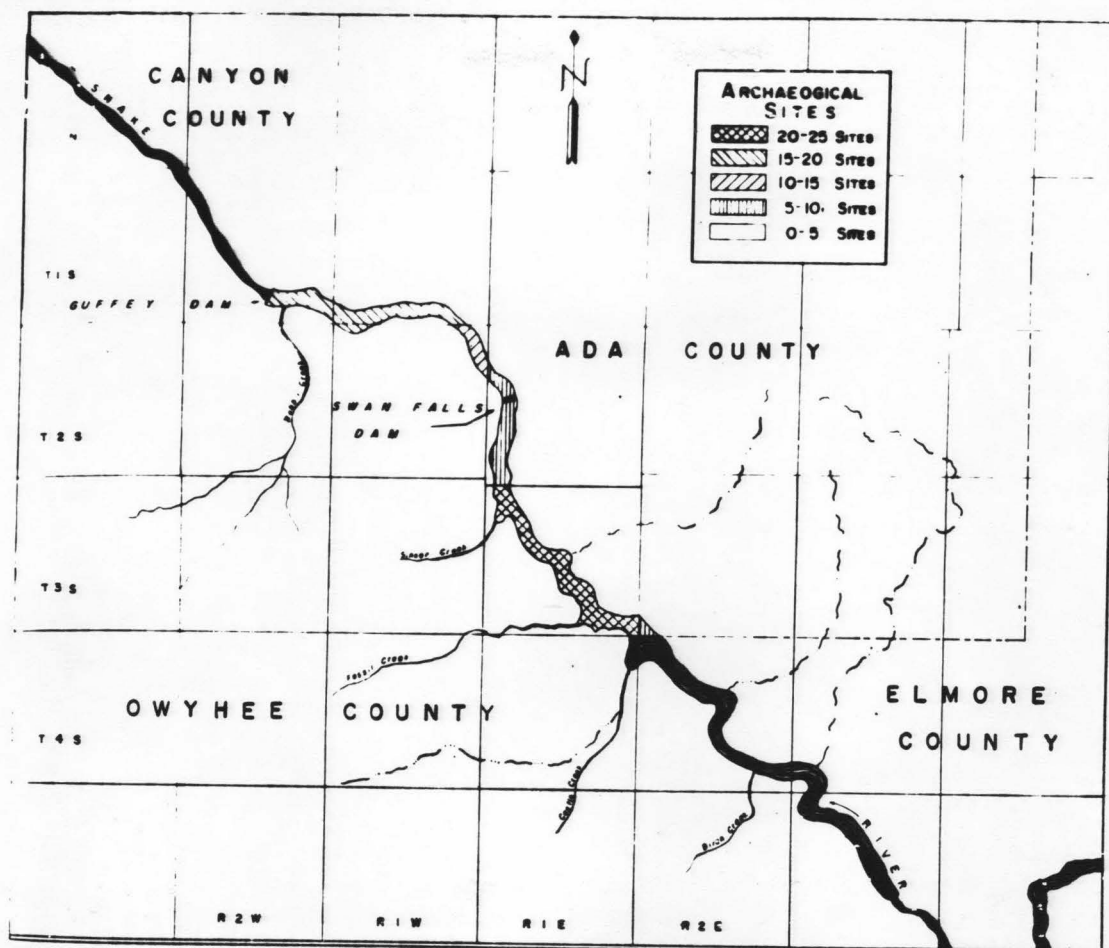


Fig. 7. Map of predicted prehistoric archaeological site density in the Swan Falls area, Castle Creek KGRA, as of 1965 (Swanson 1965: Fig. 11).

It should be noted that ethnographically the Castle Creek KGRA was probably occupied by mixed groups of Shoshoni and Northern Paiute. This was the conclusion of the Indian Claims Commission (1974:286), and was based on comments such as those in Stewart (1940), Hoebel (1940), Steward and Voegelin (1954), and Harris (1938, 1940). Anadromous fish in the Snake River and lower reaches of the "navigable" streams provided a major resource exploited seasonally by all groups, as did the apparently plentiful tool stone resources and the game populations of the uplands. No clear model of seasonal exploitation has been developed for this area specifically, nor are there demographic models other than comments about small group size (though see Harris' [1940:409] comment on seasonal ceremonies that bring 100-400 people together). Every bit of retrievable archaeological data has high value in supporting explanations of both prehistoric and ethnographic human settlement and subsistence systems followed in the Castle Creek area.

Historic Resources. Euroamericans have been travelling through the Castle Creek KGRA since the early nineteenth century; both Stuart and Hunt (Rollins 1935; Fig. 4) were through there in 1811 and 1812 respectively, as was Peter Skene Ogden in the 1820s (Rich 1950, Williams 1971; Fig. 8). The journals of these travelers provide little description specific to the Castle Creek KGRA. However, Stuart (Rollins 1935:85) probably was camped on Henderson Flat in the northern section of the KGRA on 19 August 1812 when he noted, "In the vicinity of our Camp is a Lodge of Shoshonies so miserably poor they could not furnish us even with a fish." He also apparently spent the next night within the KGRA, approximately 2 km north-east of Grand View (Rollins 1935:86) but has no further descriptive comments about the area.

The major identified historic feature within the KGRA is the alternate South Route of the Oregon Trail (Idaho Department of Highways 1963; Table 3; Figs. 11,12), which has clearly discernible ruts for much of the northwest-southeast length of the KGRA. It is quite possible that some of those early transcontinental travellers halted in the Castle Creek area and homesteaded there instead of going all the way to Oregon, since by 1867 there were already well established ranches in the KGRA (Hough 1867). Early survey plats for that area (U. S. Department of the Interior n.d.c) locate cabins or structures there in 1868, 1870, 1895, and 1905; the fact that the area was surveyed as early as the 1860s indicates a demand for property designation and a fairly significant population there. This was probably in large measure a function of the Snake River ferries that allowed fairly easy movement through the area, as between the mines in the Owyhees and those in the Boise Basin to the north. Grand View (Foster 1946:48) and Clark's (Larry Jones 1978:personal communication) ferries were both operating within the KGRA then. Placer mine tailings are present on Big Foot Bar (Keeler and Koko 1971:7,11) within the KGRA and in other localities both up and down the Snake canyon, but we have not been able to reliably date those. In any event, even though to date there has been minimal survey of the historic archaeological and architectural resources within the Castle Creek KGRA (though see Table 2 for identification of three such sites), there is good potential for over a century of materials to be remnant in the area. Thus again field survey should be the first step in any development planning in the Castle Creek area.

Data Needs and Planned Resource Commitments. As is obvious from the above discussion, there is a major need for professional systematic field reconnaissance of the paleontological, prehistoric, and historic archaeological and architectural resources that may be remnant within the Castle Creek KGRA. The potential for finding major and significant sites with such materials is high. At present there are no specific plans for such reconnaissance other than small project-by-project surveys being conducted by the U. S. Bureau of Land Management, Boise District. A. D. Linder of Idaho State University and his graduate students are doing some research on the paleontology of the area, but they have no plans for extensive reconnaissance. Sharon Metzler of Washington State University is continuing her archaeological survey and excavation program in the upper Castle Creek and Brown Creek drainages, but has no plans to work within the KGRA. Members of the Idaho Archaeological Society continue to record site information from the general Owyhee County area, but do not work within the KGRA. Finally, there are no immediate plans for preservation-oriented management by the Office of the Idaho State Archaeologist to conduct state-sponsored survey in the area.

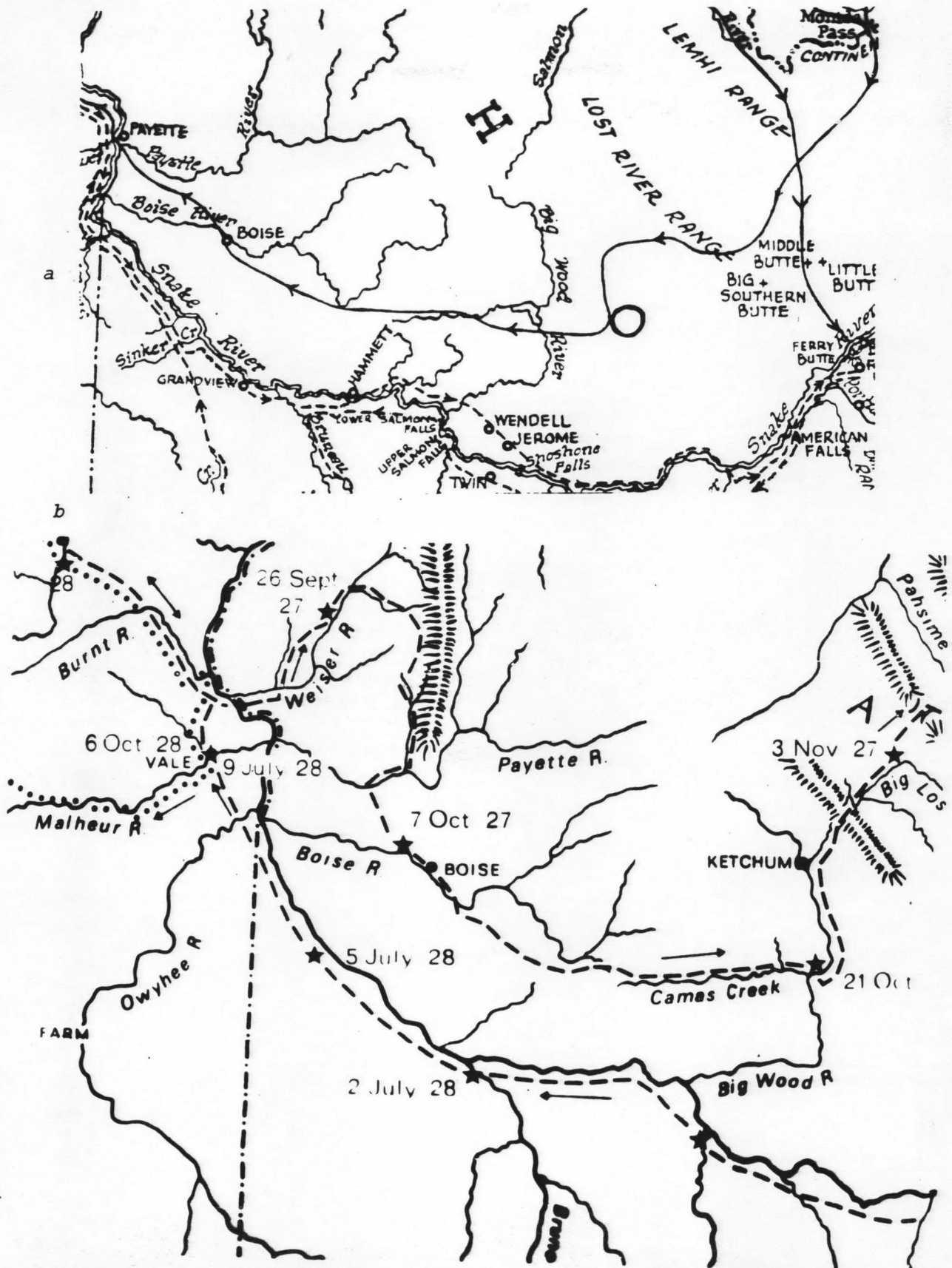


Fig. 8. Maps of Peter Skene Ogden's routes across southern Idaho. a, 1824-1825 (straight line) and 1825-1826 (dashed line) (Rich 1950:Map 1); b, 1827-1828 (Williams 1971:Map 1).

TABLE 3. Known continuous heritage resource features or districts in selected Idaho KGRAs.

KGRA	Feature/district	Legal description
Castle Creek	Guffy Butte-Black Butte Archaeological District [nominee, National Register of Historic Places]	T3S, R1E, Secs. 23,26,27,34,35 T3S, R2E, Sec. 31 T4S, R1E, Secs. 1,2 T4S, R2E, Secs. 6-8
	Oregon Trail	T3S, R1E, Secs. 27,34,35 T4S, R1E, Secs. 1,2 T4S, R2E, Secs. 6-8
Mountain Home	Oregon Trail	T3S, R8E, Sec. 34 T4S, R8E, Sec. 3 T4S, R9E, Sec. 33

Some commitments have been made for the heritage resources identified to date. Some of the archaeological sites within the KGRA, those located in the northern section along the Snake River, have been included within the Guffey Butte-Black Butte Archaeological District that has been nominated to the National Register of Historic Places (Table 3). That nomination has been accepted and only awaits publication in the *Federal Register* to be official (Thomas Green 1978:personal communication). In addition the Oregon Trail was identified as a study trail as part of the National Historic Trails System legislation, and it is also in the process of receiving Federal identification for preservation (Table 3). Thus, any development that would affect these two areas would require review and comment by the Secretary of the Interior and the National Advisory Council on Historic Preservation (36 CFR 800). We are not aware of any other plans to develop historic interpretive programs within the Castle Creek KGRA.

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Bruneau KGRA (Table 1, Figs. 1, 13a)

Paleontological Resources. An unpublished graduate thesis (Harper 1963) provides the basic information on the fossil resources of the Bruneau KGRA. Harper mapped Chalk Hills, Glens Ferry, and Bruneau Formations within the KGRA, all of which frequently produce molluscan, plant, and vertebrate fauna. Harper (1963:41) noted freshwater gastropod and mammalian (camel, rhinoceros, citellid rodent, beaver, *Hipparion*) fossils in the Chalk Hills outcrops just across the southern border of the KGRA on the east side of the Bruneau River. No other paleontological materials were recovered within or immediately adjacent to the KGRA, and it appears that Harper rather intensively surveyed that area hoping to find more specimens.

Prehistoric Resources. In 1937 an extensive and intensive archaeological survey was conducted in the Bruneau Canyon by Godfrey Olsen (1940), sponsored by the American Indian, Heye Foundation of New York. He and his crew spent four months surveying 80 km of canyon bottom and a 1/2 km-wide, 110 km long strip on either side of the canyon; they found over two hundred camp, village, quarry, and burial sites. They undoubtedly scoured the Bruneau KGRA during this survey--unfortunately for many interests, the notes and collections from that survey have never been published and are now apparently lost (Pavesic and Hill 1973:11).

In 1971-1972 Idaho State University conducted a second major reconnaissance of the Bruneau Canyon (Pavesic and Hill 1973), this time for the Bureau of Land Management. However, their survey is also of little direct applicability to the Bruneau KGRA in that they stopped at the canyon mouth, just at the southern KGRA border. They did record one prehistoric site within the KGRA (Table 2, Fig. 12), a small scatter of lithic material with two baskets (Pavesic and Hill 1973:13) that is assumed to represent a small campsite. This is the only recorded archaeological survey that relates to the KGRA at all.

The ethnographic information available suggests that there is a high probability of prehistoric cultural materials being remnant in the Hot Spring locality. The Bruneau valley was known historically to be the home territory of a group of Shoshonis who were usually referred to as "Bruneau Shoshoni" (Ballard 1867:190; Powell 1868:252; 1869:728) and were closely associated with the Boise Shoshoni in the mid-nineteenth century. Harris (1938:408; 1940) also comments that some of the Western Shoshoni who exploited the game and fish resources of the Bruneau were White Knife Shoshoni from Nevada who seasonally moved north into the fishing areas. In any event, there is good documentation of major fishing camps at the confluence of the Bruneau and the Snake; Stuart (Rollins 1935:107) noted 30 lodges there when he crossed the Bruneau on 21 August 1812. Steward and Voegelin (1954:210) commented that the Bannock occasionally camped and fished at the Bruneau mouth, and Hough (1867:189) also recorded a fishing camp at that locality. Even more pertinent to the Bruneau KGRA, however, is Steward's (1938:136) map of southern Idaho Indian villages and camps on which he marks a winter village site approximately at Hot Spring; nowhere in his text does he discuss this location. Murphy and Murphy (1962:322) also note the village, however, and specify that it is located at Hot Spring on the west side of the Bruneau just north of the mouth of the canyon. Steward ascribed no tribal name to the Hot Spring village on his map; Murphy and Murphy refer to it as Shoshoni. Thus, historical and ethnographic records support relatively heavy use of the Bruneau Valley from south to north, and the presence of a winter village or camp within the Bruneau KGRA strengthens the probability that significant prehistoric cultural resources are remnant in the area and need identification and effective management. The combination of anadromous fish resources, relatively warm winters, extensive hot springs, and plentiful game in the area probably have made it a desirable home for thousands of years.

Use in this publication

In addition to citing the ethnographic literature, comment should be made about the diversity and temporal breadth of materials found adjacent to the Bruneau KGRA. Pavesic and Hill's (1973:11) survey upriver from Hot Spring found 173 prehistoric sites, many of them on floodplain terraces;

they make no comment as to the temporal span represented by those deposits. Murphey (1977a,b) has recently completed extensive surveys of the Tuana section of the Snake River Plain and the Devil's Creek area, both southeast of the Bruneau Canyon with very similar environments; he has recorded several hundred sites that cover a full 10,000 years of human adaptation to the region. There is no reason not to assume that a similar time span could be represented even in the small Bruneau KGRA, considering the array of natural resources available there.

Historical Resources. Few historic records are available for the Bruneau KGRA. Ogden crossed the Bruneau on 2 July 1828 (Williams 1971:91) and probably was within the KGRA; he left no specific descriptions. The earliest Government Land Office survey plats (U. S. Department of the Interior n.d.c) indicate a cabin within the KGRA by 1874; homesteaders living in the area hid out in Roberson Cave (Table 2, Fig. 12) during the Bannock War of 1878 when they feared for their lives (Larry Jones [Idaho State Historical Society] 1978:personal communication). While there are probably no extensive historic archaeological or architectural remains within the Bruneau KGRA, homestead or early school or community structures could occur and need to be considered before development of major plans for the area.

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Data Needs and Planned Resource Commitments. As with the other KGRAs, systematic professional field reconnaissance of the paleontological and cultural resources of the Bruneau KGRA needs to be conducted before much planning can be done there. At this time there are no Federal or State agency plans to conduct such survey, insofar as we could determine.

Mountain Home KGRA (Table 1, Figs. 1, 13b)

Paleontological Resources. No paleontological survey has been done in the Mountain Home KGRA insofar as we could determine. The bedrock is apparently mid-Pleistocene basalts and Quaternary sediments with little deep erosion, hence there is little likelihood of finding good exposures of fossil-rich deposits.

Prehistoric Resources. Only one professional archaeological survey has been conducted within the KGRA (Cinadr 1976), done by Idaho State University Museum under contract to the U. S. Bureau of Land Management. This survey used a sampling design whereby approximately 5% of the Mt. Bennett Hills Planning Unit was field-surveyed in order to estimate the total density and settlement pattern within the Unit. Thus, within the areas designated here at the Mountain Home KGRA, 1.4 mi.² of the total 15 mi.² area was field checked, or approximately 10% of the area. No prehistoric or historic sites were recorded during this survey. Within the Planning Unit (which extends north and east of the KGRA) Cinadr (1976:47-54) noted a general frequency of .21-.32 sites per mi.² at elevations similar to those of the KGRA, thus predicting that the Mountain Home unit should be expected on a statistical basis to have few remnant cultural resources. In complement to the mathematical model, the occurrence of perennial streams and hot springs in the KGRA could have supported more frequent human use of the area in the past; remnants of that use could be left. In any event, more thorough field survey of the KGRA is needed.

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[Cinadr 1976:47-54]
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Ethnographically the area was exploited most intensively by the Shoshoni, though it is west of the area that is clearly identified as territory of the Shoshoni Tribe (Indian Claims Commission 1974:284). The area is in the path of a general ethnographic traffic pattern from the Snake River Plain or even the hills south of them, up over the Mt. Bennett Hills and into the Camas Prairie. It is not unlikely to assume that groups moving through the area might choose to camp near water and hot springs, hence the need for more thorough prehistoric archaeological survey within the KGRA. Cultural materials from Lydle Gulch (Sappington 1978) and the Foothills Rockshelter (Webster and Peterson 1975) indicate 3000-4000 years of cultural continuity along the northern edge of the western Snake River Plain, and the Simon Clovis and Thorn Creek sites up on the Camas Prairie (Butler 1968) demonstrate at least 11,000 years of human use of the Prairie and Mt. Bennett Hills.

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Historic Resources. Historically the Mountain Home KGRA has been more of a traffic crossing than a residential zone. The Oregon Trail crossed from southeast to northwest across the KGRA (Idaho Department of Highways 1963; Table 3, Fig. 13), and its ruts are readily visible. This route was used heavily in the 1840s and 1850s. The Kelton Road (Jones 1972) was established in the late 1860s between Boise and the Central Pacific Railroad at Kelton, Idaho; this route passes through the northeast corner of the Mountain Home KGRA (Fig. 13b). The Kelton or Salt Lake Road was a major highway for moving goods from manufacturing centers into southwestern Idaho and the mines, and was heavily used for a decade or so until railroads were built directly into Idaho. Finally, another travel route through the KGRA was used in 1878 by the Bannock War campaigners (Brimlow 1938:inside cover; Fig. 6) but there are no specific records of their camping within the study unit. The first survey plat for any of the KGRA lands (U. S. Department of the Interior n.d.c) indicates that a cabin was present in the area in 1874, but that homestead is still almost the only habitation within the Mountain Home unit. While there does need to be some field reconnaissance of the historic resources within the KGRA, the likelihood of there being significant remnants other than the Oregon Trail ruts appears to be relatively slight.

Data Needs and Planned Resource Commitments. An inventory (100%) survey of the prehistoric and historic archaeological and architectural resources within the KGRA is needed before further planning is done, to understand thoroughly the management problems in the area, and some paleontological survey should be completed. No Federal or State agencies are currently planning such surveys insofar as we can determine. The Oregon Trail segments that cross the Mountain Home KGRA are protected by their designation as a National Historic Trail, and development plans should avoid adversely impacting those localities.

3. SUMMARY AND RECOMMENDATIONS

Additional Data Needs Before EIS Submission

Obviously, there are few data available in any of the selected Idaho KGRAs from which one can evaluate the relative density and/or significance of their incorporated heritage resources. Inventory survey of the cultural resources, in compliance with Executive Order 11593, is an essential component to effective planning in these areas. It is also desirable to have further paleontological survey completed. Few heritage sites have been identified to date, but most of those that have been noted (as in the Castle Creek, Vulcan, and Mountain Home KGRAs) have either been evaluated as eligible for nomination to the National Register of Historic Places, or are actually in process of final listing. Those sites not so evaluated need to be reviewed by the Idaho State Historic Preservation Officer before planning goes much further.

Evaluation of Impacts of Specific Developments

Various developments suggested for these KGRAs include fish farms, tree farms, power plants, space heating systems, feed lots, potato processing plants, manure processing plants, and refrigeration systems. Development of any of these would undoubtedly involve disturbance of the ground, hence has the potential for adversely impacting any heritage resources within the development locality. Effective management and development of all valued resources can only be done with full knowledge of those various ~~resources~~, hence nothing can be done until that data base is available. Systematic field reconnaissance of the KGRAs is the first step, then, in evaluation of the impacts of development and must be done before such evaluation can itself be completed. Feb

One final comment is in order about the nature of geothermal development and heritage (especially cultural) resources. Geothermally active areas tend to produce hot springs, to provide a water source with unique mineral constituents that make it attractive to both game and humans. People camp around hot springs because they like to use the waters, because they can more easily harvest the game that is also attracted to the localities, and sometimes because such hot springs are associated with silicified stone ^{deposits} ~~resources~~ that are appropriate for tool-making. One should start out with the assumption that there is a high probability of having both prehistoric and historic cultural resources in association with any hot spring, then set out to demonstrate the presence or absence of such ^{available} ~~resources~~. Only with thorough and reliable reconnaissance and evaluation of these localities, as early in the planning process as is possible, can the maximum variety of available resources be managed affirmatively and effectively.

ANNOTATED BIBLIOGRAPHY (Including Cited References)

Aikens, C. Melvin, David L. Cole, and Robert Stuckenrath

- 1977 Excavations at Dirty Shame Rockshelter, southeastern Oregon. *Tebiwa, Miscellaneous Papers of the Idaho State Museum of Natural History* No. 4.

This site has provided a basic cultural chronology for the Owyhee area of the northern Great Basin, including both southeastern Oregon and southwestern Idaho, and is a model of possible resources within the selected Idaho KGRAs in that region.

Agenbroad, Larry D.

- 1976 Buffalo jump complexes in Owyhee County, Idaho. *Tebiwa, Miscellaneous Papers of the Idaho State Museum of Natural History* No. 1.

Two sites in southern Owyhee County have been interpreted to be prehistoric or protohistoric bison jumps, again serving as a model for potential cultural resources within the selected KGRAs in that general region.

Anderson, Norman R.

- 1965 *Upper Cenozoic stratigraphy of the Oreana, Idaho, 15' quadrangle*. Doctoral dissertation, University of Utah, Salt Lake City. Ann Arbor: University Microfilms.

This unpublished dissertation delineates the paleontologically significant formations of part of the Castle Creek KGRA, and lists localities where fossils have been collected.

Ballard, David

- 1867 Report of Mr. Ballard to D. M. Cooley, on the Indian tribes of the territory of Idaho. In "Report of the Commissioner of Indian Affairs," pp. 189-191. 39th Congress, 2nd Session, *House Executive Documents* (Serial No. 1284).

This report does not pertain to any specific KGRA, but only mentions that Indians occupied the Owyhee County area.

Barnes, Paul L.

- 1964 Archaeology of the Dean site: Twin Falls County, Idaho. *Washington State University, Laboratory of Anthropology, Reports of Investigations* No. 25.

The Dean site on Brown's Bench in the Upper Salmon Falls drainage has 8000-10,000 years of occupation represented within its sediments and again is a model of potential cultural resources within the Bruneau and Castle Creek KGRAs especially.

Beal, Merrill D., and Merle Wells

- 1959 *History of Idaho, Vol. I*. New York: Lewis Historical Publishing Co., Inc.

This book is an excellent introduction to general Idaho historical research. It summarizes significant events in Idaho history but does not give data specific to the KGRAs. It does provide good bibliographic references.

Bjork, P. R.

- 1970 The carnivora of the Hagerman local fauna (late Pliocene) of south western Idaho. *Transactions of the American Philosophical Society* 60(8):3-54.

Blyth

- 1958 This description of fossil fauna in the Hagerman area is relevant to evaluation of the paleontological resources of the Bruneau and Castle Creek KGRAs.
(p. 47)

Bond, John G., Compiler, and John D. Kauffman, Donald A. Miller, and Ramesh Venkatakrisnan; Clifford H. Wood, Cartographer, with Philip J. Hearn, Garrett E. Kirby, and Gary McManus

- 1978 *Geologic map of Idaho*. Moscow, ID: Idaho Department of Lands, Idaho Bureau of Mines and Geology, with U. S. Geological Survey.

This geologic base map was just revised recently and has been published before its companion explanatory volume (*Idaho Bureau of Mines and Geology Information Circular 31*) is available. It does have a full legend explaining the mapping units and labels, but unfortunately was poorly printed so that the underlain cultural and geographic features (rivers, lakes, towns, county lines) are nearly invisible making the map difficult to use.

Bonnichsen, Robson

- 1964 The Rattlesnake Canyon cremation site, southwest Idaho. *Tebiwa* 7(1): 28-38.

This site is on the north side of the Snake River, north of the Bruneau KGRA and east of the Castle Creek KGRA; it is one of the few excavated sites in that area and is evidence of the excellent preservation of archaeological materials from the early historic period there.

Boreson, Keo

- 1976a A bibliography of petroglyphs/pictographs in Idaho, Oregon, and Washington. *Northwest Anthropological Research Notes* 10(1):123-146.

- 1976b Rock art of the Pacific Northwest. *Northwest Anthropological Research Notes* 10(1):90-122.

These companion papers document the known record of prehistoric pictograph and petroglyph sites in Idaho, none of which is from the selected KGRAs. Several rock art sites are noted just north of the Mountain Home KGRA, and such resources should be expected in areas such as the Castle Creek KGRA especially.

Bowers, Alfred W., with an appendix by Maynard A. Fosberg

- 1967 Archeological excavations in the Spangler Reservoir and surveys in Washington County, Idaho. Ms, Interagency Archeological Services-San Francisco (HCRS, USDI) and the Archive of Pacific Northwest Archaeology, University of Idaho, Moscow.

This 107pp (with illustrations, 4 large maps) manuscript is a report to the National Park Service and the National Science Foundation of the 1964-1965 survey and test excavations of sites in the Spangler [Mann Creek] Reservoir in the Weiser River drainage and in Washington

County in general. It unfortunately has rarely been available and is rarely cited, but does contain a valuable overview of archaeological resources in the area of the Crane Creek KGRA.

Bowers, Alfred W., and C. N. Savage

1962 Primitive man on Browns Bench--his environment and his record. *Idaho Bureau of Mines and Geology, Information Circular No. 14.*

This is an earlier report on the Brown's Bench Dean site in the Upper Salmon Falls drainage east of the Bruneau and Castle Creek KGRAs, and provides basic data for developing a model of expected cultural resources within those KGRAs.

*Brimlow, George F.

1938 *The Bannock Indian War of 1878.* Caldwell, ID: The Claxton Printers, Ltd.

Brimlow's map of the campaign documents the military movement through the Weiser valley, but there is no specific discussion of the Crane Creek KGRA.

*Brown, William C.

1926 The Sheepstealer campaign, Idaho-1879. *Tenth Biennial Report of the State Historical Society of Idaho for Years 1925-26*, pp. 25-53.

This report of the military campaign against "small renegade bands of Bannocks, Shoshones [Sheepstealers] and Weisers" includes a map that indicates that Captain Bernard's regiment camped in the Vulcan KGRA on 21 July 1879.

Bucy, Douglas R.

1974 A technological analysis of a basalt quarry in western Idaho. *Tebiwa* 16(2):1-45.

The Midvale basalt quarry is ca. 15 km north of the Crane Creek KGRA and provides a useful model of the prehistoric sites to be expected in the general area.

Butler, B. Robert

1968 *A guide to understanding Idaho archaeology*, 2nd edition. Pocatello: Idaho State University Museum.

This volume is now out-of-print and the 3rd edition by the same title is limited to a discussion of southeastern Idaho rather than the entire state. Though dated, the 1968 edition of Butler's synthesis is still the most useful introduction to the archaeology of the state and to southwestern Idaho.

Chalfant, Stuart A.

1974 Aboriginal territory of the Nez Perce Indians. In *Nez Perce Indians*, edited by David Agee Horr, pp. 25-164. New York: Garland Publishing Company.

*Starred items include maps that have been copied and included within this report.

This synthesis of information relating to Nez Perce territorial claims was compiled for presentation to the Indian Claims Commission, who essentially accepted its findings as fact. Thus, the Crane Creek KGRA is included within the southern boundaries of Nez Perce territory, being a marginal area shared with the Shoshoni. Vulcan KGRA is not within this area, but is assigned to the Shoshoni.

Cinadr, Thomas J.

1976 Mount Bennett Hills Planning Unit: analysis of archaeological resources. *Idaho State University Museum of Natural History, Archaeological Reports No. 6.*

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This 96pp. (with illustrations) technical report of Idaho State University's survey of the Mount Bennett Hills Planning Unit was submitted to the Bureau of Land Management and is difficult to find; its sample survey does include a small portion of the Mountain Home KGRA. No sites were found within those sampled areas of the KGRA, but the report does provide a model of prehistoric site distributions within the general Mt. Bennett Hills area.

Danilson, W. H.

1870 Report of Lt. Danilson to Col. Jones, on the Indian tribes of the territory of Idaho. In "Report of the Commissioner of Indian Affairs, Accompanying Papers," pp. 729-730. 41st Congress, 2nd Session, *House Executive Documents Vol. I, Pt. 3, No. 75 (Serial No. 1414).*

This report of the population of Fort Hall Indian Reservation includes comments about the Bruneau, Boise, and Western Shoshoni then resident at Fort Hall. However, it includes no comments about their original non-reservation territory or settlement pattern.

Dort, Wakefield, Jr.

1964 Geology of the Midvale site complex, Idaho. *Tebiwa* 7(1):17-22.

This original description of the Midvale archaeological site complex, which is focused approximately 15 km north of the Crane Creek KGRA, is the basic discussion of the potential age of those cultural deposits. Again, it serves as a model of potential archaeological resources within the KGRA.

Erwin, Richard P.

1930 Indian rock writing in Idaho. *Twelfth Biennial Report of the State Historical Society of Idaho for the Years 1929-30*, pp. 2, 35-111.

This original survey of Idaho pictographs and petroglyphs does not include any of the selected Idaho KGRAs, but is an excellent overview of the varieties and locations of materials that might be expected to be found in central and southern Idaho especially.

Farnham, Thomas J.

1843 *Travels in the great Western prairies, the Anahuac and the Rocky Mountains, and in the Oregon Territory.* New York: Greeley and McElrath, Tribune Buildings.

This 1838 journal reports Shoshoni living along the Snake River but does not specifically locate them within any of the selected KGRAs.

Foster, Flora

- 1946 Old ferries. *Twentieth Biennial Report of the Idaho State Historical Society*, pp. 45-53.

This report gives locations of early Idaho ferries and notes the presence of the Grandview Ferry across the Snake River (within the Castle Creek KGRA).

Gallagher, Joseph G.

- 1975 The archaeology of the Sheepeater Battleground and Redfish Overhang sites: settlement model for central Idaho. Master's thesis, Idaho State University, Pocatello.

This hard-to-find thesis uses the 7000 years of cultural sequence at the Sheepeater Battleground site north of Stanley as a basis for outlining the prehistoric settlement patterns in the area, and is a first model for the Vulcan KGRA resources as well.

Gazin, C. Louis

- 1936 A study of the fossil horse remains from the Upper Pliocene in Idaho. *U. S. National Museum Proceedings* 83:281-320.

Gazin's early description of the Hagerman Fossil Beds, found along the Snake River valley in south central Idaho, is a basic reference for predicting the occurrence of similar materials in the Castle Creek and Bruneau KGRAs.

Gruhn, Ruth

- 1960 The Mecham site: a rockshelter burial in the Snake River Canyon of southern Idaho. *Tebiwa* 3(1,2):3-19.

This site is well east of the selected Idaho KGRAs, near Twin Falls along the Snake River, and is evidence of occupation of the canyon between approximately AD 700-1200.

- 1964 Test excavations at sites 10-OE-128 and 10-OE-129, southwest Idaho. *Tebiwa* 7(2):28-36.

These sites appear to date approximately 4000-2500 years ago but while relatively close to each other seem to have different cultural components. The sites are downriver along the Snake from the Castle Creek KGRA, and while small also serve as models of the cultural variation that might be expected within the Castle Creek area.

Harper, Kennard R.

- 1963 Geology of the Hot Spring quadrangle, Owyhee County, Idaho. Master's thesis, University of Oregon, Eugene.

This unpublished thesis contains geological descriptions pertinent to understanding the significance of paleontological materials in the Bruneau KGRA.

Harris, Jack

- 1938 Western Shoshoni. In "Tribal distribution in eastern Oregon and adjacent regions," edited by Verne F. Ray and others, pp. 407-410. *American Anthropologist* 40(3):384-415.

Harris places the White Knife Shoshoni on the Bruneau occasionally, perhaps for anadromous salmon fishing in the lower reaches.

- 1940 The White Knife Shoshoni of Nevada. In *Acculturation in seven American Indian tribes*, edited by Ralph Linton, pp. 39-166. New York: D. Appleton-Century Co., Inc.

Again, Harris comments on the White Knife Shoshoni exploitation of the upper Bruneau canyon.

Hibbard, Claude W., and Richard J. Zakrewski

- 1967 Phyletic trends in the Late Cenozoic microtine *Ophiomys* gen. nov., from Idaho. *Contributions of the Museum of Paleontology, University of Michigan* 21(12):255-271.

Hoebel

- 1940 (p. 47) This report of fossil voles from the Glens Ferry Formation exposures near Twin Falls is relevant to evaluation of the paleontological resources of the Bruneau and Castle Creek KGRAs.

Horr, David Agee, Editor

- 1974 *Shoshone Indians*. New York: Garland Publishing, Inc.

This documentation of the various Shoshoni tribal entities' claim against the Federal government for redress of territorial losses includes the general area of all the selected KGRAs discussed in this report. The conclusion of the Indian Claims Commission was that this region was not used exclusively by any single Shoshoni or other tribal group, and that instead there was constant sharing of territory and resources there aboriginally.

Hough, George C.

- 1867 Report of Mr. Hough to Mr. D. Ballard, on the Indian tribes of the territory of Idaho. In "Report of the Commissioner of Indian Affairs," pp. 188-189. 39th Congress, 2nd Session, *House Executive Documents* No. 72 (Serial No. 1284).

This report records 125 Shoshoni camped at the mouth of the Bruneau and settlers on both Castle and Sinkers Creeks.

Idaho Department of Highways

- 1963 *Route of the Oregon Trail in Idaho*. Boise: Idaho Department of Highways, with the Bureau of Public Roads, U. S. Department of Transportation.

This brief and popular description of the Oregon Trail and its route is a handy introduction to the topic.

Idaho State Historical Society

1972 *Sawtooth Range* [rev.]. *Idaho State Historical Society, Reference Series No. 282.*

This brief summary of the historic Euroamerican exploitation of the Sawtooth Mountains is relevant to evaluating the potential cultural resources of the Vulcan KGRA.

Indian Claims Commission

1974a Findings of fact [11 Ind. Cl. Comm. 387]. In *Shoshone Indians*, edited by David Agee Horr, pp. 259-288. New York: Garland Publishing, Inc.

The Commission decided that the area of the Vulcan KGRA was the western boundary of Lemhi Shoshoni territory, and that the Crane Creek, Castle Creek, Bruneau, and Mountain Home vicinities were all used by both Northern Paiute and Shoshoni and hence the exclusive territory of no single group.

1974b Findings of fact [18 Ind. Cl. Comm. 1]. In *Nez Perce Indians*, edited by David Agee Horr, pp. 271-388. New York: Garland Publishing, Inc.

The Commission decided that, while the Nez Perce used resources in the area of the Crane Creek KGRA, their territory that was "exclusively used and occupied continuously" did not include either the Crane Creek or Vulcan areas.

Irving, Washington

1843a *The adventures of Captain Bonneville*. New York: Thomas Y. Crowell & Company.

Bonneville in 1835 recorded Bannocks along the Boise and Payette Rivers, but makes no comments about populations specific to the selected KGRAs.

1843b *Astoria, or anecdotes of an enterprise beyond the Rocky Mountains*. New York: Thomas Y. Crowell & Company.

Irving documents the presence of William Price Hunt of the Pacific Fur Company near Weiser in 1811.

Jackson, Donald, and Mary Lee Spence, Editors

1970 *The expeditions of John Charles Fremont*. Vol. I, *Travels from 1838 to 1844*. Urbana: University of Illinois Press.

Fremont recorded several Indian camps along the Boise River, but has no comments about them within a specific selected KGRA.

Jones, Larry

1972 *Kelton Road*. *Idaho State Historical Society, Reference Series No. 74.*

This brief summary of the Kelton road, which crossed the corner of the Mountain Home KGRA, is one of the few available descriptions of the road.

Keeler, Robert, and David Koko

- 1971 An archaeological survey of the proposed Guffey-Swan Falls Reservoir, southwestern Idaho. Ms, U. S. Bureau of Land Management, Boise District.

The Reservoir would extend from Walter's Ferry to Grandview on the Snake River, including the riverine portion of the Castle Creek KGRA. The manuscript is available only on a "need to know" basis and includes many prehistoric and historic site locations along the Snake River.

Kimmel, Peter G.

- 1975 Fishes of the Miocene-Pliocene Deer Butte Formation, southeast Oregon. *University of Michigan Museum of Paleontology, Papers on Paleontology* No. 14; *Claude W. Hibbard Memorial Volume* 5:69-87.

Fossil fish localities on the Oregon-Idaho border yield information relevant to evaluating the paleontological resources of the Castle Creek KGRA.

Kirkpatrick, J. M.

- 1863 Report of Mr. Kirkpatrick to Mr. Rector, on the Indian tribes of the territory of Idaho. In "Report of the Commission of Indian Affairs," pp. 409-412. 37th Congress, 3rd Session, *House Executive Documents* Vol. I, Pt. 2, No. 55 (Serial No. 1157).

This reports that many Indians live along the Snake River (including the general area of the Castle Creek KGRA), but gives no specific locational data.

Knudson, Ruthann

- n.d. Overview of Middle Fork Salmon environment and culture history. *University of Idaho Anthropological Research Manuscript Series*, In press.

This overview, prepared as part of the Idaho State Historic Preservation Plan, is a summary of current knowledge of the cultural resources of this central Idaho region and is a model of expected resources in the Vulcan KGRA.

*Lewis, William S., and Paul C. Phillips, Editors

- 1923 *The journal of John Work*. Cleveland: Arthur H. Clark Company.

In 1832 John Work of the Hudson Bay Company Snake Brigade camped on the tributaries of the Weiser River, south of the Crane Creek KGRA, and described the Shoshoni who were also camped in that area. His brigade also travelled north and east into the Stanley Basin area.

Liljeblad, Sven

- 1957 Indian peoples in Idaho. *Idaho State College Study Series*, pp. 1-128.

This mimeographed paper, available in the Office of the Idaho State Archaeologist, is a general statement of Native American populations within Idaho but does not contain data specifically relevant to the selected KGRAs.

Liljeblad, Sven

1972 *The Idaho Indians in transition, 1805-1960*. Pocatello: Idaho State University Museum.

Liljeblad places the Shoshoni throughout southern Idaho as early as 8500 years ago [see Swanson 1972], but has no data specifically relevant to the selected KGRAs.

Linder, A. D.

1970 Fossil sculpins (Cottidae) from Idaho. *Copeia* 1970(4):755-756.

Linder, A. D., and D. G. Koslucher

1974 A partial *Diastichus* (Cyprinidae) skeleton from Plio-Pleistocene Lake Idaho. *Northwest Science* 48(3):180-182.

Both these papers are relevant to evaluating the paleontological resources of the Bruneau and Castle Creek KGRAs.

Lynch, Thomas F., and Lawrence Olsen

1964 The Columbet Creek rockshelter (Owyhee County, Idaho). *Tebiwa* 7(1):7-16.

This rockshelter is located in the headwaters of the Bruneau River and records at least 7000-8000 years of human exploitation of that area.

Lyon, Caleb

1867 Report of Mr. Lyon to Mr. D. M. Cooley, on the Indian tribes of the territory of Idaho. In "Report of the Commission of Indian Affairs," p. 187. 39th Congress, 2nd Session, *House Executive Documents* No. 71 (Serial No. 1284).

This report only generally mentions that Indians occupied the Owyhee County area and does not provide data specific to the KGRAs.

Malde, Harold E.

1972 Stratigraphy of the Glens Ferry Formation from Hammett to Hagerman, Idaho. *U. S. Geological Survey Bulletin* 1331:1-19.

This is the basic statement of stratigraphy in the western Snake River Plain, and is relevant to evaluations of the paleontological resources of the Mountain Home, Bruneau, and Castle Creek KGRAs.

Malde, Harold E., and H. A. Powers

1962 Upper Cenozoic stratigraphy of western Snake River Plain, Idaho. *Geological Society of American Bulletin* 73:1197-1219.

This basic outline of the stratigraphy of the area places the paleontological resources within a temporal framework and serves as a model for evaluating their potential within the selected KGRAs.

Marshall, Alan G.

1977 *Nez Perce social groups: an ecological interpretation*. Doctoral dissertation, Washington State University, Pullman. Ann Arbor: University Microfilms.

Marshall includes both the Crane Creek and Vulcan KGRAs within aboriginal Nez Perce territory, and provides an excellent model of their settlement and subsistence patterns over time.

Metzler, Sharon

1976 The Brown Creek archaeological survey, Owyhee County, Idaho. *Boise State University Archaeological Reports* No. 2.

Metzler's survey area is adjacent to the Castle Creek KGRA, and she recorded 9000 years of cultural use of rockshelters and open areas within the creek valley.

Middleton, Larry

1976 Depositional environments of the Glens Ferry Formation near Jackass Butte, Idaho. Master's thesis, Idaho State University, Pocatello.

This recent unpublished description of the stratigraphy at Jackass Butte just outside of the Castle Creek KGRA provides a basis for evaluation of the paleontological materials within that area.

Miller, Robert Rush, and Gerald R. Smith

1967 New fossil fishes from Plio-Pleistocene Lake Idaho. *Occasional Papers of the Museum of Zoology, University of Michigan* No. 654.

Lake Idaho deposits are found within both the Castle Creek and Bruneau KGRAs and have abundant paleontological remains.

Murphey, Kelly A.

1977a An archaeological inventory of Devil's Creek, Owyhee and Twin Falls Counties, Idaho. *University of Idaho Anthropological Research Manuscript Series* No. 35.

1977b The archaeological survey of the Tuana Desert Land Entries Project--southcentral Idaho. *University of Idaho Anthropological Research Manuscript Series* No. 37.

Both these reports were done for the U. S. Bureau of Land Management, Boise District, and because they include sensitive locational data are available only on a "need to know" basis from the District Office. Both the Devil's Creek and Tuana areas, southeast of the Bruneau KGRA, have evidence of at least 10,000 years of continuous cultural use of the area and serve as a model for potential resources within the selected KGRAs.

Murphy, Robert F., and Yolanda Murphy

1960 Shoshone-Bannock subsistence and society. *University of California Anthropological Records* 16(7):293-338.

This report for the Indian Claims Commission is an excellent source of information about aboriginal use of southern Idaho. While it includes no specific locational data, it is relevant to understanding the cultural resources in the Crane Creek and Bruneau KGRAs and perhaps also to the Mountain Home unit.

Olsen, Godfrey J.

- 1940 Bruneau Canyon notes - 1937. *Report of the Historical Museum, University of Idaho, Southern Branch...1934-40, No. 1:6-8.*

Godfrey conducted an extensive survey of the Bruneau Canyon, locating over 200 archaeological sites; his notes and collections have been lost and hence are not available for evaluation of the Bruneau KGRA resources.

Pavesic, Max G.

- 1971 *The archaeology of Hells Canyon Creek rockshelter, Wallowa County, Oregon.* Doctoral dissertation, University of Colorado, Boulder. Ann Arbor: University Microfilms.

Pavesic has used the cultural sequence in the Hells Canyon Creek site and other nearby remains to establish a chronology for the Hells Canyon area that has relevance to the archaeology of the Crane Creek KGRA in particular.

- 1974 Archaeological observations on the western Snake River Plain. Paper presented at the 14th Great Basin Anthropological Conference, Carson City, Nevada. Ms, Department of Societal and Urban Studies, Boise State University, Boise.

Pavesic disagrees with Swanson's (1965, 1974) concepts of an invasion of Plateau people into a Desert Culture area at AD 1300, but thinks that the architectural and artifact characteristics of the western Snake River Plain can be explained within a regional cultural model.

- 1978 Archaeological overview of the Middle Fork of the Salmon River Corridor, Idaho Primitive Area. *Boise State University Archaeological Reports No. 3.*

This overview of the Middle Fork Salmon canyon provides a basis for evaluating the heritage resource potential of the Vulcan KGRA.

Pavesic, Max G., and Richard Hill

- 1973 *The Bruneau River survey.* Ms, U. S. Bureau of Land Management, Boise District.

This intensive survey was conducted in the Bruneau Canyon from the Nevada border to just south of the Bruneau KGRA, and its identification of intensive and extensive use of the canyon bottoms has relevance for evaluating the cultural resource potential in the KGRA. The 26pp manuscript is available from the Boise District Office on a "need to know" basis.

Plew, Mark G.

- 1976 An archaeological inventory survey of the Camas Creek drainage basin, Owyhee County, Idaho. *Boise State University Archaeological Reports No. 1.*
- 1978 *The rock art of Upper Pole Creek, Owyhee County, Idaho. Idaho Archaeologist 1(3):9-12.*

Both of these reports are of materials to the southwest of the Bruneau and Castle Creek KGRAs, in the Owyhee Uplands, and serve as a model of the expected prehistoric settlement systems in that general region.

Powell, Charles F.

- 1868 Report of Mr. Powell to M. G. Taylor, on the Indian tribes of the territory of Idaho. In "Report of the Acting Commissioner of Indian Affairs," pp. 251-253. 40th Congress, 2nd Session, *House Executive Documents* Vol. I, Pt. 5, No. 47 (Serial No. 1326).
- 1869 Report of Mr. Powell to Mr. E. S. Parker, on the Indian tribes of the territory of Idaho. In "Report of the Commissioner of Indian Affairs," pp. 728-729. 40th Congress, 3rd Session, *House Executive Documents* Vol. I, Pt. 3, No. 74 (Serial No. 1366).

These two reports note that various Shoshoni and Bannock camps were located along the Boise River, and that those people moved to Ft. Hall, but include no specific comments relevant to the selected KGRAs.

Randolph, Joseph E.

- 1976 Hells Canyon archaeology, 1974, a report of investigations. *University of Idaho Anthropological Research Manuscript Series* No. 26.

Randolph's survey is north of the Crane Creek KGRA, but documents a heavy use of the Hells Canyon area that has relevance for understanding the potential resources of the KGRA. Preliminary evidence in Hells Canyon is for intensive and long time use of anadromous fish.

Randolph, Joseph E., and Max Dahlstrom

- 1977 Archaeological test excavation at Bernard Creek rockshelter. *University of Idaho Anthropological Research Manuscript Series* No. 42.

Again, this rockshelter deep in Hells Canyon is peripheral to the Crane Creek KGRA but provides evidence of 8000 years of continuous human exploitation of that region.

Reubelmann, George H.

- 1973 The archaeology of the Mesa Hill site, a prehistoric workshop in the southeastern Columbia Plateau. *University of Idaho Anthropological Research Manuscript Series* No. 9.

This site is north of the Crane Creek KGRA and documents extensive use of local basalts for stone tool production over perhaps 6000 years; the same basalts outcrop to the east of the KGRA.

*Rich, E. E., Editor

- 1950 *Peter Skene Ogden's Snake Country Journals 1824-25 and 1825-26*. London: The Hudson's Bay Record Society.

Skene probably passed through the Mountain Home, Bruneau, and Castle Creek KGRAs at least once each during his two seasons in the Snake River country and was close to the Crane Creek area, hence his comments on the people and resources are relevant to predicting the heritage resources in several of the selected KGRAs.

Pollins, Philip Ashton, Editor

- 1935 *The discovery of the Oregon trail. Robert Stuart's narratives... to which is added...Wilson Price Hunt's diary....* New York: Charles Scribner's Sons.

Stuart and Hunt passed through the Castle Creek area in the early nineteenth century.

- Rossillon, Mitzi, Roderick Sprague, William D. Lipe, and Ruthann Knudson
n.d. *Historic resources in the Middle Fork Salmon basin, Idaho, 1978. University of Idaho Anthropological Research Manuscript Series, In press.*

This overview of the Middle Fork Salmon historic resources is relevant to predicting the resources in the Vulcan KGRA.

Sappington, Robert L.

- 1978 *The Lydle Gulch site (10-AA-72), Boise River Canyon, southwestern Idaho, and northern Great Basin adaptations. Ms, paper presented at the Great Basin Anthropological Conference, Reno.*

This report is a brief summary of the on-going archaeological research project at the prehistoric Lydle Gulch site on the Boise River east of Boise; a final report will be available from the University of Idaho in summer 1979. The 4000 or more year sequence at this site serves as a model for predicting cultural resources in the Mountain Home KGRA in particular.

Sargeant, Kathryn H.

- 1974 *The Haskett tradition: a view from Redfish Overhang. Master's thesis, Idaho State University, Pocatello.*

The Redfish Overhang site has an early (10,000 years ago) component and is in an intermontane environment similar to that of the Vulcan KGRA, though to the southeast in the Sawtooths. It is an indication that such early materials might be expected in the Vulcan area.

Schwede, Madge L.

- 1966 *An ecological study of the Nez Perce settlement patterns. Master's thesis, Washington State University, Pullman.*

- 1970 *The relationship of aboriginal Nez Perce settlement patterns to physical environment and to generalized distribution of food resources. Northwest Anthropological Research Notes 4(2):129-136.*

Both of these papers extend Nez Perce territory as far south as the Crane Creek KGRA, and Schwede also records sites in the Warm Lake-Vulcan KGRA area. A detailed map of discussed sites is included only in the thesis, and because of its sensitive nature is available only on a "need to know" basis from Washington State University Library.

Shah, Syed M. I.

1968 *Stratigraphic paleobotany of the Weiser area*. Doctoral dissertation, University of Idaho, Moscow. Ann Arbor: University Microfilms.

This report of the Payette Formation in the Weiser area has relevance to the Crane Creek KGRA, though no paleobotanical resources are specifically identified in that locality.

Shellbach, Louis

1967 The excavation of Cave No. 1, southwestern Idaho, 1929. *Tebiwa* 10(2):63-72.

This site is northwest of the Castle Creek KGRA, but is similar to many (none of which is excavated) within the KGRA; the archaeological evidence indicates that the prehistoric inhabitants were Shoshoni.

Smith, Gerald R.

1975 Fishes of the Pliocene Glens Ferry Formation, southwest Idaho. *University of Michigan Museum of Paleontology, Papers on Paleontology* No. 14; *Claude W. Hibbard Memorial Volume* 5:1-68.

Fossil fish localities near the Castle Creek KGRA are described and discussed here.

Stapp, Darby, Ruthann Knudson, William D. Lipe, and Steven Hackenberger

n.d. Archaeological reconnaissance in the Middle Fork Salmon basin, Idaho, 1978. *University of Idaho Anthropological Research Manuscript Series*, In press.

This summary of recent archaeological reconnaissance in the basin of the Middle Fork Salmon provides comparative information for evaluation of the potential archaeological resources in the Vulcan KGRA.

Steward, Julian H.

1938 Basin-Plateau aboriginal sociopolitical groups. *Smithsonian Institution, Bureau of American Ethnology, Bulletin* 120. [Reprinted 1970, University of Utah Press, Salt Lake City.]

Steward recorded general ethnographic data for southwestern Idaho and mapped known villages; he does record one winter village that probably falls within the Bruneau KGRA.

Steward, Julian H., and Erminie W. Voegelin

1954 The Northern Paiute Indians. Ms, University of Nevada Library, Reno.

This difficult-to-acquire manuscript records a Shoshoni and Bannock fishing site at the mouth of the Bruneau River, but has no comments specific to the KGRAs.

Stewart, Omer C.

1940 Northern Paiute. In "Tribal distributions in eastern Oregon and adjacent regions," by Verne F. Ray and others, pp. 405-407. *American Anthropologist* 40:384-415.

Stewart puts the Koa'-agai band of Northern Shoshoni along the Snake River from approximately the mouth of the Bruneau north to the upper Weiser River area, which has implications for evaluating the cultural resource potential of the Bruneau, Castle Creek, and Crane Creek KGRAs.

Struthers, Thomas

- 1976 Final report on archaeological and historical resources in the Bureau of Reclamation's Upper Snake River Project, Salmon Falls Division, Twin Falls and Cassia Counties, Idaho. *Idaho State University Museum Archaeological Reports* No. 1.

This report of archaeological reconnaissance focuses on the Salmon Falls drainage to the southeast of the Bruneau and Castle Creek KGRAs, in a canyon and uplands environment similar to that of the study units. Thus, material in this report is relevant to evaluating the potential cultural resources in the KGRAs.

Swanson, Earl H., Jr.

- 1965 Archaeological explorations in southwestern Idaho. *American Antiquity* 31(1):24-37.

This report of surveys of proposed Snake and Salmon River reservoirs notes a high density of prehistoric sites in the Snake canyon between the mouth of the Bruneau and the Weiser, including the riverine portion of the Castle Creek KGRA. The largest concentration of sites, however, was in the foothills.

- 1972 *Birch Creek: human ecology in the cool desert in the Northern Rocky Mountains 9,000 B.C.-A.D. 1850*. Pocatello: Idaho State University Press.

While this monograph focuses on the Birch Creek valley, well to the northeast of the selected KGRAs under discussion in this report, one must evaluate the relative significance of the KGRA prehistoric resources within Swanson's cultural model. This Birch Creek paper serves as one of the most basic models for explaining cultural adaptation and development within the northern Great Basin.

- 1974 *The Snake River Plain*. *Idaho State Historical Society, Idaho Historical Series* No. 11.

Swanson presented a model of cultural exploitation of southwestern Idaho in this paper, postulating the development of a South Hills Culture in the Owyhees with continuity to the present. He also felt that the Plain between the canyon and uplands was exploited before 6500 years ago but not used during the Altithermal (ca. 6500-3000 years ago), and that use of the Snake River Canyon as a habitation zone began only 3000 years ago.

Swanson, Earl H., Donald R. Ruohy, and Alan L. Bryan

- 1959 Archaeological explorations in central and south Idaho-1958. *Idaho State College Museum Occasional Papers* No. 2.

This description of surface collections is the basic typology used in southwestern Idaho archaeology ever since, and while it contains few data specific to the KGRAs it is relevant to understanding the general cultural chronology in that region.

Swanson, Earl H., Roger Powers, and Alan L. Bryan

1964 The material culture of the 1959 southwestern Idaho survey. *Tebiwa* 7(2):1-27.

This description of the materials recovered during the 1959 archaeological reconnaissance includes some information about the Castle Creek KGRA, but very little. It is useful for understanding the general range of cultural materials found in prehistoric sites in the Castle Creek and Bruneau KGRAs.

Thwaites, Reuben G.

1904 *Original journals of the Lewis and Clark expedition*. New York: Dodd, Mead, and Company.

Lewis and Clark comment on the presence of Shoshoni villages on the Weiser River, which has implications for evaluating the potential cultural resources of the Crane Creek KGRA.

1905-06 *Early western travels 1784-1846*. Vols. 21, 28-30. Cleveland: Arthur H. Clark Company.

This multi-volume set of diaries and journals includes several general references to Indian populations in southwestern Idaho. However, because of variations in geographic place names and the absence of maps it is rarely possible to locate specific camps today. They do provide ethnographic and historic data for development of a model of expected cultural resources within several of the selected KGRAs.

Tucker, Gordon C., Jr.

1976 *The archaeology of Salmon Falls Creek: a study in methodology*. *Idaho State Museum of Natural History Archaeological Reports* No. 4.

This study is well to the southeast of the Bruneau KGRA, but in a topographic setting similar to the Bruneau and Castle Creek KGRAs. It thus serves as another model for evaluation of potential cultural resources within those localities.

Tuohy, Donald R.

1956 Shoshonean ware from Idaho. *Davidson Journal of Anthropology* 2(1): 55-72.

This early paper on Shoshonean ware from prehistoric sites in southern Idaho is still a basic statement on the subject, and relevant to evaluation of the prehistoric cultural resources within all the KGRAs (and particularly Castle Creek, since Shoshonean ceramics are known from sites there).

1958 An appraisal of the archaeological resources of the Guffey Reservoir in southwestern Idaho. Ms, Office of the Idaho State Archaeologist, Boise.

This report of the 1958 Idaho State University reconnaissance of the Snake River canyon around Guffey identifies several prehistoric archaeological sites that fall within the Castle Creek KGRA; it is available on a "need to know" basis.

Tuohy, Donald R.

- 1963 Archaeological survey in southwestern Idaho and northern Nevada. *Nevada State Museum Anthropological Papers No. 8.*

This pipeline survey south of the Bruneau KGRA indicated that the area was originally occupied by both Northern Paiute and Shoshoni who used the Owyhee Uplands as a summer hunting ground.

Tuohy, Donald R., and Earl H. Swanson, Jr.

- 1960 Excavation at rockshelter 10-AA-15, southwest Idaho. *Tebiwa* 3(1,2): 20-24.

This small rockshelter is northwest of the Castle Creek KGRA, probably was occupied between several times over the past 4000 years, and indicates a continuing reliance on resources during that period.

U. S. Department of Agriculture

- n.d. Cultural resources inventory. Ms, Boise National Forest, U. S. Forest Service, U. S. Department of Agriculture.

These records are available from Boise National Forest only on a "need to know" basis, and are basic descriptions of identified archaeological and historic architectural properties within the Forest.

U. S. Department of the Interior

- n.d.a Archaeological site record file. Ms, Boise District Office, Bureau of Land Management, U. S. Department of the Interior.

These records are available from the Boise District office on a "need to know" basis, and are basic descriptions of identified archaeological and historic architectural properties on District lands.

- n.d.b Government Land Office Land Status Tract Books. Boise: Government Land Office, Bureau of Land Management, U. S. Department of the Interior.

- n.d.c Government Land Office Survey Plats. Boise: Government Land Office, Bureau of Land Management, U. S. Department of the Interior.

These two sets of land survey and ownership data provide excellent historical records of land use patterns. The plats are the actual survey maps drawn per township, with structures recorded for the most part; the tract books contain land ownership and transfer records.

Uyeno, Teruya

- 1961 Late Cenozoic cyprinid fishes from Idaho with notes on other fossil minnows in North America. *Michigan Academy of Science, Arts, and Letters Paper* 46:329-344.

This description of the Glens Ferry Formation is basic to an evaluation of the paleontological resource potential in the selected Idaho KGRAs along the Snake River valley.

Warren, Claude N., Kent S. Wilkinson, and Max Pavesic
1971 The Midvale complex. *Tabiwa* 14(2):39-71.

This complex of sites lies ca. 15 km north of the Crane Creek KGRA, and similar sites are likely to occur within the latter vicinity.

Webster, Gary, and Kristina Peterson

1975 Final narrative report: excavation of a prehistoric site in western Idaho [draft]. Ms, Department of Societal and Urban Studies, Boise State University, Boise.

The Foothills Rockshelter, just northwest of Boise, has a full 4000-3000 year sequence of cultural materials and serves as a model for understanding human settlements along the northern foothills edge of the Snake River plain.

Williams, Glyndwr, Editor

1971 *Peter Skene Ogden's Snake country journals 1827-28 and 1828-29*. London: The Hudson's Bay Record Society.

Ogden probably passed through the Castle Creek and perhaps Bruneau KGRAs during 1928, though he makes little specific comment about those localities.

Wilson, R. W.

1934 A rodent fauna from later Cenozoic beds of southwestern Idaho. *Carnegie Institute Publication* 440 [Contr. Paleont.]:117-136.

This basic description of paleontological materials includes information relevant to evaluation of heritage resources in both the Castle Creek and Bruneau KGRAs.

Young, F. G., Editor

1899 The correspondence and journals of Captain Nathaniel J. Wyeth, 1831-6. *Sources of the History of Oregon* 1(3-6).

Wyeth's 1832-33 expedition across southern Idaho passed through the Castle Creek KGRA, but it is not possible to find specific campsite locations today on the basis of his descriptions.

Blyth, Beatrice

- 1958 Northern Paiute bands in Oregon. In "Tribal distributions in eastern Oregon and adjacent regions," by Verne F. Ray and others, pp. 402-405. *American Anthropologist* 40:384-415.

Blyth puts the Paiute Salmon Eaters on the lower Malheur River with spring and summer camps on both sides of the Snake River about at the mouth of the Malheur as of 1840-50; mixed Paiute-Shoshoni groups wintered near the Boise River. "People Eaters" were in the hills above the Boise River, either to the north or south; if north, this has implications for evaluating the cultural resource potential of the Crane Creek KGRA.

Cross, Major Osborne

- 1850 A report, in the form of a journal, to the Quartermaster General, of the march of the regiment of mounted riflemen to Oregon, from May 10 to October 5, 1849. In "Report of the Quartermaster General," pp. 128-321. 31st Congress, 2nd Session, *Senate Executive Documents* No. 1, Pt. 2, No. 3 (Serial No. 587).

Osborne's regiment traversed the Castle Creek KGRA, and also camped on the Bruneau River just downstream from the Bruneau KGRA. However, he has no specific comments about inhabitants or characteristics of those areas.

Hoebel, E. Adamson

- 1940 Bands and distributions of the Eastern Shoshone. In "Tribal distributions in eastern Oregon and adjacent regions," by Verne F. Ray and others, pp. 410-413. *American Anthropologist* 40:384-415.

Hoebel puts the Row of Willows Shoshoni on Willow Creek in the Weiser drainage and notes that they are the westernmost group of Shoshoni; he locates the Big Salmon Eaters or "Those Who Do Not Roam" in the Snake River canyon from the mouth of the Bruneau to the mouth of the Boise. These comments are relevant to the evaluation of potential cultural resources in the Bruneau, Castle Creek, and Crane Creek KGRAs.

APPENDIX

HERITAGE SITE LOCATIONAL DATA FOR SELECTED IDAHO KGRAS
[Available on a Need-to-Know Basis]



Fig. 9. Maps of the Vulcan (a) and Crane Creek (b) KGRAs with their known heritage resource locations. Base maps are (a) Warm Lake [1954] and (b) Mann Creek [1953] and Crane Creek Reservoir [1957] 15 min. U.S. Geological Survey topographic quadrangle sheets.

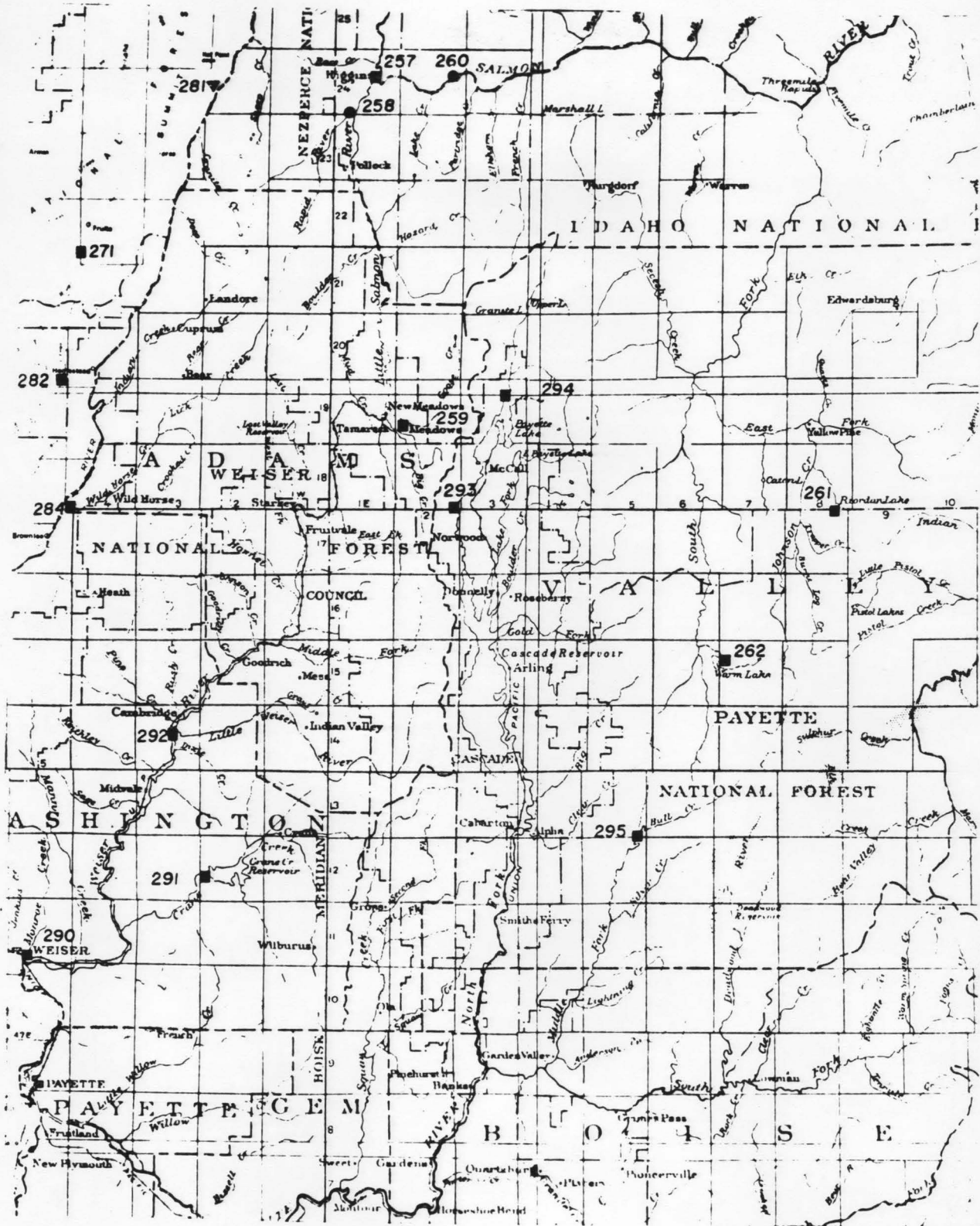


Fig. 10. Map of pre-AD 1800 Nez Perce territory and site locations in west-central Idaho (Schwede 1966: Fig. 3). Circles denote villages, squares denote campsites.



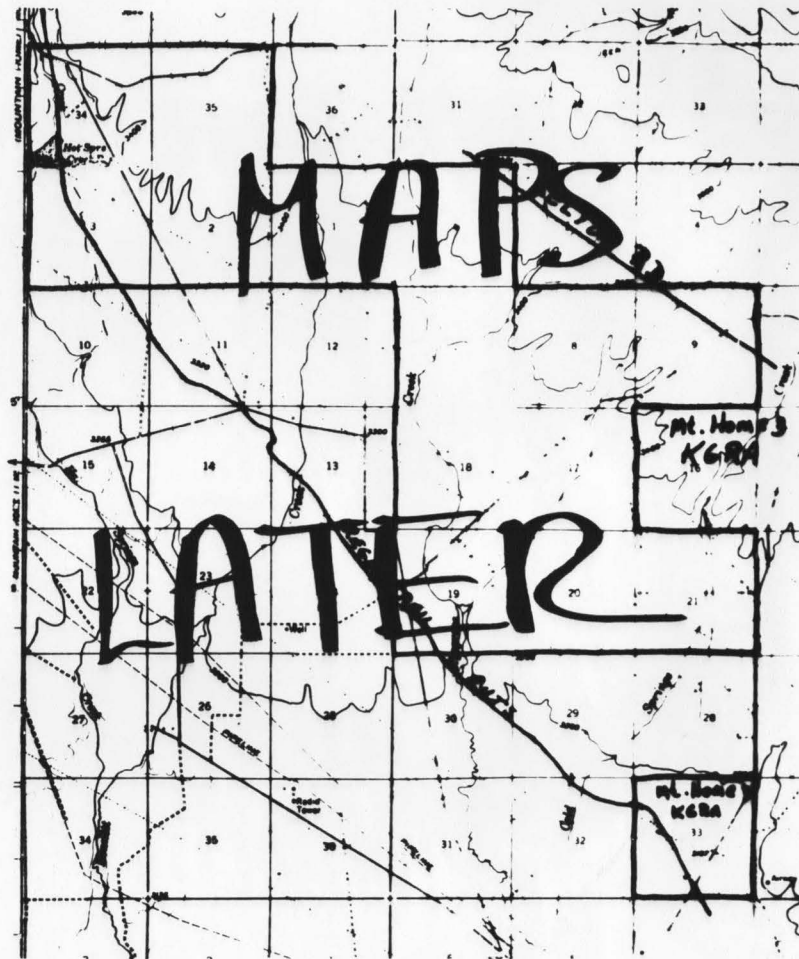
Fig. 11. Map of the Crane Creek KGRA west section and its known heritage resource locations. Base maps are Wild Horse Butte [1947], Oreana [1949], Castle Butte [1947], Rough Mtn. NE [1972] and Jackass Butte [1947] 7.5 min. U. S. Geological Survey topographic quadrangle sheets.



Castle
 Fig. 12. Map of the Crane Creek KGRA east segment and its known heritage resources. Base maps are Jackass Butte [1947], Rough Mountain NE [1972], Dorsey Butte [1947], Vinson Wash [1947], and Grand View [1947] 7.5 min. U.S.G.S. topographic quadrangles.



a



b

Fig. 13. Maps of the Bruneau (a) and Mountain Home (b) KGRAs with their known heritage resource locations. Base maps are (a) Sugar Valley [1947] and Hot Spring [1947] 7.5 min. and (b) Bennett Mtn. [1958] 15 min. U.S. Geological Survey topographic quadrangle sheets.