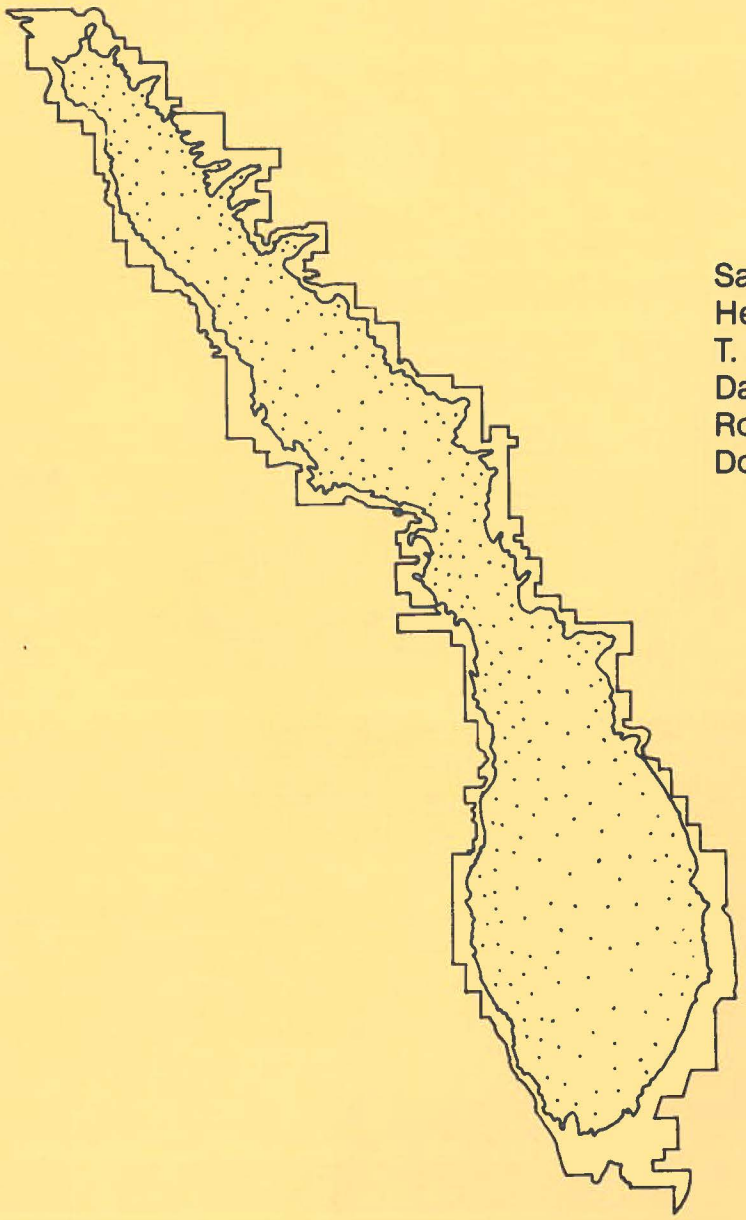
CLASS III CULTURAL AND PALEONTOLOGICAL RESOURCE INVENTORY AT CANYON FERRY RESERVOIR, NEAR HELENA, MONTANA



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FINAL REPORT

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Prepared for

U.S. Department of the Interior
Bureau of Reclamation
Billings, Montana

Contract No. 2-07-60-V0055

by

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T. Weber Greiser
Principal Investigator

CHAPTER 1
INTRODUCTION

The following report of the cultural and paleontological resources survey around Canyon Ferry Lake, Montana, was completed under contract number 2-07-60-V0055 between Historical Research Associates (HRA) and the U.S. Department of the Interior, Bureau of Reclamation. HRA holds Federal Antiquities Permit No. 82-MT/WY/SD/ND/ID/WA-004 for conducting cultural resource inventories.

HRA proposed to undertake a multi-disciplinary approach, combining in-house expertise in archaeology, history and historical architecture with consulting experts in archaeology, soils, geomorphology, geology, and paleontology. The results of this interdisciplinary research are presented in this report. We strongly urge contracting agencies to support similar studies in the future.

Several cultural resource inventories have been conducted in the study area. Prior to inundation, The Smithsonian Institution's River Basin Surveys (Bliss 1948; Hughes and Bliss 1947) conducted a survey for archaeological and paleontological remains in portions of the proposed reservoir. Time constraints prevented them from surveying the entire area; however, they did locate 32 sites. Malouf (1950), in cooperation with the River Basin surveys, returned to the area and conducted a more comprehensive survey, locating a total of 45 sites, including many originally recorded by Hughes and Bliss. The data from these pre-inundation surveys provide a unique opportunity to observe the impacts of inundation on sites.

Two previous post-inundation surveys also have been conducted. Murray and Sharrock (1976) conducted a survey for the National Park Service aimed at evaluating direct and indirect impacts of the reservoir on sites. In addition to expected reservoir impacts, this 1976 survey crew was able to observe the impacts to sites at the south end of the reservoir caused by the plowing of parallel ditches, followed by dike construction for the Dust Abatement Project of the Bureau of Reclamation. In the late 1970s more extensive site modification resulted when fine-grained sediments were dredged from outside the dikes and deposited within dike enclosures to create perennial, shallow ponds. They located and evaluated six sites, three of which were recommended for further work. However, they were unsure of site integrity and the potential for intact deposits due to the notable impacts to these sites.

In 1978, a Montana State University crew surveyed 12 recreation areas for sites to evaluate proposed recreational development by the Montana Department of Fish, Wildlife and Parks. This crew located six sites in the project area.

HRA's project area included about 8500 acres of shoreline at Canyon Ferry Lake. Figure 1-1 (in Map Pocket) illustrates the project area location and survey boundaries.

HRA conducted fieldwork from April 13 to 30, 1982, and from May 18 to 22, 1982, under the direction of T. Weber Greiser, Principal Investigator. Field supervisors were Alan Stanfill and Heidi A. Plochman. Crew members were Jim Atkinson, John Barsness, Steve Bolton, Fred Clark, Tim Light and Lisa Stewart. Troy Helmick, who has made anuual, well-documented artifact collections at the southern end of the study area, aided the crew in relocating sites he had recorded. Bob Ottersberg consulted with HRA on the geomorphological history of

the Canyon Ferry area and prepared the sections on geomorphology. Dr. Leslie B. Davis consulted with HRA on the prehistory of the area. Both Dr. Davis and Mr. Ottersberg were present at the beginning of fieldwork. Dr. Donald L. Smith, as a geology consultant, prepared the geologic and paleontologic overviews presented in Chapter 2.

The cultural resource inventory located 35 prehistoric sites (one site with prehistoric and historic components), 11 historic sites, 2 prehistoric isolates, and 3 paleontological sites. Figure 1-1 (in Map Pocket) shows the location of sites and isolates recorded by HRA. HRA conducted analysis of materials collected during the field survey at their facilities in Missoula, Montana. Dr. Sally T. Greiser, T. Weber Greiser, Heidi A. Plochman and Gary Popek assembled and analyzed the prehistoric data. Daniel Gallacher and Christine Amos compiled and analyzed the historic data.

Laurie Emmart drafted maps and Pam Cobb, Diane Hadella, and Rose Harrod were responsible for typing and technical details.

Curation of collected materials will be at the Montana Historical Society, Helena.

CHAPTER 5
FIELD AND LABORATORY DEFINITIONS AND METHODS

Heidi A. Plochman

Background Research

Prior to fieldwork, a thorough literature and records search was conducted for prehistoric, historic and paleontological resources in and around the study area. This research provided an overview of resources within the study area; HRA then based its research design on this information.

HRA staff historians conducted a preliminary records search before field work began. The Montana Historic Preservation Office in Helena was contacted for sites listed on, or eligible for, the National Register of Historic Places within the project area. State-wide files of previously recorded cultural sites which are maintained at the University of Montana Archaeology Department were reviewed for a listing of any previously recorded historic sites in the project area. Staff historians researched cartographic materials, Bureau of Land Management records (General Land Office plat maps, land and mineral entry filings, mineral surveys, and patent records), and United States Geological Survey reports.

Informant Interviews

HRA historians conducted several interviews with informants knowledgeable about the Canyon Ferry regional history. HRA also consulted extensively with Troy Helmick, who has collected artifacts in the Canyon Ferry area since 1964. His artifact collection was observed, analyzed and photographed. Mr. Helmick has kept accurate records on artifact locations, and this information was also incorporated where possible.

Field Survey

Two field crews of four members each conducted the field survey, spaced at an interval no greater than 30 meters. The study area boundaries and the shoreline of Canyon Ferry Lake dictated the transect path. Within transect boundaries each surveyor walked a zig-zag path for maximum ground coverage. Crew members inspected all areas likely to contain cultural resources (cutbanks, overhangs, rock outcrops and erosional areas) regardless of their position in the transect lines.

Four categories of resources were recognized: (1) paleontological sites or localities; (2) prehistoric sites; (3) historic sites; (4) isolated finds. Paleontological sites are defined as limited areas of fossil outcrops. Paleontological localities are defined as groups of paleontological sites or isolates probably from the same geologic formation within a reasonably clustered area (1/4- to 1/2-section). HRA defines a prehistoric site as more than one artifact in a 10 square meter area. Historic sites include historic features and structures.

Paleontological specimens were assigned field numbers and located on maps when located. Either the specimen or a sample was collected for review by Dr. Donald L. Smith, HRA's consulting paleontologist. Most specimens were isolated, but areas were checked for additional eroded or in situ specimens.

When a crew member encountered a prehistoric artifact, he/she flagged it and checked the immediate area for additional artifacts. If there were none, the crew leader recorded the item as an isolate. If the area was a site the crew congregated to walk around the site to determine its boundaries. Depending on the density of materials, crew members flagged each flake or cluster of flakes, and double-flagged features and tools to be collected. Flake concentrations were also

double-flagged. Where density was high enough, 1 x 1 meter to 2 x 2 meter squares, were laid out and all the items within those areas were recorded on categorization sheets.

Site recording for prehistoric and historic sites included: (1) assigning a temporary field number; (2) photographing the site; (3) locating the site on the USGS 7.5 minute quadrangle map; (4) measuring the site area; (5) specifying concentrations of cultural debris within the site, in addition to features; and (6) sketching the site in relation to topographic features. The sketch maps for prehistoric sites included site condition, topographic features, cultural features, the location of subsurface tests, collected artifacts, lithic concentrations, and sample recording units. Historic site sketch maps included site condition, topographic features, and cultural features.

Subsurface shovel testing was conducted to help assess site significance. Goals in subsurface testing were to: (1) determine the presence and depth of subsurface cultural deposits; (2) determine temporal placement (if possible); and (3) enhance site boundary definitions.

Historic Methodology

The manuscript and photographic collections at the University of Montana Archives in Missoula and the Montana Historical Society Archives in Helena were researched, as were the records of the Montana Bureau of Mines in Butte. Where available, local and county histories were reviewed.

After the archaeologists completed the field survey, HRA historians reviewed the field survey forms and photographs for all historic sites. Daniel Gallacher, HRA historian, visited several of the

historic sites in June, 1982. Gallacher also prepared a complete ownership record for each site using deed records at both the Broadwater and Lewis and Clark County Courthouses.

Laboratory Analysis

HRA implemented the following procedures in laboratory anlaysis of prehistoric sites.

(1) Data verification consisted of checking all records and map locations completed in the field to assure proper recording.

(2) Curation of artifacts included washing, labeling and cataloging of the materials collected in the field.

(3) Artifact analysis was limited due to the general scarcity of cultural remains in the project area. Analysis primarily involved lithic analysis, because lithic artifacts are the most commonly represented category of cultural remains.

Lithic artifacts were categorized according to morphology and lithic material type. Morphological categories included:

(1) Debitage

Cores are pieces of flakeable raw material which exhibit evidence of intentional flake removal. Flake removal may be patterned or opportunistic depending on the reduction technique used and the type of flake desired.

Cortical flakes exhibit cortex (weathered exterior surface) on at least part of their dorsal surface. Usually these have natural platforms and relatively thick cross-sections. Cortical flakes are among