An Archeological and Historical Survey

of

Proposed

Lake Bosque,

Bosque County, Texas

Prepared for
BRAZOS RIVER AUTHORITY
Waco, Texas

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ABSTRACT

The Brazos River Authority, in Waco, McLennan County, Texas proposes to construct the Lake Bosque Project on an approximately 6000-acre tract north of Meridian, Bosque County, Texas. Located on the North Bosque River, a tributary of the Brazos River, the reservoir will pool at 830 feet above mean sea level, with a flood pool controlled by an emergency spillway at an elevation of 841.3 feet m.s.l. An archeological and historical survey of the project area was conducted, resulting in the locating and recording of 146 archeological sites.

Of these 146 sites, 77 are prehistoric, and 49 are historic. Twenty of these prehistoric sites also contain historic components. Of these sites, 62 are considered significant. Thirty-four sites are recommended for nomination as State Archeological Landmarks and 60 for determinations of eligibility for inclusion within the National Register of Historic Places. One site, and perhaps another, is a cemetery that requires special treatment.

The sites recorded in the area affected by the project reflect human use from the PaleoIndian period to the present century, including the Great Depression of the 1930's. Of the sites located, 77 are to be affected by Lake Bosque at normal pool elevation of +830 feet mean sea level. Twenty-nine are found from the purchased easement to the 100-year flood zone, or +830 to 842 feet mean sea level. Forty sites discovered as a result of this investigation are above 842 feet m.s.l., hence outside the direct affects of Lake Bosque.

ACKNOWLEDGEMENTS

No undertaking of any size can be conducted without the assistance of a great number of contributors and so it is with this project. The investigation of the proposed Lake Bosque Project was sponsored by the Brazos River Authority, the offices of which are located in Waco, Texas. We extend our appreciation for the assistance and direction provided to us by Roy Roberts, Assistant Director, and John Garland, Projects Division Manager, with the Brazos River Authority. HDR Infrastructure, in Austin, Texas, providing engineering services for the project, kept us up to date on the current engineering requirements, so that any changes in the structural or physical makeup of the project could be integrated in the final report on our archeological investigations. Special thanks go to G.E. Kretzschmar, P.E., Project Manager, Ken Choffel, P.E. Project Engineer, and Peter Manz, P.E., with HDR. Useful input and coordination came from the firm of Paul Price Associates, Inc., in Austin, retained to provide environmental and social assessment services for the project. Paul Price, President, and Sherry Cordry, Senior Planner, kept us advised of the schedule and any additional information which might be used to facilitate or enhance the quality of our work.

Once in the field, we made our initial quarters at Meridian State Park, the prime habitat of the Golden Cheek Warbler. Before the heat of summer forced us into other lodging, we could not only identify the Warbler, but had found new friends. Park personnel Kenneth R. Klose, Milton Cortez, Jr., Lanny Coffman and Betty Alexander helped us with reservations, let us temporarily modify a shelter for winter conditions, and watched our gear while we were conducting our long walk. They helped us break for the homefront when the rains of the fall, winter and spring came, and generally became our weather forecaster for the project, advising us when the rain ceased.

Residents of Meridian, Iredell and Walnut Springs welcomed us as one might new neighbors, which allowed us to get directly to our tasks. Landowners in the project area were generally receptive to allowing us access to their property; some went further and became genuinely interested in our work. Jack Gilleland became a friend, helping us find the names and addresses of owners of properties which had changed hands but were not reflected by our records. Ervin J. Moore shared his accumulation of aboriginal artifacts with us, providing us the opportunity to photograph a portion of them, and gave us useful insights into the transformation of forested bottomlands to agricultural use. Area geologists helped us interpret the fossiliferous beds of *Gryphaea*, and gave us the benefit of their professional experience. Ben

Bourn educated us on the formation and alteration of pollen in a geological context and its interpretation. Furman Grimm confirmed our finding that chert was geologically essentially absent within the confines of the proposed project. When we visted the Bosque County Museum in Clifton, members of the Bosque County Historical Commission and museum staff allowed us to examine the collection at our leisure. They helped us obtain relevant historical documents about Bosque County. They let us examine the Museum's fossil collection, especially the mastodon teeth found both up-stream and downstream from the project area, along the Bosque River.

Other area residents shared their knowledge of history within the project; Roy V. Nichols described a cemetery, purported to contain the remains of slaves. While he had never been able to find the site, his description was extraordinarily accurate, enabling us to tentatively identify its location. Charlotte C. Martin described a site thought to have been occupied in the 1880's by a retired Texas Ranger and told us of its general location. This information led us directly to an historic site thought to have been occupied in the 1880's. E.J. Sadler led us directly to the remains of a structure thought to have been occupied by 1871. Jack Gilleland examined our map and then conducted us on a tour of more than a half-dozen prehistoric and historic sites with which he was familiar.

Ruth Farrel Bourn and Edward H. Moorman gave us permission to conduct additional investigations including sub-surface sampling of sites on their respective properties. Mrs. Bourn invited us to return when time was less pressing, to tour sites on their property. Moorman drove from his home in Wylie, Texas, took us to several sites he recollected, including one we had missed. And, he paused to tell us stories--the kind archeologists delight in hearing--stories about other archeologists in other times and places.

Curtis Tunnell, Executive Director of the Texas Historical Commission, and Texas' State Historic Preservation Officer for federal projects, gave freely of his time and expertise. A recognized scholar concerned with the early peoples of the Americas, Mr. Tunnell examined the PaleoIndian material we had collected, described in detail certain lithic reduction methods practised by Early Americans and offered guidance on approaches we might use to develop this potentially important cultural resource. J. Barto Arnold III, Marine Archeologist with the Texas Antiquities Committee guided the application for a Texas Antiquities Committee Permit for this undertaking. Skipper Scott, Archeologist with the U.S. Army Corps of Engineers, Fort Worth District, provided copies of the most recent archeological reports concerned with our area of interest and regulations to help guide our investigation. Carolyn Spock, Keeper of the Master File of archeological sites

at Texas Archeological Research Laboratories, worked diligently with us so that all sites recorded during this investigation are now plotted and all forms filed. The data recovered as a result of this project are now accessible to students, archeologists, and planners working in the general area. Raymond Neck, malacologist, examined molluscan materials recovered from sites and the Bosque River and offered insights into future methods of study. Special thanks are also due to Sam Valastro and the Radiocarbon Laboratory at the University of Texas at Austin for processing our samples as fast as possible, consistent with high standards.

Throughout the project, the principal investigator was assisted by William R. Bryant and R. Kenn Cargile. Together, we took the long walk required by a pedestrian survey. William kept records and site information so that the investigation moved along in a systematic fashion, and Kenn processed artifacts, washing, labelling, cataloging and drew artifacts, with both processing survey forms. Their contribution of time, energy and thought to this investigation is sincerely appreciated. Fred O. Weir and Evan A. Briggs also participated in the fieldwork. Jason Wolcott examined the records at the Meridian County Courthouse, and then continued research at the Barker Texas History Center at the University of Texas at Austin.

When it came time to leave the field and prepare this report, Bryant and Cargile assisted in the selection of artifacts for illustration, drew or copied them and laid out the figures in the report, tabulated much of the data utilized in this report, and read numerous draft copies and offered technical criticism. Mitzi Williams helped us get the kind of photocopies we needed to illustrate the report. Evan Briggs assisted in the drafting of the maps. Rae Briggs edited the report, offered technical advice and supported the overall effort. Any omissions or errors in the text or in interpretation remain with the writer.

OVERVIEW

The peopling of the Americas may have started earlier than the generally accepted date of about 27,000 years before the present, when the Bering Land Bridge was open as a result of a temporary drop in sea level, this a fuction of much of the water covering the land surface being bound in the form of snow and ice. Irrespective of differing opinions, sites of this early period are extremely rare and difficult to document. Sites generally regarded as PaleoIndian begin to appear toward the end of the late Pleistocene, or about 12,000 years before the present, with the extermination of many of the large animals then inhabiting the Americas. Earlier sites are difficult to recognize, perhaps because of an overreliance by American archeologists on the use of chronologies linked to the presence of projectile points. There is a good possibility that PaleoIndian sites which are of equal age or older have not been recognized, because of an absence of these tools.

Accordingly, there are probably sites in the general area of proposed Lake Bosque which are older than the PaleoIndian one located during this survey. But, this PaleoIndian site is an indicator, along with archeological work done by others in Bosque County, that human use and occupation of the Bosque River Valley, albeit sparse and perhaps intermittent, has continued for the last 14,000 to 15,000 years.

Archaic populations which are recognizable on the basis of a change of tool forms, perhaps 8000 years before the present, are the most common Native American sites in the area. Sites from the Early Archaic are relatively rare, with Middle Archaic sites, about 5000 years before the present, being more common, and those of the Late Archaic, beginning about 3000 years ago, fairly abundant. Neo-American sites associated with late tool forms, especially arrow points, are uncommon, likely a function of this period's short time span. These Archaic and later populations reflect regional adaptations to more effectively exploit the array of natural resources available in their local environment. Generally, the populations become restricted in area, but considerable movement of peoples is implied by the presence of rare materials, such as obsidian and other minerals from outside of Texas, in sites along the North Bosque River.

Historic populations move into the project area in the 1850's. An early group of settlers from Norway established themselves southwest of the project area starting in 1854; this community remains, with many of the families retaining their original property.

The settling of the project area was more sporadic, with the establishment of relatively small holdings, some growing cotton with the labor of slaves. The Civil War forced those not supporting the southern position to sell their land, abandon their property, or simply disappear until the end of this conflict. A period of agressive behavior, on the part of aborigines and outlaws followed the Civil War, which was reduced when local government was reestablished in the early 1870's. Cattle drives up the Chisholm Trail, which passes through the area, continued until the late 1870's. The raising of horses was important in the local economy until about 1880, with the coming of the railroad, more settlers and fencewire. More river bottoms were cleared of the timber and more fields were developed along the floodplains of the Bosque.

The railroad was important in helping establish local communities like Walnut Springs and Morgan, and in linking them with existing towns like Iredell. The railroad brought in the products which these communities served to distribute thoughout the populace, and provided transport for the agricultural commodities locally produced. The gradual abandonment of the railroad during the late 1940's adversely affected the local economy, forcing a change in the farming practices, generally back to ranching. At present, less than a dozen families are now living in the project area, probably the smallest number of people in the general area since PaleoIndian times.

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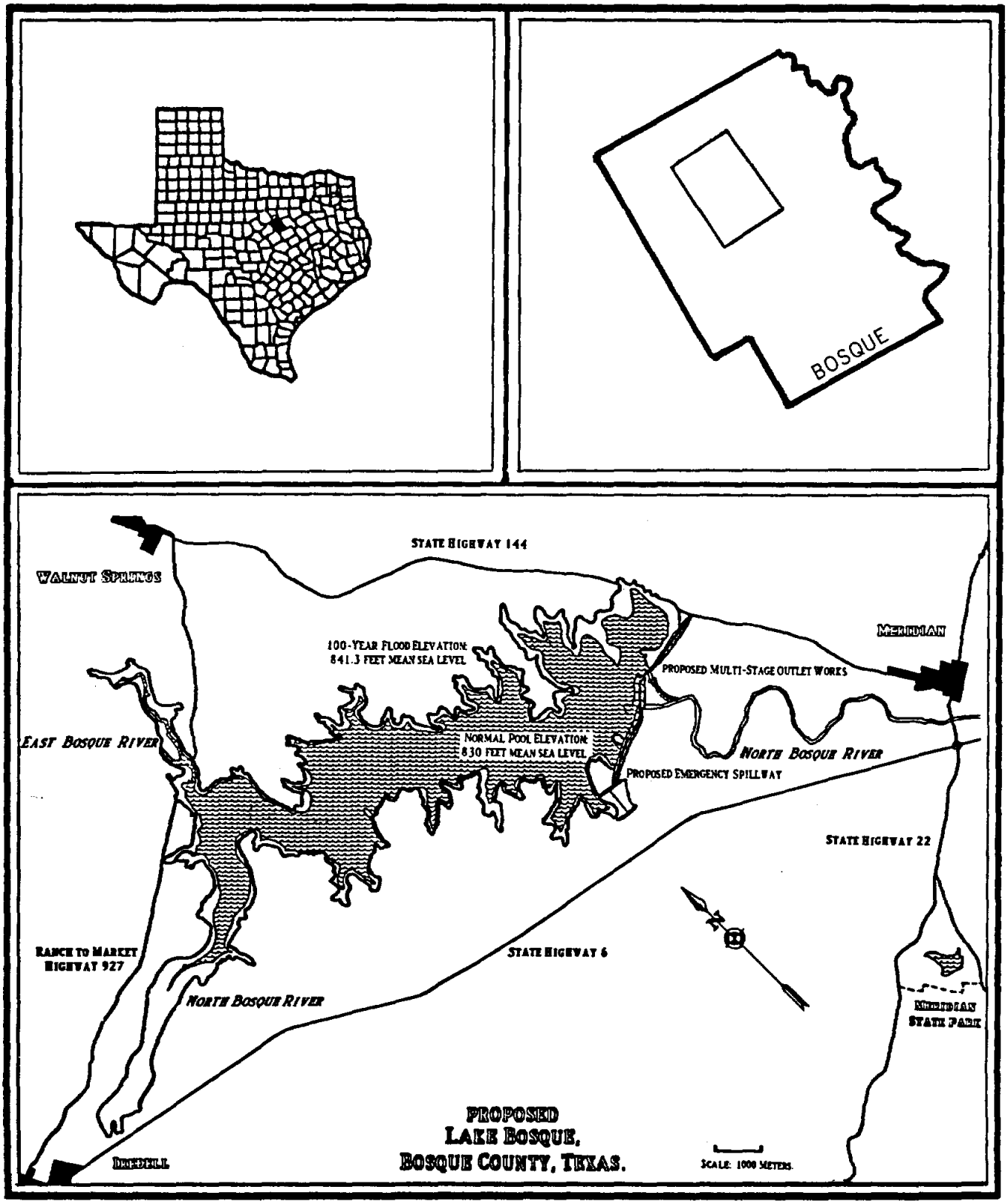

Figure 1. Map showing location of Bosque Dam and Reservoir

INTRODUCTION

The Brazos River Authority, located in Waco, Texas, proposes to construct Lake Bosque downstream from the confluence of the North and East Bosque rivers, north of Meridian, the county seat of Bosque County, Texas. The project will require the use of approximately 6000 surface acres to create Lake Bosque, behind a dam with a normal pool level elevation of 830 feet above mean sea level (m.s.l.). Above the conservation pool is the floodpool of the lake with an elevation of 841.3 feet m.s.l. In addition to the dam, construction in the project area includes a service spillway on the eastern side of the dam and two emergency spillways on the west (See Figure 1). Relatively few relocations of existing facilities, such as highways or transmission lines, are required to implement this project.

Part of the planning for the Lake Bosque Project includes the protection of cultural (prehistoric, historic and architectural) resources which might be affected by the construction, and operation and maintenance of the proposed dam and reservoir. Lone Star Archeological Services of Austin, Texas, has been retained to locate, identify, and appraise the significance of cultural resources within the project area and make recommendations concerning their management.

This investigation is being conducted in partial fulfillment of Federal and State laws oriented toward the identification and protection of cultural properties. The principal Federal legislation concerned with the management of cultural resources are the National Historic Preservation Act of 1966, as amended [Public Law 89-665, Public Law 96-515], and the Archeological and Historic Preservation Act of 1974, as amended [Public Law 93-291]. In Texas, such protection is offered by the Antiquities Code of Texas, as amended [Title 9, Chapter 191 of the Texas Natural Resources Code of 1977].

The National Historic Preservation Act (NHPA) of 1966 establishes the Advisory Council on Historic Preservation to advise the President and Congress on matters concerning historic preservation and to recommend measures to coordinate Federal activities in historic preservation. Perhaps the most important role of the Advisory Council is to comment on Federal actions which affect cultural properties eligible for or included within the National Register of Historic Places. The Advisory Council rules for the implementation of this law are detailed in *Procedures for the Protection of Historic and Cultural Properties* (36 CFR Part 800). The NHPA also sets up the National Register of Historic Places, an on-going inventory or catalog of American culture, that identifies the material remains and sites of cultural developments, from prehistory to the present, which have molded our nation.

To evaluate potential entries to the National Register, the United States Secretary of the Interior, Federal agencies, as well as State Review Boards and the State Historic Preservation Officer (SHPO) use the following criteria:

> The quality of significance in American history, architecture, archeology and culture is present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association, and:
>
> [1] that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> [2] that are associated with the lives of persons significant in our past; or
>
> [3] embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> [4] that have yielded, or may be likely to yield, information important in prehistory or history (Texas Historical Commission 1979:7).

The Archeological and Historic Preservation Act of 1974 provides for the survey, recovery and preservation of significant scientific, prehistoric, historic, archeological or paleontological data when such data might be endangered by Federally funded, licensed or assisted undertakings. This law is implemented through *Standards and Guidelines* (48 FR 44716) published in 1983 by the Department of the Interior.

Construction of Lake Bosque will require Federal authorization under Section 404 of the Clean Water Act (33 U.S.C. 1344) and under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). Concerned with the discharge of dredged or fill material into the waters of the United States and work in any navigable water of the United States, such authorization is sought from the Department of the Army, through application for a permit from the U.S. Army Corps of Engineers. To address concerns on the effects of such licensing activities on cultural resources, the Department of the Army published proposed counterpart regulations in the *Federal Register* (45 FR 22112) in 1980, as *Appendix C. Procedures for the Protection of Cultural Resources* in *Part 325, Processing of Department of the Army Permits* (33 CFR Part 325).

Construction and impoundment of Lake Bosque will require the purchase of lands necessary for dam construction, ancillary features, relocations and the conservation pool. Easements will be sought in areas to be affected by intermittent or periodic flooding. In Texas, cultural resources on lands owned or controlled by state agencies or political subdivision are protected by the Antiquities Code of Texas. Permits for survey and discovery, excavation,

restoration, demolition or study are sought from the Texas Antiquities Committee, the legal custodian of all cultural resources within the public domain of the State. The committee may issue a permit to other state agencies or political subdivisions or to qualified private institutions, companies or individuals for such investigation, if it is the opinion of the committee that the permit is in the best interest of the State of Texas (Section 191.054). Cultural resources located in such investigations are eligible for designation as State Archeological Landmarks.

> Sites, objects, buildings, artifacts, implements, and locations of historical, archeological, scientific, or educational interest, including those pertaining to prehistoric and historical American Indians or aboriginal campsites, dwellings, and habitation sites, their artifacts and implements of culture, as well as archeological sites of every character that are located in, on, or under the surface of any land belonging to the State of Texas or to any county, city or political subdivison of the state are state archeological landmarks and are eligible for designation (Section 191.092).

The objective of this investigation is to find the places and objects of our past which are within the area of the potential environmental impact of proposed Lake Bosque, be they potential nominees to the National Register of Historic Places or candidates for the designation of State Archeological Landmarks. The search will include examination of public records filed at the Capitol and the County Courthouse. The regional setting will be described through a study of environmental data. The work and results of previous cultural resource investigations in the general area will be reviewed. Those who know the land the best, the landowners and others who live there and work the soil, will be asked to reveal the locations of the old or unusual places and to recall their memories of other times. To locate these sites and objects "of every character...in, on, or under the surface of any land," the hunt will be conducted on foot. From the hilltop to the channel of the River, along the slopes and upland terraces, across deserted stream channels and deep into the earth where the streams of today cut into the alluvial terraces, the land will be explored. On the recently plowed agricultural terraces which make up the floodplain, soils will be traced until they disappear under the tall vegetation, fallen trees and branches under a canopy of relict eastern woodlands. Finally, the ground will be scraped, probed, and dug into, to learn if traces of the past lie buried in and under the earth. Those sites which contain, or seem to retain, useful or interpretable data concerning those who once peopled this area of the North Bosque Valley will be recommended for further investigation or protection.

RESEARCH DESIGN

The research design used for this project included, but was not limited to the following elements:

[1] Check records of previous archeological investigations in the area and plot known sites.

[2] Review local histories to determine if location is documented and integrate this information with any new findings resulting from the archeological investigation.

[3] Interview landowners and others in the area concerning the presence of cultural sites, such as Indian campsites, homesteads, cemeteries, old fords or crossings of Bosque, etc., as well as unusual natural features that might be encountered during our investigation.

[4] Obtain permission from landowners to enter property to conduct this investigation.

[5] Accomplish an archeological survey of the project area by conducting an on-the-ground search for prehistoric and historic areas, revealed by the presence of artifacts or cultural features, and to record these manifestations on current archeological site-data forms used by the State of Texas. Survey teams will be equipped with shovels, probes, and trowels, compasses, measuring tapes and cameras. Probing into the ground to discoverer buried cultural material will be an on-going aspect of the survey. Photographs of all standing structures will be taken. Time-diagnostic or site-function related artifacts and associated environmental data--such as snails, mussel shell, bone, lithic material, radiocarbon, etc.--will be collected.

[6] While on site, assess sites from the standpoint of condition, importance, and potential, leading toward a determination of significance. Revisit selected sites to recover additional data to determine the depth and character of deposits.

[7] Process and review collected data in the laboratory.

[8] Summarize data in a technical report, making recommendations for mitigation and management of cultural resources.

ENVIRONMENTAL SETTING

The environmental setting includes a description of the physiographic region, the climate and the watershed of the project area, along with a review of general floral and faunal background. The discussion of the watershed is a brief analysis of the drainage basin which will fill Lake Bosque; its surface and subsurface geology, streams and stream basins, sediments and soils in combination create the North Bosque valley and form the substrate for cultural development.

PHYSIOGRAPHY

Extending in Texas from the High Plains, south to the bottom of the Panhandle, then southeast to central Texas, the Great Plains Physiographic Province covers much of the northwest and central portions of the state. The northeastern portion of the Central Texas Section of the Province includes the Comanche Plateau. Bosque County is near the Comanche Plateau, as is the project area for proposed Lake Bosque (Carr 1967: 3, Sellards 1932). This northeastern extension is marked by Lower Cretaceous or Comanche series deposits, including the Trinity and Fredericksburg groups. More resistant to erosion than rock formations of the Blackland Prairie, the formations which have weathered to form the Comanche Plateau are among the most resistant rocks within the Great Plains Province. This differential erosion has resulted in the comparatively slow, rolling relief which distinguishes the Comanche Plateau. The Plateau and the adjacent Lampasas Cut Plain make up the physiography of the general area. The Lampasas Cut Plain Physiographic Region is,

> characterized by broad level to rolling valleys separated by steep-sided, flat-topped divides that are the remnant (cut) plain. Local relief is much greater than in the Washita Prairie, with elevation differences of 150 to 200 feet between valley floors and divides common. The distinct topography is largely the result of the physical resistance to weathering and hydraulic properties of the Edwards Limestone formation which forms a resistant cap on the tops of the divides. The less resistant Comanche Peak Limestone and Walnut Clay formations, which form (respectively) the steep, upper slopes below the Edwards cap and the lower slopes and valley floors, are eroded much more rapidly than the Edwards producing the characteristic mesa dominated landscape (Price 1987: 20).

In the Lampasas Cut Plain, the Edwards Limestone is a perennial aquifer, producing groundwater along a line of springs and seeps at the base of the

formation, which also erodes those underlying Comanche Peak and Walnut Clay formations. The hydraulic weathering of the Province by ground- and surface water is driven by the climate.

CLIMATE

The project area is located on the dry side of the subtropical humid belt which extends 250 miles northwest of the Gulf of Mexico. The winters are cool and often dry; the summers, warm and sometimes humid. A thirty-year average of rainfall from 1931-1960 was slightly more than 32 inches, much of which falls during two periods, the middle through late spring and the early fall (Carr 1967: 4). A cyclical climatic extreme occurs in August, with little or no rainfall--the North Bosque River has been known to cease its flow in late August, only to resume in the early days of September with the coming of fall rains.

The ability of the Edwards Limestone to accept rainfall in the highlands and redistribute the water along a series of upland seeps and midland springs has a profound effect on the project area. Most of the flat-lying upland areas are wet much of the year. These upland seeps give rise to the drainage system which feeds the North Bosque and contains significant floral and faunal communities which characterize this area. Their impact on settlement and human use of the project area cannot be overemphasized--they are essentially impassable and unsuitable for settlement throughout much of the year. Well described, along with the effect of sunlight, by Price,

> local climate is variably affected by orientation and topography. Differential insolation on opposite valley walls can result in several degrees difference in both average surface temperature and in diurnal range, with commensurate differences in consequent characteristics such as soil moisture, erosion rates and vegetative cover. In the vicinity of the proposed reservoir, topography can be very important in determining local climate where steeper slopes may be quite arid and seepage onto flat limestone ledge outcrops may create mesic microclimates in otherwise upland areas (1987:16).

How these microclimates must have affected early peoples in this area in the ancient past remains to be learned, but paleoclimatic studies have been on-going since the recognition that tree-rings were a response to a moisture cycle and hence, a growing season. So-called annuli are also found in fish scales, tusks and mussel shell and have been useful in determining relative age and time of death within a season, important in defining, with cultural association, subsistence strategies.

Most students concerned with the peopling of the Americas agree that a decrease in moisture, associated with an increase in temperature, occurred during the late Pleistocene. In Texas, this mesic to xeric change took place about 10,000 years ago and is thought to have resulted in the reduction of riparian and aboreal environments, altering the landform and reducing the population of large North American animals, the sloths, glyptodonts, camelops, dire wolf, Columbian mammoth, American mastodon, various bison, antelope, horses, and others. There is some evidence to indicate this change had been happening over a 4000-year period. Bryant, using paleobotanical samples from the Boriack Peat Bog, interpreted his findings to indicate a temperate deciduous forest with some conifers in Central Texas to 14,000 B.P. (before the present), with a transition to parkland after 10,000 B.P. (Valastro 1970: 625). Similar and slightly earlier indications in South Texas of a very dry climate in the late Wisconsin, the fourth stage of the last glacial epoch in North America, were found by Eargle (Valastro 1970: 624).

Recent archeological research into the climate of the Central Texas area is well presented by Prikryl. He discusses the recent work of Henry (1980) at Site 41BQ67 in Bosque County, which postulates a period of increased rainfall after 900 A.D. Shafer (1977) and Dillehay (1974) interpret their data differently, postulating an increase in grasslands attributable to a decrease in rainfall after 1200 A.D. The work of Skinner (1981) at Aquilla Creek and other valleys which feed the Brazos River led him to a similar conclusion, that of a regional drying with concomittant reduction of suitable habitat around 1200 A.D. The discussion also points out that Lynott's work at Bear Creek Shelter on Lake Whitney (1978) led him to reject a climatological hypothesis of changes at 1000-500 B.C. and 1200 A.D. (Prikryl and Jackson 1985: 14).

More data will be necessary before local climatological regimes and change can be accurately depicted. Hypotheses predicated on insufficient data cannot achieve the complexity required of useful paradigms. As an example, the C14 dates from sites in the Bosque Lake area could be used to support several of the above hypotheses, indicating human activity during the targeted time-frames.

THE WATERSHED OF PROPOSED LAKE BOSQUE

The North Bosque River drainage basin begins in north-central Erath County, passes through northeast Hamilton County to west-central Bosque County, and thence to northern McLennan County, where it forms Lake Waco and joins the basin of the Brazos River. Perhaps the most useful method of examining the morphology of the North Bosque watershed is proposed by

Proctor (1969). This approach consists of analyses of the major sub-basins which make up the larger portion of the drainage basin, offered after Proctor's review of the data revealed that information was available but restricted to a few small basins.

> The purpose for selecting the eight sub-basins studied was twofold. First, they are the largest basins within the North Bosque watershed and therefore form convenient units of study. Second, these basins embrace all the physiographic provinces that are characterized by the different lithologies and soils of the North Bosque watershed (Proctor 1969:25).

The sub-basins which combine to form the drainage basin of proposed Lake Bosque include that of the North Fork and South Fork above Stephenville, Green Creek southeast of Dublin, Honey Creek southwest of Hico, Duffau Creek above Iredell and the East Bosque River near Walnut Springs. The surface geology of the watershed and those sub-basins above the town of Iredell is Cretaceous, principally the Glen Rose Limestone, surrounded by the Paluxy Sand, with recent alluvium confined to the channel. Just below Iredell, a change in the surface geology is reflected by a relatively narrow exposure of the Paluxy Sand, surrounded by the outcropping Walnut Clay, with recent alluvium in the channel (See Price 1987: Figure 3-2).

The two sub-basins north of Stephenville are the North and South Forks of the North Bosque. The basins are similar, with the South Fork slightly larger and better drained. Both are predominately underlain by the Paluxy Sand, although more of the Glen Rose formation is exposed in the South Fork basin. The major topographic features in these basins are the resistant limestone ledges in the uplands formed by the Walnut Clay and the rolling hills typical of the Cross-Timbers physiographic area. The stream channels in these basins are drowned by sand eroded from the Paluxy Formation, more so in the North Fork basin.

Larger than the North and South Fork basins combined, the Green Creek basin is dominated by the same three lithologic units--a valley floor of Glen Rose Limestone, with midland slopes comprised of the Paluxy Sand, overlain by the limestone of the Walnut Clay which forms the upland edge. Drainage is slightly better in Green Creek than either of the two previously discussed basins. Where the Paluxy Sand underlies the upper portion of the Green Creek basin, the stream channels are choked with sand eroded from this formation.

About half the size of Green Creek basin and essentially similar although with lower relief, the basin of Honey Creek drains more slowly than the other basins which make up the North Bosque watershed. In streams of the

lower portion of Honey Creek basin is a small but perennial flow of water which may derive from the Glen Rose Limestone.

Located northeast of Iredell, the Duffau Creek basin is only slightly smaller but otherwise similar to that of Green Creek with the exception that the upland valley margins on the northeast of the Duffau Creek basin are formed by limestones of the Comanche Peak and Edwards formations. Drainage channels which are formed in the Paluxy Sand are obscured and choked with sediment, as are those which are developed in the Walnut Clay. Virtually perennial streams flow from the formation of the Edwards Limestone found in the Duffau Creek basin. These streams become dry only during extended periods of drought.

Roughly three-fourths the size of the Duffau Creek basin, that of the East Bosque is essentially similar, notwithstanding the absence of the Glen Rose Limestone. Generally, the valley floor is Paluxy Sand with the marls and ledge-forming resistant limestones of the Walnut Clay forming the valley walls, midland and uplands, and Comanche Peak and Edwards Limestones forming the valley margin of the highlands in the northwestern and northern portion of the basin. Stream channels in the East Bosque are obscured as a result of drowning by sediments.

In combination, the six sub-basins comprise 395.3 square miles (Proctor 1969: 25-27). A few miles upstream of the confluence of the Bosque and Brazos Rivers is the dam which forms Lake Waco. The drainage basin for Lake Waco includes the sub-basins of the North, Middle and South Bosque Rivers, extends about 90 miles to the northwest and comprises an area of about 1670 square miles. The North Bosque is the major contributor of the three, covering about 1290 square miles or more than 77 percent of the Bosque watershed. Our rough calculations for the North Bosque watershed above river mile 58.3, or the location proposed for the construction of the dam to impound Lake Bosque, yield a drainage basin for the project of about 745 square miles or about 58 percent of the area of the North Bosque watershed. Excluding the area of the six sub-basins described above results in an area of 350 square miles which consist of the minor sub-basins as well as the mainstem of the North Bosque River. The six sub-basins of the North Bosque discussed by Proctor cover more than 53 percent of the watershed of the project area. Outside of the East Bosque sub-basin, none of these is directly affected by Lake Bosque, and in this study, their importance lies in their being major contributors of the sediments which make up the alluvial deposits on the valley floor of proposed Lake Bosque.

BASIN SEDIMENTS

In the project area, sediments are almost exclusively the product of fluviatic action on marine limestones, shales and sand. Above the project area, in the headwaters and the upper North Bosque watershed, sheet erosion is the producer of virtually all sediment--in the Green Creek watershed, Soil Conservation Service studies estimate that 97 percent of sediment yield results from sheet erosion, with streambank (2 percent) and gully erosion (1 percent) responsible for the remainder (Proctor 1969:16). Downstream, in the Lampasas Cut Plain physiographic province, gully erosion is a greater contributor (>1%) of sediments, especially in the project area. Here, gullies also play an important role in providing a pathway for entrained sediments resulting from sheet erosion in the uplands. In the project area, however, streambank or channel erosion plays a role of far greater importance--the broad alluvial floors of the valleys of the Lampasas Cut Plain, the physiographic province in which Lake Bosque is located, provide an opportunity for the streams to widen or undercut the bank and meander throughout the deposits. The effects of such streambank erosion are especially noticeable above the confluence of the East and North Bosque Rivers where recent meandering of both streams has profoundly altered the archeological and biological materials which were temporarily stored there, as was the alluvium itself, within the sediments and soils.

These sediments originate, as mentioned earlier, from the fluviatic erosion of Cretaceous limestones, shales and sands. The natural weathering of these sediments forms soils. As pointed out by Stein, *soils* should not be confused with *sediments*:

> Soils develop in sediments near the surface of the earth through weathering under the influence of plants, other biological elements, and atmospheric conditions. Soils exhibit vertical differentiation within the sediments, with horizons reflecting changes in mineralogy, texture and chemistry. Soil horizons must always be distinguished from depositional sedimentary strata (1985: 6).

Soils, then, are a product which can form after the deposition of sediment, the last phase of the cycle of sedimentation. These phases include (1) a frangible source, either weathered bedrock or sediments, (2) a transport mechanism--a spectrum of possibilities ranging from the entrainment of particles of bedrock and the re-entry of sediments as a result of floods to the sediment particles on the feet of small animals, (3) a place of deposition, and (4) an alteration of sediments after deposition. When proper environmental conditions obtain, the cycle of sedimentation is restarted.

SOILS

In the Lake Bosque area, several soils can be related to parent geological formations. Upland soils found within the reservoir area are well drained and underlain by limestone. In the uplands north of the confluence of the North and the East Bosque Rivers are found those soils of the Purves-Maloterre associations, thought to be principally derived from the Comanche Peak Limestone and the Walnut Clay, whose clayey and loamy soils are described as being gravelly, shallow to very shallow, with gentle slopes and undulations. The eastern uplands of Lake Bosque are dominated by the Denton-Purves soils, the clayey soils of which are described as shallow to moderately deep, with gently sloping to sloping surfaces. These soils appear to be associated with the Comanche Peak formation, with contributions by the Walnut Clay and Edwards Limestone. The western uplands of proposed Lake Bosque are mostly the Tarrant-Denton soils. Associated with the Walnut Clay (Proctor 1969: Figure 4), these cobbly and clayey soils are thin to moderately deep, with gently sloping to sloping surfaces (Soil Conservation Service 1980:104).

In the midlands and lowlands, two major soils associations, the Krum-Sunev and Frio-Bosque, dominate. These deep, well-drained soils are found on flood plains in the valleys along the river and terraces along the stream courses. The Krum-Sunev groups occupy long, narrow strips of soils which have developed from sediments which have filled erosional zones within these valleys while the Frio-Bosque soils are adjacent to the rivers and streams in nearly level areas. One other group of soils found in the lowlands is the Bastrop-Minwells-Yahola soils association. Of this group, the Bastrop soils are considered to be particularly important in this study. The Bastrop soils are estimated to represent slightly more than one percent of the soils within Bosque County (Soil Conservation Service 1980: 4-5). The Bastrop soils are among the oldest alluvial ones which show evidence of early human use.

Among the older alluvial soils within the project area are those of the Minwells group. This fine sandy loam is found on gentle slopes of one to five percent. A deep soil, the Minwells is severely eroded to perhaps one-third of its original thickness. Generally brown to light-brown on the surface and reddish-brown beneath, the soil is slightly acid in the upper zones, and alkaline below (Soil Conservation Service 1980:19). Relatively rare in the project area, this soil is frequently adjacent to the Bastrop soils, which upstream appear to overlap the Minwells soils on the north side of the North Bosque, between Barry and Hester Branch (Soil Conservation Service 1980: Aerial Photograph Sheet No. 15).

Like the Minwells soils, the Bastrop soils are also uncommon. Bastrop soils are found as eroded remnants along the valley walls, in levee deposits and near interfluves. This deep and gently sloping soil is generally eroded, although more slightly so on slopes of one to three percent. The surface is generally reddish-brown, with varying amounts of yellow at depth. The soil is slightly acid in the upper portion and alkaline below.

The next most recent soil is thought to be the Sunev clay loam. The Sunev clay loam is found to overlap the Bastrop soils on the northeast side of the North Bosque, about 3500 feet downstream from Jackson Crossing Bridge (Soil Conservation Service 1980: Aerial Photograph Sheet No. 16). Unlike the alluvial Minwells and Bastrop soils which originate from sediments transported down river, the Sunev clay loam is a colluvial soil which is formed on sediments resulting from sheet erosion in the smaller valleys. Almost black when moist, this dark greyish-brown soil is a calcareous clay loam with small concretions of calcium carbonate at depth. Adjacent to the stream channels and along stream terraces, the Sunev soils are of minor importance to this study, except that they seem to reflect an erosional phase subsequent to the depositional ones which introduced the sediments which have weathered into the Minwells and Bastrop soils. In the project area, this deep, soil is found on gently sloping (one to three percent) surfaces. The Sunev clay loam is consistently found on the downstream ends of floodplain ridges, overlapped by the Frio silty clay loam.

A younger soil is the occasionally flooded Frio silty clay loam. Like the Sunev clay loam, this soil seems to have its origin in the sub-basins discussed above, as well as the smaller valleys, the streams of which feed the North Bosque. It is difficult to differentiate from the Sunev clay loam, to which it is frequently adjacent, in part because the constituents of the Frio silty clay include redeposited fractions of the Sunev clay loam as well as sheet eroded midland and upland valley soils. Dark greyish-brown in color, this alluvial-colluvial calcareous soil is found in nearly level areas as large as 1500 acres on bottom lands, and is briefly flooded every two to five years (Soil Conservation Service 1980:16). An excellent exposure of the sediments underlying the Frio silty clay may be seen in the stream channel of Gibson Branch, near its intersection with the North Bosque, where a profile exceeding twenty feet in thickness is revealed in the northern cutbank of Gibson branch. Here, the depositional regime is reflected by stratified cultural zones consisting principally of modified chert and mussel shell.

The youngest soils type in the project area is the occasionally flooded Bosque clay loam. This deep alluvial soil is found in long, narrow strips in the flood

plains adjacent to major streams. Like the Frio silty clay loam, this flat-lying soil is flooded every two to five years, but is found in smaller areas, 300 acres or less. Perhaps the area of greatest interest associated with the Bosque clay loam is found downstream from Pilot Ford or Crossing, just upstream of the confluence of Hester Branch with the North Bosque River. Here may be seen *an abandoned confluence of a stream with the river,* the stream channel of Hester Branch intersecting with the North Bosque River, with the present channel and interfluve away to the North. Important not only as a feature of geomorphological interest, archeological sites are associated with the abandoned watercourse, sites which may be used to better understand the evolution of the river and stream system and which may be used for determining the period of abandonment.

In review, the watershed of the North Bosque River is fed by a number of small sub-basins, several of which have been discussed. All, including the North Bosque, are underlain by a bedrock of Cretaceous deposits of Paluxy Sand, Walnut Clay, and Comanche Peak, Edwards, and Georgetown Limestones, and have their channels choked with Quaternary colluviums and alluviums which now form the floodplains and terraces of the streams and rivers. The last time this bedrock geology of the North Bosque may have been significantly exposed is during the late Pleistocene, when channel scouring is thought to have occurred. Since then, several cycles of sedimentation have resulted in increased channel filling. Sediments in the channel have weathered to soils which seem to reflect episodes of deposition and erosion. From oldest to youngest, these are the Minwells, Bastrop, Sunev, Frio and Bosque soils. These soils will be discussed later in relation to sites and settlement and age.

FLORA

The project area lies within the southeast region of the Cross Timbers and Prairies Vegetational Area, one of ten such areas defined through plant research at Texas A & M University (Gould 1975; Dallas Morning News 1986: 55-59). Different soils and topography provide sharp changes in the vegetative cover, although grasses are fairly consistent in composition throughout the area.

Native grasses associated with the prairie soils include big bluestem, little bluestem, Indiangrass, switchgrass, blue grama, sideoats grama, hairy grama, tall grama, Canada wildrye, Texas wintergrass, tall dropseed, and buffalograss. In the Cross Timbers, the grasses include big and little bluestem, hooded windmillgrass, sand lovegrass, switchgrass and several species of legumes, with woody vegetation including shinnery, blackjack, post oak and

live oak. Introduced secondary vegetation includes other oaks, mesquite and juniper, a group which contribute minimal forage for wildlife and livestock (Dallas Morning News 1986: 55). Additional naturally occurring woody vegetation and grasses from adjacent vegetational areas, the Blackland Prairies, the Edwards Plateau and the Rolling Plains, to the east, south and west, respectively, are also found throughout the Cross Timbers and Prairies (Price 1986: 45).

During initial baseline studies of the project area, more than 200 plant species were recognized and grouped by habitats into eight major plant communities: [1] Upland Woodlands, [2] Bottomland Woodlands, [3] Native Grasslands, [4] Improved Pastures, [5] Streambeds, [6] Aquatic Habitats, [7] Wetlands,and [8] Croplands (TCA 1985). Much of the following is derived from this study and the 1987 Environmental Assessment by Paul Price Associates, Inc.

Upland Woodlands constitute about three percent of the project area, and are found along the peripheral ridgetops near the area of the dam and spillways. Principal among the woody vegetation is ash juniper, with some plateau live oak, Texas red oak and cedar elm. Other common overstory species include Texas ash, post oak, and netleaf hackberry.

Bottomland Woodlands comprise nearly fifteen percent of the project area, along the primary, secondary terraces and bottomland slopes adjacent to the North Bosque, and along the stream courses. Relict, climax communities of eastern forestlands, described by Price as "the westernmost outliers of the extensive bottomland forests of the eastern United States," are found in inaccesible areas adjacent to the channels of the North and East Bosque rivers, in narrow strips adjacent to areas devoted to cropland, with larger areas found where channel migration has isolated small preserves of this remarkable vegetation. Chest-to-head height grasses camouflage forest floors littered with the decaying remains of the previous generation of trees, the limbs and trucks of which lie where they fell until they rot and become a constituent of the soil. Subject to wind, lightning, bank sloughing and insect damage, the trees are undistubed by humans or livestock. In the winter, with the annual dying of grasses, the floor of these forests are covered with fallen leaves, which, when combined with the coloration of the tree trunks, results in the area resembling a black-and-white photograph, a study in graytones. Species predominant in the bottomland woods include Cedar elm, with codominants including bur oak, pecan, American elm and Texas sugarberry.

Native Grasslands comprise about one-third of the project area. Although a few small and scattered remnants of native prairie remain, most of this plant community consists of overgrazed to well managed forage production units. Grasses found here include most of the prairie species already mentioned above.

Improved Pasture includes slightly more than one-fifth of the project area. Committed to forage production, these lands have been tilled to some extent, and sowed or sprigged with exotic grasses, such as K.R. bluestem, coastal or common bermudagrass and kleingrass. As in the native grasslands and cultivated croplands, forbs, herbs, and wildflowers are not uncommon in these former native grasslands.

Streambeds make up slightly less than three percent of the project area. Vegetation is generally restricted to American water willow and filamentous algae. Adjacent vegetated streambanks may contain sumac, smilax or cat brier, buffalo or stink gourd, eastern prickly pear and Johnson grass, with others in more elevated areas.

Aquatic Habitats are about .5 percent of the project area, and include farm and stock ponds which catch periodic surface runoff or exploit the extensive upland seeps and springs which slowly drain to erode and form the stream courses of the project. The edges of these ponds provide a habitat for American water willow, black willow, sedges, common bermudagrass and others.

Wetlands are less than .5 percent of the project area, along deserted meanders in the floodplain, immediately adjacent to ponds and streams, and a few beaver ponds. With the exception of a few plants found in the aquatic habitat listed above not being present, among them black willow, the plant community is much the same.

Cropland accounts for almost one-fifth of the project area. Row crops of sorghum (milo and sweet sudan), corn, along with small amounts of cotton, soybeans and peanuts are planted in the spring, followed by oats and wheat as winter crops. Coastal and common bermudagrass is cut, baled and stored for the winter feeding of cattle.

Plants common in old fields and disturbed soils as well as native grasslands include Texas bull nettle, Plains horsemint, milkweed, pigweed, rain lily, Texas thistle, coreopsis, Indian blanket, common sunflower, Texas star, long-headed coneflower, ironweed, buffalo gourd, Buckley centaury, Partridge Pea, Texas bluebonnet, wild onion, grape hyacinth, wine cup, turk's cap,

Devil's claws, Pink evening primrose, scarlet paintbrush, purple horse nettle, poison hemlock, Eryngo, and Texas lantana were identified by crew members during the archeological fieldwork (Loughmiller 1984).

Plants potentially important to Native Americans include those for subsistence purposes, as well as for fiber, medicines, herbs or seasonings, wood for tools and construction. In the project area, those usable for food include acorns (especially bur oak), pecans, walnuts, hackberries, cactus (*Opuntia* and *Echinocerus*), and wild grape, along with yucca, bull nettle, buffalo gourd, and others.

We sampled the fruits of the cactus while in the field and found that of the echinocactus no different in flavor from the *pitaya,* or strawberry cactus of the desert southwest, while the *tuna,* the fruit of the Opuntia, was sweet, with an underlying bitterness, filled with hard seeds. The flowing stalks of yucca were harvested and cooked in salted water; the flowering parts were tender, not unlike asparagus, with a subtle bitterness which increased away from the flowers (Tull 1987: 27-29). Peeling the lower stalk removed the fibrous covering, exposing an edible interior with a slight soapy taste attributed to the saponin these plants contain.

A remarkable archeological site near the project area, Brawley's Cave, Site 41BQ20, produced a quantity of perishable plant materials from a dry cave deposit, the easternmost dry cave presently known in Central Texas. The cave deposits produced stone, shell, and bone items, along with one sherd of pottery (Olds 1965: 111). Specimens of shaped sticks of wood, unidentified as to species or function were recovered. Cordage (10 specimens) could be identified as sotol (7) and sisal (1). Fragments of basketry, sandals, nets, and unidentified items of fiber and grass, and twisted fur strips and hair, possibly buffalo, were also described. Ground stone artifacts were. a couple of boatstones, smoking pipes, sinkers, and manos. Chipped stone made up a variety of projectile points, bifacial tools and unifaces. Fragments of hematite and quartz were recovered, along with bone tools shaped from deer bone and antler. Mussel shells found show use-marks on the edge opposite the hinge, apparently used as tools. During the removal of this material from the cave, acomplished in a very unsystematic fashion, the reporter noted that, "Acorns, walnuts, and pecans were also found promiscuously scattered."

FAUNA

The area of proposed Lake Bosque falls within the Texan biotic province as defined by Blair (1950:101-02), who listed 49 species of mammals, 39 species of snakes, 16 species of lizards, 5 species of salamanders and newts

(urodeles) and 14 species of frogs and toads (anurans). Field investigations during 1984-1985 by Technical Consulting Associates revealed sightings and identification of 14 species of mammals, 61 of birds, and 27 of reptiles and amphibians.

During our investigation, we sighted the following species:

CLASS	COMMON NAME	SCIENTIFIC NAME
	Mammalia	Virginia Opossum
Didelphis virginiana		
	Least Shrew?	*Cryptotis parva*
	Armadillo	*Dasypus novemcinctus*
	Eastern Cottontail	*Sylvilagus floridanus*
	Black-tailed Jackrabbit	*Lepus californicus*
	Fox Squirrel	*Sciurus niger*
	Beaver	*Castor canadensis*
	Raccoon	*Procyon lotor*
	Striped Skunk	*Mephistis mephistis*
	River Otter?	*Lutra canadensis*
	Bobcat	*Felis rufus*
	White-tailed Deer	*Odocoileus virginianus*
Aves	Great Blue Heron	*Ardea herodias*
	Cattle Egret	*Bubulcus ibis*
	Turkey Vulture	*Cathartes aura*
	Red-Tailed Hawk	*Buteo jamaicensis*
	Bobwhite	*Colinus virginianus*
	Turkey	*Meleagris gallopavo*
	Killdeer	*Charadrius vociferus*
	Mourning Dove	*Zenaida macroura*
	Roadrunner	*Coccyzus americanus*
	Great Horned Owl	*Bubo virginianus*
	Common Flicker	*Colaptes auratus*
	Scissor-tailed Flycatcher	*Muscivora forficata*
	Eastern Meadowlark	*Sturnella magna*
	Common Crow	*Corvus brachyrhynchos*
	Northern Mockingbird	*Mimus polyglottos*
	American Robin	*Turdus migratorius*
	Cedar Waxwing	*Bombycilla cedorum*
	Red-winged Blackbird	*Agelaius phoeniceus*
	Brown-headed Cowbird	*Molothrus ater*
	Cardinal	*Cardinalis cardinalis*
Reptilia	Texas Horned Lizard	*Phrynosoma cornutum*
Mollusca	unknown	*Potamilus purpuratus*
	unknown	*Lampsilis teres*
	unknown	*Tritogonia verrucosa*
	unknown	*Andonta grandis*
	unknown	*Amblema plicata*
	unknown	*Quadrula pustulosa mortoni*

The sighting of beaver is based on recovery of a skull from the west side of the North Bosque. The sighting of otter is based on the presence of an earth slide which crosses a dam and descends to the stream channel--a slide that was first discovered in 1985 and is still active. The furtive and fleet-footed shrew is notoriously difficult to identify in the field. The molluscan fauna was collected from the North Bosque River and from prehistoric archeological sites recognized during the field investigation.

We have identified bones of white-tailed deer from archeological sampling, with a piece of tooth enamel from another site thought to be bison. With the exception of a buffalo rib scraper, bone implements found in Brawley's Cave are fabricated from metapodials of white-tailed deer; other tools are made of antler. Bison ribs and joints were found in the cave, with "bones of most animals common to the country." As regards the molluscs found in the cave:

> Other domestic utensils found here are the beautiful mussel shells, some of which are highly polished from long use. They were evidently household utensils used in the capacity of spoons or scrapers. The end farthest from the hinge is gradually worked to a point from both sides. Although most of them have been broken or injured by fire, there are some good specimens. A number of them do not appear to have been "worked" or used at all. The shells belong to the common species from the river a mile away (Olds 1965: 147).

Not listed as to species within Olds' report, the "common" molluscs could be any of the six species which were recovered from sites or along the River during this investigation.

METHODOLOGY

Prior to any field efforts outside of locating general property boundaries, we inspected the map files and site files at Texas Archeological Research Laboratory (TARL), Balcones Research Center, The University of Texas at Austin, to determine if any recorded sites were near or in the project area. We reviewed the files and made copies of survey forms for sites in the general area, finding none inside the proposed lake. No sites were found to be listed as State Archeological Landmarks, nor were any included within the National Register of Historic Places. A review of all site locations was useful to help us better understand the settlement pattern of the general area. We reviewed some of the more recent historical accounts of the Meridian area, and we interviewed several informants who were long-time area residents. Interviews and archival research would continue throughout the remainder of the project, but we now had sufficient data to begin work in the field.

The on-the-ground pedestrian survey was conducted by a three to five person team. The work was completed in units generally outlined by fencing, one field or pasture being completed before moving to the next. Each unit surveyed in this manner got better-than-average coverage because of the overlap which occurs along the fence row, and we found we saved wear and tear on fences and field equipment by crossing each fence only once. Walking closely spaced transects usually parallel to the longer fence, the team members kept within voice and visual contact. Spacing between transects was determined by cover and land use, closely spaced in pasture and along the stream course, with more separation in areas recently plowed, mowed or grazed. Whenever artifactual material was observed, that team members called out the occurrence, which was mapped. Distribution of material along each transect would later be used to establish the boundaries of the sites located during the investigation.

As we progressed through the survey, we found that each micro-environment required alteration of our techniques. On level or nearly level soil surfaces, dense short and medium grasses tended to obscure the ground, causing the team to slow or stall as we looked for cultural material. On higher slopes and in certain soil types, erosion is a problem, which made the ground more difficult to traverse, but provided better ground exposure. In areas where soils are subject to high shrink-swell, we carried our shovels to dig into the soil to locate artifacts.

When we found sufficient artifacts within an area to indicate the probability of a site (a locality which bears the physical remains of past human activity),

we would drop our packs or otherwise mark our transect, and concentrate our activities in a smaller area. Generally, this led to the recording of a site. Artifact collecting was very limited in scope, and in most instances, only enough material was recovered to date the site. Records were made on site worksheets, to be transferred later to survey forms required by the State of Texas. When the site was adequately recorded, the team returned to their equipment on the transect and the survey would resume. After the survey was completed, most of the sites were revisited; a few were visited several times.

Artifacts recovered during the survey were washed and cataloged with our temporary site numbers. Inventory of specimens was completed. Information gained from analysis of the specimens was integrated with other data on the survey forms to get a better understanding of the sites and their potential for yielding further information on the lifeway of the sites' inhabitants. The completed survey forms and key site file cards required by TARL were turned in, and permanent trinomial numbers were assigned to each site. Once we received the permanent numbers, the artifacts were re-processed, our temporary site numbers removed and the permanent numbers added in their place.

ARCHEOLOGICAL BACKGROUND

The discussion of the archeological background of the project area is divided into three sections. Of these, the first discusses current archeological dating methods using radiocarbon. The second reviews work done near the project area and includes sites discovered through individual efforts and professional investigations. The third section reviews cultural sequence and chronology. These and the following chapter on the local history are useful in describing the cultural manifestations which were found during the archeological survey, site inventory and assessment of proposed Lake Bosque.

DATING METHODS

Dating methods in archeology have their principal origins from within the domain of geology. Application of geological principles to interpret archeological sites initially resulted in relative dating through the use of stratigraphic separation, seriation, and cross-correlation (Michels 1973: 49-111). Chronometric dating is used to establish absolute dates which can be combined with data derived from relative dating to yield a more useful model of a cultural system changing through time. Chronometric data concerning the environment are often linked with these cultural models, resulting in a better understanding of the alteration of culture and the environment through time. Such models which link climatological and cultural data with absolute dates are archeologically important in learning about the human and cultural adaptive responses necessary to survive new constraints imposed by change. Such models have the potential for yielding important insights into the maintenance of the human species within a changing biosphere.

Chronometric dating is an integral part of any archeological investigation where datable materials might be found. Methods include dendrochronology (tree-ring dating), potassium-argon, thermoluminescence, obsidian-hydration, fisson-track dating and a host of others, including radiocarbon. Of these chronometric methods, radiocarbon has the widest application and is in most common use today.

Almost forty years have passed since Willard F. Libby announced the discovery of the carbon isotope with mass 14, better known today as radiocarbon, Carbon-14, C14, or preferred as most scientific, ^{14}C. His use of ^{14}C, the first nuclear species in nature known to be produced by cosmic radiation has irrevocably altered archeological field techniques and enhanced analyses of culture and associated processes. Libby, winner of a Nobel prize in

chemistry for his contributions in pioneering this technique, attributed the discovery of the radioisotope to Serge Korff. Korff found that,

> neutrons are produced when cosmic rays enter the earth's atmosphere. These particles, being uncharged, are very effective in causing transmutations in the nucleus of any atom with which they collide. Neutrons were found to have an intensity that corresponded to the generation of about two neutrons per second for each square centimeter of the earths's surface. Libby theorized that, upon entering the earth's atmosphere, they would react with nitrogen-14. The reaction produces a heavy isotope of carbon, carbon-14, which is radioactive. Knowing that there are about two neutrons formed per square centimeter per second, each of which forms a carbon-14 atom, and assuming that the cosmic rays have been bombarding the atmosphere for a very long time in terms of the lifetime of carbon-14 (carbon-14 has a half-life of 5730 years), Libby observed that a steady-state condition should have been established in which the rate of formation of carbon-14 would be equal to the rate at which it disappears to reform nitrogen-14 (Michels 1973: 149).

Including carbon dissolved in the oceans as well as the biosphere, Libby calculated that there should be 8.5 grams of carbon per square centimeter from which would be two ^{14}C atoms disintegrating every second. With this in hand, Libbey asserted that ^{14}C in living organisms ceased to be assimilated after death and began radioactive decay. Only one-half of the ^{14}C in the organism at death would remain after 5730 years. At the moment of decay of the radioisotope to nitrogen-14, a particle of beta radiation would be emitted. By counting the number of emissions per minute per gram, the age of the sample could be estimated, within standard deviations (Michels 1973: 150).

Over the years, field and laboratory techniques have been altered which have significantly increased the accuracy as well as the reliability of test results. The physical limitation of ^{14}C, once thought to date to < 40,000 years, has been extended by conventional means to 60,000 years (Geyh 1965) and to perhaps to 80,000 years through enrichment of the radiocarbon isotope (Erlenkeuser 1971), adequate to cover the spectrum of human presence in the New World. Radiocarbon should prove useful in dating the climatic history of the last 40,000 years, but not without limitations, for as Libby noted, especially concerning the dating of soils, "Much remains to be done in determining the rates of reactions of humus in soils and in marine organic sediments (1979: x)."

Radiocarbon dates are listed in years before the present (B.P.), with the present considered to be A.D. 1950, the year of the discovery of the dating potential of this isotope. The date A.D. 1950 should no longer be directly subtracted from the conventional ^{14}C age, because improvements in counting

instrumentation and sampling techniques have revealed that over the last 10,000 years, there have been variations of ^{14}C within CO_2 of as much as 10 percent, resulting in revisions of dates with corrections as large as a thousand years. Also discovered are short-term variations which can result in imprecise measurements during certain time ranges. Research into this aspect of radiocarbon seems to reflect short-term deviation of "normal" solar radiation and/or altered climatological events (Berger and Suess 1979: xii). Because most of the dates used in this report were published before these corrections became available, new dates reported in this investigation have been adjusted to allow for the inclusion of inorganic carbon which makes the sample appear older. The dates reported in this investigation have not been corrected to reflect the variation of radiocarbon in carbon dioxide; and should not be subtracted from 1950 to obtain A.D./B.C. dates.

A large number and variety of materials may be used for radiocarbon dating purposes. That preferred is charcoal, but wood, bone, shell, peat, paper, parchment, cloth, animal tissue, leaves, pollen, nuts, carbonaceous soils, etc. can also be dated by most modern laboratories. Recently, the dating of soil fractions by ^{14}C techniques has become popular, but its feasibility depends entirely on precision in interpretation and site description, requiring at the least, that one "take a texture sample of coarse-silt to clay from the relatively oldest chemical fraction out of the relatively oldest zone of the soil profile, still containing 0.2% to 0.3% organic carbon (Scharpenseel 1979: 277-283). The best method of evaluating the accuracy of dates derived from such different materials is though the use of paired materials, two or more material specimens recovered from essentially the same position. A useful assessment of matched pairs is offered by Sheppard and others(1979). They found useful correlations between many materials, with average standard deviations of about a century. The largest deviations were with humic acid-charcoal and shell-charcoal samples, with several of the former with deviations larger than 103 years, attributable to real differences in age, or less likely, the effect of hardwater, and errors in counting and calculation. Their final assessment was that "radiocarbon dating of soils is still a questionable practice, except when mean residence times are being determined (284). As regards shell-charcoal data, they found that the pairs,

> have a small but statistically significant deviation which suggests that some CO3 exchange has occurred and that the usual pre-treatment practice may be inadequate. The deviation is not large and shell dates may be useful for the radiocarbon dating of archaeological sites (Sheppard, Ali and Mehringer 1979: 284-305).

The use of shells, even those drawn from a marine context, to date land and sea level changes, has been demonstrated by Donner and Jungner (1979:

397-403), with special reference toward the careful selection of the appropriate species, noting considerable variation in dating between species, a variation related to the habitat of the species selected. Their findings also revealed that shell dates had good agreement with dates from organic lake deposits, but this work was done in Greenland, an environment deficient in carbonates.

In Texas, snail examined to determine the validity of dates derived from radiocarbon dating shells found in sites has been found to be inconsistent and of no archeological significance (Valastro1970: 631-632). Studies by Ambler(1970:266) using *Rangia cuneata*, a common mussel found in brackish waters along the Gulf coast, revealed a "good internal consistency,...shells in this particular locality can be used for dating, taking into account a correction for this amount of dead carbon. However, more work is necessary." Within Ambler's sample, *Rangia* shells dated from 100 to 400 years older than charcoal. Aten's further work in Trinity Bay Estuary (1975: 76-82), where charcoal is rare, but shells are abundant, used 13-paired samples, resulting in a corrected age through the use of a regression equation, with a standard deviation of 103 years, expressed as:

$$A_c = .995A_a - 225.41$$

where A_c = corrected age (based on predicted 14C activity if sample were wood charcoal)

A_a = apparent age (based on measure 14C activity of shell carbonate)

Aten (77) notes this equation is "applicable only to samples from upper reaches of Trinity Bay estuary and geochemically similar environments."

Shell is also abundant in the Lake Bosque area, the residue of food brought in by the inhabitants of sites. Proctor's work reveals that the environment from which they are derived is geochemically similar, with samples from five areas yielding total ion concentration of bicarbonate ranging from 56.3 to 68.6 percent(1969: 20). Further work should be oriented toward determining whether significant variability in dates exists between species as a result of different habitats and toward the determination of the difference between the apparent and corrected ages. Additional shell dating, linked with the dating of charcoal and sediments, could provide the key to understanding the distribution of sites through time, from microenvironments as disparate as the river channel and upland hilltops.

REGIONAL BACKGROUND

Perhaps the first archeological investigation reported in Bosque County is that by Frank E. Simmons, with George Anderson and Jacob Olsen, in the dry rockshelter known today as Brawley's Cave (41BQ20). From 1917-1919, a great amount of very rare material culture which had been preserved within the dry conditions of the shelter was unsystematically retrieved by the trio, reported in a manuscript by Simmons. A review of the artifacts by Olds reveals the site contains well developed Middle and Late Archaic components, followed by both foci of the Central Texas Aspect. Toyah Focus artifacts are more common than that of the Austin, with influences from north-central Texas and elsewhere (Olds 1965). The site was revisited in 1978 by Albert J. Redder. At the time of his visit, Redder found areas within the shelter which might remain undisturbed. He recommended additional investigation.

Albert J. Redder of Waco is the regional expert on prehistoric archeological resources in Bosque County. He has located and recorded the most sites, with the exception of this investigation, within the County. He has recorded another rockshelter, this one behind an intermittent waterfall, in the same general area of Brawley's Cave. This site, the Yellow Metate Shelter(41BQ70), is of unknown age, but Redder found an arrow point outside the shelter, resulting from an apparent use in the Late Prehistoric. In early 1978, Redder recorded a Native American burial just north of Comanche Crossing, about one-half mile northwest of Meridian, the county seat of Bosque. Found by Joe Cummings, the site was exposed in a spillway gully adjacent to an old dam. The burial was flexed, lying generally northeast-southwest, with the head to the southwest, apparently facing the northwest. It was associated with large chunks of charcoal, fist-sized fragments of limestone and mussel shell. Although little work was done to age or sex the skeleton, Redder's description of the jaw morphology points to the dental attrition normal on an individual over the age of forty-five years. Also in 1978, Redder reported on another site discovered along the southern boundary of Comanche Crossing Park. Recorded as the Dagley Site (41BQ71), this is a prehistoric one of Archaic age, with later historic material.

Redder also recorded sites in the area of Spivey Creek Crossing. Some of these were rockshelters known by their name and respective number, Horn's 1 (41BQ47), Horn's 2 (41BQ46), etc., for a total of ten rockshelters. Originally documented by Frank A. Watt, these sites contained, among others, stratified PaleoIndian deposits. These rockshelters, which overlook the Brazos River, yielded PaleoIndian materials including points and associated burials, with radiocarbon dating of charcoal, snail and mussel shell, and turtle bone

samples. Watt drew from the Horn Shelters, the Aycock Shelter (41BL28), in Bell County and the Clark Midden (41ML39), in McLennan County, to build his Radiocarbon Chronology of Sites in the Central Brazos Valley, adapted here and from Watt's notes as Table 1 (Watt 1978). Two additional sites (41BQ43 &41BQ44) were recorded nearby, on the property of Sleet Dorman, by students of a University of Texas field school conducted in 1973 by Dee Ann Story. Across the Brazos, Dee Ann's students recorded five more (41HI64-68) in Hill County. PaleoIndian materials--points including *Clovis, Plainview, Meserve* and *Angostura* types--were found to be associated with four of these seven sites.

The first systematic investigation of the cultural resources of Bosque County was conducted by Robert L. Stephenson in 1949, with the preliminary results of the archeological survey of the area to be inundated by Lake Whitney published by the River Basin Surveys of the Smithsonian Institution. Sixty-one prehistoric and historic sites were reported, with sixteen considered to be significant. One of these was the Blum Rockshelter in Hill County, where excavations were conducted in 1952 by E.B. Jelks (1953). The archeological investigations at Whitney Reservoir were reported by Stephenson in 1970.

Jelks conducted excavations at the Kyle site, a stratified Hill County rockshelter in 1959 and 1960. Here, Jelks divided the Central Texas Aspect into the Austin Focus, associated with *Scallorn* and *Granbury* arrowpoints and *Godley* dart points followed by the Toyah Focus, with *Perdiz* and *Clifton* arrowpoints (Jelks 1962).

Salvage archeology at Lake Waco in McLennan County in 1964 was undertaken at two sites by the Texas Archeological Salvage Project. The Baylor site contained a long series of occupations from PaleoIndian to NeoAmerican, of the Central Texas Aspect. The Britton site contained Late Archaic or transistional Archaic deposits of the Edwards Plateau Aspect, showing integration into the Austin Focus of the Central Texas Aspect (Story and Shafer 1965).

Other sites have been reported as a result of professional investigations by individuals for agencies of government. As part of the park development process of Texas Parks and Wildlife Department, George Kegley located the Bee Ledge Rockshelter(41BQ42) in 1972, while monitoring trail improvements in Meridian State Park. A small, shallow midden within the rockshelter produced a dart point, typed *Ensor*, and a *Scallorn* arrowpoint, indicators of occupation in the Late Archaic, followed by utilization in the Late Prehistoric or NeoAmerican period. The site was revisited and updated

LABORATORY	SITE & ASSOCIATION	APPROXIMATE AGE		
			1950	HISTORIC
SHELL	HORN: LAST OCCUPATION	520 ± 160		
UT 1974	HORN 2: FIRST *PERDIZ*	590 ± 60		
MAGNOLIA	CLARK: *PERDIZ*-BEAMER	680 ± 150		LATE PREHISTORIC (NEOAMERICAN)
			1000	
				TRANSISTIONAL ARCHAIC
			2000	
				LATE ARCHAIC
SHELL	HORN: BURIAL/SINKER	3000 ± 180	3000	
UT	HORN 2: FISHHOOK	3470 ± 160		MIDDLE ARCHAIC
SECONY	HORN: BURIAL	3830 ± 250	4000	
			5000	EARLY ARCHAIC
			6000	
			7000	
SHELL	HORN: Contact of Archaic with Paleoindian	7330 ± 300		
			8000	
			9000	
AG	HORN: *PLAINVIEW*	9290 ± 300		PALEOINDIAN
AG	HORN: *PLAINVIEW*	9500 ± 300		
UT	HORN 2: BURIALS & POINTS	9500 ± 200		
UT	HORN 2: SCRAPERS	9980 ± 370	10000	
AB	HORN: SCRAPERS	10800 ± 300		
MAGNOLIA	AYCOCK	11000+	11000	

Table 1. Radiocarbon Chronology of sites in the Central Brazos Valley

in early 1986 by Texas Parks and Wildlife Department archeologist, Ronald W. Ralph.

Construction on Highway 6 in Bosque County led to the discovery of two sites by Daymond Crawford, archeologist with the State Department of Highways and Public Transportation. Recorded in a pre-construction survey, the two sites were given trinomials 41BQ72 & 41BQ73, and are midden-like accumulations of stained soil, burned rock and flint flakes eroding from cuts along the present highway, on opposite sides of the Bosque River. Crawford recommended testing these sites of unknown age before they would be affected by construction in that area.

Site 41BQ75 was recorded by Christopher Jurgens, archeologist for the Texas Department of Water Resources, as part of the planning for the construction of additional treatment units at the Meridian Wastewater Treatment Plant. Jurgens located a hearth about 30 centimeters below the surface as well as two features, mussel shell concentrations exposed in the wall of a backhoe trench, one at 30 centimeters below the surface, the other, about 75 centimeters underground. Jurgens submitted a letter report concerning the site, thought to resemble the Baylor and Britton sites at Lake Waco, with recommendations for management to the Texas Historical Commission in late 1982.

Archeologists for the U.S. Army Corps of Engineers, Fort Worth District, recorded Site 41BQ76 and 41BQ77 as part of the investigations conducted on surplus lands at Lake Whitney, upstream from Kimball Bend. Robert Scott and Daphne Dervin located an open campsite associated with possible hearths, burned rock and chert flakes of Archaic age. Recorded as 41BQ76, the site may be a discrete component of nearby 41BQ77, a large open campsite associated with a burned rock midden containing mussel shell. Artifacts collected from 41BQ77 reveal Middle to Late Archaic components, reflected by *Marshall, Ellis* and *Frio* dart point types. Earlier work had been conducted on Corps of Engineer lands elsewhere at Lake Whitney by Skinner and others from Southern Methodist University in 1971-72, resulting in the recording of a dozen open campsites on ridges or terraces in the Cedron Creek area. These sites were recorded as 41BQ80 to 41BQ92, with recommendations for collecting and/or testing at five sites thought to contain *in-situ* cultural material.

The construction of a Soil Conservation Service floodwater retarding structure on Hog Creek, in Bosque and Coryell Counties, prompted a planning survey of the area generally affected by the project. James Warren, archeologist with the Soil Conservation Service, Temple, located eight sites in Bosque County which required further investigation. These sites, 41BQ57

through 41BQ64, were investigated by archeologists with the Archaeology Research Program, Southern Methodist University and reported by Larson, Peter, Kirby and Skinner (1975). Testing of the sites, including open campsites associated with a lithic scatter (41BQ58) or a midden (41BQ57 and 41BQ61), and rockshelters--41BQ62, 41BQ63, and 41BQ64, resulted in four being recommended for inclusion within the National Register of Historic Places. Analysis of lithic material revealed these sites were occupations during the NeoAmerican or Late Prehistoric period, indicated principally by *Perdiz* and *Scallorn* arrow points. Upstream in the project area, two more shelters and a historic site in Coryell County were also investigated, but not recommended for further investigation. These sites were listed in the National Register of Historic Places as the HOG CREEK ARCHEOLOGICAL DISTRICT, in 1977, a district with eighteen prehistoric sites and one historic site, some of which are located in Coryell County. Additional investigation in the same general area was conducted by Duane Peter of North Texas State University in the late spring of 1977, locating two rockshelters and an open site near the site of the proposed dam of the floodwater retarding structure. Given the trinomials 41BQ66, 41BQ67 and 41BQ68, none of these sites is included within the National Register district.

CULTURAL SEQUENCE AND CHRONOLOGY

Five stages of cultural development are proposed here, stages which are separated through the recognition of new artifact forms and types, altered subsistence strategies, differing technological approaches, changing environment and other indicators. These five stages are the ArchaeAmerican, PaleoIndian, Archaic, Late Prehistoric and Historic.

ARCHAEAMERICAN

This stage is named for the first cultures which inhabited the Americas. The importance of the stage lies in the temporal space it provides to accommodate discoveries of cultural material which is older than is presently considered acceptable for the PaleoIndian stage. It has, therefore, the longest time period of all the cultural stages, at least > 16,000 years, longer in years than all the following stages combined. What this stage is named is relatively unimportant. With minor variations, it is the same stage proposed by Alex D. Krieger (42), who points out that the stage is synonymous with these names used by others, including: Lower Lithic stage, Percussion stage, Protolithic, Paleolithic and Lower Paleolithic (1964: 23-81). Current appellations include Late Pleistocene, and Middle PaleoIndian period (Haynes 1969), and more popularly, the stage has been subsumed within the term, Early Man. In his article, "Early Man in the New World," Krieger remarked:

> Throughout this study, emphasis will be placed on what may be termed a "pre-projectile point" stage of culture, although a better name should be found for it. This is not only because many archeologists(in the United States, at least) find it difficult to believe that there is any general technological stage that precedes the appearance of the first projectile points, but especially because *the question of man's antiquity in the New World cannot be discussed intelligently until the presence or absence of such a stage can be settled.* The writer believes that such a stage does exist, represented by a surprising amount of material in both North and South America (1964: 26).

This writer concurs with Krieger, with reduced emphasis, however, on the presence or absence of projectile points as a determining factor for inclusion. While the majority of sites which fall within this stage do not contain projectile points recognizable either in form or type, most are placed here by virtue of radiocarbon dates, which at the time of Krieger's article, had been in usage for slightly more than a decade. Even then, Krieger was joining others who had proposed the existence of the stage. There are some who remain unconvinced. Michael Waters is skeptical of the majority of sites which fall within this time frame, 27,000 B.P to 11,500 B.P., and all those which purport to be older. Waters reviewed data from 36 sites throughout the Americas, 32 of them fall within this stage. In his opinion, none fulfill the minimum requirements necessary to conclusively demonstrate the presence of early man (Haynes 1969). These essential elements are [1] an artifact assemblage that is definitely man-made or the presence of human skeletal remains, with [2] this material, preferably in primary context and with clear relationships, lying within an undisturbed geological deposit, and [3] suitable for unambiguous determination of age. To Waters, the current evidence does not support the contention that the Americas were occupied prior to about 11,500 B.P. (1985: 125-137). Time will tell.

PALEOINDIAN

Several PaleoIndian sites are known within Bosque County. Generally, sites of this stage range in age from 11,500 to 8,000 B.P. Sites in Bosque County are in rock shelters (Horn Shelters Numbers 1 and 2) and open upland terraces. These sites were occupied during a climatological period which is thought to have been slightly cooler, more moist and less variable than today. Sites are generally recognized by the presence of carefully crafted, generally lanceolate projectile points of chert; types which have been found in Bosque County include *Clovis, Brazos Fishtail* (thought to be a *San Patrice* variant), *Folsom, Plainview, Meserve, Angostura,* and others. Watt and Redder excavated two burials from Horn Shelter Number 2, associated with a 14C date of 9500 ± 200. Excavations of faunal material from sites such as

the Horns Shelters reveal that these peoples exploited a wide range of the available foodstuffs--PaleoIndians are no longer considered to be restricted to a hunting economy based on the late Pleistocene megafauna that became extinct during this period. Krieger thought an important adaptation at the end of this period was enough to define what he called the Protoarchaic, a period when rotary grinding, or milling stones document shifting of exploitation strategies away from hunting the dwindling populations of megafauna to one of collecting and processing plant foods (1964: 32-34).

ARCHAIC

This stage begins about 8,000 B.P. and extends to about 1,200 B.P. The Archaic stage is divided into four sequential time periods which reflect ever-increasing cultural adaptation oriented toward exploitation of regional environments. These four time periods, Early, Middle, Late and Transistional Archaic, were initially proposed for the Edwards Plateau Aspect by Johnson, Suhm and Tunnell after they had conducted salvage archeology at Canyon Reservoir (1962). Five additional divisions based on projectile point groupings have been suggested by Weir (1976), further subdivided into eleven phases by Prewitt (1981). As pointed out by Young, Weir's chronology is more applicable in southern Central Texas, Prewitt's in central and north-central Texas (1987:18).

The Early Archaic lasts from about 8,000 B.P. to about 4,300 B.P. and is recognized through the identification of projectile points. Some points still retain their lanceolate forms of the previous period and overlap with types found in the late PaleoIndian stage, but in the Early Archaic, the trend for slightly smaller points--most with stems--is set. Among those hanging on are *Angostura, Golondrina, Meserve* and *Scottsbluff. Hoxie, Gower* and *Wells,* followed by *Bell* or *Andice, Martindale* and *Uvalde* are the dart points common to this period (Turner and Hester 1985:50). Considerable diversification in tool forms and types takes place in the Early Archaic. Elsewhere, but uncommon in Bosque County, burned rock middens are a typical feature of the period, reaching a zenith by the Middle Archaic.

The Middle Archaic period lasts from about 4,300 B.P. to about 3,000 B.P Represented by *Nolan, Travis, Bulverde, Pedernales, Marshall, Williams* and *Lange,* These points are often found at sites associated with burned rock middens in Central and South Texas, but burned rock middens are never common in the Meridian area. Watt reported Middle Archaic deposits at Horn Shelters 1 and 2, which included a burial, *Pedernales* points, and bone fishhooks (See Table 1).

The Late Archaic extends in time from about 3,000 B.P. to about 2,300 B.P. Common projectile points associated with this stage include side and corner notched types, including *Marcos, Montell, Castroville Frio, Fairland, Ensor, Elam* and *Ellis*. Mussel shells are common at these sites, distributed throughout or concentrated into features. Both Skinner and Prewitt (Prykryl and Jackson 1985:23) hypothesize a population peak at the end of this period, a peak which seems consistent with the population of prehistoric sites in the Bosque County area (Biesaart and others 1985:113).

The Transitional Archaic, also called terminal Archaic, dates from about 2,300 B.P. to about 1,250 B.P. The *Darl* (or as Prewitt prefers *Mahomet*), *Godley, Ellis* and perhaps, *Ensor* are the common dart points of this period. Two sites which contain well developed transitional Archaic deposits are the Baylor and Britton Sites excavated at Lake Waco in 1964 by Story and Shafer (1965) of the Texas Archeological Salvage Project.

LATE PREHISTORIC

This is the cultural stage which is also called NeoAmerican. This stage represents a shift away from the use of the spear thrower and dart to the use of the bow and arrow and the manufacture of arrowpoints. Jelks' work at the stratified Kyle site revealed the presence of *Scallorn* and *Granbury* arrowpoints overlain by *Perdiz* and *Clifton* points--the Austin and Toyah Foci. In addition to arrow points, included within this cultural stage is the introduction of pottery, which appears in sites in the Brazos Valley through affiliation with Caddoan sites in northeast Texas. In the Bosque area, an Archaic lifeway continued despite the northeastern agriculturally-based settlements. Pottery is a fairly rare occurrence in Bosque County; a sherd was recovered from Brawley's Cave and identified by Olds (1965) as similar to ceramics known to occur along the Leon River.

HISTORIC

Historic tribes in the general area of the project includes the Southern Comanche as described by Marcy (1856: 36), as well as *Jenies* and *An-dak-has*, governed by Jose Maria, the chief that led "Bryant's Defeat" (See page 36). Marcy also recorded Caddoes, Wacoes, Towakonis, and Wichitas in the general area, with Delaware and Kickapoos to the northeast. Kichai, Waco and Tawokoni made a Treaty with Terrell and Smith at Torreys' Trading House near Waco in 1845 (Webb 1952 II: 790-791). More information concerning historic natives may be found in the next section, History.

HISTORY

The history of our research area, the valley formed by the confluence of the North and East Bosque Rivers, began in 1685 with the earliest French exploration of the area we now know as Texas. After years of exploration in the northeast for Louis XIV, Rene Robert Cavelier, Sieur de la Salle, sailed down the Mississippi to its mouth in 1682. Claiming the river and its tributaries for France, he returned home to gain support for a French settlement at the mouth of the Mississippi. On his expedition back to the New World, the three ships with more than 200 persons aboard inadvertently missed the Mississippi to land in Texas on the first day of January, 1685. Finally reaching Matagorda Bay, the expedition lost a ship at the entrance of the bay in Caballo Pass. Another ship was lost a few months later, and as one ship had already sailed for France, the settlement was stranded.

La Salle was actively exploring the area during the period of initial settlement, taking an expedition as far west as the Rio Grande to encourage native support for France and to discover the locations of any Spanish outposts which might be there. His second expedition was to the northeast, to find the location of the Mississippi, so with twenty men, La Salle set out in April, 1686. They crossed the Colorado and the Brazos to the Trinity and Neches, where the expedition stalled. After several months of hardship, eight of the original party returned to the settlement near Matagorda Bay (Webb 1952 II: 31-32).

Before he was murdered by his men on a later expedition searching for the Mississippi, La Salle had recorded some of his travels in journals. These journals indicate that the river today named the Brazos may have been the one called *Tokonohono* by the Caddoan speakers of north-central and northeast Texas. La Salle, it is thought, gave the name *Maligne* to the Brazos. As the Caddos and the French must have known, the assignation of names goes to those who remain.

The name *Brazos* was probably first used for the Colorado River and *Colorado* for the Brazos River. In 1716, a Spanish cleric may have called the Brazos, La Trinidad. The name, Brazos, comes from *Brazos de Dios,* Spanish for "arms of God." Irrespective of which legend concerning the River's naming one prefers, all end with its discoverers or those in need of water not perishing, but being saved by this reliable source of water, when all the rest have failed (Webb 1952 I: 211-212).

With the beginning of Spanish hegemony came more exploration. Domingo Cabello, appointed Spanish Governor of Texas in 1778, sent an expedition to

explore and map the precise locations of the mouths of the Brazos and Colorado Rivers in April, 1779 (John 1975: 551-52). A few years later, the alienation of these native lands had begun. In 1786, Cabello took advantage of old animosities and turned the Tonkawas, with a war party of Tawakonis, Iscanis and Flechazos, against the Lipans. The result was the expulsion of the Lipans from between the Colorado and Brazos Rivers to the Nueces (John 1975: 699-700).

The first permanent settlement on the Brazos was an Anglo-American one made by John McFarland at the Atascosito Crossing of the Brazos (Webb 1952 I: 211-212), 180 meandering river miles from the Gulf. Called San Felipe de Austin, it became the capital of colonial Texas. As written by Stephen Austin's cousin, Mary Austin Holley:

> The site of this town is exceedingly beautiful. It is a high prairie bluff which strikes the river, at the upper or northern limit of the level region, about forty feet above the level of the stream: an elevation which is unusual in this section. It is the residence of Gen. Austin. The State and municipal officers of the jurisdiction hold their offices here; and this was the capital designated for Texas, when its separation from Coahuila and its reception as an independent State of the Mexican confederacy, should take place. Here, likewise, all the land and judicial business of the colony is transacted. It contains several stores, and present altogether the appearance of a busy and pleasant little village (Holley 1836: 109-110).

Few readers of *Texas* will disagree, Mary Austin Holley's favorite river was the Brazos. She was captivated with the river's changing environments, especially its ability to change from salt to fresh, from red to brown:

> In its course, it receives the waters of many tributary streams, and itself irrigates a region unsurpassed either for the beauty of its scenery, the fertility of its soil, or the salubrity of its climate...The most peculiar feature of the Brazos is found in its westernmost branch, which takes its source in an extensive salt region...The freshet produced in the Brazos by the rise of the Salt Branch, renders the whole river, for a while, brackish; and its waters deposit a fine red clay, as slippery as soap and as sticky as putty, and retaining its saltness, as does the water also, until an inundation from the fresh branches washes it away or covers it up, when the river becomes fresh and potable and continues so until another rise in the Salt Branch (1836: 30-31).

She had visited Texas in the fall of 1831, to gather material for a book and to inspect a league of land, 4,428 acres, which Austin had offered her on the condition she came to claim it. She had sailed from New Orleans to the Brazos Valley, where she attributed the Salt Branch as being the reason:

> that the land of the Brazos has a fertility so truly extraordinary. The freshets of the other branches are much more copius and frequent than those of the Salt Branch. They all rise and flow through very rich land, and their waters go toward the sea charged with fine loam and clay washed into them by the floods. The alternate deposits by these salt and fresh tributaries in time of freshets, form a soil of a light reddish-brown color, slightly impregnated with salt and nitre which it is well known are potent manures. This bright *mulatto* soil as it is called, formed in this manner, is considered the best land in Texas. The whole valley of the Brazos is mostly of this description. On the surface of this alluvion a blackish mould is formed by the decomposition of vegetable matter. The soil, properly speaking, possessing the power of vegetation in all its vigor, extends to an unlimited depth. When brought to the surface from a depth of twenty feet, it will produce as good crops as the surface itself. Where this mulatto soil is found the banks of the rivers and smaller streams are clothed with heavy timber (1836: 49).

One of these freshets heavily clothed with timber was shown on the map included in Holley's book. It is located in the north-central portion of the state, in a green patch marked "Austin and Williams Grant." The river, named by the Spanish for the heavy timber along the stream, is marked, *R*(io) *Bosque.*

The Austin and Williams Grant was one between Stephen F. Austin and his secretary, Samuel M. Williams. It was to settle eight hundred families in western Texas. Their grant was wrested away from Sterling C. Robertson and the Nashville Company during the period that Holley was writing her book.

Sterling C. Robertson came to Texas after organizing a Texas Association which was later called the Nashville Company. Felix Robertson, Sterling's cousin, and Sam Houston were original members of this group. Mexico gave the company a grant in 1825 to settle eight hundred families within six years in the Brazos River Basin, northwest of the grant of Stephen F. Austin. Robertson had settled many families in the area, when the Law of April 6, 1830 halted colonization. Austin's and the Nashville Company's grant were adjoining. Thinking that colonization by the Nashville Company was stopped by law, Austin and Williams secured a contract to the land in the Nashville Company grant. Robertson traveled to Saltillo to plead his case before Mexican authorities. In 1834, the Governor ruled in the favor of Robertson when it was determined that more than one hundred families had been settled by Robertson prior to the enactment of the Law of April 6, 1830. Robertson was made empresario, and his grant became known as the Robertson Colony.

When he was not fulfilling public obligations, Robertson devoted the rest of his life toward establishing the validity of his land claims. He represented the Milam District in the First Congress of the Republic. In 1837, the Texas Congress authorized Robertson to institute judicial proceedings to clarify the claims of the colonists as well as Robertson's claim as empresario. Robertson's claims were finally validated in 1847, more than five years after his death in Nashville, once county seat of Milam County (Webb 1952 I: 488-489).

When Milam County was created in 1836, it comprised one-sixth of Texas' land area (Webb 1952 II: 192). During its heydey, Nashville, or Nashville-on-the-Brazos, as some called it, was home to about 75 families living in cabins of rough or hewn logs. Records of the General Land Office of the Republic as late as 1838 reflect the vague status of the Robertson Colony. The GLO of the Republic published an abstract of Original Titles of Record in that year which included, "A List of Titles issued by William H. Steel, in Robertson, or Austin and Williams' Colony. 1834 & 1835." There are 276 separate grantee listings, which, because some individuals are listed more than once, represent a smaller number of people. One property granted to John Tucker on July 30, 1835 consisted of 25 labors (a labor of land is 177.1 acres) or 4427.5 acres of land. This grant was situated, "W. of Bosque Creek, W. of the Brazos, crosses Bosque repeatedly (1838:168).

Tucker apparently settled his 1835 grant because he was listed by Wilbarger as one who later survived "Bryant's Defeat," an encounter that followed "Morgan's Massacre." The Morgan massacre took place near present-day Morgan's Point. On the first day of January, 1839, several members of the Marlin, Jones and Morgan family were attacked at their homesite, tomahawked, scalped, and after the house was ransacked, were left for dead. A couple of weeks later, the attackers were chased by Captain Benjamin Bryant, with almost 50 men. When the natives, under the leadership of Jose Maria, countered Bryant's charge, the Texans retreated, losing ten men in the onslaught, with another five wounded. Wilbarger noted:

> The Indians lost about as many in this affair as the Texans although the latter were driven from the field. They were greatly elated by their double victory in that neighborhood, and became more daring than ever until checked by a signal defeat near Little River, known as "Bird's Victory (1889: 361-367)."

A battalion of rangers had been raised in Milam County in the fall of 1836 under the leadership of Captain Thomas H. Barron, assisted by Lieutenants Charles Curtis, David W. Campbell and George B. Erath. Erath was promoted to command a second company of rangers in 1839. Captain Erath's staff

officers were Richard Ellis, Neil McLennan, William F. Thompson and James Shaw (BCHBC 1986:5). Their main function was the expulsion of the remaining indigines.

Early in the winter of 1839, Erath led a small group of rangers to the headwaters of the Bosque searching for signs of Indians. On their return trip, between present Clifton and Valley Mills, Jacob De Cordova wrote:

> when they reached that noble stream the Bosque, the soldiers being struck with the beauty of the country, soon forgot their military character and in right good earnest turned in to take up lands. These were the first locations made on the Bosque and so valuable were these lands that the party did not leave off surveying until they were forced to do so by famine (BCHBC 1986:6).

Obviously, De Cordova did not know about John Tucker's 25-labor grant recorded four years earlier. Tucker last shows up in the 1850 Census for Robertson County, listed as being 57-years old and from North Carolina. The field notes from De Cordova's journal indicate the surveyors were along this part of the Bosque River from about the 19th through the 22nd of November, 1839.

Shortly after Erath's expedition to the Bosque, a visitor to Austin from Santa Fe, New Mexico, was called on by President Lamar to act as a Commissioner to assist in opening trade. Lamar was hoping to capture a portion of the Santa Fe trade, for Texas needed to expand and open trading opportunities. Lamar failed to get Congressional approval, so under his own initiative, he proposed a trading expedition to Santa Fe. On June 19, 1841, a party of 321 with twenty-one ox drawn wagons with merchandise worth $200,000 left Kenney's Fort on Brushy Creek, in present-day Round Rock, Williamson County, Texas (Webb 1952 II: 729).

The expedition, known as the Santa Fe Pioneers, traveled in a generally north direction. When they were between the South and Middle Bosque Rivers, they saw their first antelope. The expedition crossed the main Bosque, entered what is now Bosque County well east of Valley Mills, and continued northward, crossing Steele Creek about six miles east of Morgan, or about twelve miles east of the project area (BCHBC 1986: 5). The pioneers mistook the Wichita for the Red River. By the time they realized their error, and sent out search parties for the Red, they began to suffer from inadequate provisioning and Indian harrassment. Treachery and lack of water resulted in the expedition surrendering to New Mexican authorities without firing a shot. Most of the survivors, after a march to Mexico City and a stint in Mexican prisons, returned to Texas by the middle of spring, 1842.

The establishment of frontier defenses like those at Fort Graham in 1847 and Fort Gates in early 1849 provided the security necessary for the first families to colonize the area of Bosque County. John W. McKissick built a log house near Steele Creek in 1847, and two years later, returned with his family to settle. About the same time, Ewell Everett and Albert Barton, both with their families, settled and James Frazier began his homestead, but left it for two years, then returned with his family (BCHBC 1986: 5-8).

On February 4, 1854, Bosque County was created from the McClennan territory by an act of the state legislature. A group of men assembled on June 27 that same year in a grove of post oak east of the Bosque River. Close to Meridian Creek, the source of which lies on the ninety-eighth meridian and Meridian Knobs, the future town was named Meridian (Tarpley 1980: 136).

An important source of information concerning the project area comes from one of the earliest settlers in that region, if not the first, James Buckner Barry. On his trip to Texas, Buck, as he was known, got involved in a con game, resulting in his purchase of a watch case for four dollars. He and a group of sailors went to get their money back:

> We walked in. Some of them went straight to the back door and locked it and others at the same time locked the front door. That is, they locked themselves, the auctioneer and me all in together. The spokesman told them to give back the money or he would shed their blood. Some took the money, some paid four dollars more and took good watches. I, for one, took a good watch, brought it to Texas and traded it for the land on the forks of the Bosque, where my farm is now located (Greer 1978:15).

Buck kept a diary of his activities, and because of this record he has left, serves as our local informant about the area in the 1850's. He visited his land on the December 16, 1855, his birthday:

> Sunday, my birthday. 34 years old. Rode out in the forks of the Bosque to look at my land and the mountains. Very few settlers on the Bosque. Stoped all night Meridian with Sqr. that married Widow Maybury(Barry).

Barry stayed on the Brazos until he sold the Brazos property in October, 1856. Barry's wife had slaves and he hired two of them out during the first days of January 1855, Ann to Robert Leetch for forty dollars and Mary to Mr. Snodgrass for twenty-four dollars, taking their personal notes. He hunted and shot domestic and feral hogs, which he sold for five cents a pound. He would haul up logs and burn them, then haul the ashes, make soap and sell it. He kept a cavayard, or remuda, of horses, and had a team of

oxen. He raised cattle. He hunted for food, for hides and sport. While on the Brazos, in addition to hogs, he shot deer, turkeys, antelope, ducks, raccoons, and squirrels. He wore buckskin pants and a coat, which he had cut out and made. He went horse hunting or to look for lost livestock and hog and deer hunting, often setting the prairie on fire to get the game moving, thinking nothing of killing five deer or hogs in one day. For crops, he put in potatoes, wheat, peas, corn. His neighbors grew peaches and melons (Barry).

In October 1856, Barry hunted for his bull, but never found him. He gathered the rest of his stock and started for his property at the forks of the Bosque. After he arrived, he built one cabin and bought a house from Mr. Roberson, moved to his property for a horse and fifteen dollars. While he did not consider himself a rancher, Barry once branded thirty colts, and a few days later, he and another branded fifty-three calves. His stock were broke to work and to saddle, and Barry was astride a horse almost every day. Fencing was a big concern and:

> during these earlier years was limited to pens and small pastures for both cattle and horses. Sometimes all hands would turn to and fencing would occupy our time for several days. These fences were made of rails although we sometimes simply used rocks and brush. The rail fences were of rails secured from cedar brakes and other timber along the creeks and even on the mountains. Ordinary rail fences were usually deemed sufficient for cow pens, a horse pasture and the fields, but we had to supplement the rails with planks for our vegetable gardens to keep the rabbits out (Greer 1978: 74-75).

When the ground was moist, Barry found it tillable with his team of oxen. He kept several plows going at once, because as the season progressed and the ground dried, the soil would harden until finally, plowing was abandoned. In the early spring, peach trees would be set out, the corn planted, and oats sowed. Irish potatoes were a favorite. In early fall, a turnip patch would be sowed, followed by wheat in October with rye for the chickens. Like the crops, the Barry family grew and prospered:

> After some two years in log cabins on my Bosque farm, I had a more suitable house built by a very good carpenter, named Short. I was now the father of four children, three of them living, and needed more room. My wife and myself owned a few negroes and they had increased three or four and another cabin was built for them. One of my wife negroes, Soph, had five children. My new house was built of the same materials as the old--logs, but Short did a better job of it. There were two rooms sixteen feet square with a ten foot passage between and a piazza running the full length of one side. To this was added a lean-to room and others could be added as needed. Small windows were provided but there were no panes for two or three years. Nor was this additional house too much room as preachers, travelers, and neighbors sometimes stopped over-

> night with us. On one rainy Sunday night, some twelve persons stayed with us, five of them being ladies. I paid Short eighty dollars in trade for building the house (Greer 1978: 78-79).

Game was there for the taking. Barry listed "bear, panthers, deer, otter, wolves, cats, some buffalo, antelope, turkeys, prairie chickens, ducks, geese and birds too numerous to mention. We seldom wanted for game to eat during several years when the population remained sparse (Greer 1978:8) He found that deer and turkey were not difficult to kill, but that they soon became wary and avoided humans. Describing the hunting to the northeast of his homestead, Barry noted:

> Game was so plentiful that we did not consider the question of sportsmanship, in the latter sense, in methods of killing, if we needed fresh meat for our families and our help. On the East Bosque, one day, I shot several ducks, one pot shot yielding several. Another day I got five ducks at one shot and pot shot fifteen birds at a shot....I had gone up the East Bosque one day to hunt horses. Passing alongside the creek, I saw and killed an otter, several coons, a couple of turkey, and a deer. This was little sport, but I came to a flock of gobblers where there was some open ground and I enjoyed a chase on my pony after one of them. I ran him down and then shot him with my pistol (Greer 1978:86-87).

Buck's luck ran with the seasons. One January, when the weather was cold, several hundred cattle had frozen on the range. By then, bread was already scarce. Food was needed and it came in the form of four turkeys he brought home from a hunting expedition with several men north of Iredell. They had killed twenty-four. He killed a couple of antelope and some other game, and this held the family until the crops came in that season. With the coming of summer and the lower water levels in the Bosque, came fishing. It was a sport, but one which served a real purpose in supplanting their normal food sources:

> I went on one fishing spree in the North Bosque and caught over one hundred by seining with wagon sheets sewn together. We could not "round-up"in the water as with regular seins, but "drug out" on the banks. Most of the fish would thus escape us, but we caught plenty of good-sized ones. Fish frys were held at intervals during the summer, and we always had one on the fourth of July as a part of a holiday festival and celebration (Greer 1978: 88).

Another perspective about life and the rate of development in Bosque County as compared to the rest of the State can be gained from the first Texas Almanac, published by Willard Richardson in January 1857. There was one post office in Bosque County, at the county seat, Meridian (31) Bosque County was listed as containing 16,446 acres of land valued at $26,580.00 ($1.62 per acre), and town lots with a value of $1240. Thirty-

four slaves were valued at $17,580.00 or an average of about $517 per slave (52). There were 361 horses valued at $13,760.00, slightly more than $38.00 per head. Cattle numbered 1402, worth $10,740.00, an average of $7.66 per animal. Local banks had $1,100. deposited at interest, with $370. worth of merchandise on hand in local stores (58). In 1857, Bosque County had the lowest taxes in Texas, with miscellaneous property valued at $3113., and an aggregate of taxable property worth $74,483. Of taxes collected, the poll tax was $28.50, the state tax, $112.27, with county taxes totaling $143.12 (Richardson 1857:63).

The coming of the Civil War disrupted the local economy for about a decade. People who had fought alongside one another to win Texas' independence and then defended the State through the days of the Republic and the early days of annexation found themselves at odds over the issue of slavery. Threatened with severe punishment, including death, settlers either swore allegiance to the Confederacy, packed their belongings and left their homesteads, or simply disappeared, only to return after the resolution of the conflict.

Some went to war and never returned, like Alison Nelson, an ex-mayor of Atlanta, Georgia who had purchased land near Meridian in 1856. Nelson was a graduate of the United States Military Academy, but resigned his commission to be a lawyer. He served as Mayor of Atlanta in 1844, after being admitted to the bar and was a member of the Georgia legislature in the early 1850's. Between 1855 and 1858, he served as an Indian Agent under Lawrence Sullivan Ross. Nelson was elected to the Texas legislature in 1860 and the Secession Convention in 1861. He organized a regiment of Confederate infantry, the 10th Texas, and, as a commanding officer, was killed with some of them on October 7, 1862. He was buried in Little Rock, Arkansas, the whereabouts of his grave, unknown (Webb 1952 II:269). Some who were in the War hardly felt its passage, like Buck Barry:

> I served all during the war and never saw a Yankee soldier except three hundred prisoners who were sent to Camp Cooper on the Clear Fork of the Brazos, so that we could feed them cheap on Buffalo meat, until they were exchanged (Greer 1978: 227).

With almost no military conflicts in this part of the State during the Civil War, local attention was focused on dealing with the increase of raids by local Indian groups. Aware that troops were concentrated elsewhere, the Comanches were particularly troublesome. The coming of the end of the War did not reduce native incursions on settlers. From 1864 to 1867, raids by Comanches became commonplace, and included a raid on Buck Barry:

> The spring of 1867 saw the beginning of raids by the Comanches, repeated at every full moon, throughout the summer. In one of these raids they came into Bosque County and stole from me, in day time, thirty-seven head of horses and one strawberry roan stallion. I had turned the horses on the open range, feeling somewhat secure, as no raids had come quite to my vicinity, but the marauders stole past the settlements of the frontier line and raided a portion of my stock. Of course they knew from old experience the physical contours of the country and took advantage of mother nature in getting a good start on their way out (Greer 1978: 207).

Not all experiences with the natives were unfriendly. Tonkawas built their camp on the bank of Steel's Creek in 1865, in front of the house of Ed Nichols (near the town of Morgan). Nichols notes that their "wigwams" were made of cedar poles set in a large circle with the small ends coming together at the top, covered with hide, with an opening on the south side covered with a flap of hide. Bedding was made of prairie grass which was cut and put on the ground. The Tonkawas would assist in tracking the horses stolen by Comanche raiding parties. Apparently, the Tonkawas were camped at Steel's Creek for protection; they stayed there until after the Comanche raids had ceased. Nichols saw the last raiding party of Comanches in 1869 (Cutbirth 1943: 16-17). With the fear of the Indians fading, there was still much civil unrest in the 1870's, brought on by bitterness and reaction to Reconstruction. Vigilante committees were formed by local citizens in Iredell to deal with the lawlessness. South of town, three men were hanged for killing Ame Smith, then, they were buried in unmarked graves (BHBC 1986: 52).

Years later, Nichols noticed that the Santa Fe railroad bridge, built in 1882, crossed Steel's Creek within fifty yards of where the Tonkawas had camped when he was a child (1943:65). Nichols went to school with children who lived along the North Bosque. One year, he went to school in Iredell and boarded with the Loader family. With their son, George, he would go hunting along the River with a flintlock. If they killed a duck or rabbit, they often cooked it on the spot (1943:46-47). Other times, he went to school in Meridian:

> Most of the scholars came from one to three miles up and down the Bosque River to school. Several lived close together--the Hanna, the Gandy, the Gary, the Denis and the Lomax families. Their children walked to school together... I often noticed that Richard Lomax and his red-haired sister Mollie were in the lead. Sometimes their littler brother Johnny (John A. Lomax) came along to spend the day. He was a pretty, fat little fellow four or five years old, and I can see him now as he ran along by their side...On these days when Johnny came to school, the pupils studied something like half the time and watched him the other half. The little rascal was full of mischief (1943: 57).

As a child of four or five, Lomax became interested in the songs which cowboys sang, mostly to restless cattle, and began to write them down. At the age of 28, he attended the University of Texas, showed his collection of songs to a professor of English who declared them unworthy. Lomax burned his cowboy songs that evening. Years later, now a graduate student at Harvard University, Lomax showed a new collection of songs to two professors, who helped him secure three successive fellowships. He traveled to find his songs, writing down the words or making recordings. Lomax published *Cowboy Songs and Other Frontier Ballads* in 1910, with a preface by Theodore Roosevelt. It was the first collection of American folk music, and, the first with the music published with the words (Kamins 1987:40-44).

In 1878, Ed Nichols stretched the first barbed-wire in Bosque County, the same year he claims that Sam Bass and his gang stopped at the Nichols' house for provisions, with each member of the gang tossing him a silver dollar, then riding away(29-30). He thought the coming of the Texas Central Railroad in 1880 had a profound impact on prevailing economics. Greeted by merchants and townspeople, the railroad brought in settlers who bought land, then fenced their fields. Ranchmen began moving farther west to find range for grazing; most horse raisers had left the county by 1883 (Cutbirth 1943:98).

Buck Barry is buried in a family cemetery above the confluence of the East Bosque and North Bosque Rivers, a place which overlooks his beloved valley at the Forks, a few miles west of Walnut Springs, on RM 927. We went to Morgan, Texas, just northeast of Meridian to find Ruby Nichols Cutbirth, Ed Nichols' daughter and biographer of *Ed Nichols Rode a Horse*. We visited the town cemetery just south of Morgan. Here we located the graves of the Nichols family--Ed's parents and siblings and wife were there. Ed was found buried next to his wife, and on his opposite side, his daughter Ruby and her husband. As part of our search for the lineal descendants of the Nichols family in Morgan, we located Mr. Harris. Sterling Harris of Morgan, born in, and a 76-year resident of, Bosque County, knew Ed Nichols (personal communication: 1987). He gave us directions to the old homestead where the Nichols' house still stands. Mr. Harris recalled that Mrs. Nichols ran a dry-goods store in Morgan. Nichols, he said, smoked a big, curved pipe and, "could tell a story that would raise the hair on your neck." Nichols also saw the area transformed from the open range of his childhood, divided into parcels, to look much as it does today.

We inquired about Ruby Nichols Cutbirth. Mr. Harris told us there were no Nichols-Cutbirth heirs. We thanked him for his assistance and shook his hand, a hand that had shaken Ed Nichols', who had shaken Buck Barry's,

whose hands had wrested this land from the Natives, then protected his holdings from encroachment by Comanches and others. As we bid goodbye to the community of Morgan and Mr. Harris, we felt a sense of loss, associated with the realization that another local storyteller had related her last tale and because our investigation of the recent history had come to a close.

Throughout the County, the role of individuals and groups and their contribution to local history is recognized and retained as an important aspect of community life. The contributions of Norwegian immigrants is manifest in two National Register Districts: the NORWEGIAN SETTLEMENT OF BOSQUE COUNTY, which contains 32 historic sites, with 14 contributing structures inside of a 2,900 acre rural historic district and the UPPER SETTLEMENT RURAL HISTORIC DISTRICT, with 13 farm structures and Old St. Olaf's Lutheran Church (Robinson, 1984). Many of the families who owned or settled this property have been registered by the Texas Department of Agriculture as part of TEXAS' FAMILY LAND HERITAGE, properties which have remained in family ownership and operation for 100 years, or more (Texas Department of Agriculture: 1974-1984).

Other National Register properties in Meridian include the Bosque County Courthouse, the Bosque County Jail and the First National Bank Building. A remarkable double-octagon pise', or pied-a-terre, dwelling is located less than two miles southwest of Meridian, and listed in the National Register as the Bridges-Johnson House.

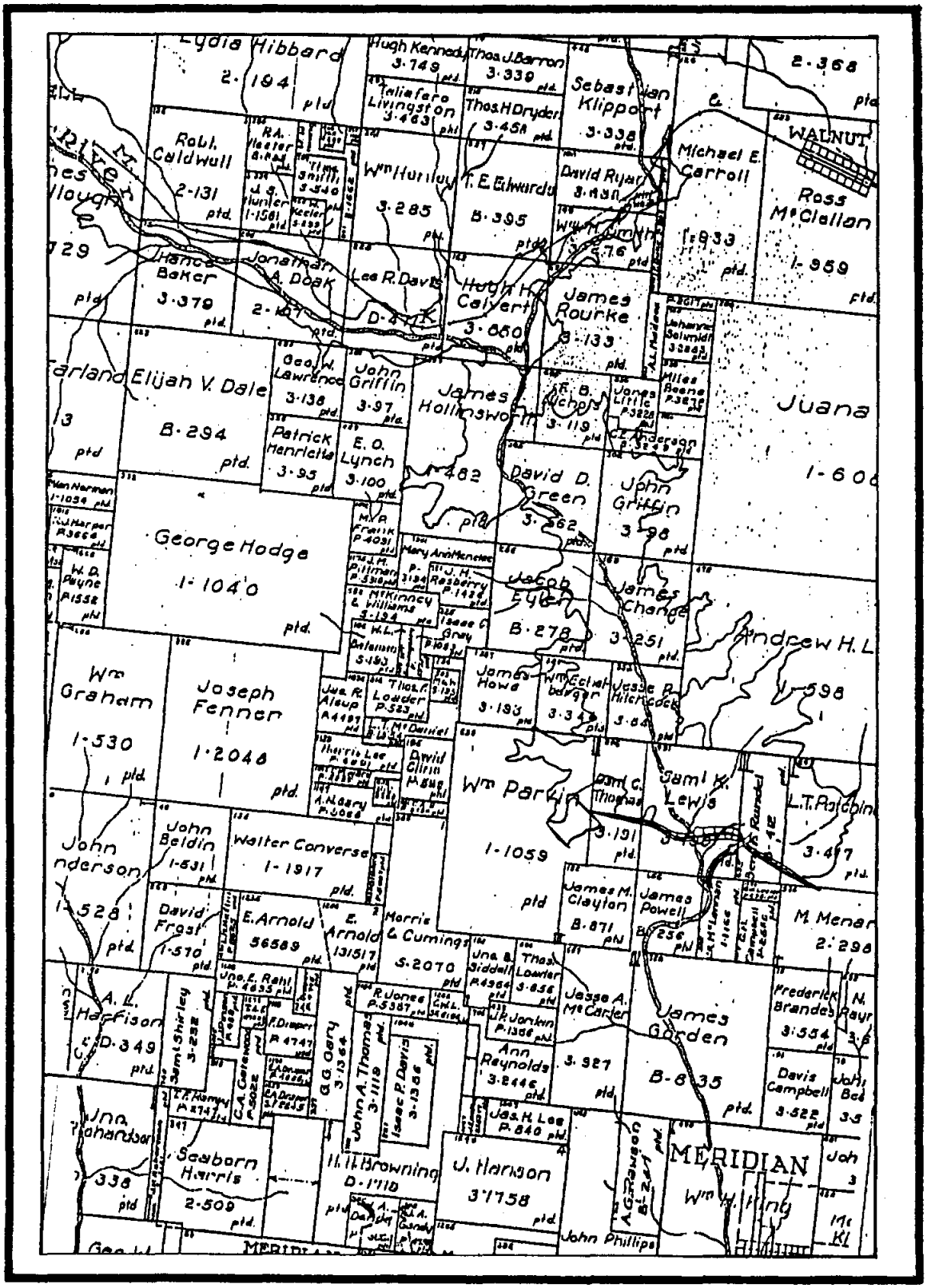

Figure 2. Map of Bosque Dam and Reservoir, showing original land grants

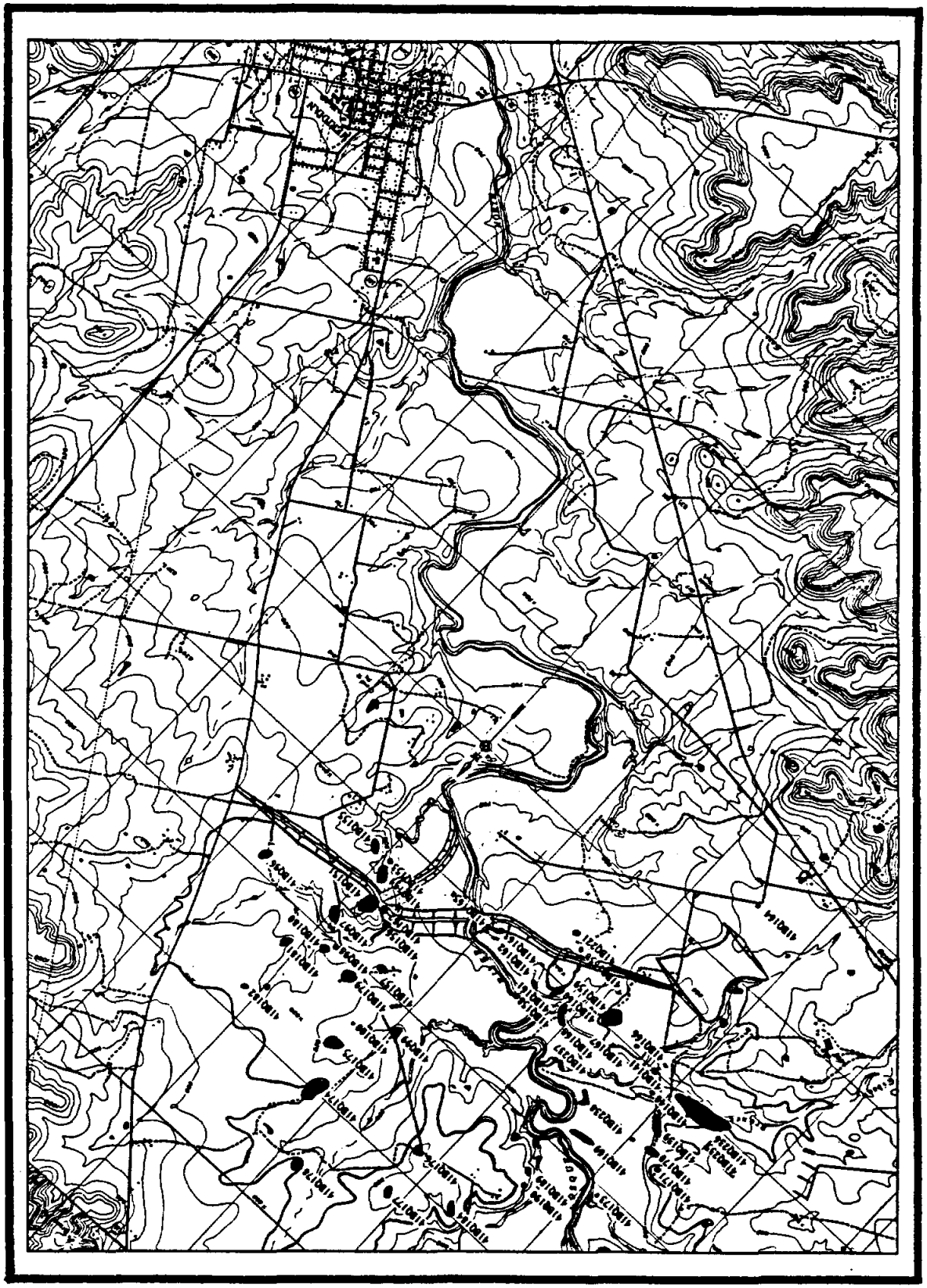

Figure 3. a. Meridian and lower Lake Bosque.

Figure 3. b. Walnut Springs and central Lake Bosque

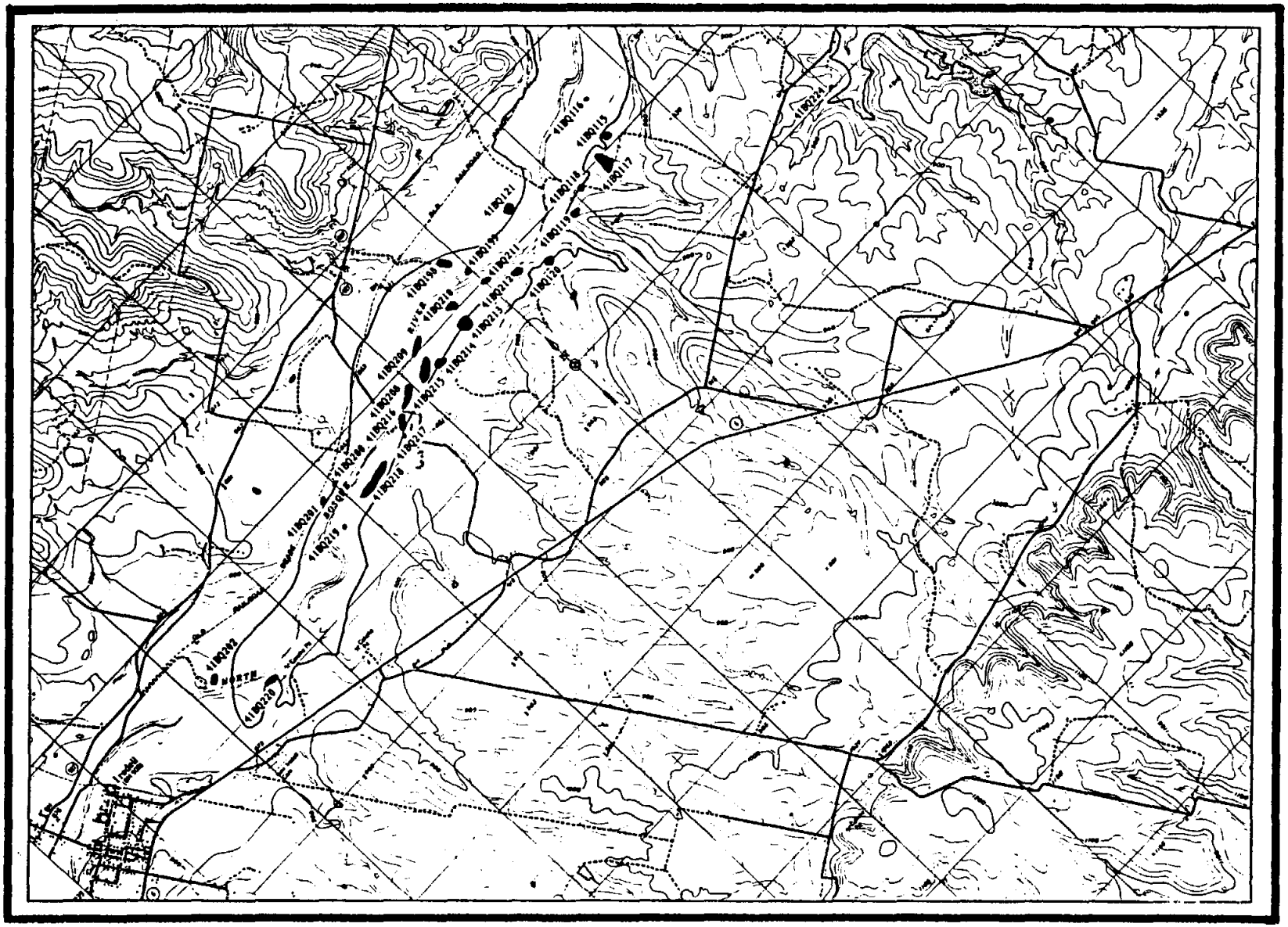

Figure 3. c. Iredell and upper Lake Bosque

SITE DESCRIPTIONS

During the archeological survey of the Bosque Dam and Reservoir, we found 146 areas which were recorded as archeological sites (See Figure 3). Seventy-seven of these were once used by Native Americans and of them, twenty were reused by historic occupants in the 19th century. The remaining 49 areas are historic ones. The following is a description and evaluation of the sites we recorded. The sites which are marked in bold headings are sites which are considered to be important to an understanding of the prehistory or history of the human use of the valley formed by the confluence of the North and East Bosque Rivers.

Site 41BQ93

Overlooking the proposed lake on the northeast, this prehistoric lithic scatter is located on the edge of an upland terrace knoll (See Figure 3.b.). Situated on a flat spot in the normally undulating Purves-Maloterre association of soils, the site is well-drained with water available at a nearby seep or spring-fed tributary to the Bosque, now the location of a stock tank 50 meters to the east. The site appears never to have been in cultivation; the ground surface is a brown gravelly clay sparsely vegetated with short grasses, thistle, juniper and mesquite. The site may have been disturbed by the construction of the stock tank nearby.

The lithic scatter on the site is a light one, with chert flakes, chips, and a biface fragment--probably the mid-section of a dart point--distributed over a roughly circular area about 30 meters in diameter. No diagnostic artifact forms were observed. While the site is badly eroded, probing revealed some 5 centimeters of wind-blown and slope-washed matrix remaining on site.

This eroded prehistoric site may have served as an open campsite or work area where raw lithic material was processed into usable forms. The low frequency of material culture provides little potential for yielding important information concerning the lifeway of Native Americans.

This site is outside of the area directly affected by the construction of the proposed reservoir, located at an elevation estimated at +843 feet mean sea level (m.s.l.). Sites such as this are generally not considered eligible for inclusion within the National Register of Historic Places. This site is not recommended for further investigation.

Site 41BQ94

Expressed as a broad scatter of historic artifacts as well as one chert flake found near a stream crossing, Site 41BQ94 is thought to be the remains of a 19th century ford of the creek, locally known as Nelson Crossing. Situated between two low drains which flow into the stream from the west, the site is located on a slight slope on the bank of the stream (See Figure 3.b.). In Tarpley clay loam which here is a dark grayish-brown, the site was heavily covered with dense grasses to 80 cm., intermixed with prickly pear cactus.

Artifacts discovered at this location included several fragments of ceramics from the latter half of the 19th century, including white ironstone and red transfer underglazes. Also from the same time period was a fragment of an aquamarine bottle which had been altered by fire. Further searching resulted in the discovery of one prehistoric chert specimen, a flake with a prepared platform. No other prehistoric material culture was found.

The presence of the lithic material hints that once in the past, a Native American stopped here and reduced a core, resulting in the loss of this flake. Initially, the historic material was thought to indicate the presence of a structure somewhere in the general area, but our search fail to discover any house or other dwelling remains, especially one that might have burned. Our final interpretation was that this was probably a camping area used by area residents, or travelers in the late nineteenth century. No evidence of a hearth was found. We did not question the local historic attribution of its use as a ford. About 200 meters to the north, we found the small cast concrete bridge which now crosses the stream.

This site is just inside the area directly affected by the reservoir, at an elevation of 840 feet m.s.l. Wave action during periods of maximun inundation of 841.3 feet m.s.l. will erode and destroy this site. The absence of intact features and the scarcity of artifacts offer few opportunities for further interpretation. This site does not appear to fulfill criteria for inclusion within the National Register of Historic Places and is not recommended for further work.

Site 41BQ95

Occupying a small flat hilltop above and between intermittent drains along the east and west which drain into the North Bosque River (See Figure 3.b.), this prehistoric site is a moderate lithic scatter about 35 meters in diameter which will overlook the proposed reservoir from an elevation of about 850

feet m.s.l. On soils of the Purves-Maloterre association, here a dark brown gravelly clay, the site is eroded to bedrock, but as much as 5 cm. of soil depth can be found by probing certain areas. Never in cultivation and used only as range for livestock production, the site appears relatively undisturbed.

With a ground surface visibility of about 30% during time of survey, the short grasses and cacti did not obscure the presence of a large variety of lithic material scattered about the site. Within a few minutes, the team had located a half-dozen biface fragments, several of which were broken projectile points, indicating use of this site during the Late Archaic and a small thick biface (See Figure 4.d). Lithic debris in the form of flakes, chips, and tool fragments; some flakes appear utilized, others marginally trimmed and thinned for use as tools.

This site served as an open campsite and lithic production area for Native Americans here in the Late Archaic. Although somewhat subject to natural disturbance and erosion, there is little to suggest that the site has ever been buried except periodically by wind-blown deposits. The site appears to retain good horizontal distribution and little or no impacts as a result of relic hunting. While not considered to be a single-component site, it appears limited to possible occupation by components restricted to the Late Archaic. The location of the site may indicate a subsistence strategy oriented toward exploitation of the upland prairie rather than the Bosque River valley. Controlled surface collection of lithic material and mapping of any notable features could yield information important in understanding the way in which this site and those of similar age, but along or near the mainstem of the Bosque, differ.

This site is outside the area directly affected by the project, but will likely suffer subsequent indirect impact as a result of greater frequency of human intrusion at the site, either by visitors, or by those who will build on the site because of its commanding view of the proposed project. The site is not a candidate for State Archeological Landmark status, but is recommended as one worthy of nomination to the National Register of Historic Places.

Site 41BQ96

Adjacent to a very large Liveoak on a hilltop overlooking a spring-fed drain to the Bosque, this historic site is located in the undulating soils of Purves-Maloterre association (See Figure 3.a.). The gravelly clay, with a majority of the gravel being fossil *Gryphaea*, is here a chocolate brown, intermixed with humus. The ground surface was covered with short to medium grasses, but

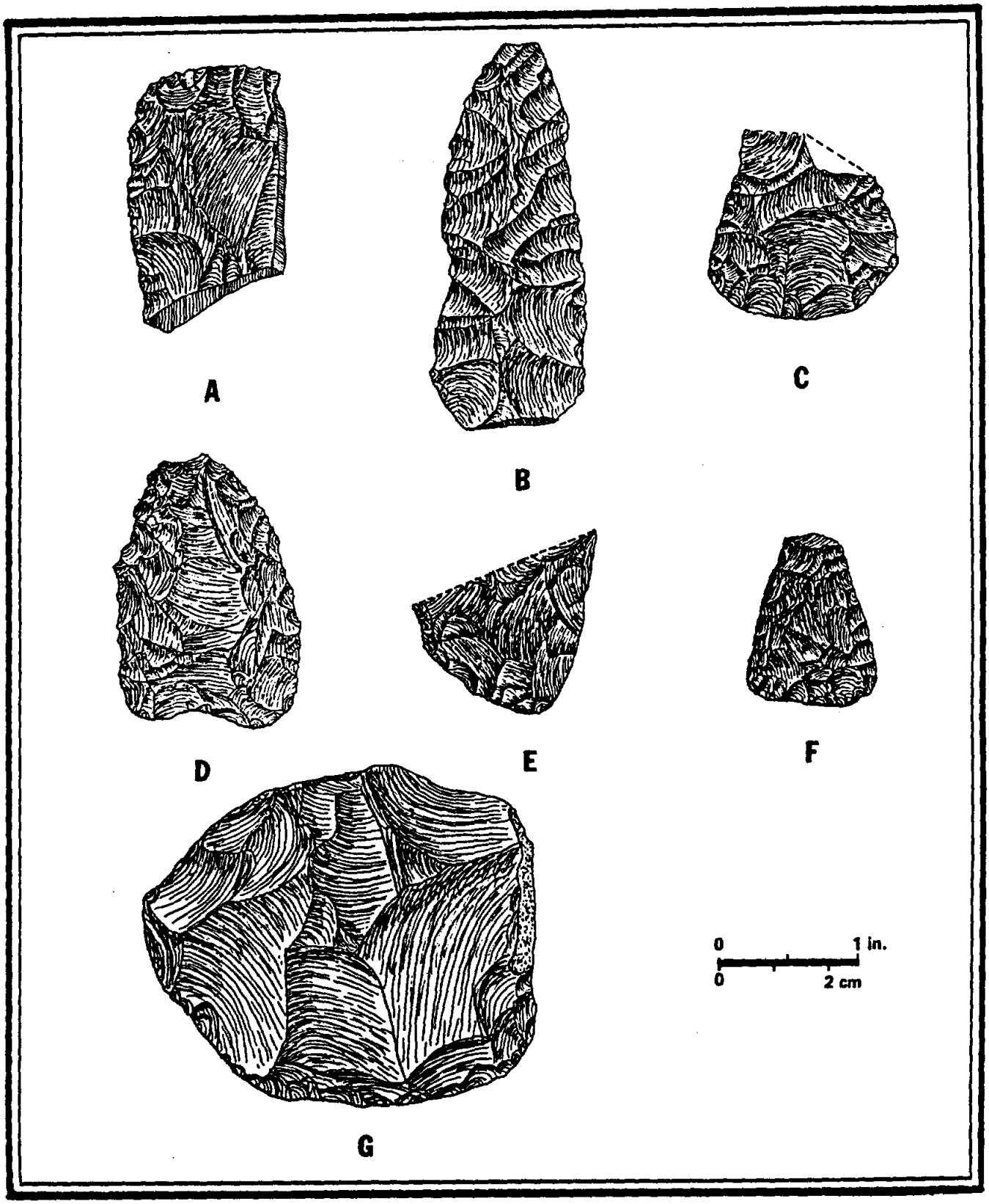

Figure 4. Bifacial tools recovered from the surface during the survey of proposed Lake Bosque

Figure 4. Bifacial tools recovered from the surface during the survey of proposed Lake Bosque.

a. This biface fragment of red and tan chert is from Site 41BQ148.

b. Plucked from an eroded profile about an inch below the surface, this biface blank is from Site 41BQ191.

c. Broken by torsion, this biface came from Site 41BQ121.

d. This small, thick biface has a notch opposite the concave edge and comes from Site 41BQ95.

e. One edge of this biface fragment bears the scars of repeated impacts; it comes from Site 41BQ215.

f. The edges of this small, thin biface from Site 41BQ139 exhibit crushed, shattered platforms.

g. This heavy, thick biface from Site 41BQ121 has crushed and battered edges.

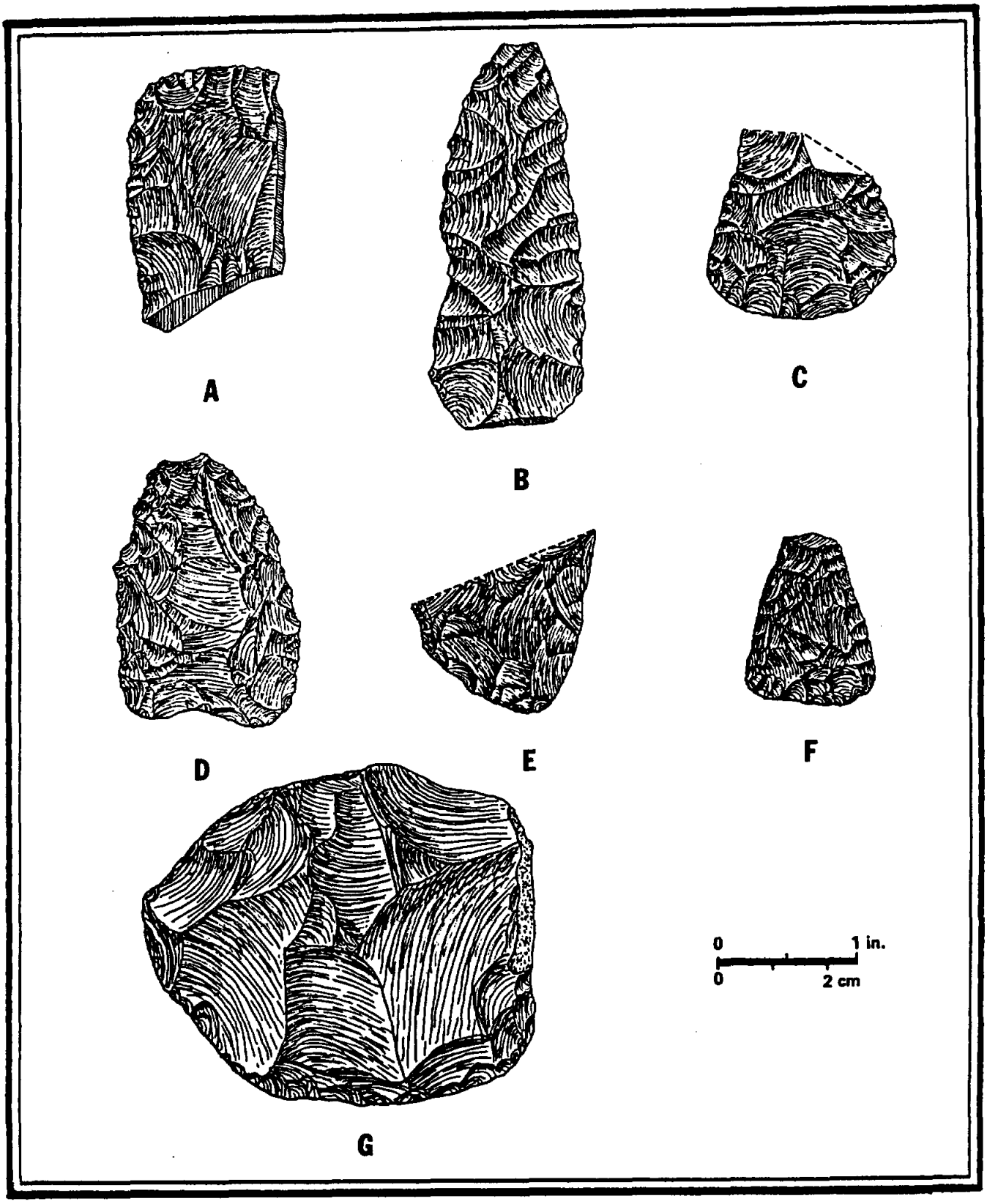

Figure 4. Bifacial tools recovered from the surface during the survey of proposed Lake Bosque

visibility was good. The array of historic artifacts recovered from the area provided a signature we normally associate with a house site. Much subsequent impact from construction and livestock production have altered the site.

The historic artifacts recovered within an almost 100 meter in diameter circle included a variety of ceramic sherds--fragments of white stoneware bowl or churn lid, white ironstone dish, and a brown stoneware food storage jar. Fragments of glass included so-called "black glass"--really an almost opaque dark green, brown, colorless and colorless now photochemically altered to purple. Metal artifacts include a threaded cast iron fitting, probably from a farm wagon, the proximal fragment of a drill bit with tapered pinstock, and cut nails. Collectively, they point to occupation in the late 19th and early 20th century, probably terminating not much later than World War I or from about 1880 to 1920.

Site 41BQ96 is heavily disturbed, thin and scattered, with no noticeable features. Like many historic homesites and earlier aboriginal sites found throughout this investigation, subsequent construction at the site has obscured or disturbed the cultural material in such a fashion as to render it of questionable value for interpretation.

Located at an elevation of about 830 feet m.s.l., the site will be inundated by the conservation pool of the project. Monitoring during clearing activities required for dam construction might reveal the presence of sub-surface features, such as privies, wells, or foundations, and is recommended. If found to contain useful data concerning those who once lived here, such features should be recovered by controlled excavation.

Too broad an area to sample without surficial clues, Site 41BQ96 is not presently considered for State Archeological Landmark status nor a determination of eligibility for inclusion within the National Register of Historic Places.

Site 41BQ97

Our pre-entry interview established from the lessee that chert and projectile points had been recovered at this prehistoric site. On an oval mount that drains to a well-watered tributary a few hundred feet northwest, the site is in soils of the Purves-Maloterre association, here eroded to a bedrock of fossiliferous gravels (See Figure 3.a.). The ground surface is lightly covered with short grasses, a few prickly pear and other cacti and yucca, and appears to have always been used for range. Disturbance resulting from the county

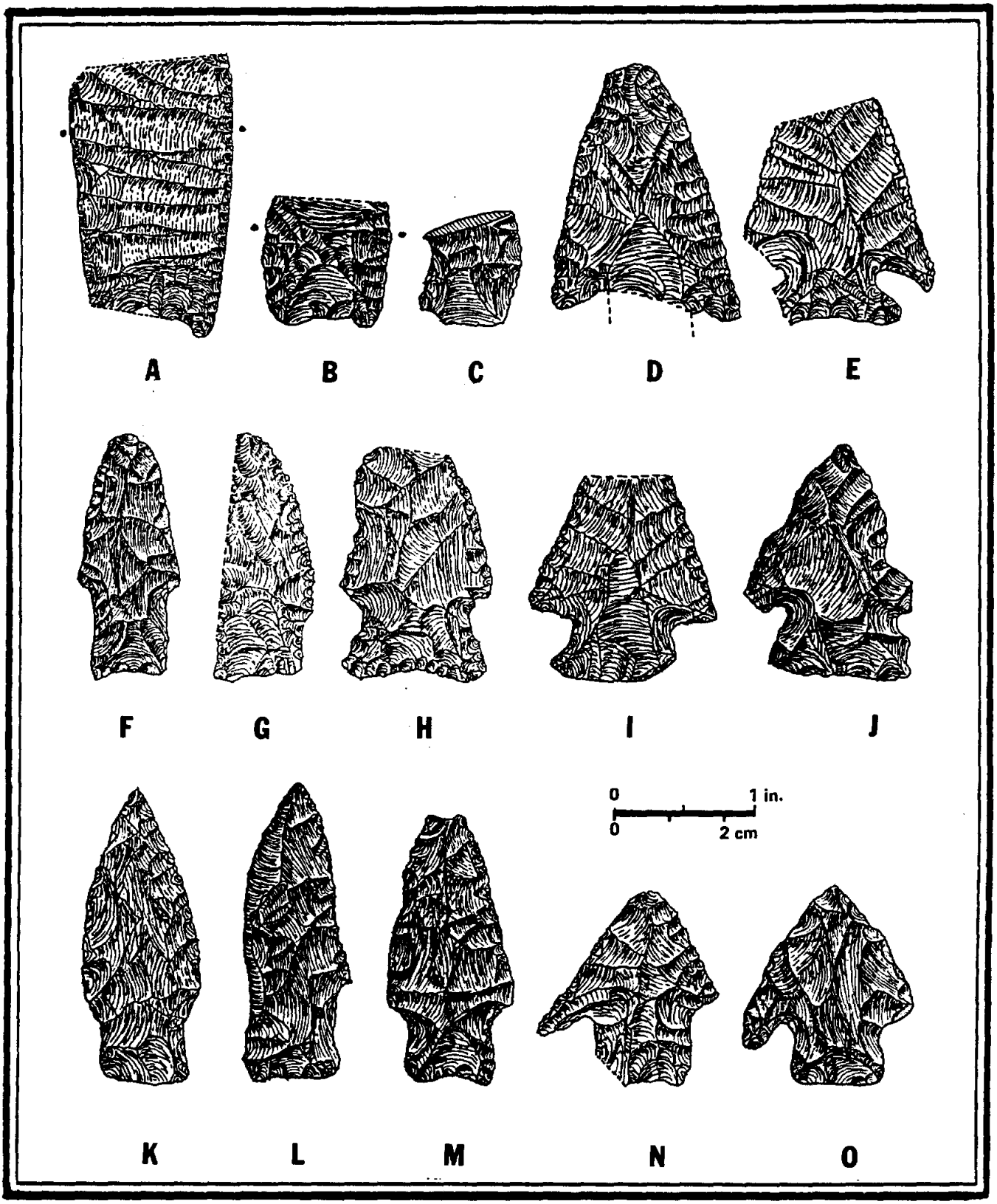

Figure 5. Projectile points recovered from the surface during the investigation of Lake Bosque

Figure 5. Projectile points recovered from the surface during the survey of proposed Lake Bosque.

a. Site 41BQ215

b. Site 41BQ227

c. Site 41BQ194

d. Site 41BQ227

e. Site 41BQ149

f. Site 41BQ206

g. Site 41BQ97

h. Site 41BQ151

i. Site 41BQ208

j. Site 41BQ215

k. Site 41BQ218

l. Site 41BQ151

m. Site 41BQ206

n. Site 41BQ195

o. Site 41BQ206

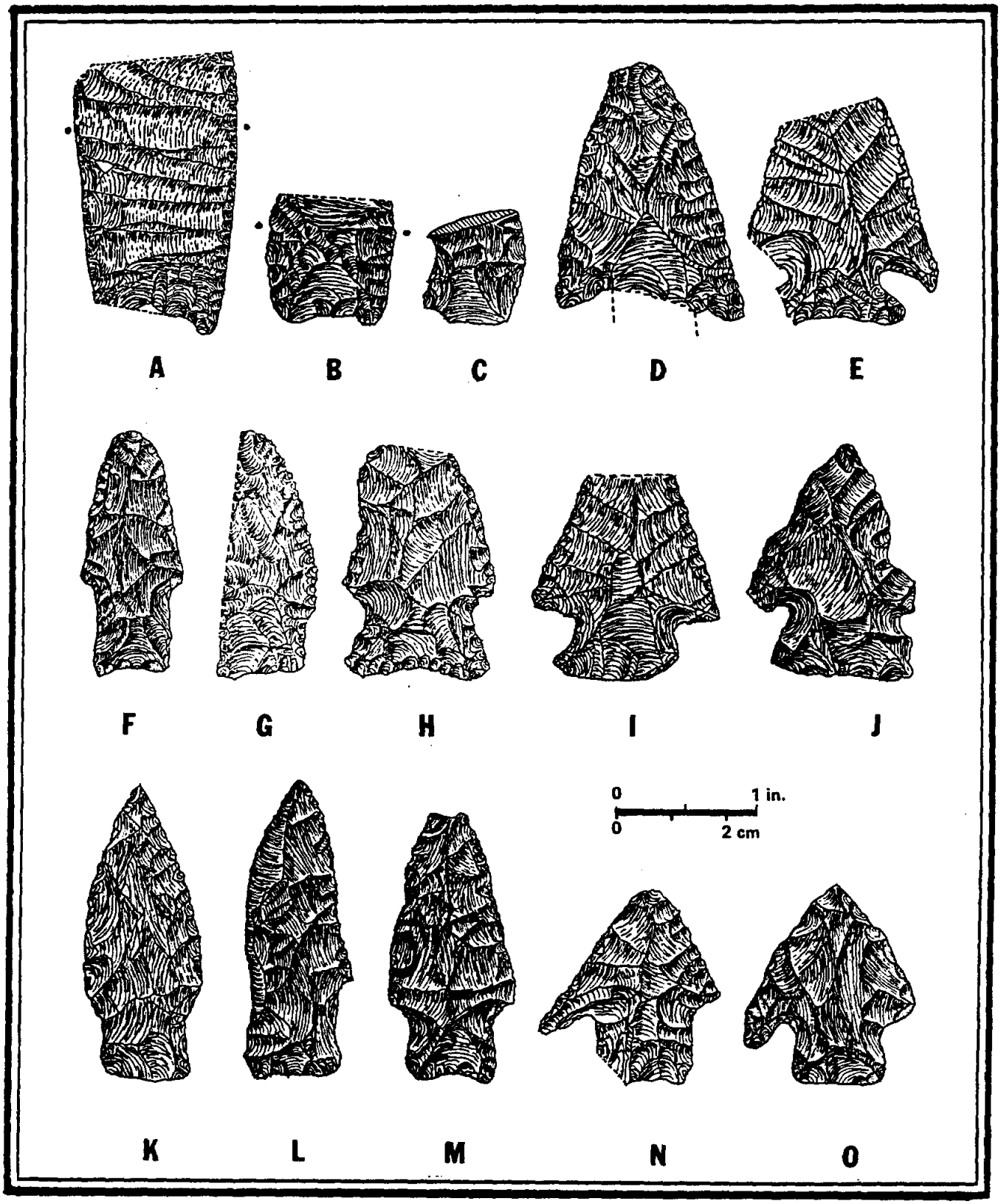

Figure 5. Projectile points recovered from the surface during the investigation of Lake Bosque

road which flanks the site and the unimproved road which circles the site include grading and other earth moving as well as improved access to the site. This has resulted in the area being subject to artifact collecting and the dumping of waste stone and other materials.

The lithic scatter on the ground surface is a moderate one. Flakes, chips, tools, and fragments of large and small bifaces of chert and an occasional manuport of red quartzitic sandstone are indicators that a number of activities, from food preparation to lithic reduction and tool production. Fragments of four large thinned aformal bifaces and two dart points (See Figures 5.g. & 6.a.) and a broken drill or arrowpoint preform broken in the process of reduction yield little useful information in determining the age of the site, but it is presumed to be Archaic. Accordingly, perhaps the most interesting artifact found at the site is a small thick biface, the edges of which have been battered so repeatedly as to form a flat surface, with the opposite edge revealing similar alteration.

This site is located at an elevation of about 840 feet m.s.l. and will be subject to periodic inundation and wave action. As the fossiliferous bedrock on which the site rests is not a thoroughly welded deposit, some erosion may continue. This site is similar in many respects to 41BQ95. Controlled surface collecting within selected portions of the site might help us better understand lithic reduction in the uplands and perhaps provide clues to subsistence strategies utilized by the occupants of the site. This site appears to fulfill criteria for inclusion within the National Register of Historic Places. Candidacy for State Archeological Landmark status is dependent on land ownership subsequent to development of the project.

Site 41BQ98

Marked by a few foundation rocks apparently in place on a low terrace, Site 41BQ98 was once a house. Located just across the spring-fed branch to the North Bosque (See Figure 3.a.), and opposite Site 41BQ97, the house may have been a log one--an assumption based on the scarcity of nails. Whatever the type of construction, little of the structure remains at the site, indicating the house may have been moved elsewhere. Today, the site is obscured by grasses of medium height, mesquite and juniper.

The few historic artifacts found at the site included fragments of whiteware, brown glass and fragments of sheet iron, probably the remnants of food cannisters or "tin cans." None of this material is considered to be diagnostically restricted to any particular period and accordingly, was not

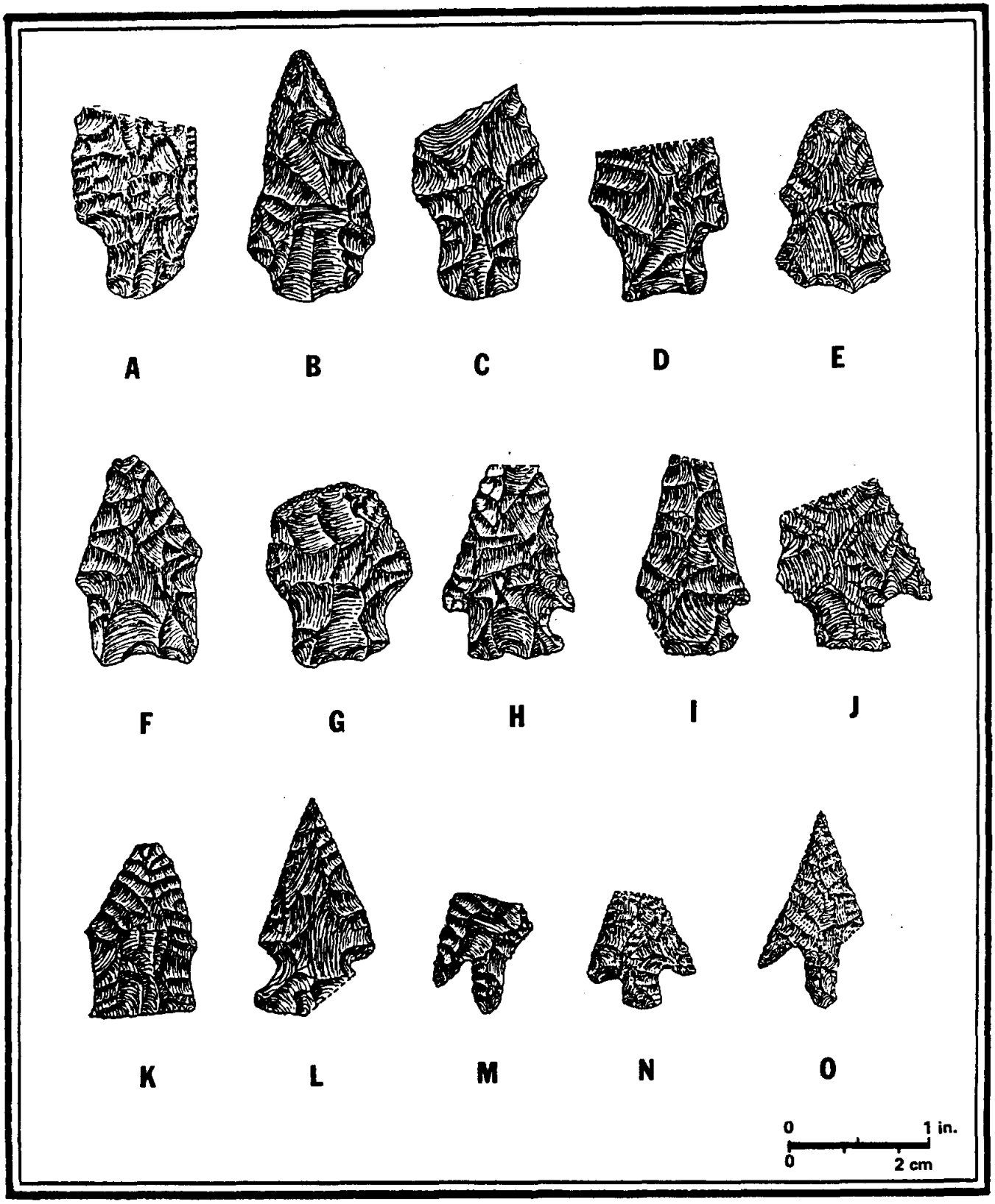

Figure 6. Projectile points recovered from the surface during the investigation of Lake Bosque

collected. The lack of 20th century artifacts, however, leads us to the suspicion that Site 41BQ98 was occupied to the late 1890's.

Notwithstanding the few foundation rocks apparent at the site, little in the way of cultural material remains for interpretation. Additional work here would be restricted to a careful mapping of the site, and selected controlled surface collection oriented toward determining the age of the site. Archival research may reveal whether this site represents the homesite of an original settler, or perhaps a tenant house.

Located at an elevation of 805 feet m.s.l., this site will be inundated by the normal pool elevation of 830 feet m.s.l. Interpretation of this site could enhance our understanding of the early settlement of this portion of the project area and accordingly, Site 41BQ98 is thought to fulfill criteria for inclusion within the National Register of Historic Places and is a candidate for State Archeological Landmark status.

Site 41BQ99

Located on a terrace overlooking the floodplain of the Bosque, Site 41BQ99 is the site of a house that was built in the late 19th century and only recently razed, perhaps within the last decade. Situated adjacent to the present road and linked by a primitive road which travels to what is now State Highway 144, remaining features include a windmill, pens, and a house foundation of rock (See Figure 3.a.). Sheet metal and debris resulting from demolition are still in evidence, although most have been removed. The medium brown Cranfill gravelly clay loam is vegetated in medium to tall grasses and is shaded and surrounded by liveoak and hackberry trees.

Artifacts on the surface include a wide range of fragmentary glass which extends from the 1890's until the present. Metal artifacts include cut nails, broken cast iron, sections of galvanized guttering and pipe, plumbing fittings, etc. The long time period of use here has resulted in a diffuse and intermixed scatter of artifacts, the majority of which are post World War I to the 1940's.

At an elevation of 805 feet m.s.l., Site 41BQ99 will be inundated by the reservoir at a pool level of 830. Because of the mixing of different aged material, the majority of which is quite late, this site is not recommended for further work. Given our present understanding of the site, it is not recommended for inclusion within the National Register of Historic Places.

Site 41BQ100

The location of a dart point discovered during our survey, Site 41BQ100 pinpoints its occurrence (See Figure 3.a.). At an elevation of 812 feet m.s.l., the point was found on an open hillside, above and to the west of an active seep. The fragmentary projectile point is similar in outline to the *Marshall* type but smaller(See Figure 6.j.). The projectile may have been lost or discarded here by a hunter during the Late Archaic for a search of the surrounding area revealed no other cultural material or features.

This site is not recommended for further work and is not considered worthy of nomination to the National Register of Historic Places.

Site 41BQ101

This site consists of the foundation of a house established here after 1870 and which may have survived to just after the turn of the century. No structural remains of the house are visible above ground surface although a few of the foundation stones can be seen in the grass. It probably faced to the northeast, toward a small, springfed tributary which drains from the north (See Figure 3.b.). In the Cranfill gravelly clay loam, a large number of artifacts were found among the short grass and cacti, the vegetation which dominate the site.

Ceramics including fragmentary earthenware, broken stoneware (ironstone dishes and a furniture caster), porcelain and core of an early battery are mixed with metallic artifacts like a saw blade, cut nails, a cast iron stove top, portion of a hole-in-top can and an aeolina, or mouth-harmonica frame (See Figure 7.c.). Glass in considerable variety is scattered around the structure.

This site appears to contain a wide variety of artifacts in appropriate and interpretable context. It appears to be related to Site 41BQ102, a complex foundation to the south-southwest of this house foundation.

At an elevation of 825 feet m.s.l., this site will be inundated at normal pool elevation of 830 feet. Thought to be important in understanding late 19th century development of this part of the project area, Site 41BQ101 is considered potentially eligible for inclusion within the National Register of Historic Places. and is a candidate for State Archeological Landmark status.

Figure 7. Concertina and aeolina, or mouth-harmonica, reed plates.

a. A fragment thought to have come from a concertina, this plate from 41BQ196 is made of whitemetal, and has widely-spaced reeds. It measures 35mm x 25mm x 1mm, and weighs 4.8 grams.

b. From a site thought to have included a log cabin, this aeolina plate is from 41BQ134. Made of brass, it measures 99 x 25.5 x 1 mm and weighs 16.6 grams. This is thought to be the earliest plate found.

c. The site where this plate was found was active in the 1880's. From Site 41BQ101, it is made of brass and measures 101 x 25 x 1mm and weighs 18.2 grams.

d. From Site 41BQ229 on the FlatTop Ranch, this brass plate is from a housesite occupied at the turn of the century. It measures 107.5 x 29 x 1mm and weighs 21.8 grams.

e. From Site 41BQ152, a housesite occupied until the 1940's, comes this iron reed plate which measures 100 x 25 x 1 mm and weighs 12.6 grams.

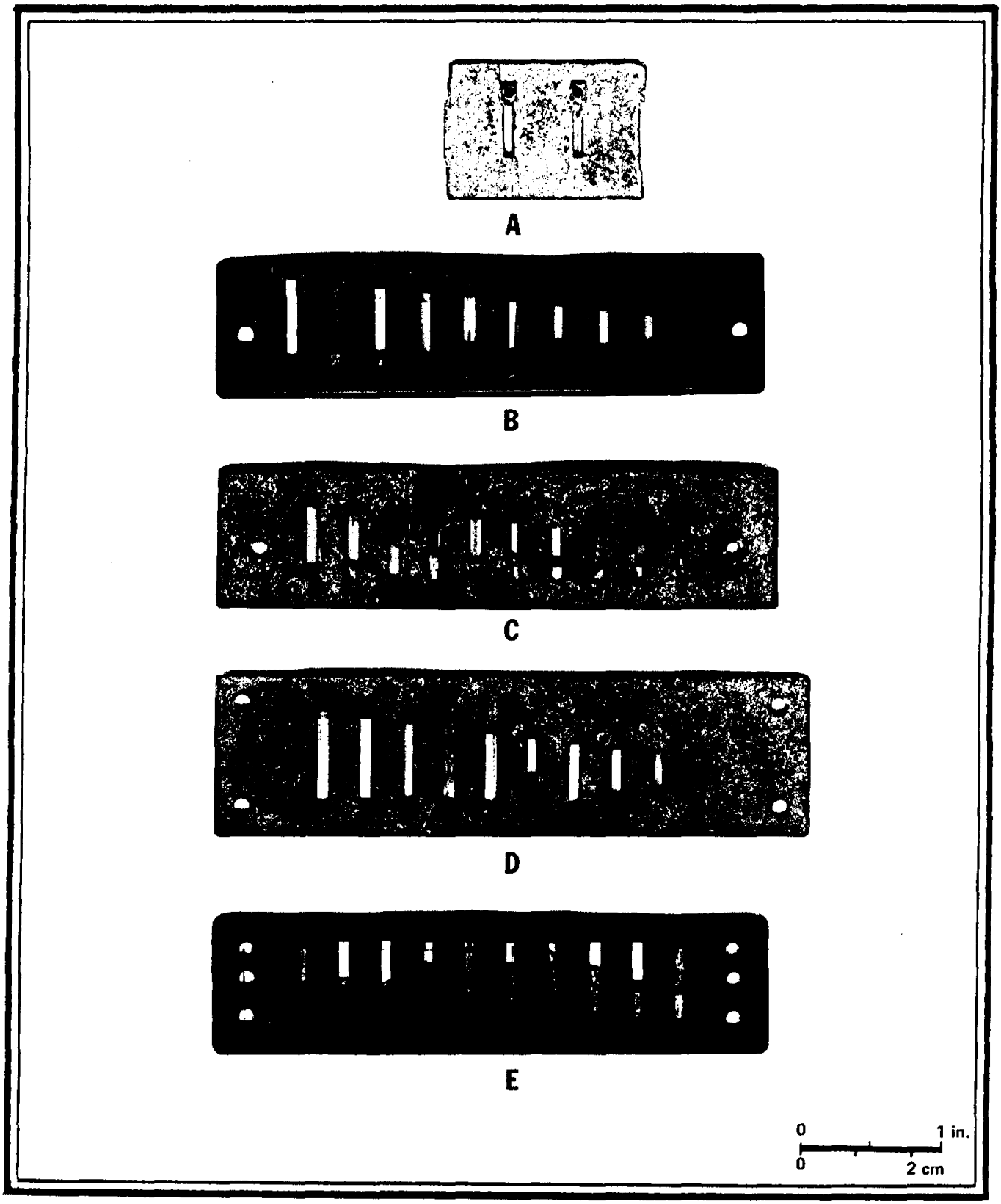

Figure 7. Concertina and aeolina, or mouth-harmonica, reed plates

Site 41BQ102

This foundation is thought to be the remains of a barn partially dug into the edge of a ridge to take optimal advantage of natural warming from the sun and protection in winter from prevailing northerly winds. Of large locally available stone, the structure is a subgrade foundation which now extends to 4 feet below adjacent ground surface, but with probing, we estimate it once extended to as deep as 5.5 feet. With external dimensions of more than 60 feet long and 20 feet wide, it is the largest 19th century structure found in the project area.

Outside the structure to the north and west are irregular outlines of rock, some rectangular, others square, with fences and gates. Its overall pattern is one that is designed for the movement and management of livestock. storage of materials, plus other unknown functions. It is possible that whatever was being constructed here was never completed, but was at least finished to a point where the site became functional. Artifacts are uncommon in the area directly adjacent to the foundation and once away from the site, are those normally associated with a late 19th century and early 20th century homesite, perhaps with Site 41BQ120, just across the fence to the west-southwest. The structure is thought, however, to be related to Site 41BQ101 because it is located on the same terrace, is on the same side of a property line and is strategically located for livestock, between the house and the fields, close to water, but downstream from the possible domestic water source and downwind (See Figure 3.b.).

Additional mapping and limited excavation might reveal further insights into the nature and function of this interesting structure. At an elevation of 825 feet m.s.l., this site will be flooded by normal pool elevation of 830 feet m.s.l. This site is considered to be one which is potentially eligible for inclusion within the National Register of Historic Places and a candidate for State Archeological Landmark status.

Site 41BQ103

Marked by a standing chimney alongside the unimproved road which leads to Fulton Cemetery, Site 41BQ103 includes a foundation, the chimney, the remainder of a porch slab and subsurface feature, probably a storm cellar. Located in Sunev clay loam, here reddish brown, the housesite is situated in an open meadow above and northeast of a small tributary which drains to the East Bosque River (See Figure 3.b.). Dense short grasses cover the ground, and the site is shaded and surrounded on the north by small oaks and hackberry.

The structure is located adjacent to a road which ran east-west, now replaced by R.M. 944. This road also ran to the north and in front of 41BQ123, a house built in 1881. When this road was abandoned is unknown, for it could have been deserted when the railroad was constructed through this area, changing local roadways, or later, with the construction of R.M. 944 during this century.

Earthenware fragments in the form of crockery and stoneware, impressed whiteware, ironstone (See Figure 8.m.) and one decorated by polychrome decalcomanias, was mixed with a variety of colorless glass, including canning jars associated with zinc lid fragments. Also found was a fragment of a divided plate as might be used to serve children, made of colorless glass and impressed from the rear with a figure of "Little Bo-Peep" and running sheep, and the words "(y)ou Going," intaglio.

All artifacts found on the surface of this site suggest a settlement beginning as late as post-1920. This late structure seems to reflect almost urban patterns of artifact selection, perhaps a result of one of the family members working in the city, but living in the country, a common mid-20th century lifeway in rural Texas.

Located at an elevation of 835 feet m.s.l., this site will be subject to periodic inundation during times of flooding to an elevation of 841.3 and during filling and drawdown, will be subject to washing and wave erosion. At our present level of understanding of this site, it is not considered eligible for inclusion within the National Register of Historic Places.

Site 41BQ104

Located along the northern boundary of proposed Lake Bosque, usually inside the normal pool elevation of 830 feet m.s.l., this site is the remains of the Texas Central Railroad, built here in 1881 (See Figure 3.b.). The Texas Central Railroad began to decrease its trackage as early as 1893, when 52 miles of trackage were sold to Texas Midland Railroad (Zlatkovich 1981:88). Crews working out of Walnut Springs extended the line, which included a depot at the S.M. Swenson Cattle Company, to Stamford by 1900. World War One brought a period of growth to the railroad and the communities which the rail served. The end of the War resulted in a general economic downturn, not to be improved by the coming of the Great Depression. As noted in *Bosque County: Land and People,*

Figure 8. Ceramic sherds with maker's marks recovered during the investigation of Lake Bosque.

a. Site 41BQ130

b. Site 41BQ196

c. Site 41BQ228

d. Site 41BQ107

e. Site 41BQ107

f. Site 41BQ236

g. Site 41BQ138

h. Site 41BQ107

i. Site 41BQ229

j. Site 41BQ234

k. Site 41BQ229

l. Site 41BQ228

m. Site 41BQ103

n. Site 41BQ149

o. Site 41BQ118

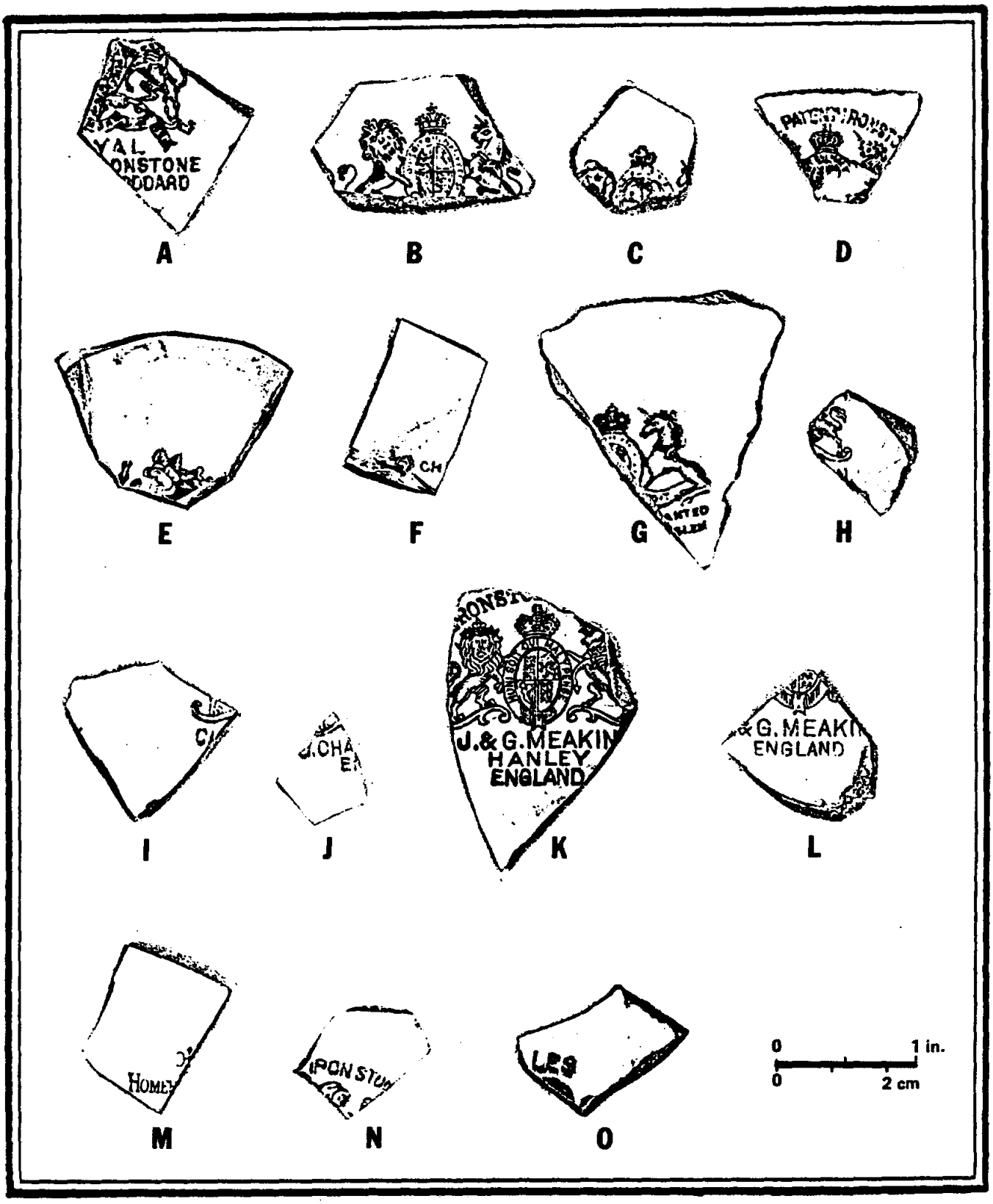

Figure 8. Ceramic sherds with maker's marks recovered during the investigation of Lake Bosque

> People lost their jobs, banks closed, drought came, railroad employees were laid off, and all of this spelled doom for the proud little Texas Central and the town that it helped to build. Finally, only a Diesel motor car brought the mail although freight service continued during the years of construction of Whitney Dam. Today the old right-of-way, covered, as it is, by grass, wild flowers and old cross ties, remains to mark the path of the old railroad line that Henry McHarg envisioned and planned to extend as far west as Artesia, New Mexico (Bosque County Historical Book Commission [BCHBC] 1986: 96).

We found not only the cross ties, but also remnants of the old telegraph system which used to parallel the trackage, including coils of the heavy gauge wire, discarded to the side of the right-of-way during rail removal. We collected a spike and several insulators from the debris left by abandonment in the drainage easement adjacent to the railroad grade. Only a small fraction of the abandoned line will be covered by the reservoir, as it extends for miles in either direction outside the project area.

We looked adjacent to the abutments, especially on the eastern side to find any traces of construction camps which might have been active in the building of the railroad in the early 1880's, but no features or artifacts which might have been associated with this labor were discovered. Perhaps construction crews lived in nearby Walnut Springs or were housed in rolling crew cars during construction here. Site 41BQ104 is not recommended for further work.

Site 41BQ105

This prehistoric site of unknown age was found atop an eroded and cultivated flood plain rise of the East Bosque River, the channel of which is 70 meters to the east of the site (See Figure 3.b.). Marked by a very light scatter, a reduced core and fragments of mussel shell, the site is located at an elevation of 834-839 feet m.s.l. and will be subjected to infrequent flooding by the proposed lake.

Our observations led us to believe that the majority of the site is exposed, and derived from its original context. The site was recorded because of its importance in understanding the overall settlement plan for the area affected by the project. At our present level of knowledge concerning Site 41BQ105, it is not recommended for a determination of eligibility for inclusion within the National Registor of Historic Places nor is it a candidate for further investigation.

Site 41BQ106

Located on the slope of what is thought to be a pleistocene levee of the Bosque River, the Pearce Cemetery is adjacent to the Pearce Homestead, Site 41BQ107, below (See Figure 3.b.). Surrounded by a cast iron cemetery fence manufactured by the Stewart Iron Works, Cincinnati, Ohio, the plot contains at least two, and perhaps as many as five, interments, the latter three external to the fence. The west face of the gravestone is marked:

A. C. PEARCE	ANN M. Wife of A. C. PEARCE
SEPT. 17 1823 NOV. 3 1878	April 1 1827 April 4 1871

Gone but not forgotten

FATHER MOTHER

Outside of the fence, on the northwest corner is found a rectangular stone which appears to be unmarked. A variety of stories have been encountered from local residents concerning the possibility of interments outside of the fence. These included that the stone found outside is one of a kinsman who was convicted of killing a freed slave and was buried contrary to the others, the orientation of his grave running north-south! Others told us that two persons, freed slaves once belonging to the Pearce family, were also to be found outside the fence.

This site lies at an elevation of +805-806 feet m.s.l. and will be flooded by normal pool operation at +830 feet m.s.l. While this site is, as are most cemeteries, not considered as a candidate for nomination to the National Register of Historic Places, it is eligible for designation as a State Archeological Landmark. Careful excavation and total relocation are recommended for this cemetery.

Site 41BQ107

This site is thought to be the homesite once occupied by Ann M. Pearce and her husband, A.C. Pearce. Situated on the northern tip of the red clay levee (See Figure 3.b.), the site is superposed atop a prehistoric one of Archaic age. Portions of the house foundation appear to remain, but they are scattered as is the entire site.

A review of maps on file in the Bosque County Tax Assessor-Collectors files in Meridian reveal that as late as 1971, the site and adjacent cemetery were located in a thicket of woods. Change in ownership resulted in new management practices with conversion, through clearing and sodding in coastal bermudagrass, to range. This may have included the use of heavy machinery, including dozers, to remove vegetation. It also included the removal of foundation stones, which were carried to the edge of drains where they were cast into eroded areas to serve as catchments for slopewashed topsoil. This proved to be a typical effect on historic homesites found throughout this property. We are not able to determine whether the burned artifacts found at the site are the result of a fire which might have consumed the house or from brush which might have been piled here and burned during the 1970's. Among the artifacts we recovered were several sherds of whiteware impressed with marks indicating British manufacture (See Figure 8, d., e. & h.).

Despite its disturbed condition, this site is thought to be an important one in understanding the early history of the project area and this area of Bosque County. The site is considered to be eligible for inclusion within the National Register of Historic Places and for designation as a State Archeological Landmark. It is therefore worthy of further investigation, including mapping, controlled surface collecting and the search for sub-surface features. Little remains of the prehistoric site outside of a broad lithic scatter, and it is not recommended for further investigation except as it is encountered through the investigation of the historic homestead.

Site 41BQ108

This site is the Austin Bridge, found at Jackson Crossing, the only highwater crossing of the Bosque River in the project area. Located near the Pearce Homestead and Cemetery, the bridge was once the site of a ford which had its beginning just north of the eastern footing of the present bridge (See Figure 3.b.). Here can still be seen the old cut which descended to the river channel, apparently ran upstream for approximately 50 to 60 yards and then crossed over the low bank to the opposite side , just north of the bluff atop which is found the western footing of the present bridge. The bridge trusses on either end measure about 50 feet, with the central truss measuring about 100 feet for a total bridge span of 200 feet. Each truss has the markings of the manufacturer on brass plates, attached by screws, which read:

Built By
AUSTIN BRIDGE COMPANY
DALLAS, TEXAS
Date 9-38 Contr. No. [ ]
Built for [ ]

Three trusses make up the structure, two modified Pratt through trusses, with diagonals in tension, and verticals in compression, and with *no* hip verticals adjacent to the inclined end posts (Comp 1977: Diagram 12). The central truss is a modified Parker, a Pratt with a polygonal top chord, in this case, with 6 slopes and flat center top chord. According to Comp,

> Many trusses retain the Pratt configuration of compression and tension members, while alternating the shape of the top and bottom chords. The Parker truss (diagram 14) is clearly a Pratt with polygonal top chord. Because of its arched top chord, the bridge is stronger than a regular Pratt truss, while it uses the same amount of material. However, the sizes of members in a Parker truss are not as uniform as they are in a Pratt, and consequently, they were often more expensive to construct(1977:3-5).

This engineering site is almost 49 years old at the present writing, but before the project is completed, will achieve the age of 50 years, making it eligible for consideration as a State Archeological Landmark or for the National Register of Historic Places. The structure is limited in its ability to bear loads, but the bridge is still considered suitable to carry traffic. The Bosque County Commissioners plan to relocate this bridge for reuse.

Site 41BQ109

This eroded open campsite on the northeast edge of a terrace which slopes to the southwest, adjacent to a drain (See Figure 3.b.), was located because of the fired-cracked rock scattered downslope by wash and erosion. Not found to be concentrated into a recognizable feature, the burned and discolored rock points to probable food preparation here, although no organic remains were noticed. Among the stones was found one chert flake, devoid of cortex.

This site is not one of those we consider to be of further interest. It is not considered to be eligible for inclusion within the National Register of Historic Places at this time.

Site 41BQ110

This multiple component site is located on a sand covered, clay terrace overlooking the bottomlands of the Bosque (See Figure 3.b.). The site is altered by earth moving machinery which have been used to dam the small tributary gouge to the west. Fed by runoff and seeps in the uplands, this site was attractive to prehistoric inhabitants as is evinced by the so-called "biscuit" mano recovered from the surface (See Figure 9.a.). While historic artifacts are abundant on the surface eroded to clay, there is an extreme paucity of other prehistoric items.

The site has been subjected to relic hunters searching for historic materials with the aid of a metal detector, and we found the accumulations of metal artifacts which reflected this form of disturbance in two or three areas on the site. Conversations later held with the landowner indicated our assessment was correct and that he had permitted such activity, but only with persons who could demonstrate an interest in the early history of Bosque County. Some disturbance has also resulted from the utilization of a nearby old and unused trench silo for garbage disposal. Despite this disturbance, we believe that the historic component of Site 41BQ110 merits further investigation.

Strangely isolated in the center of the site, with disturbance all around it, was found the remains of a hand-dug rock-lined well, filled to within 30 inches of the surface.

Of unknown depth, this well could contain deposits of cultural material thrown into it after it no longer produced water or was replaced by another water system. If present, these deposits would be stratified, the earliest on the bottom, the most recent, on top. Two such wells were encountered during monitoring of construction at 301 Congress Avenue, in Austin, Texas during late 1984 and early 1985. Called "tube middens" by archeologists working on the project, these wells produced thousands of artifacts and fragments when dug to a depth of between 25 to 30 feet below ground surface (Briggs, forthcoming). Well preserved perishable items, including food bone and bone tools, leather and leather shoes, and non-perishables like dishes, glassware, liquor and other bottles, buttons, children's toys, corroded tools and parts of tools, plus a number of bucket bails, were found in abundance. One well produced one of the earliest dated historic artifacts discovered in Austin, a latch plate for a lock patented by Carpenter in 1830 and produced during the reign of William IV of England, between 1830-1837. The well at 41BQ110 might be similar to those just discussed or be empty. Only deep archeological testing using heavy machinery will provide

Figure 9. Manos or grinding tools recovered during the survey of proposed Lake Bosque.

a. This grinding stone is made from indurated, sedimentary sandstone. Apparently a function of its use, the lateral edges were pecked and ground until they were flattened. The resulting edges resemble a layered biscuit, hence the term, "biscuit mano." Of the many types of manos collected or observed throughout the investigation, these are the most common. The consistent size and shape of "biscuit manos" suggests that most of these multi-purpose food processors are worn past utility, and were rejected by their users. Our experiments indicate that palmar and digital abrasion would be a result of continued use. This one comes from Site 41BQ110.

b. A side of this quartzite grinding stone still resembles the original, unaltered pebble, but the other has the uniformly ground surface associated with a mano. The trace of scratches which mark the direction of use are still visible on this face. One edge has been flattened by crushing and grinding. This type of mano, generally made from a pebble of hard rock and retaining many rounded surfaces, is the other common one found in the project area. This one comes from Site 41BQ139.

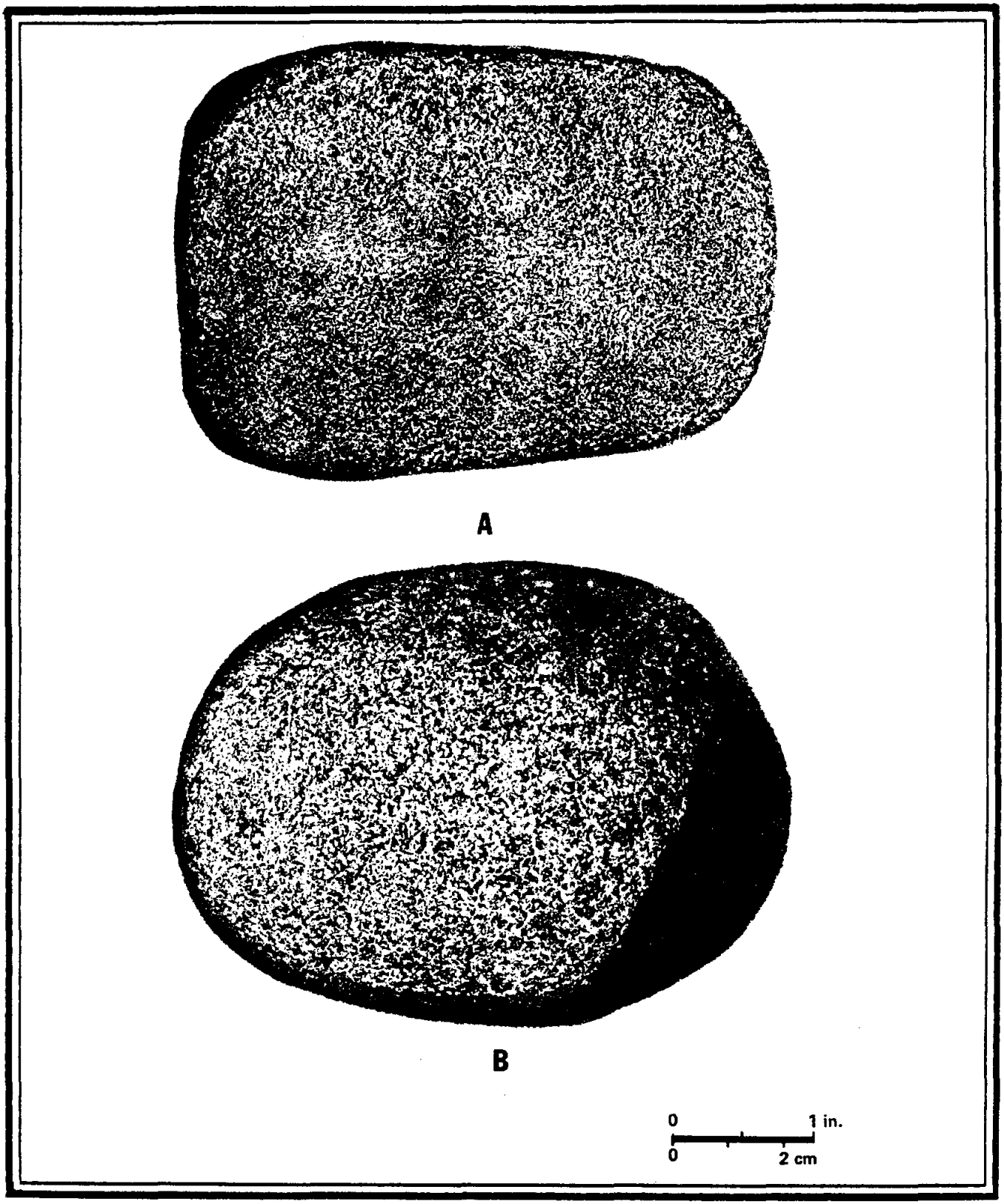

Figure 9. Manos or grinding tools recovered during the survey of proposed Lake Bosque

an answer. Our probes struck nothing when we passed them through the uppermost fill of the well.

Eligible for designation as a State Archeological Landmark, and considered to be potentially eligible for inclusion within the National Register of Historic Places, Site 41BQ110 is recommended for further work prior to inundation by Lake Bosque.

Site 41BQ111

This prehistoric site is located on a very slight floodplain rise adjacent to an ephemeral drain from the uplands (See Figure 3.b.). Discovered in an area devoted to feed production, the site was recently plowed. Scattered in the recent alluvium by tillage, a few large pieces of burned limestone marked the presence of a hearth in the general area; close inspection revealed the fragments of mussel shell, the remains of food which had once been prepared here.

While little of the site remains, its presence on a flood plain rise is similar to other sites found during this investigation, which, when exposed in profile, contain stratified deposits of food remains. Presently in production, this site is recommended for deep testing to determine the presence of such cultural deposits and to gain a better understanding of the sedimentary regimes of the Bosque River in this area. Site 41BQ111 is considered potentially eligible for inclusion within the National Register of Historic Places and for designation as a State Archeological Landmark.

Site 41BQ112

Located on a high secondary terrace of the Bosque River, some twenty feet above the floodplain (See Figure 3.b.), this site is presently occupied by a very large pole barn used for the storage of hay. An examination of the periphery of the ground surrounding the structure, especially under the dripline of the roof, revealed the presence of fragmentary historic artifacts, such as ceramics, glass and iron. No historic features were noted.

After we recorded this site, an interview with the landowner resulted in gaining important information about the site. This included a photograph, circa 1900, which identified the area as the site of the barn of the Ramsey Cox Farm. The photograph was labeled," The M.T. Westmoreland Family at Headquarters of the Ramsey Cox Farm, Walnut Springs, Bosque County (personal communication: Alfred McKnight, Jr.)." An interview with a

descendant of Joe Westmoreland told us of a slave burial near an oak tree just north of the present structure (personal communication: Tom Hill).

This site is a candidate for further archeological investigation subsequent to the removal of current standing structures. Archival research should tell us more about the Cox Farm and the Westmoreland family. Serious efforts should be devoted to searching for the grave reported near the old oak and if discovered, recovered prior to inundation by the normal pool of the proposed Lake. At our current level of knowledge, Site 41BQ112 seems to fulfill criteria for potential eligibility for inclusion within the National Register of Historic Places and State Archeological Landmark status.

Site 41BQ113

Located atop a ridge which will overlook proposed Lake Bosque as a peninsula(See Figure 3.b.), this eroded site exhibits a very large scatter of chert, burned rocks and mussel shell fragments eroded to bedrock. Scattered by the road, vehicular traffic and clearing, the site appears to retain little, if any, in-place material culture. The site area covers the ridgetop and extends along it for more than 100 meters! While little of the site remains in original context, it serves to remind us of the potential size that sites may attain, especially those which we found buried in the recent alluvium adjacent to the channel of the Bosque River.

At an elevation from 845 to 860 feet above m.s.l., Site 41BQ113 will not be directly affected by Lake Bosque. At our present level of understanding, Site 41BQ113 does not appear to qualify for a determination of eligibility for inclusion within the National Register of Historic Places, and is not recommended for further investigation at this time.

Site 41BQ114

Found just west-northwest of the previous site and located on the edge and slope of the same ridge is the historic dump numbered 41BQ114 (See Figure 3.b.). Having cascaded down the slope where it was dropped, the dump contains a few late 19th century bottle fragments and much early 20th century material. The point of origin--that is, the location of the homesite, the occupation of which generated this material--is unknown.

A reflection of an archeologically well-documented period of our history, little of this site remains useful for interpretation, although its study might reveal the selection of certain brands, marketing processes and the availability of products in the project area during the turn of the century.

We believe we will find better information in tighter and more reliable, contexts elsewhere in the project area. This site is not recommended for a determination of eligiblity for inclusion within the National Register of Historic Places.

Site 41BQ115

This site is the eroded remains of a prehistoric campsite. Almost no cultural material was found here, but the site's location is within an environment chosen frequently by Native Americans, a high knoll adjacent to the flood plain (See Figure 3.c.). This destroyed site is located at an elevation of 842-848 and outside the direct effects of the proposed Lake. It is not considered a candidate for inclusion within the National Register of Historic Places nor is it one that is recommended for further investigation.

Site 41BQ116

The location of a dart point discovered during our survey, Site 41BQ116 pinpoints its occurrence (See Figure 3.c.). At an elevation of 815-820 feet m.s.l., the point was found on a floodplain rise. The projectile point is similar in outline to no common type, probably because of the extensive retouching which it has undergone (See Figure 6.e.). Because the stem exhibits grinding along its lateral and basal edges, it may be one associated with the Early Archaic, and is somewhat like the *Gower* or *Hoxie* type (Turner and Hester 1985:105-106). The projectile may have been lost or discarded here by a hunter during the Early Archaic or later era for a search of the surrounding area revealed no other cultural material or features.

This site is not recommended for further work and is not considered worthy of nomination to the National Register of Historic Places.

Site 41BQ117

Below a knoll on a sloping surface above the flood plain of the Bosque, this multiple component site is one where cattle gather for feeding, resulting in erosion and the churning of cultural material. The site is located in an area which will be flooded very infrequently, at 840 feet above m.s.l. and higher (See Figure 3.c.).

The prehistoric remains of this upland site include a fragment of a unifacial tool, a fragmentary biface, battered chunks of chert, and chert flakes which indicate that lithic reduction and tool making were Native American activities here. Historic artifacts include a fragment of a cast-iron kettle,

marked "2 Gall/," fragments of colorless glass, photochemically altered to purple, indicating the presence of manganese and probably predating World War I, a few pieces of colorless glass, perhaps dating to after World War I, and fragments of dishes--a blue glass bowl, an ironstone saucer, and a pearlware plate. Also found were fragments of crockery, one of which was identified as part of a lid.

Little of this site remains in evidence, with none thought to remain *in situ* Accordingly, this site is not recommended for further work. At our present level of understanding, 41BQ117 is not recommended for a determination of eligibility for inclusion within the National Register of Historic Places.

Site 41BQ118

This multiple component site is thought to be a prehistoric campsite as well as the remains of a homestead built here in the late 19th century, astradle the road which leads to the ford that crosses the Bosque River (See Figure 3.c.). Located above possible flooding on the second terrace, the site overlooks the broad alluvial floodplain which was probably farmed by the site's inhabitants. If the historic site was not located on both sides of the road, then the unimproved one of the present has bisected it, leaving a residue of disturbed foundation remains on the eastern side of the road, with the majority of historic artifacts found on the western side.

Historic artifacts included a couple of broken ironstone coffee cups, another thought to be made of pearlware, and fragments of two ironstone plates, the bottom of one having a partial mark which includes the letters "ILES," probably British (See Figure 8.o.). An abundance of wheel-thrown crockery fragments, thought to represent a minimum of six specimens, cut nails, fragments of bottle glass in colors of green and brown, and fragments of a cast-iron stove with a floral motif, including a leg with leaf design, marked "0," were also found on the surface. Prehistoric material culture was also found here, including a plow-struck mano, a fragment of metate, a chunk and interior flake of chert. This prehistoric material was traced upslope to Site 41BQ119, discussed below.

This site is one we would like to know more about. It could be quite early, with the first historic occupation here shortly after the Civil War. The use of remote sensing here might reveal the presence of sub-surface features which could then be the subject of archeological investigation. While feasible for this site, such measures are presently considered to be of low priority, given the needs at other sites which will be more directly impacted by the

Lake. At present, Site 41BQ118 is not recommended for inclusion within the National Register of Historic Places.

Site 41BQ119

This high, flat ridgetop located at an elevation of 860 feet above m.s.l., has a commanding view of the river bottom from the west to the northeast (See Figure 3.c.). Almost nothing remains of the prehistoric campsite which was here before the terrace was scraped by heavy machinery, probably a bulldozer. But here and there, one spies the crushed remains of a manuport, perhaps once recognizable as a hammerstone, flakes of lithic reduction and tool manufacture, or a fragment of clamshell.

Recorded because of its importance in understanding the general prehistoric settlement pattern in the project area, Site 41BQ119 is not recommended for a determination of eligibility for inclusion within the National Register of Historic Places. Site 41BQ119 is not recommended for further investigation.

Site 41BQ120

Located above and adjacent to a flowing creek which pools here, then cascades over a waterfall, this site is a multiple component one which includes the remnants of a prehistoric site, atop which is built a late 19th century or early 20th century house (See Figure 3.c.). Outbuildings are found to the northwest and to the north, the remains of an underground chamber--presumably a storm cellar dug into the side of the hill, covered with timber and then, with soil--can be seen. In the dripline under the roof of the house were found several prehistoric chert flakes resulting from the manufacture of tools here. Historic artifacts were abundant, but collection was limited to those thought diagnostic. Fragments of glass were the only historic materials recovered from the site. One basal fragment of a cylindrical brown bottle is marked, "/HILA," the other is of colorless glass, thought to date to after World War I.

Located at an elevation of 853 to 856 feet above m.s.l., Site 41BQ120 will not be directly effected by the creation of Lake Bosque. The pre-entry interview with the current landowner indicated that the house was an old one on the property when it was purchased in 1928 (personal communication, Homer E. Woody). While of no particular architectural merit, the site is old enough to be considered as one potentially eligible for inclusion within the National Register of Historic Places. As regards the prehistoric component here, it may be in better condition under the structure than elsewhere and may

contain in-place cultural deposits, a rarity at upland sites in the project area. This site is not presently recommended for further investigation.

We crossed the waterfall for a second time when we left the site area. On the edge of the falls, the writer in new boots, slipped, turned a somersault and landed seven feet below at the bottom of the falls, uninjured. Throughout the remainder of the investigation, crew members referred to the area as "Alton Falls."

Site 41BQ121

On the north side of the North Bosque River, Site 41BQ121 is a prehistoric one located atop a rise on the edge of the second terrace, or fossil floodplain, above the river (See Figure 3.c.). From the top of the rise at an elevation of 850 feet m.s.l., this site extends down the slopes to an elevation of 838 feet. Like most of the sites on this property, the site has been cleared with heavy machinery, has been sprigged with coastal bermudagrass and converted to range for cattle production.

Artifacts found on the eroded slopes include the fragment of a bifacial tool, perhaps a large perforator/drill missing the distal portion (See Figure 4.c.), fragments of three unidentifiable bifaces, a so-called "biscuit" mano of sandstone and a fragment of another mano, this one of quartzite with a flat ground surface. Also recovered was a pebble bifacially reduced on one end with cortex left on the remainder; As is indicated by the heavily battered edge, it may have served as a chopping tool (See Figure 4.g.). A variety of flakes, chips and chunks of chert were collected.

Displaced by machinery and eroded by the elements and livestock, none of this site is thought to remain in a context useful for further archeological investigation. Site 41BQ121 is not recommended for inclusion within the National Register of Historic Places.

Site 41BQ122

Located just downstream, and east of the confluence of Barry Creek and the North Bosque River, this site is a multiple component one (See Figure 3.b.). Situated on top of a low bluff overlooking the North Bosque, the site is dominated by a recent oak log cabin. According to our informant, the structure is built on the foundation of a 19th century cabin occupied by a family with the surname of Parson(personal communication, R. L. McCoy). Archival research has not revealed additional information on this family.

No 19th century historic artifacts were found on the surface surrounding the present log structure, but this is an area which floods periodically. Such deposits of cultural material could be covered with a blanket of recent alluvium. In the eroded bank of the North Bosque, about 1.3 meters below present ground surface, we cleaned the profile and took a sample of buried mussel from a profile which was otherwise undifferentiated. We removed 33 grams of clamshell, a sample barely large enough to use for radiocarbon dating. The sample was been submitted to the Radiocarbon Laboratory at Balcones Research Center, the University of Texas at Austin. The date of sample TX-5794 was 2300 ± 70 years before the present (See Table 1.).

Intact deposits of subsistence materials in a datable context are a target of this survey. Because the results of our sampling prove promising, this site is recommended for further investigation. At present, this site is one considered to be potentially eligible for inclusion within the National Register of Historic Places and a candidate for designation as a State Archeological Landmark.

Site 41BQ123

This historic house stands much as it did when it was first constructed in 1881 (See Figure 3.b.), although our observations indicate the structure was expanded sometime after its initial construction (personal communication, John R. Thompson). Facing to the north and a now deserted roadway, which served this structure and the one to the west, the Half Chimney House Site, 41BQ103, the structure has been recently repainted and efforts made toward its stabilization. Foundation remnants of outbuildings are found to the south of the structure and the omnipresent root-storm cellar to the west. We have been told that this was once the domicile of James Buckner Barry; research concerning Colonel Buck Barry, Texas Ranger and this old structure continues.

This structure will not be in the area impacted by the construction and operation of Lake Bosque. Notwithstanding the structure's proximity to the present highway and the East Bosque River on Ranch-to-Market 927, it will not be affected by highway or bridge relocation. This structure is considered to be potentially eligible for inclusion within the National Register of Historic Places because of architectural merit.

Site 41BQ124

These three prehistoric localities are found on the floodplain in a field that is in tillage (See Figure 3.b.). On ephemeral floodplain rises of recent alluvium which are separated by subtle drains, each area produces a few fragments of clamshell. In small quantity and the only material found on site, the shell marks areas where machine testing at depth is recommended to learn more about the deposit of shell and to attempt dating the recent alluvial regimes of the North and East Bosque Rivers.

Because of the information this locality is thought to contain, it is considered to be eligible for inclusion within the National Register of Historic Places. It is considered eligible for designation as a State Archeological Landmark.

Site 41BQ125

This prehistoric site is located on the eastern edge of an old eroded terrace (See Figure 3.b.). Material culture is found in a thin deposit of wind-blown sand and sandy loam, generally less than 20 centimeters in depth, in a field which is plowed several times each year. Portions of the site appear to be relatively intact to the southeast in the next property, across the fence. Here, the site is devoted to range, subject to erosion accelerated by the hooves of livestock in their passage from the terrace to Willow Springs Creek. The fragment of a mano, chert flakes and clamshell found at the site reveal that Native Americans prepared food here as well as reduced lithic material and produced stone tools.

This site is recommended for further work, especially the search for in-place deposits of food remains or radiocarbon to date the site and age the upper geological surface of the terrace deposits. It is one thought to be potentially eligible for designation as a State Archeological Landmark and for inclusion within the National Register of Historic Places.

Site 41BQ126

This prehistoric site is located along the same terrace as the one just discussed (41BQ125), on a slightly flatter and higher elevation (See Figure 3.b.). Situated more central to the ridge, this campsite is well drained and habitable when 41BQ125 to the southeast may be covered with several inches of water. Water from rainfall and seeps which collects there is now diverted to a great extent by drains placed there recently. Site 41BQ126 is now marked by the presence of a windmill in the middle of a field which is plowed on an annual schedule.

Native Americans probably obtained their water from the nearby tributary today called Willow Springs Creek, but the mussel shell found at the site hints at a subsistence relationship based on trips to the channel of the North Bosque River. The lithic scatter and metate fragment found on the eroded surface indicate that lithic reduction, stone tool production and food processing were some of the activites carried out at this site during its occupation.

Based on our observations, Site 41BQ126 may have always been entrapped in shallow colluvial deposits which are now disturbed by erosion, well digging,windmill construction and operation, plowing and grazing. This site is not recommended for further investigation. Site 41BQ126 is not presently considered a candidate for recommendation to the National Register of Historic Places. It is not recommended for designation as a State Archeological Landmark.

Site 41BQ127

An historic house built during the late 19th century once stood on this spot (See Figure 3.b.) identified by the presence of window pane fragments, broken crockery and dishes, and cut nails. Our interview with the landowner revealed that the structure had been here until the recent past(personal communication, Jack Gilleland). The structure was initially slated for restoration and preservation. As the structure was being disassembled, it became evident that the foundation had long ago given way. The entire structure had settled, slumping down and inward, and slowly, the boards of the house had adopted a new set. As the floor was being leveled, it became obvious that perpendicular surfaces would never again be achieved inside the structure and it was disassembled for materials.

Little remains at the site of this structure. Its location within an area now devoted to the management and feeding of livestock has further obscured its presence. Site 41BQ127 is not recommended for further work. It is not presently considered a site to be recomended for a determination of eligibility for inclusion within the National Register nor is it one meriting designation as a State Archeological Landmark.

Site 41BQ128

Site 41BQ128 is a small historic dump directly north of and opposite the property line of a house that was occupied after World War II (See Figure

3.b.). Items found here include a stoneware fragment of crockery and an ironstone saucer and a variety of colored bottle glass.

Our search of the ground surface surrounding the structure across the fence does not indicate that it is one built atop a site occupied during the period of the dump. There is a possibility that Site 41BQ128 is associated with the house and barn foundations recorded as 41BQ101 and 41BQ102. If our present dating of these two sites is correct, they cease to be occupied at about the time we believe the dump was first used. Unless investigations at 41BQ101 and 41BQ102 indicate otherwise, no further work is warranted at this site.

Site 41BQ128 is not presently recommended for designation as a State Archeological Landmark nor considered a candidate for inclusion within the National Register of Historic Places.

Site 41BQ129

An early 20th century house was once located on the terrace overlooking Willow Springs Creek as is revealed by a disarray of foundation materials and artifacts in a grassy, rolling meadow (See Figure 3.b.). The site has been cleared and pushed by heavy machinery, probably a bulldozer; erosion and grass cover have softened the scars of this site's disturbance. Artifacts found here include fragments of glass dishes, bowls and bottles, which are thought, based on finishes and color, to be from the late-19th century until the First World War. Stoneware found includes an abundance of wheel-thrown crockery and ironstone, a plate, saucer and bowl. A cast iron wrench was also recovered.

Too disturbed and scattered to be useful for further research, Site 41BQ129 is not recommended for designation as a State Archeological Landmark, nor for inclusion within the National Register of Historic Places.

Site 41BQ130

Centrally located on a ridge which overlooks the valley of the North Bosque River to the southwest, this historic site marks an early settler in the area, probably before 1870, possibly before the Civil War. With the lake at maximum flood pool, the site will remain above water at the tip of a peninsula (See Figure 3.b.). Already naturally eroded and cleared by heavy machinery on the slopes which surround it, the house site may still retain some foundation rock in place although a few stones may have been robbed for construction elsewhere. Artifacts recovered from the surface consisted

of crockery, including some thought to be identifiable as to maker, a whiteware cup fragment with blue underglaze transfer print, thought to be mid-19th century in age, and an ironstone plate fragment (See Figure 8.a.), marked with the characters, "RO\YAL// IR\ONSTONE//G\ODDARD."

This site is one of the earlier historic sites discovered in the uplands of the project area. It, with Site 41BQ138, is considered likely to be the homesite of General Alison Nelson, with 41BQ138 the present favorite. Because it may prove important to an understanding of the early history of the area, Site 41BQ130 is considered to be potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ131

This historic structure was built to the northwest of the modern house which replaced it (See Figure 3.b.). Other than a disturbed scatter of historic artifacts in a field sprigged with coastal bermuda, nothing appears to remain of the house once located here. The structure was demolished in the recent past. Now in an area of heavy livestock traffic, the site is subject to the churning feet of cattle. Aside from artifacts which can be used for the relative dating of the site, sometime in the late 19th-century, probably after 1880, little remains for interpretive purposes.

Demolished by the owner and altered through landuse, Site 41BQ131 is not recommended for further investigation. It is not considered to be a candidate for designation as a State Archeological Landmark or recommended for a determination of eligibility for inclusion within the National Register of Historic Places.

Site 41BQ132

Located outside the impact of Lake Bosque at an elevation of 870 feet m.s.l., this historic housesite is one demolished in the recent past by the present landowner. It is situated on the edge of the upland terrace to the northwest of Willow Springs Creek (See Figure 3.b.). Part of the drive, the drilled well and the landscaping of the general site remain. The ground is littered with artifact scatters around the site of the house and the foundations of outbuildings.

Earthenware pottery, stoneware crockery and porcelain are among the ceramic fragments found near the house. Bottles, canning jars, and plate glass and a mother-of-pearl button as well as a hinge of mussel shell were

found nearby. Metal artifacts are particlarly common. One, a 31 millimeter in diameter brass make-up case cover, is marked:

DEAR MADAM:
DON'T EXPECT BEST
RESULTS FROM LADY ESTHER
ROUGE UNLESS YOU CAREFULLY
FOLLOW DIRECTIONS SHOWN
IN "MY ROUGE GUIDE"
CORDIALLY
LADY ESTHER
SHADE №7
Made in U.S.A.

We recovered another lid, this one of copper, marked "MELBA," a suspender snap cover marked "BOY BLUE," and a child's tableknife fragment, which when cleaned by electrochemical means, revealed a small boy holding a frog, his dog sitting at his feet, marked "BUSTER BROWN," a popular cartoon character before 1910. A United States one-cent coin with little wear but oxidized from long exposure to the elements, was found in the drive near the house; made at the Denver Mint, the coin bears the date, 1941.

Well outside the area to be affected by Lake Bosque, Site 41BQ132 is not recommended at this time for further work or inclusion within the National Register of Historic Places.

Site 41BQ133

The site of a hand-dug, limestone-lined well, Site 41BQ133 (See Figure 3.b.) may be associated with the house site, 41BQ134, or the site just discussed above. No artifacts were found surrounding the well, although its method of construction is consistent with other wells we have found in the project area which we are quite certain were dug in the 19th century. Adjacent to an unimproved road, the well is relatively close to ten large, flat-lying limestone rocks also near the roadway. If once a part of a foundation, few, if any, of these stones, are still in place.

Not recommended for further investigation, Site 41BQ133 is not considered eligible for inclusion within the National Register of Historic Places.

Site 41BQ134

Marked by a scattered limestone foundation and fragments of 19th century artifacts, Site 41BQ134 is thought to be the location of a homestead, the foundation, the remains of a log cabin. Located in a motte of Liveoaks, the

site is on a slight slope above Willow Springs Creek (See Figure 3.b.). Opposite an unimproved road which once served the site is a small oval area dug into the ground; this feature may have served as a storm cellar for the residents. Stoneware fragments included a drawer pull, four types of crockery and ironstone, in creamer, plate, and saucer forms. A porcelain cup and fragments of white milk glass, probably a canning jar lid, as well as other glass in a variety of colors and forms, including jars, bottles and a dish or bowl were found. Metal artifacts recovered include part of a stove, a cast iron vent cover, and the brass frame of an aeolina, more commonly called a mouth-harmonica (See Figure 7.b.).

Outside of the area to be affected by Lake Bosque, Site 41BQ134 is not recommended for further work. Site 41BQ134 is not presently considered eligible for inclusion within the National Register of Historic Places.

Site 41BQ135

On a high, sloping hillside overlooking Willow Springs Creek from the northwest (See Figure 3.b.), Site 41BQ135 is a prehistoric campsite eroded to bedrock. Broken projectile points and other bifaces, thick bifaces which may have served at different times as cores and tools, and chunks, flakes and chips of chert were recovered. A small quartzite mano ground on two surfaces and fragments of clamshell were also collected.

At too high an elevation, between 858-870 feet m.s.l., to be affected by Lake Bosque, Site 41BQ135 is not recommended for further work, nor is it presently considered to be one eligible for inclusion within the Naitonal Register of Historic Places.

Site 41BQ136

This historic site marks the location of a late 19th and early 20th century house which has been cleared and disturbed with the aid of heavy machinery (See Figure 3.b.). No artifacts were collected from this destroyed site, but we observed fragments of ironstone, porcelain and photochemically weathered purple glass.

Above an elevation of 830 feet m.s.l., this site will periodically be flooded by Lake Bosque. It is not recommended for further investigation. It is not presently considered to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ137

Covering much of the southeastern portion of Pearce Ridge, the name we gave to the red, pleistocene levee deposit northeast of Jackson Crossing, this large prehistoric site is thought to be Late Archaic in age (See Figure 3.b.). Although only fragmentary projectile points were found at the site, their general size, and one which is side notched (See Figure 6.1.), lead us to this tentative assignment of age of occupation. The cultural material, which includes in additon to chert artifacts, a quartzite mano with a pit in the center of the grinding surface, a metate fragment, and clamshell, seems to be resting on an eroded surface, presently held in position by a thin blanket of fine sandy loam. No in-place deposits were noted in this moderately heavy scatter of artifacts and shell, but as this site is the only one on Pearce Ridge that does not appear to have been heavily disturbed by agriculture, and may contain hidden deposits of value, we recommend further work. Extensive machine trenching perpendicular to and along the axis of the ridge would reveal such buried deposits.

This site will be inundated at normal pool elevation. This site is eligible for designation as a State Archeological Landmark and potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ138

This multiple component site not only contains a buried prehistoric site which is revealed by the presence of chert and clamshell, it also is one of the earliest historic sites located during our investigation (See Figure 3.b.). The site is disturbed, with some machine pushing in the area once thought to be the site of the structure, thought to have been a house. An inspection of this same area revealed the presence of the prehistoric material in the alluvial fill upon which the structure was built. Historic artifacts are abundant and generally appear to be from the early pioneer period of the mid-19th century. They include fragments of four different stoneware crockery containers, another of earthenware, two ironstone chamber pots, a flown-blue underglaze, edgeware plate, and several ironstone plates and a saucer (See Figure 8.g.). Several fragments of glass items were found, most were bottles in shades of brown, dark and emerald green and aquamarine. One fragment of a tumbler, a fragment of white glass thought to be a bottle and one sherd of colorless glass were also recovered. Iron artifacts included cut nails and fragment of cast iron stove leg.

Undisturbed prehistoric deposits appear to lie underneath the disturbed historic foundation at Site 41BQ138. This site is thought to be the early

domicile of General Alison Nelson, and if so, occupied directly before the "Great Breakup" and the Civil War. It lies within lands owned by Nelson during this time period. Recommended for further investigation, Site 41BQ138 is considered to be potentially eligible for inclusion within the National Register of Historic Places and a candidate for designation as a State Archeological Landmark.

Site 41BQ139

Located on the edge of the valley along an eroded, sloping terrace between Gibson Branch and the North Bosque River (See Figure 3.a.), Site 41BQ139 is a prehistoric one first discovered in a primitive road which runs along the terrace. Derived chert tools (See Figure 1.f.), flakes, cores, and a quartzite mano, ground on one face and side (See Figure 9.b.), were found in the loose sand which overlays the red clay that makes up the subsoil of this site. Our probes and search along the margin of the site failed to reveal any *in-situ* deposits. While each site discovered throughout this investigation is considered to be unique, and this site is no exception, we believe that 41BQ139 is similar in many respects to Site 41BQ235, which is up Gibson Branch in an area more conducive toward its preservation, than is found at Site 41BQ139.

Site 41BQ139 is not recommended for further investigation. It is not considered eligible for inclusion within the National Register of Historic Places nor for designation as a State Archeological Landmark.

Site 41BQ140

This is a historic housesite, demolished probably within the last decade by the current owner. The foundation of puddled cement with one standing wall of stone are all that remain of the small structure, shown on the 1955 Meridian, Texas, 7.5 minute U.S.G.S. topographic map as still standing, but no longer occupied (See Figure 3.a.). The artifacts surrounding the structure were few and mixed with recent trash, presumably the residue of campers who trespass here. Our observations based on this artifact scatter led us to conclude that this structure was occupied in this century until shortly after World War II. In usual circumstances, we would have been given additional information concerning this structure by the property owner. This is one of the few sites that we visited without the benefit of our pre-entry interview. Repeated telephone efforts to contact the landowner failing, we mailed letters, without response.

Site 41BQ140 is not a site we recommend for further investigation. Given the present level of knowledge concerning this site, it is not one considered eligible for inclusion within the National Register of Historic Places.

Site 41BQ141

The artifacts found at this spot provided a signature we usually recognize as that of a house (See Figure 3.a.). They included domestic ceramics, one an ironstone plate, pressed glass, bottle glass in several colors, especially purple and brown, and the broken cast iron leg of a stove. A search of the meadow in which they were found indicated that heavy machinery had been at work here, with a few residue piles still remaining visible in the margins of the clearing. None of these piles contained the foundation material we expected to find. Our final analysis of this site is that it is dumped household trash, probably from 41BQ140, the demolished housesite to the northwest.

This 20th century dump is too scattered to be of further value. It is not recommended for designation as a State Archeological Landmark, nor for inclusion within the National Register of Historic Places.

Site 41BQ142

A heavily eroded southeastern slope exposed to the indurated Paluxy sand (See Figure 3.b.), this site is a prehistoric one which, because of the erosion, exhibits a wide scatter of lithic items. A projectile point (See Figure 6.f.) and three manos, two of them fragmentary, were recovered. Chert flakes, bifaces fragments and a hinge of clamshell were also collected from this site. Lithic material is found from the uppermost slope to the centerline of the drain which carries surface water to the North Bosque. Our mine probes failed to reveal any undisturbed deposits of cultural material that were usable for archeological purposes other than site identification.

Site 41BQ142 is not a site recommended for further investigation. It is not recommended for inclusion within the National Register of Historic Places or considered one to be designated as a State Archeological Landmark.

Site 41BQ143

Found in the profile exposed by the drain which runs from the eroded slopes of the previous site, Site 41BQ143 is a prehistoric one which contains both clamshell and small quantities of chert debris exposed in the sidewall of a drain which cuts through the site (See Figure 3.b.). On a sloping terrace covered with vegetation, no other cultural material was noted. While there

is sufficient depth for a site to be buried here, the paucity of artifacts reduces our interest.

This site is recommended for sampling in conjunction with work needed at nearby sites 41BQ147 and 41BQ148. It is not considered a likely candidate for designation as a State Archeological Landmark or worthy of nomination to the National Register of Historic Places.

Site 41BQ144

Part of the old roadway which descended to the ford replaced by the Austin Bridge (41BQ108) at Jackson Crossing, Site 41BQ144 is two rock abutments which once supported a wooden bridge (See Figure 3.b.). Only the dry-stacked limestone masonry remains; the wooden trestle has long since rotted or was taken away for use elsewhere. After crossing the drain which has eroded Sites 41BQ142 and 41BQ143, the road ran toward the North Bosque River, then turned toward the northwest, where it can be followed to the present road, crossing it just southwest of the bridge at Jackson Crossing, through a gate and into the pasture beyond. Just upstream of the abutments, a few feet to the west is found another crossing, this one either used after the bridge gave way, to cross with loads heavier or wider than the bridge could sustain, or as a dry weather alternative.

Recorded to document part of the transportation system that was replaced by the current bridge and roadway, Site 41BQ144 is not recommended for further work. It is not considered a likely candidate for designation as a State Archeological Landmark nor it is considered to be one for inclusion within the National Register of Historic Places.

Site 41BQ145

This small prehistoric site perched on the edge of the high, upland terraces overlooking the proposed Lake is considered to be an important one (See Figure 3.b.). Located at an elevation between 856-862, this site consists on a hearth of limestone rocks in a roughly circular outline. In and around the hearth are fragments of mussel shell and flakes of chert. We avoided disturbing this hearth; moving well away from the center of the site, we tied our flagging tape in four trees, the intersection of these points falls directly over the hearth and it may be found with ease. Two chips of chert, both thought to be the residue of bifacial reduction and three fragments of shell were recovered. Three grams of shell were recovered (less than ten percent of the sample weight required for radiocarbon dating) without digging into

the feature. The hearth appears to be isolated from other features, with good integrity.

Site 41BQ145 is outside the area directly affected by the Lake, but is recommended for further investigation, perhaps total recovery. This site, and another hearth, Site 41BQ167, are thought to contain data which offer the opportunity to further evaluate the inorganic carbonate problem associated with the utilization of river shell for radiocarbon dating purposes. Because this is a major area of concern in dating the sites in the reservoir area which are to be affected by inundation, Site 41BQ145 is considered to be a site which is eligible for inclusion within the National Register of Historic Places.

Site 41BQ146

Located on the next terrace, above and to the southwest of the hearth site, 41BQ145, this site is a large prehistoric one which covers the eroded upland crown and terrace edge at an elevation between 860-870 feet m.s.l. (See Figure 3.b.). This site has been cleared with heavy machinery, the surface of the site still exhibiting eroding piles of earth and brush from this activity. Among the debris are scatters of burned limestone, chert debris and mussel shell, the remains, we believe, of hearths like the one recognized at 41BQ145.

No further investigation is warranted at this destroyed site. Site 41BQ146 is not recomended for inclusion within the National Register of Historic Places.

Site 41BQ147

Originally thought to be a deep site which ran along and was contained within the ridge of a crevass splay, or alternatively, a relict sandbar of the North Bosque River, Site 41BQ147 is a prehistoric one which contains burned rock, lithic debris and clamshell (See Figure 3.b.). Sampling revealed the deposit to be thin, averaging less than 50 centimeters, to the bedrock of the Paluxy sandstone. One of the few sites which exhibits surficial staining, presumably particulate carbon and organic residue, of the soil, Site 41BQ147 contains tools and projectile points associated with the Late Archaic (See Figure 10.a.&b.). Preliminary data indicate this site may be one useful in interpreting the multimodal exploitation strategy used by the prehistoric occupants of the North Bosque River valley. Of the material recovered during sampling, 48.3 grams of mussel shell was committed as a carbon-14 sample to the Radiocarbon Laboratory, Balcones Research Center, the University of Texas at Austin(See Table 1), with a resuting date of 3010 $\pm$ 50 years before the present (TX-5795).

This site is recommended for further investigation. It is considered to be one eligible for inclusion within the National Register of Historic Places and a candidate for designation as a State Archeological Landmark.

Site 41BQ148

This large prehistoric site was first noted as a light lithic scatter; it was traced to the edge of the floodplain on the channel of the North Bosque River where large quantities of chert (See Figure 4.a.) and mussel shell were found eroding onto the bedrock Paluxy sandstone formation, and thence, into the River (See Figure 3.b.). The only site we discovered during the investigation which provided a clearly differentiated profile on the basis of color, the result of cultural activity which had stained the light tan to brown sandy loam to a uniform dark gray to almost black, the site was scheduled for additional sampling. When we returned to the site to perform this additional work, we were shocked to discover that the rains which had seriously hampered our field efforts in late June and early July, had resulted in floodwaters which eroded the underpinning of the site, causing it to collapse into the North Bosque River, scattering site and contents downstream. Notwithstanding the loss, we located another area to perform limited sampling.

Our findings indicate that much of this site remains intact. It is buried and apparently, much of it undisturbed. The site is more than one meter in depth and contains well-developed Late Archaic components (See Figure 10.c.- k.). The deposits dip toward the channel of the creek, indicating a sloping surface at time of occupation. This slope is maintained through time, marked by two apparent pavements of hearth stone, one at about 35 centimeters in depth, the lower one at a depth of about 60 centimeters. The distribution of these rocks may only reflect concentrations of a generally consistent behavior through time, but they document the slope on which the site was building, which here dips toward the river, about 7.5 centimeters vertically for every horizontal meter. Of the material recovered during sampling, 96.7 grams of mussel shell was committed as a carbon-14 sample to the Radiocarbon Laboratory, Balcones Research Center, the University of Texas at Austin(See Table 1), with a resulting date of 3830 $\pm$ 70 years before the present.

Thought to be important to an understanding of the lifeway of the native inhabitants of the general area, Site 41BQ148 is considered eligible for inclusion within the National Register of Historic Places and is a candidate for designation as a State Archeological Landmark.

Figure 10. Artifacts recovered from sub-surface sampling at Sites 41BQ147 & 41BQ148.

a. From **41BQ147**, 0 to 10 centimeters, this dart point in the *Ensor-Ellis* tradition is made of bluish-gray chert.

b. From 41BQ147, 10 to 20 cm, this unstemmed biface used as a cutting tool is made of medium brown chert.

c. From **41BQ148**, as are the rest, below, this projectile point, from 20 to 40 cm, is of grayish-brown chert.

d. From a depth of 40 to 60 cm., this projectile point is of purplish gray chert.

e. From 40 to 60 cm., this biface fragment has serrated edges and barbs.

f. From 40 to 60 cm., this projectile point has beveled lateral edges.

g. This fragmentary projectile came from 60 to 80 cm.

h. This base and mid-section fragment is from 60 to 80 cm.

i. This stem fragment is from 60 to 80 centimeters.

j. Perhaps also used as a perforator, this point came from 60 to 80 centimeters below the surface.

k. This unifacial tool is modified opposite the bulbar end by trimming the opposite end and the lateral edges. It comes from 60 to 80 centimeters below the surface.

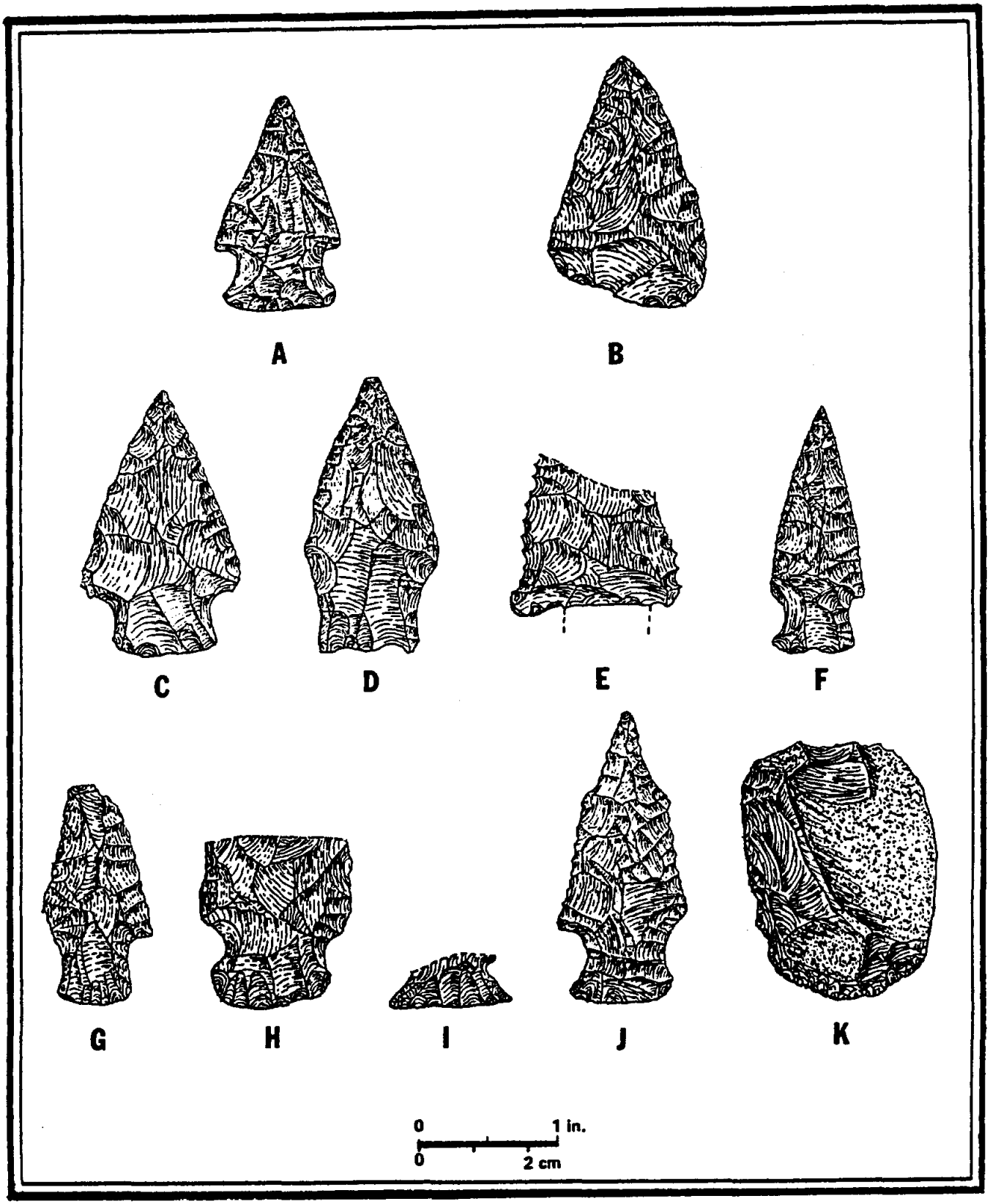

Figure 10. Artifacts recovered from sub-surface sampling at Site 41BQ147 & 41BQ148

Site 41BQ149

Probably the largest surface exposure of artifacts found throughout the project, Site 41BQ149 is a multiple component one centrally located in the middle of Pearce Ridge (See Figure 3.b.). The majority of the site has been affected by a variety of natural and mechanical agents. Along the southern lower margin, the site has been disturbed by plowing, fencing and the removal of trees, probably as nursery stock. The central portion of Pearce Ridge has been cleared by machinery and in areas, soil has been mined from the surface.

Prehistoric artifacts are fairly common throughout the area; most are what would be considered to be lithic debris, although a few broken projectile points (See Figures 5.e. & 6.g. & h.), biface and unifaces (See Figure 11.c. & d.), and a mano fragment were recovered. Also collected were 28 grams of mussel shell. Historic material is concentrated near the top of the ridge, not far from the location of the present house. While much of the historic area has recently been disturbed by a garden plow, the foundation of the original structure is in place. In the garden, we found fragments of two types of earthenware, three types of stoneware crockery, ironstone plates and saucers (See Figure 8.n.), "Blue Willow" underglaze whiteware, other decorated ware, and a porcelain bowl and saucer. Bottle glass in light purple, colorless, light green, aquamarine, amber and brown were recovered as well as part of the glass chimney of an oil lamp. Also found was an unidentified piece of ceramic fineware, a scroll, perhaps part of a cup, a blue and white ceramic "crock" marble, and one brass dome button, with a 19 millimeter diameter.

While the majority of both the components of this site have been disturbed, we know that the foundation of the historic house remains in place, Likewise, there are probably areas of prehistoric material culture in the site which are less disturbed than elsewhere. Our survey did not locate them during our visits. Additional sampling for prehistoric components during investigation of the historic features is recommended. The site area is extensive and more information concerning prehistoric usage of the Pearce Ridge area is critical to an understanding of adjacent areas where prehistoric sites have been virtually destroyed by clearing, cultivation and conversion to grasslands for livestock production.

Figure 11. Unifaces recovered during the survey of proposed Lake Bosque.

a. Resembling an exhausted unifacial core, this nubbin from Site 41BQ206 is the remains of a tool thought to have been used in the production of wood artifacts.

b. Exhibiting formal bilateral symmetry, this nubbin from Site 41BQ218 is otherwise similar to **a**., above.

c. This tool from Site 41BQ149 may be morphologically similar to the original configuration of **a**. & **b**., above.

d. Thinner and wider than the unifaces above, this tool from Site 41BQ149, exhibits a pattern of damage that suggests it was used in a fashion similar to all those above.

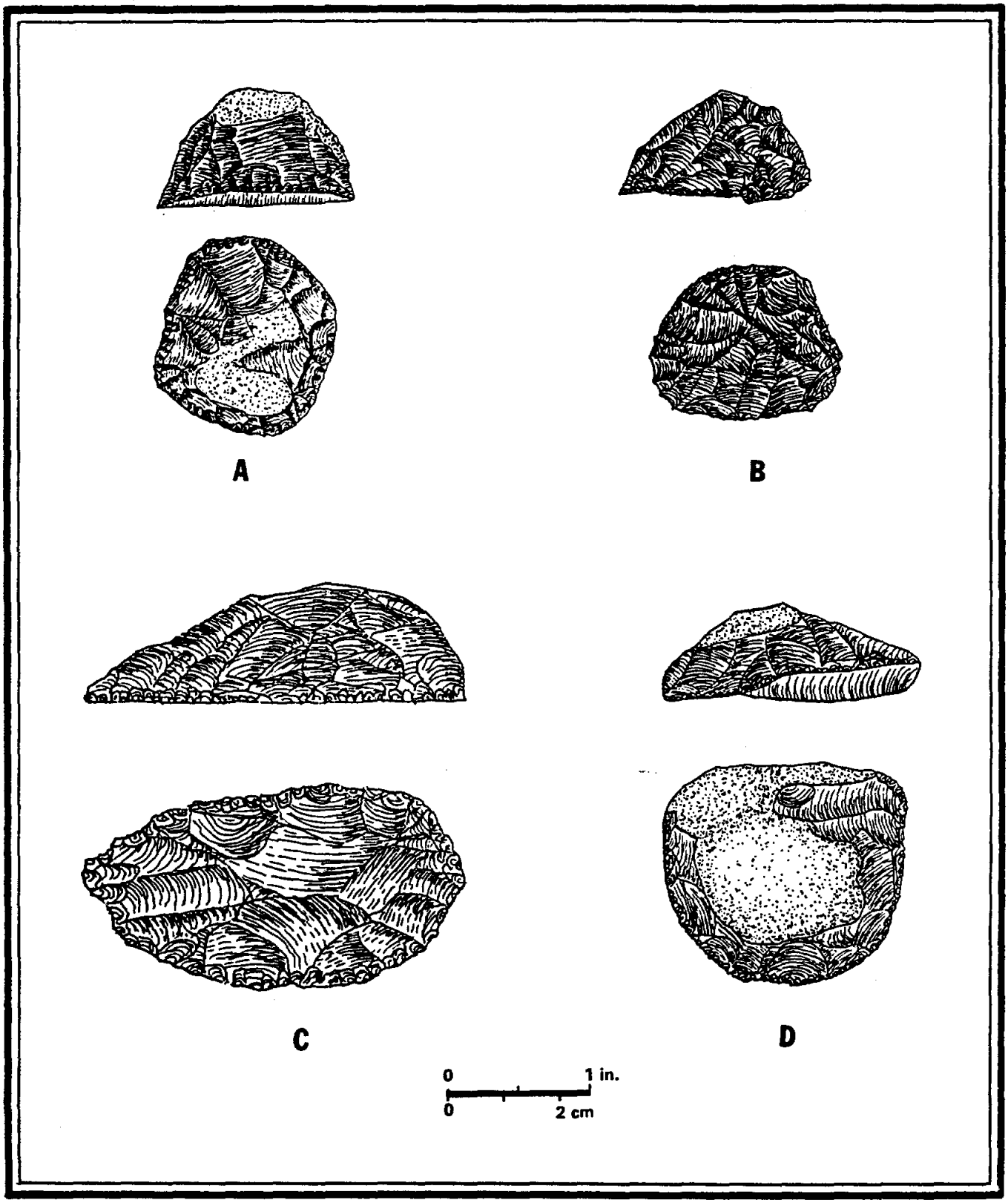

Figure 11. Unifaces recovered during the survey of Lake Bosque

Site 41BQ150

On an eroded mount of *Gryphaea* which will remain a peninsula when Lake Bosque is at floodstage (See Figure 3.b.), this prehistoric site is very thin and scattered. We recovered a dart point, a few chert flakes and a fragment of clamshell from amid the fossil shell which here is the major constituent of the soil.

Not recommended for further investigation, Site 41BQ150 does not merit inclusion within the National Register of Historic Places.

Site 41BQ151

This large prehistoric site is, like 41BQ150, on an eroded bed of *Gryphaea* (See Figure 3.a.). Short grasses and a thin soil contributed by the upland slopes and the wind serve to stabilize the cultural deposits. Some of the surface has been disturbed by the clearing and digging which occurred there during the installation of a 66 KV transmission line through the site. This disturbance is probably the reason we were able to find some of the five fragmentary projectile points (See Figure 5.h. & l.). Biface fragments, a couple of unifaces, flakes of chert, some the result of lithic reduction, others, the residue of tool production, were also recovered from among the scattered fire-cracked rock on the surface. We collected 23.7 grams of clamshell, too small a sample for dating purposes. The systematic use of mine probes indicates the soil on this Middle to Late Archaic site is rarely more than 20 centimeters in thickness.

With a shallow deposit and no apparent intact features, Site 41BQ151 is still considered to be a potentially important one. Upland sites not exposed to bedrock are uncommon, and this is one. Additonal sampling is warranted, especially in areas directly affected by the construction of the dam and spillway. Site 41BQ151 may prove eligible for inclusion within the National Register of Historic Places and one for designation as a State Archeological Landmark.

Site 41BQ152

This historic site is located on the edge of the upland terrace (See Figure 3.a.). Although the family who lived here probably left by the end of World War II, the grape hyacinth and iris which were planted northeast of the house still bloom. The rock foundation of the house retains good integrity, with the concrete doorstep in position on the southwest. Southwest of the foundation is the root and/or storm cellar. The crockery, glass, bottles,

dishes--all the fragments and specimens--have characteristics of early 20th century manufacture. The mouth-harmonica frame we found here was a rusted one of sheet iron, in response, perhaps, to a brass shortage during the war (See Figure 7.e.). No materials recognized as post World War II were recovered. Relatively undisturbed and apparently uncontaminated by more recent artifacts, Site 41BQ152 is considered to be a good example of a 20th century occupation.

To be affected by construction of the dam and spillway, Site 41BQ152 is recommended for further investigation and archival research. The site is considered eligible for inclusion within the National Register of Historic Places and is a candidate for State Archeological Landmark status.

Site 41BQ153

This site is located on the lower terrace, at the toe of the slope, slightly above and fairly close to the floodplain and channel of the North Bosque River (See Figure 3.a.). We found the remnants of a presumed log cabin, almost buried under colluvium and juniper needles at the end of a rockwall--called a drift fence, according to Roy V. Nichols, to keep one's cattle from drifting to a neighbor's property (personal communication), something the fences probably accomplished. We found them to be synonymous with old property lines.

We looked for cut nails, but found none on the thick humus. Other items, however, were well represented. Bottle forms included fragments of a picnic flask, four mold-blown bottles with brandy, double-bead and florida water finishes (Wilson 1981). Weathered purple glass, a fragment of a milk glass mug, an ironstone cup, wheel-thrown crockery and a ceramic cannister fragment were found. Metallic artifacts include a "tin" can and a harness buckle. Timewise, the artifacts seem to be restricted to the late 19th century, from after 1880.

This site may be affected by construction of the dam, spillway or haul roads. The placement of this site near the horticultural terrace and close to water marks it as an early settlement. Site 41BQ153 is considered to be a candidate for State Archeological Landmark status and potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ154

This prehistoric site is a very light lithic scatter in an eroded open meadow above an upland drain (See Figure 3.a.). In the short grasses, we found a

fragment of a unifacial tool and a half-dozen flakes distributed over a very broad area. Presumably the residue of a short term encampment, little of Site 41BQ154 remains.

Site 41BQ154 may be affected by the construction of the dam, service spillway and haul road. Given our current understanding of the site, it is not recommended for further investigation or for National Register inclusion.

Site 41BQ155

This prehistoric open campsite is situated on a hilltop above two intermittent seeps or springs feeding a tributary of the North Bosque River (See Figure 3.a.). The site has been scattered by clearing with heavy machinery, probably by the owner, as well as operations associated with the construction of a 66 KV transmission line through the site. Probing revealed that in most areas, the site is less than 5 centimeters, or two inches, thick. Artifacts found here consisted of lithic debris and several fragmentary bifaces, including two projectile points (See Figure 6.k.).

Little remains of Site 41BQ155 that is useful for further investigation. The cultural material found at the site is altered and derived--no longer in original position-- from interpretable context. This site is not recommended for the National Register of Historic Places.

Site 41BQ156

This historic site is associated with the early transportation system put in place by the local residents, as well as with early property lines (See Figure 3.a.). Throughout our investigation, we found few present property fences to be congruent with old property lines. In most cases, we find the old rock fences inside the property, with the current property expanded by later surveys. This site is no exception.

The site is the road, ford and rock wall which come together to cross at a spring fed tributary. We gave the tributary the name of Beaver Creek because of all the signs of *Castor canadensis* in the neighborhood, including a dam, fallen timber and curiously cut short logs, generally measuring less than 40 centimeters in length, with tapered ends. To descend from the hilltop to Beaver Creek, the builder had to cut and fill along the edge of the terrace, cutting through bedrock much of the way. The resulting limestone rubble was utilized for fence construction and to fill the creek with a loose jumble of rock which allowed the passage of water but provided a firm

footing for wagons or other traffic. This road was probably replaced by the current one which crosses the creek about 350 meters upstream.

No artifacts were found to be associated with the features described above. Not recommended for further work, Site 41BQ156 is not considered eligible for inclusion within the National Register of Historic Places nor is it a likely candidate for State Archeological Landmark status.

Site 41BQ157

This is the location of an early 20th century house which has been cleared with heavy machinery and a modern house built on the original site (See Figure 3.a.). Only a few artifacts were recovered to document this house site. Metal items included the bilateral half of a toy cap pistol, and a fragment of a tire pressure gauge which very much resembles a brass shotgun cartridge case, marked, "SCHRADER-UNIVERSAL, BROOKLYN, N.Y., patented July 6, 1909-Mar 28, 1916-Feb 14, 1922." Fragments of ironstone and crockery were recovered as was the neck and finish of a light green bottle.

Site 41BQ157 was recorded to document the historic settlement pattern of the project area. It is not recommended for further work. It is not considered to be eligible for inclusion within the National Register of Historic Places nor one to be designated as a State Archeological Landmark.

Site 41BQ158

This site is a deeply buried one, presently outside the reach of conventional equipment, on the channel of the North Bosque River (See Figure 3.a.). Only mussel shell is found in a layer in dark loam, in a shear bank on the northern side of the channel. The site is due south and directly adjacent to the present property line. The site cannot be approached from below without scaffolding, nor from above without rappeling, the latter not considered to be a viable alternative when one considers the on-going sloughing of the bank here. Given our experience with dating shell at Site 41BQ216-41BQ217, this mussel shell should be subjected to radiocarbon testing and the results compared with the other sites undergoing similar evaluation before any efforts are made to strip away overburden, here an extremely expensive proposition.

Nevertheless, we consider it a likelihood that this site is a buried prehistoric open camp and an important one in understanding the lifeway of the Native American inhabitants of the general area. Until sampling or deep machine

coring proves the site to be of no value, Site 41BQ158 is considered to be one potentially eligible for inclusion within the National Register of Historic Places and a candidate for designation as a State Archeological Landmark.

Site 41BQ159

We discovered an ephemeral scatter of historic artifacts on a slightly sloping upland terrace, and traced the artifacts across the barbed wire property fence to find what is probably the largest complex of historic foundations discovered during our investigations (See Figure 3.a.). Among the juniper, hackberry and liveoaks, we counted at least five foundation remains, including a carefully constructed storm or root cellar lined with limestone with radiused corners, an unusual building method. At the moment of its discovery, the cellar was filled almost to capacity by water; we could not determine if this was the result of surface runoff or groundwater infiltration.

The site appears to have escaped the notice of relic hunters and to be relatively undisturbed. We were surprised to find such a large historic site not revealed to us by the pre-entry interviews with the surrounding owners. Artifacts observed or recovered from the site include fragments of early Mason aquamarine canning jars, panel bottles in a variety of colors, including colorless and light green, and a whiskey bottle turned purple from photochemical weathering. Whiteware included fragments of an Ironstone bowl and saucer. Other ceramics included dishes decorated with green underglazes and gilt-edged, and two forms of crockery. Metal recovered was all cast iron, most identifiable as parts of a kitchen stove.

We went to the neighbors and asked if they might provide us with some additional information concerning the site, its original occupants, etc. Jeffie Hanna remembered the place, recalling that he had seen a board house, delapidated and unoccupied, when he left the area to join the service in 1938 (personal communication).

Above the normal pool of Lake Bosque, and to be periodically affected by flooding above 833, Site 41BQ159 is recommended for further investigation. In addition to archival research, the site is recommended for clearing of vegetation before any further mapping is attempted. This site is thought to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ160

This prehistoric site is just northwest of a small peninsula on the upstream side of the dam (See Figure 3.a.). The eroded, sloping surface of the site

showed many fragments of mussel shell; we collected a fairly large sample of shell, 83 grams, for later radiocarbon testing. Our examination of the site revealed chert flakes, a biface fragment, a broken uniface, and a fragment of a sandstone mano. Probing revealed the site to be very thin, the deposit concentrated between 0 to 10 centimeters, or about 4 inches.

This site is not recommended for further investigation. It is not considered to be a candidate for State Archeological Landmark status or inclusion within the National Register of Historic Places.

Site 41BQ161

On a terrace edge above an intermittent tributary of the North Bosque River (See Figure 3.a.), this eroded prehistoric site is a very light lithic scatter, associated with mussel shell. Clearing of juniper in the uplands has accelerated erosion, destroying the site and exposing bedrock. Probing revealed that no areas of the site possess appreciable depth.

Outside of being a good example of a site destroyed by indirect impact, Site 41BQ161 is considered to be of no further value. Given our current understanding of the site, it is not eligible for inclusion within the National Register of Historic Places.

Site 41BQ162

This prehistoric site is located at the toe of the slope, on the flooodplain of the North Bosque River (See Figure 3.a.). This site was brought to our attention by Edward Moorman, property owner, and an archeologist who worked with the River Basin Surveys, Smithsonian Institution. He had found this site many years ago but kept its location secret; shortly after he disclosed its whereabouts, he found it was being looted. The signs of this disturbance remain mute testament to the work of the relic hunters, but it also marks the location of the site, and because of the overgrown condition of the floodplain, it was otherwise virtually obscured. We found no time-diagnostic artifacts in the backdirt or on the surface, but we could look at the matrix and tell that these were burned rock midden-like deposits, intermixed with some chert and considerable amounts of mussel shell. Barely exposed at the surface, we presume that the site is a relatively recent one, with some depth and considerable horizontal extention. We collected 105.7 grams of mussel shell, enough for a radiocarbon sample.

This site is one recommended for further investigation. It is thought to have in-place deposits relatively undisturbed. In a geological context with po-

tential for relatively uniform deposition and good separation, Site 41BQ162 is considered to be potentially eligible for nomination to the National Register of Historic Places. It is one considered to be a candidate for designation as a State Archeological Landmark.

Site 41BQ163

A large flat area on a hilltop overlooking the North Bosque is the setting for this large, light lithic scatter (See Figure 3.a.). Perhaps the most intriguing aspect of this site is the virtual absence of mussel shell throughout the surface, heavily eroded in areas from the feet of cattle, plowing and vehicular traffic. With a ground visibility of forty to fifty percent, with much surficial downcutting by livestock directly into the red clay which is the bedrock of this site, we were only able to recover one small fragment of clamshell, a sample weighing .2 gram.

Unless some unknown agent is mechanically or chemically removing the shell, the occupants of this site did not avail themselves of this food resource. Tests of the soil's chemistry to determine if it is acid or alkaline in character would seem a useful starting point in evaluating this speculation. Data resultant from sampling in Site 41BQ147 suggest the possibility of a hiatus in the utilization of freshwater clams, or at least a periodic reduction, somewhere in the neighborhood of 90 percent.

According to Paulsen, using measurements taken with a staff gauge near Clifton, there are times when the Bosque flows 39,000 second-feet, with a gauge height of 23.2 feet (4-22-1945) with a greater flow in a unmeasured flood on May 9, 1922, with a reported gauge height of 25 feet (1948:113). Using records available from 1923-1948, the 25 year average discharge was 228 second-feet. From October,1947 to September 1948, records indicate a *low* flow of .7 second feet in late August, which lasted only three days, followed by a heavy rain which brought the North Bosque River back to levels it had been flowing in late July. From 1923 to 1948, although the report does not list the year or the duration of the events, the minimum discharge was, "no flow at times."

We do not know enough about freshwater mussels to speculate about their viability or survival rates under stressful environmental conditions. An extended period of "no flow at times" might, notwithstanding the fundamental organic water requirement, have a considerable impact on the economy of a human population accustomed to the utilization of the shellfish as a reliable food supply. To the other extreme, floods on the North Bosque are known to better than double the maximum flows discussed above,

causing such severe scouring of the river channel as to potentially endanger the molluscan population (personal communication, Paul Price).

Aside from sampling of the soils at 41BQ163, we recommend no further investigation. It is not one recommended for inclusion within the National Register of Historic Places, nor considered a potential designate as a State Archeological Landmark.

Site 41BQ164

Outside the project area on a flat terrace is historic Site 41BQ164, initially identified as a homesite (See Figure 3.a.). Our post-discovery interview with Jeffie Hanna revealed we had found the site of the local school. In the 19th century, the school was originally located elsewhere, on property donated by Jordon. Then it was known as the Jordan School. Sometime in the late 19th century, the school was moved to this site near Loader Springs, named perhaps for Thomas T. Loader, the second postmaster of Iredell. He was one of the founders of Iredell, having purchased a lot at the settlement in 1871.

> Joining Lot #1 on the north, Lot #2, Block 1 of the new town was sold to Thomas T. Loader and on it he and Andrew Downing established the first store in the new townsite. Mr. Loader was appointed postmaster in 1872, and the post office was located in his store. He was born and reared in England and his wife was a cousin and lady-in-waiting to Queen Victoria. Because it was unheard of that he, a commoner, should marry royalty, the young lovers eloped...with the help of friends, to the United States and Iredell (BCHBC 1986:51).

Since that time, it was known as the Loader Springs-Jordan School. Classes were last held here in 1936 (personal communication, Jeffie Hanna).

The terminal date for the school was not consistent with our analysis of the artifacts recovered and observed. Searching through the partial foundation remains of the structure, we found cast iron and bottle glass which led us to an estimated age of occupation from the early twentieth century to 1950. Interestingly, one artifact recovered supported a misreading of the site as a domicile and threw off our terminal date by more than a decade, to the middle of the 20th century--it was a fragment of a brown glass PUREX bleach bottle, marked to indicate its year of manufacture, 1949. The site's proximity to the roadway has resulted in trash being dumped near the school, masking the artifacts of interest and in general, contaminating the deposit. There is a good possibility, however, that this contamination is confined to the surface, and while perhaps shallow, interpretable intact deposits may remain.

School houses are a favorite target of the historic archeologist. Some have privies segregated on the basis of sex, providing opportunities to observe behavioral differences. The array of artifacts, oriented toward learning, but accompanied by toys, clothing fasteners, food remains and whatever else the children or teacher brought from home and left there, yields general information concerning the lifeway of local inhabitants, the availability of goods and local economics. Most importantly, such sites offer opportunities to observe the past behavior of children in a setting rarely obtainable elsewhere, that is, children interacting with same-age children.

This site is not to be affected by Lake Bosque. This site is considered to be potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ165

Site 41BQ165A is an early 20th century historic site that includes a foundation of disturbed limestone and a few bricks and a nearby excavation assumed to be the root or storm cellar (See Figure 3.a.). Colorless glass, whiteware and crockery, and fragmentary sheet iron, some from "tin" cans, was found in the grassy clearing surrounding the foundation remains. We presume from the artifacts observed here that this was once a house, albeit a modest one. Additional interviews with adjacent landowners may reveal new information which would be contrary to our finding that the site merits no further work.

Site 41BQ165A is not recommended for inclusion within the National Register of Historic Places, nor it is considered to be a candidate for further work.

Site 41BQ165B is the house that was moved from the foundation remains we found near the edge of the channel to its present location, midway along the upland terrace (See Figure 3.a.). The structure we find here is larger than the foundation at 41BQ165A, leading us to the conclusion that with the relocation, the movers rehabilitated the house, adding perhaps two rooms.

Ed Moorman told us this structure was always called the "rent house," and had been at the new location since before 1950 (personal communication). Analysis of data gathered at this site provided a tentative span of occupation from after World War I to the middle of the 20th century. We do not recommend this portion of Site 41BQ165 for further investigation.

Site 41BQ166

This site is located on an upland terrace, above an intermittent drain to the North Bosque River (See Figure 3.a.). It is a multiple component one, with a very light lithic scatter on the surface mixed with historic materials. The biface thinning flakes found at the site told us that tools were probably once manufactured here by Native Americans. Historic materials include a limestone foundation pad of native fieldstone associated with thin, sheet iron strapping about 1/4 inch in width, thought to be recent and associated with perforated sheet metal, the residue of oil filters for gasoline or diesel engines, certainly from the 20th century. The absence of domestic artifacts like ceramics, glass, etc., makes it unlikely this was a homesite; the lithic scatter is ephemeral considering the terrace is eroded almost to bedrock and the short grasses afford good surface visibility.

Site 41BQ166 is not recommended for further investigation. It is not considered to be one eligible for inclusion within the National Register of Historic Places. It is not a candidate for designation as a State Archeological Landmark.

Site 41BQ167

Probably the smallest site we discovered within the general area of the project outside of those individual artifacts recorded as sites, this prehistoric hearth associated with chert and food remains measures less than 3 meters in diameter (See Figure 3.a.). For its size, it is potentially one of the more important sites. With mussel shell associated with burned rock, this site is rarely more than 10 centimeters in depth. The site is extremely localized and is thought to represent a single component campsite. We collected a sample of the shell to be used for radiocarbon testing. The resulting date was 2600 $\pm$ 80 years before the present (See Table 1, TX-5789).

Sites like 41BQ167 can yield important insights into the variability to be expected between radiocarbon dates taken from burned wood, soil, and mussel shell. Thought to be critical to the interpretation of prehistoric sites throughout the upper North Bosque watershed, this site is recommended for complete recovery through excavation. Site 41BQ167 is considered to be one eligible for inclusion within the National Register of Historic Places.

Site 41BQ168

On a slowly sloping floodplain on the west side of the North Bosque River (See Figure 3.a.), this prehistoric campsite was given the name, Beaver Skull

Site, because there we found this irrefutable indicator of *Castor.* In the eroded margins of the site along the slope, we found mussel shell, two biface fragments--one, *Pedernales* -like, the other unidentified--and scattered flakes and chips. The subtle scars of machine reshaping are discernable across the site.

Our probes did not help us estimate the thickness of the cultural deposit here and this site is recommended for further sampling. It is one which should be considered to be potentially eligible for inclusion within the National Register of Historic Places and status of a State Archeological Landmark.

Site 41BQ169

Found on the surface of the current floodplain of the North Bosque River, this site was evinced as a scatter of burned rock, chert and mussel shell amid a carbon-stained zone of the sandy loam (See Figure 3.a.). We traced the various cultural materials over a broad area of the field, currently cultivated several times annually, depending upon the crop; at the time of our investigation, the choice was grain sorghum. Thought to be the location of a disturbed hearth, we measured the feature from a tree marked with flagging tape.

The surface of the site is extremely disturbed, but underneath the plow zone, cultural deposits may remain intact. The location is one which would have been attractive to Native Americans. On the basis of the surface exposure of the site and its close proximity to the North Bosque, hence subject to periodic flooding and deposition of alluvial overburden, Site 41BQ169 was thought to be a late prehistoric campsite, probably of the Neo-American period. The radiocarbon date of the mussel shell we recovered from the site proved otherwise. The sample yielded a date of 3020 $\pm$ 50 years before the present (See Table 1, TX-5792), the second oldest ^{14}C date in the project area. Additional sampling after harvest is recommended.

Although plowed and slightly eroded by wind and water, Site 41BQ169 is still considered to contain data potentially important toward gaining a better understanding of prehistoric life near the River. Accordingly, this site is considered to be potentially eligible for inclusion within the National Register and a potential candidate for State Archeological Landmark status.

Site 41BQ170

This prehistoric campsite is located on a small terrace above the floodplain of the North Bosque River (See Figure 3.a.). Situated on a sloping surface, erosion has contributed to the destruction of the site, coupled subsequently with heavy machine scraping, the range production method generally used throughout the uplands of this property. We recovered only a lithic specimen, a chert sample, from the site, but we observed the normal indicators of Native American activities here in the past, associated with food processing, lithic tool production and subsistence--these were thermally fractured and discolored limestone fragments, a scatter of chert flakes and mussel shell.

The combined effects of time, slope and machinery have reduced this site to one of limited value. It remains useful in helping plot areas of prehistoric settlement in the general area of the project, but it is not one recommended for further investigation. Accordingly, Site 41BQ170 is not recommended for a determination of eligibility for inclusion within the National Register of Historic Places, or designation as a State Archeological Landmark.

Site 41BQ171

Located on a hilltop and draping down the slope was the cultural material of a late 19th or early 20th century housesite (See Figure 3.a.). As we approached the top of the hill, we discovered dozer piles with historic materials protruding from the masses of earth and trash. These included a number of cast iron and iron frames and headboards of beds and lightning rods and fasteners. There was little to salvage that was usable for our purposes, especially for the dating of the structure. We gathered only what we could from the piles, in this case a lightning rod bracket which once guided the rod along the side of the structure, as well as the threaded male brass connector which once was pinched onto one end of the twisted, galvanized rod, and which allowed the rods to be joined. Our assessment of this site led us to the conclusion that a house which retained its contents had been razed by machine.

Sometime before this demolition, perhaps in the late 1930's or early 40's, the residents built a dugout structure into the side of the hill with rock and mortar. It has the appearance of never having been completed, although almost so. We measured the small structure for our notes and wondered concerning its use and history. Our interviews with the current landowner revealed no additional information.

Significant disturbance results in the loss of interpretable data, and this is the circumstance at this site. Not recommended for further investigation, Site 41BQ171 is not a candidate for a determination of eligibility for inclusion within the National Register of Historic Places.

Site 41BQ172

This site is located atop a hill which will be an island when Lake Bosque is operating at an elevation of +830 feet m.s.l (See Figure 3.b.). The prehistoric material we found here was out of place. Through the use of heavy machinery, almost the entire hilltop has been scraped to bedrock. Piles of pushed soil, rock and roots are the current matrix in which we observed mussel shell, and flakes and chips of chert.

A site had been predicted here, not remarkable when considering that as each new site was plotted, we reexamined the aboriginal and historical settlement pattern and made new projections concerning site locations. This site, it was predicted, might be like a few of the others on high mounts near water, undisturbed but eroded. This prediction had failed to include consideration of another pattern which was emerging from our data gathered in the project area; many of the prehistoric and historic sites which had not been rendered uninterpretable by time and the elements had been destroyed by human action.

Site 41BQ172 is not recommended for further investigaton. It is not one thought to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ173

A slight rise in the floodplain near the edge of a field in cultivation marks the location of this prehistoric campsite (See Figure 3.a.). Within a rough circle 15 meters in diameter, Site 41BQ173 was revealed as a light scatter of mussel shell in the freshly plowed alluvium. We observed, but did not collect the flakes of chert, present but rare on the surface. A few thermally fractured and discolored stones mark the probable location of a derived hearth.

Certain the site is disturbed through the plowzone, we recommend that additional sampling be performed here after harvest. Site 41BQ173 should be considered one that is potentially eligible for inclusion within the National Register of Historic Places and one that might merit designation as a State Archeological Landmark.

Site 41BQ174

Site 41BQ174 was given the appelation, Horned Toad Site, because of the number of Texas Horned Lizards, *Phrynosoma cornutum*, (Ransom 1985:418) which reside here. The site contains an apparent breeding population of these small lizards, so abundant they scampered onto our recovery tools to be retrieved for closer inspection before we placed them back in the site. We found them to be distributed among the prickly pear and other cacti, in the short grasses, sedum and other low forbs which cover the site. Site 41BQ174 is a prehistoric one located on an eroded mount on a terrace ridge between two drains, a common uplands configuration normally used by Native Americans, and one frequently avoided by later historic occupants of the North Bosque River valley (See Figure 3.a.).

This fairly large, very light lithic scatter included the fragment of a large, thin biface, a fragment of a tool made from a unifacially reduced flake, and flakes which reflect lithic reduction and tool production. These we collected. Our mine probes revealed this site to have a depth of as much as 5 centimeters, or 2 inches, in places, but the majority of the site is exposed to the bedrock.

This site is not recommended for further investigation. It is not a candidate for State Archeological Landmark status or for inclusion within the National Register of Historic Places.

Site 41BQ175

This is not an archeological site, but one recorded to document a geological occurrence. Throughout the project, one of the goals was to determine the presence of any autochthonous chert, that is, formed or occurring in the place where found. Site 41BQ175 is the location of an eroded outcrop of gray coarse-grained, fire-cracked chert (See Figure 3.a.). Although we initially thought them to be the result of aboriginal lithic procurement, our search of the site revealed that all of the chert specimens were heat modified, but none was altered by direct human action. We collected fifteen (15) fragments of these thermally-altered specimens.

We were surprised to discover *any* local sources of chert within the project area; our review of the area's geology had not prepared us for its occurrence. Furman Grimm, a geophysicist who once owned these or lands directly adjacent to this site was also surprised at our discovery. He had examined a

number of post holes on his property and had contracted excavations for stock ponds in the same area without finding this locality.

This geological locality is not recommended for further investigation. It is not one for inclusion within the National Register of Historic Places nor a designee for State Archeological Landmark status.

Site 41BQ176

Located above and outside the area directly affected by the creation of Lake Bosque is this multiple component site on a hilltop (See Figure 3.a.). Surrounded by large liveoaks, the site consists of a housesite adjacent to a prehistoric campsite. The majority of the prehistoric site was centrally located on the hill, in an eroded area now used for cattle feeding and for the passage of vehicular traffic. The ground surface revealed a small mano, a biface fragment, and several interior flakes resulting from the reduction of decorticated cores.

Historic materials from the site were those normally associated with a house. and are closer to the road than the prehistoric site. They included fragments of glass bottles, one of which was a panel bottle, both with hand-finished necks. Stoneware included fragments of ironstone, including a piece of a bowl. Metallic artifacts included cut nails in a variety of sizes and a "U" shaped handle of wrought iron, once affixed to a container with two rivets at each end, probably from the edge of a pot. The fragments of a cast-iron stove were broadly distributed over the area. We collected them and found they were marked, **BEACH & \/ IRON CLAD / LOW COPPER / RESERVOIR / FEB 14TH 1871 / PAT DEC 5 \/ FEB 8, 1870 / REASSIGNED JUNE 3 \.**

Little remains of either component that would benefit from excavation. Surface collection of prehistoric and historic material in the deflated central portion of the hill would yield an interesting variety of artifacts, usable for determining the kinds and nature of items used by the Native and later populations. The site is thought to no longer contain in-place deposits. The site is not thought to be eligible for inclusion within the National Register of Historic Places, nor considered a candidate for designation as a State Archeological Landmark.

Site 41BQ177

This eroded lithic scatter is exposed on the surface of a high mount at an elevation of +860 feet m.s.l. (See Figure 3.a.). Field probing revealed the site

has no depth. A remnant of a prehistoric open campsite, the scatter included a chert cobble which probably served as a mano, for it is ground on one side. A few chunks of grey chert and some flakes, both with and without cortex, are what remains of the site.

Site 41BQ177 is not recommended for further investigation. It is not one which merits inclusion within the National Register of Historic Places.

Site 41BQ178

Microenvironmentally similar to Site 41BQ174, this site is at the slightly higher elevation of +840 to 843 feet m.s.l (See Figure 3.a.). On-site probing reveals the depth of the site not to exceed 4 cm., or < 2 inches. A very light lithic scatter is the cultural material found here. Included were two points, one a fragmentary one of crystal, the other, essentially complete (See Figure 6.b.), which make us suspect this site was occupied in the Middle to Late Archaic.

Little remains of Site 41BQ178 for further recovery, and it is not recommended for further investigation. Site 41BQ178 is not considered to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ179

Now the location of a modern house, this prehistoric lithic scatter represents the remains of an open campsite on the top of a hill overlooking Beaver Creek, associated with the early 20th century remains of a housesite (See Figure 3.a.). The prehistoric material included a flake from the manufacture of a chert biface and a chunk of dark gray, speckled chert. Observed but not collected were a post World War I deposit of glass, ceramics and food cans. The prehistoric occupation is of unknown age but the historic one is estimated to span from around 1920 to the 1940's. Machine clearing of the general surface and the introduction of rock materials from outside the project area have resulted in a deposit which is disturbed beyond archeological utility.

At an elevation of +845 feet m.s.l., Site 41BQ179 is above the area to be affected by Lake Bosque. It is not recommended for further investigation. Site 41BQ179 is not thought to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ180

Located on the tip of a secondary terrace overlooking Beaver Creek (See Figure 3.a.), this site is a prehistoric one eroded to fossiliferous bedrock. This extremely light lithic scatter is also found on the lower terrace. Almost nothing remains of this site. We were able to find three flakes, seven chips, and a chunk of gray chert, along with a fragment of aged, colorless glass decorated with an embossed pattern. The glass fragment is thought to have come from Site 41BQ98, a few dozen meters to the south.

This site is not recommended for further investigation. Site 41BQ180 is not considered to be eligible for the National Register of Historic Places.

Site 41BQ181

This prehistoric lithic scatter is another eroded open campsite on a well-drained circular mount about 30 meters in diameter (See Figure 3.a.). No diagnostic forms were observed, although we did recover a couple of biface fragments along with five flakes and an equal number of chips of chert, as well as four chunks of gray chert. We found a small fragment of mussel shell which we did not collect. The occupation or activity areas of this and many other of these eroded lithic scatters on mounts appear to be constrained to the mesa-like, flat portions of the terraces.

With no appreciable depth and little cultural material, Site 41BQ181 is not recommended for further work. It is not a candidate for State Archeological Landmark status or considered to be eligbile for inclusion within the National Register of Historic Places.

Site 41BQ182

This historic site is located in the middle of an upland terrace above and to the east of a drain which periodically feeds Beaver Creek (See Figure 3.a.). According to the present owner, Leland Pridemore, the site has been affected by clearing and filling(personal communication). We found the scatter of a limestone foundation and a few sherds of bottle glass, but little of this site remains.

The cultural material and house foundation are displaced and mixed, providing little opportunity for discovering activity areas or in-place features. Site 41BQ182 is not recommended for further investigation. It is not thought to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ183

Located in late April, this prehistoric lithic scatter, presumed to once have been an open campsite, was called the Killdeer site (See Figure 3.b.). Two nesting pairs of this common plover, *Charadrius vociferus*, feigned injury, ran and voiced their noisy and persistent call and finally took to the air (Ramsey 1985:82). We continued our sweep of the terrace, which produced a few flakes, some chunks of chert, a small uniface, a chipped fragment of crystal and a fragment of a projectile point. As we walked away from their nests, the killdeer returned, leading us to their nesting scrapes and two almost invisible eggs camouflaged by blotches of brown on a buff background. Almost nothing remains of this chert scatter which covers a broad area about 50 meters in diameter.

Recorded because of its presence and importance in the general prehistoric settlement pattern in the project area, Site 41BQ183 is not recommended for further work. It is not one considered to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ184

This prehistoric site is an extremely light lithic scatter which covers a terrace edge above a creek, an area approximately 50 meters wide by 180 meters long (See Figure 3.a.). We found no diagnostic tool forms to offer clues to the age of Site 41BQ184. Perhaps the most remarkable aspect was the frequent use of the locally available coarse-grained gray chert, representing 75 percent of the sample recovered. It hardly seems suitable for tool production. The tool fragment and a flake, thought to be the result of biface reduction, we recovered are of a finer-grained, dark gray chert.

Eroded and perhaps affected by machine clearing, little of Site 41BQ184 remains. It is outside of the project area and is not recommended for further investigation. Site 41BQ184 is not considered to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ185

On the 20th of January, 1987, we interviewed Roy L. Nickels about any interesting sites he knew of on his property. He reported a "slave burial" on the south end of his property, across the North Bosque River in a motte of oaks. While he had looked for it alone, and with others, it had not been found.

In this inaccessible portion of his property during late April, at an elevation of about 800 feet m.s.l. (See Figure 3.b.), we located a rectangular limestone feature set with lime mortor in the configuration of a grave. Near one end of the rectangle was a heavy wrought iron grate on the ground. Away from the feature, but in general proximity, we found some red brick impressed with the mark, GROSBECK. The liveoak motte we were within provided a shade for a lush cover of medium grasses; the feature itself was covered with a profusion of poison ivy, *Toxicodenron radicans*, which we did not disturb (Vines 1960: 638). While we consider this site to be the most likely candidate to conform with Nickels' description, this feature is dimensionally similar to a firebox which could be used as a sorghum cooker, to reduce the sap expressed from cane to syrup (Briggs 1981:29-32).

Our inspection of the surrounding area revealed no artifacts to be found on the surface. To be sampled, the site must be cleared of the growth of harmful plants in such a manner that the rootlets are also killed. The roots must be allowed sufficient time to decay before hand excavation may be attempted. If testing results are positive, and the site has been used as a cemetery, relocation of any corporal remains is recommended. Sites such as this are generally not considered to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ186

This historic housesite is located on the edge of a terrace above the floodplain of the stream adjacent to the suspected gravesite, Site 41BQ185 (See Figure 3.b.). A chip of gray chert and a small fragment of mussel shell may point to the presence of a prehistoric campsite in the area as well. Aside from some foundation rock disturbed by machinery or a plow, we found a sherd of colorless flat bottle glass, 5 fragments of colorless and light green glass and two fragments of stoneware, an ironstone cup and plate.

The artifacts may be misleading in that they seem to point to a fairly late occupation in the early 20th century, but the foundation and scatter resemble a late 19th century one. The site is likely related to 41BQ185, but at present, the nature of this relationship is not understood. They may be related not only by proximity, but in time and culture. A candidate for further archival research and possible sampling, Site 41BQ186 is considered to be a site potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ187

This prehistoric open campsite will be adjacent to the edge of the proposed Lake at the maximum flood pool of +841.3 feet m.s.l. It will then be one of the easternmost points on the west side of the lower portion of Lake Bosque (See Figure 3.b.). The site is not a deep one because it is located on the upland terrace edge, an area which is generally eroding and rarely receives colluvial or wind-borne soils. The fragment of a chert dart point thought to be Late Archaic in age was recovered amid a light scatter of burned rock, a broad, light lithic scatter and mussel shell, enough sample for radiocarbon dating. We also found one fragment of brown bottle glass.

This site is a large one, measuring over 100 meters along the edge of the terrace. There may be buried, undisturbed portions away from the exposed bedrock along the margin of the site, missed by our probing. We saw few signs of recent human activity in the area other than annual deer hunting and periodic bird shooting and noticed no machine damage here. This site is not recommended for further investigation at this time. This site may be one to be considered to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ188

This historic housesite is located on a slight rise above a stream terrace of Otter Creek (See Figure 3.b.), the name we gave this tributary because we found a mud-stained trail from the water over the dam of a small lake to a long slide down to the creek, possibly the result of activity by river otters, *Lutra canadensis* (Ransom 1985:377-378). The house site is marked by the walkway that led from the drive to the house, with flower beds boxed in with limestone on either side. Limestone foundation remains of the house are still to be seen and we found the root and storm cellar and the water supply, a drilled well.

The artifacts we found here suggest a late occupation, from the 1930's to 1940's--they included a variety of late Automatic Bottle Machine (ABM) bottles, a TEXAS 1936 CENTENNIAL license plate, and a later-dated *Coca-Cola* bottle from 1948.

This late historic site is not recommended for further investigation. It is not considered to be a candidate for State Archeological Landmark status or thought to be one for inclusion within the National Register of Historic Places.

Site 41BQ189

This large prehistoric site is located on the eastern side of the North Bosque, on an upland terrace overlooking a drain (See Figure 3.a.). The site appears to contain at least two small rises of burned rock, with no signs of disturbance. Covering an area along the terrace edge greater than 50 meters, the site contains mussel shell, chert flakes and thermally-altered rock, presumably the residue of hearths and cooking. Probing here revealed depths exceeding 20 centimeters, with potentially greater depth because of the obstructions provided by the burned rock and other materials in the soil matrix. Our examination of the surface yielded no time-diagnostic forms, but we collected some chert samples in the form of flakes and collected almost 100 grams of shell, a sample of which we submitted for radiocarbon dating. The sample of shell yielded a date of 1140 $\pm$ 60 years before the present (See Table 1.1, TX-5788). This date is the youngest of those mussel shell samples recovered from archeological sites during this investigation which makes it a candidate for our latest Native American site.

We did not dig here or conduct sampling, but we would have if we could have gotten permission. This site appears to be undamaged by machine action although it is quite possibly eroded to bedrock, covered with colluvial and eolian deposits and then stirred for a thousand years by disturbance from the succession of intrusions by roots and burrows.

This site is recommended for further sampling. It is thought to be one potentially eligible for inclusion within the National Register of Historic Places and to be a candidate for designation as a State Archeological Landmark.

Site 41BQ190

This historic site is located on the same terrace and is just northwest of Site 41BQ189 (See Figure 3.a.). Situated on a flat terrace edge adjacent to a stone fence, the house foundation can be found in a clearing surrounded with junipers and liveoaks. We found a biface fragment here; whether the site is prehistoric or whether the historic residents collected the artifact elsewhere and dropped it here remains unknown to us. Stoneware in the form of fragmentary crockery, broken whiteware dishes, and the wheel from a furniture caster was found. Glass sherds collected represented a packing jar and panel bottle. The material we observed and gathered appears to represent a late 19th and early 20th century occupation.

We were unable to obtain permission to perform sampling at this site, but we believe it merits such additional investigation. Archival research in the title office at the Bosque County Court House would probably clarify the date of occupation and help orient further investigaton. Site 41BQ190 is considered to be one potentially eligible for inclusion within the National Register of Historic Places and a candidate for status as a State Archeological Landmark.

Site 41BQ191

This shallow prehistoric campsite on a slowly sloping upland terrace (See Figure 3.b.) appears to be buried under about 3 centimeters of recent colluvium. This is the result of a range management change in the neighboring property upslope, where the soil has been cleared, tilled and sprigged with coastal bermudagrass. A biface blank, or preform, was pulled from an eroded sidewall, slightly more than 2 centimeters below the surface (See Figure 4, b). In the zones where the pinkish tan sand covering the site was blown or washed away, we saw flakes of chert and scattered burned rock.

We think this site is eroded to a bedrock clay and scattered, then covered by recent fill. It may have been cleared by machinery in the past. Perhaps 20 percent of the site remains buried. We recovered no time-diagnostic artifacts from the site, but geologically, it is situated in an area which we believe has been relativley stable since the late pleistocene. The best method of demonstrating if this site has any in-place deposits is through sampling. The site is therefore recommended for further investigation. This site may be one potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ192

This open prehistoric campsite is similar to the previous one, Site 41BQ191, eroded, with pinkish-tan sand overlaying red clay, but 41BQ192 is located on a midlands terrace edge (See Figure 3.b.). We found the distal tip of a biface, probably a projectile point, and several flakes of chert, one thought to be the residue of bifacial thinning. This site has been subject to clearing for pasture and range production at some time in the past.

Site 41BQ192 is not one recommended for further investigation. It is not thought to be potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ193

This historic site provides the signature for a housesite, one we did not locate, we think, because it was burned and subsequently churned by machine clearing (See Figure 3.b.). While we were on site, a sherd of light purple panel bottle was moved more than 2 feet by a cooperating team of red, harvester ants. We collected the specimen and later, returned to the lab to measure the sherd. It had a maximum length of 20 mm, a maximum width of15mm, was 2.5 mm thick and weighed 1.1 grams. During the survey, we have always included stops at harvester ants nests to help us discover small pressure flakes of chert, clues to the discovery of a buried prehistoric site in the area, but we had not realized their potential for disturbing artifact patterns in a horizontal manner. We found several ceramic fragments of a saucer, also a plate and a bowl; we found two chunks of burned, melted bottle glass and fire-discolored whiteware. In addition to the mixture of burned and unburned material, we found a hand-forged ax head that weighed 3 3/4 pounds and spent the remainder of the day passing it from crew member to crew member.

This site is of little value for archeological inquiry. More information can probably be gained from archival work, but the site itself is not recommended for further work. Site 41BQ193 is not thought to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ194

This prehistoric site runs along the edge of an midlands terrace overlooking the bottomland of the North Bosque (See Figure 3.b.). It is another one let down on red clay thought to be late pleistocene in age, then covered with reddish blow sands. The chert first discovered in an exposed area was traced along an old roadway, but the character of the site did not change. A fragment of a projectile point, a barb from a point like a *Bell* or *Andice* (See Figure 5.c.) is thought to be Early Archaic in age (Turner and Hester 1985: 64-65 & 72). No other time-diagnostic tool forms or datable samples were recovered. Eroded and once disturbed by traffic through it, we found few indications that this site had any material culture in place. One sherd of stoneware crockery found here may come from Site 41BQ193, to the north-northwest.

Not recommended for further investigation, Site 41BQ194 is not presently thought to be a candidate for nomination to the National Register of Historic Places.

Site 41BQ195

This moderately eroded open prehistoric campsite on a slightly sloping upland terrace is shaded by juniper and mesquite (See Figure 3.b.). It displays lithic material lightly scattered down the slope. Burned rock was observed in a light and very wide scatter. We recovered a projectile point, apparently barbed on one side (See Figure 5. n.), a unifacially trimmed flake, a couple of sandstone mano fragments, flakes of chert and a sample of fragmentary clamshell. Also at this site, but thought to have been dumped here from the historic site, 41BQ196, were fragments of stoneware--ironstone plates and a cup. A neck of a bottle finished by hand, a couple of fragments of cut nails and a piece of cast iron stove were found nearby.

Extensively eroded, this site is of limited value for archeological investigation. Areas may be found near the upper margin of the site which are not derived as a result of the slope and, hence, usable for interpretation. Limited sampling of 41BQ195 is recommended. It is possible that this site might qualify for inclusion within the National Register of Historic Places.

Site 41BQ196

A long abandoned, heavily eroded roadway led us through a derived artifact scatter of prehistoric and historic materials (See Figure 3.b.). By the time we had reached the top of this ridge above the North Bosque, we had found a fragment of a biface, a quartzite mano fragment, one of the small chert "chisel" bifaces we had been finding at various prehistoric sites, several varieties of flakes and slightly more than 30 grams of clamshell. Historic materials included crockery of four different forms, including one of which was identifiable as the shoulder fragment of a "Glasgow" ale bottle. Fragments of a pearlware plate, a British marked ironstone plate fragment (See Figure 8.b.), as well as piece of a coffee cup were found. Glass fragments included colors in light purple, aquamarine, amber, brown and the so-called "black," actually very dark green. Metal artifacts included a horseshoe nail, a broken cut nail and a fragment thought to come from a concertina or melodian, an accordion-like instrument invented by Sir Charles Wheatstone in 1829 (See Figure 7.a.) or perhaps from a foot-pumped keyboard organ.

With this scatter of artifacts, it seemed extremely likely that a house was in the vicinity. We established transects and passed over the hill without discovering any foundation remains in the waist-high grasses. We turned and passed over again, changing places but covering the same general area, again without result. On our fourth try, we found traces of foundation

material and followed them to a fairly large, complex limestone rock outline, covered by tall grasses and prickly tasajillo, *Opuntia leptocaulis*, a common break-apart stick or stem cactus in the area (Weniger 1984: 337-340).

The prehistoric campsite at the top of this hill may be eroded, but the historic site still retains considerable integrity. The historic site may have inadvertently preserved portions of the prehistoric site intact under the foundation and structure on the hilltop. We think this is a site which merits additional archival and archeological inquiry. This site is considered to be one potentially eligible for inclusion within the National Register of Historic Places and a candidate for designation as a State Archeological Landmark.

Site 41BQ197

On the crest of an upland knoll at an elevation greater than +900 feet m.s.l. this prehistoric campsite is completely eroded to bedrock and exhibits a very light, broadly distributed chert scatter (See Figure 3.b.). We observed flakes and at least one core. The lack of time-diagnostic tool forms prevented estimating a time of occupation.

Recorded because of its importance as data in the general prehistoric settlement pattern of the project area, and not because of the site's potential for further investigation, Site 41BQ197 is not recommended for inclusion within the National Register of Historic Places.

Site 41BQ198

This is a multiple component site which is located on a hilltop overlooking the North Bosque at about +853 (See Figure 3.c.). It includes a broad lithic scatter, in the center of which is an occupied house. The house, not including additions, is a clapboard one reported by the property owner to have been built in 1871 (E. L. Sadler, personal communication). The area is heavily sodded with short grasses and outside of the area which is annually cultivated as a garden, soil visibility is very limited. The property owner showed us three Archaic dart points and four manos which had been found at the site. In the garden, we found a large amount of chert debris between the rows of vegetables. Crockery, bottle glass, and whiteware were also found in the same area.

The site setting is one conducive to settlement, the hill upon which it is located extends to a height greater than +857 feet m.s.l., and has not flooded since the structure was built there. Directly to the southwest, less than 30 meters away, is a intermittent tributary to the North Bosque which keeps

the site well-drained. While the site appears to be shallow, it is in an old environment, the terrace upon which it sits is thought to be late pleistocene in age.

Not recommended for further work at the present time, Site 41BQ198 is potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ199

This site is the foundation of a house, associated with a nearby large depression which could be the remains of the root/storm cellar (See Figure 3.c.). The depression was pointed out to us as being a house which predated the one on the hill, Site 41BQ198. In the center of this depression, we found the almost complete fragment of a stoneware dash churn cover, with an off-white salt glaze. The site of the house is heavily overgrown with tall grasses, several small and moderate trees and pear cactus which serve not only to obscure the ground, but the foundation as well. We were not able to find any additional artifacts here. If our informant is correct, these features would seem to be earlier than the standing house.

This could be an important site if it is as early as indicated by our local informant. We feel fairly certain that it that is pre-20th century in age and have no evidence to indicate that Site 41BQ199 is other than a house. At the present time, Site 41BQ199 is not recommended for further work. It is considered to be a site potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ200

This multiple component site is a prehistoric lithic scatter which was the site of construction for a farm camplex in the first third of the 20th century. On a knoll of the floodplain, at an elevation of +860 feet m.s.l. (See Figure 3.c.), the above-ground features include several outbuildings still in use, associated with a rock and plaster cistern, poured concrete foundation beams and a possible hand-dug well. Artifacts associated with the historic occupation, thought to include a house, were fragments of an ironstone plate or saucer, fragments of aquamarine and purple glass, one with an "Owens Scar," an early ABM mark. Prehistoric materials recovered here include a biface fragment, thought to be the mid-section of a dart point, and flakes, chips, and a chunk of chert.

Site 41BQ200 is outside the area to be affected by Lake Bosque. The only archeological feature of interest at this site was the one thought to be a hand-dug well. It could contain artifactual material that would reveal data concerning the historic inhabitant of this site. There could also be prehistoric or historic features buried under recent colluvium and obscured by the short grasses. Not recommended for investigation at the present time, this site is one which could merit inclusion within the National Register of Historic Places.

Site 41BQ201

At an elevation averaging +860 feet m.s.l., this prehistoric lithic scatter is eroded to reddish clay. On a small rise at the edge of the floodplain of the North Bosque (See Figure 3.c.), we found several flakes and chips and fragments of mussel shell. We collected a couple of flakes and searched for pieces of shell, but recovered only 2.8 grams, too small a sample for radio-carbon dating purposes. Erosion has been accelerated here as a result of machinery having been used to clear the site for pasture.

This site is not recommended for further work. Given our present level of knowledge concerning this site, it is not thought to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ202

The westernmost site discovered during our investigation was this open pre-historic campsite at an elevation above +860 feet m.s.l. (See Figure 3.c.). This slowly sloping upland terrace is covered with a light lithic scatter of chert debris and small fragments of mussel shell on red clay, surrounded by loose, red sand. The site has been disturbed by the construction of two nearby stone-lined ponds of unknown age and is cut through by a primitive road which descends here to the floodplain and the North Bosque River, some 60 meters to the south.

Outside the area affected by inundation or flooding, and not recommended for further work, Site 41BQ202 is not thought to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ203

This prehistoric site is located on a gently sloping terrace which overlooks the broad valley of the North Bosque (See Figure 3.b.). Wind and water have

served to erode the site to red clay, with red sand along the lower slope, stabilized somewhat by short grasses among the prickly pear and mesquite. Initially discovered while crossing from a roadway through a pasture gate, a very light scatter of chert flakes and chips and fragments of clamshell was traced to just above the floodplain, where the material is buried by the sand. A lack of time-diagnostic tool forms prevents estimating the age of the site or the period of its use. With no observable in-place features, and apparently derived downslope, little remains of this open campsite.

With moderate to heavy erosion, and material culture out-of-place, Site 41BQ203 is not recommended for further work. The site is not one considered to be a potential candidate for a determination of eligiblility for inclusion within the National Register at this time.

Site 41BQ204

An intermittent tributary to the North Bosque marks the location of this multiple component site (See Figure 3.b.). Situated on the edge of the terrace above the floodplain of the Bosque, a spring may have once originated here. Today, a stock tank is located directly upstream from the site; its construction altered the site along the southwest margin. The evidence that this site was once a prehistoric campsite was a small fragment of clam shell and a couple of flakes. There may be more of the prehistoric site here than was observable.

The subsequent occupation of the area as a housesite during the late 19th century has obscured the marks of the earlier inhabitants. The remains of the apparently undisturbed foundation of the house is found on a slight rise beside an old primitive road. Scattered around and amid the limestone rocks, the historic artifacts are from the mid-1800's to the 20th century. Stoneware fragments included whiteware, such as pearlware, and ironstone and two with under-glaze transfers in plate, saucer, bowl or chamber-pot forms. Other stoneware sherds found were of wheel-thrown crockery, one with a dark brown slip on the exterior, the other was white on the interior and blue-and-red sponged pattern underglaze on the outside. Glass fragments appear to all come from light green, brown and colorless bottles. Also recovered was a broken piece of a cast iron, part of the remains of a stove.

The location of this housesite plus the age of the artifacts found there imply that Site 41BQ204 is one of the earlier historic sites in the project area. While the margin of the site is somewhat disturbed by earth moving, the road that cuts through the site may be one of its original features and not a later intrusion. Archival research into titles should yield data useful in

dating the origin of the occupants and the length of use. This site contains in-place historic features which should be mapped subsequent to clearing and removal of vegetation. Archeological sampling to determine the potential for discovering buried in-place prehistoric or historic deposits is recommended. This site is considered to be one potentially eligible for inclusion within the National Register of Historic Places. It is a candidate for designation as a State Archeological Landmark.

Site 41BQ205

This small historic site is thought to be the location of a single-pen log cabin, situated on the second terrace above the North Bosque (See Figure 3.b.). In a thicket of elm and oak surrounded by juniper and thickly covered with short and moderate height grasses, almost none of the foundation can be seen. Although the area in which the site is located is relatively accessible, the site is difficult to discern in the general landscape and, therefore, the boundaries of the only feature recognized were heavily marked with flagging tape. Our search of the ground yielded a tantalizing artifact, a colorless bottle base with the scar of a pontil, an old method of holding molten glass, on the bottom. Pontils are normally associated with antebellum glass, but our subsequent analysis of the artifact reveals it may be the bottom of a font, or fluid reservoir, for an oil lamp. Lamp parts, especially globes, were made of blown colorless glass from the late 18th well into the 20th century. Fonts such as this one, which sat below the burner, date after the use of the thick organic or vegetable lamp oils which were gravity fed, certainly after 1840 and generally after the middle of the 19th century.

The paucity of artifacts serves to limit our ability to date the site, but not to reduce its importance. Small sites such as this tend to be earlier than complex, larger settlements or homesteads, and of shorter duration, yielding an interpretable slice of time with definite time constraints resulting from analysis of recovered data and archival material. Admittedly speculative, this site is thought to represent an initial settlement, but because of its limited size, of extremely limited duration. If it proves though analysis to be antebellum, it may found to be a cabin once occupied by slaves. The lack of ancillary features, including outbuildings, fences, or a nearby terrace suitable for horticulture or cultivation, plus its relationship with Site 41BQ204 and 41BQ207 reminds us of a pattern seen before, one suggestive of a southern plantation operating with the use of slaves (Briggs 1985).

Regardless of our speculation, the site is considered to be worthy of further investigation. Accordingly, Site 41BQ205 is one thought to be potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ206

A nineteenth century road that connects Site 41BQ205 and 41BQ207 passes down the slope from an upper to a lower terrace (See Figure 3.b.). The tracks of the wheels have become ruts which have accelerated erosion through a thin blanket of tan sand to the red clay bedrock, exposing this prehistoric campsite. Along the eroded margins of the road, the site can be seen in profile, but generally, ground exposure elsewhere was restricted to less than 15 percent visibility. Nevertheless, fragments of five dart points (See Figure 5.f., m. & o.), tools and tool fragments (See Figure 11.a.), flakes, a mano and fragments of mussel shell were collected.

The exposure along the roadway implies that this site is not a deep one, but is one which contains a large amount of cultural material over a moderately broad area. Sub-surface sampling of this site may yield information usable in achieving a better understanding of Site 41BQ206, occupied during the Middle Archaic period. At an elevation of +838 to 842 feet m.s.l., portions of this site will be periodically flooded. This site is considered to be one potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ207

Thought to be linked with Site 41BQ205, and possibly 41BQ204, this small historic site consists of the foundation of a structure surrounded by a light scatter of historic material culture. The setting is similar to 41BQ205, on the second terrace above the river, and also appears to be restricted in size and complexity. Only the partial remains of the dry-stacked limestone foundation mark the site above ground. On the surface, fragments of a cast iron stove and kettle, stoneware, including pearlware, ironstone, underglaze blue transfer and spongeware, and aged dark brown, dark green and aquamarine bottle glass were observed and collected.

Site 41BQ207 should be subjected to additional sampling, including clearing, mapping, surface collecting and a search for sub-surface features. Archival research into this property should yield data useful in interpreting this site. Whether this structure served to house a new pioneer into the area, was used as slave quarters or had other functions, the site is considered to be important to an understanding of the early local history. Site 41BQ207 is considered to be one potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ208

There was no way for us to tell the six-foot tall johnsongrass that obscured this site had days before been sprayed with herbicide, and so we entered it early one morning, when it was still covered with dew. The experience proved uneventful, but it pointed out the need to remain in close contact with property owners. This field of high grass was once in cultivation and will be again. The site is located just northeast of an old ford of the North Bosque, known as Pilot Crossing (See Figure 3.c.). Thought to be the location of a prehistoric open campsite, the site has been dispersed over the floodplain by tillage. A scatter of lithic material was observed, associated with mussel shell and two Middle to Late Archaic dart points (See Figures 5.i. & 6.i.).

The property owner, Ervin J. Moore, developed this and many of the other fields on his property, by clearing away most of the large trees and underbrush. When the fields were plowed, he noticed a large quantity of chert and mussel shell being exposed and on inspection, found a number of projectile points and tools. He gathered these, not because he is a collector, but because not removing them would cause the artifacts to be broken by repeated passes of machinery, which would further scatter them, and likely result in their being lost (personal communication). In the process, Mr. Moore has accumulated a large number of artifacts which span from the earliest use of the project area by PaleoIndians to late prehistoric Neo-American populations. The collection is an admixture of more than half a dozen sites located on his property and is one thought to be extremely useful in establishing a local typological and chronological framework for the project area and perhaps elsewhere. Before we completed our survey work on the Moore place, our investigations had confirmed the presence of artifactual material and sites which corroborated the time frame implied by his collection.

This site is recommended for further investigation. Sub-surface sampling would reveal the depth of agricultural disturbance and reveal if any of this site retains sufficient integrity for future investigations. Mussel shell collected simultaneous to other work would be useful for radiocarbon dating, resulting in a better understanding of the overall chronology of the human use of the project area and specifically, the time frame of the Middle to Late Archaic at this site. Site 41BQ208 is considered to be which might prove eligible for inclusion within the National Register of Historic Places.

Site 41BQ209

With the North Bosque River only twenty meters to the north, this prehistoric campsite of unknown age is located on the floodplain (See Figure 3.c.). Tilled and planted, this field of sorghum has a light lithic scatter of chert debris with small fragments of mussel shell mixed throughout the surface of the light tan alluvial loam. On a very slight rise, the site may mark what was once the opposite side of the channel of the North Bosque River, a possibility strongly suggested by similar settings at Sites 41BQ210, 41BQ211 and 41BQ212.

Sub-surface sampling is recommended at Site 41BQ209 to determine the possibility of encountering undisturbed cultural deposits, in-place features, or geomorphological data concerning the growth and movement of the North Bosque River. Samples of mussel shell adequate for radiocarbon testing can be collected from the surface, but better samples may be found below the plowzone. Site 41BQ209 is one considered to be potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ210

On a floodplain rise in a field on the southern bank of the North Bosque (See Figure 3.c.), this prehistoric site is heavily vegetated in low forbs, mostly longspine sandbur (USDA 1970: 52). A light scatter of chert and mussel shell fragments can be found over much of the site, with more along the southern side.

Sampling of this site similar to and in conjunction with those sites nearby is recommended. Site 41BQ210 is one thought to be potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ211

This is thought to be another prehistoric site, located in the same general microenvironment as the previous two, a slight rise in the floodplain on the south side of the North Bosque (See Figure 3.c.). The main difference is that only mussel shell was found here, and the site may be slightly buried, just at the plowzone. We took a 129 gram sample of mussel shell for later radiocarbon dating.

Sampling of Site 41BQ211 at the same time as those sites nearby is recommended. Site 41BQ211 is one thought to be potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ212

Perhaps more disturbed by agriculture than the three sites recorded previously, Site 41BQ212 is a scatter of mussel shell and chert flakes located on the eastern edge of a floodplain rise on the south bank of the North Bosque (See Figure 3.c.) Mussel shell are common, but highly fragmented, hence, only 21.3 grams were recovered. None of the site appears undisturbed.

This site is not thought to be one worthy of further investigation. At the present time, Site 41BQ212 is not one thought to merit a determination of eligibility for inclusion within the National Register of Historic Places.

Site 41BQ213

A prehistoric site, this one on the opposite side of the drain that separates it from those nearer the North Bosque (See Figure 3.c.), Site 41BQ213 is buried under about 30 cm of alluvial fill on a moderate rise on the edge of the first terrace above the floodplain. Short and medium grasses cover the ground surface, which is dominated by bull nettle, *Cnidoscolus texanus,* and horse nettle, *Solanum carolinense.* A small amount of chert debris from lithic reduction was observed, but not collected. A sample of mussel shell was recovered, however, with a total weight of 123.2 grams, for radiocarbon testing (See Table 1.1). The date from this sample, TX-5787, is 1350 ± 50 years before the present.

The majority of this site is thought to be buried under alluvial deposits of a thickness adequate to protect it from disturbance by agricultural practices. Accordingly, Site 41BQ213 is recommended for further sampling. This site is one which may prove eligible for inclusion within the National Register of Historic Places.

Site 41BQ214

On the second terrace above the floodplain of the North Bosque, fairly close to Pilot Ford, Site 41BQ214 was discovered between the planted rows of a field (See Figure 3.c.). A widely distributed, extremely light lithic scatter and small fragments of clamshell are all that remain of this eroded prehistoric open campsite. Because ground visibility was excellent, it was apparent that this site was an ephemeral one before it was destroyed by tillage.

This site does not merit further investigation. Site 41BQ214 is not considered to be a site potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ215

On a relatively high rise thought to be late Pleistocene in age on the first terrace above the floodplain of the North Bosque, Site 41BQ215 is an open prehistoric camp which is presently planted in peanuts (See Figure 3.c.). The color of the soil changes throughout the site, but it is generally a light brown to reddish sandy loam overlaying a red clay loam. Visibility was excellent, and a broad, thin scatter of chert was found to extend for about 200 meters up the gentle slope.

A wide variety of artifacts and lithic material was observed. Projectile points found at the site indicate intermittent occupation of the site beginning in the PaleoIndian period and extending to the Middle Archaic (See Figures 5.a. & j.). A core with a striking platform prepared by the removal of a series of flakes, was used for the production of lamellar flakes, then, perhaps broken or rejected, was subsequently used as a tool (See Figure 12. a.b.c.). Biface fragments were fairly common, one apparently altered after breakage (See Figure 4.e.). Other artifacts included a mano ground flat on several sides and strongly exhibiting machine scratches or plowmarks. A piece of polished tooth enamel of unknown age, thought to be from an American bison, was also found at the site.

This site has been affected by plowing and erosion, but because of its age and the wide array of stone artifacts found there, it is one which merits further investigation. Site 41BQ215 is considered to be one eligible for inclusion within the National Register of Historic Places.

Site 41BQ216

This late prehistoric site was found on the first terrace south of the North Bosque, 120 meters from the natural ford of the river known as Pilot Crossing (See Figure 3.c.). The site was in sorghum at the time of our survey and amid the rows were considerable amounts of mussel shell, chert debris and burned rock. This extensive deposit of cultural material extended to the edge of the terrace to the west and to a natural levee along the south. Included in the lithic material recovered were three fragmentary arrow points, two were *Perdiz*-like, and the other has a slightly expanding stem, with convex base (See Figure 6.m.- o.). A sample of mussel shell was

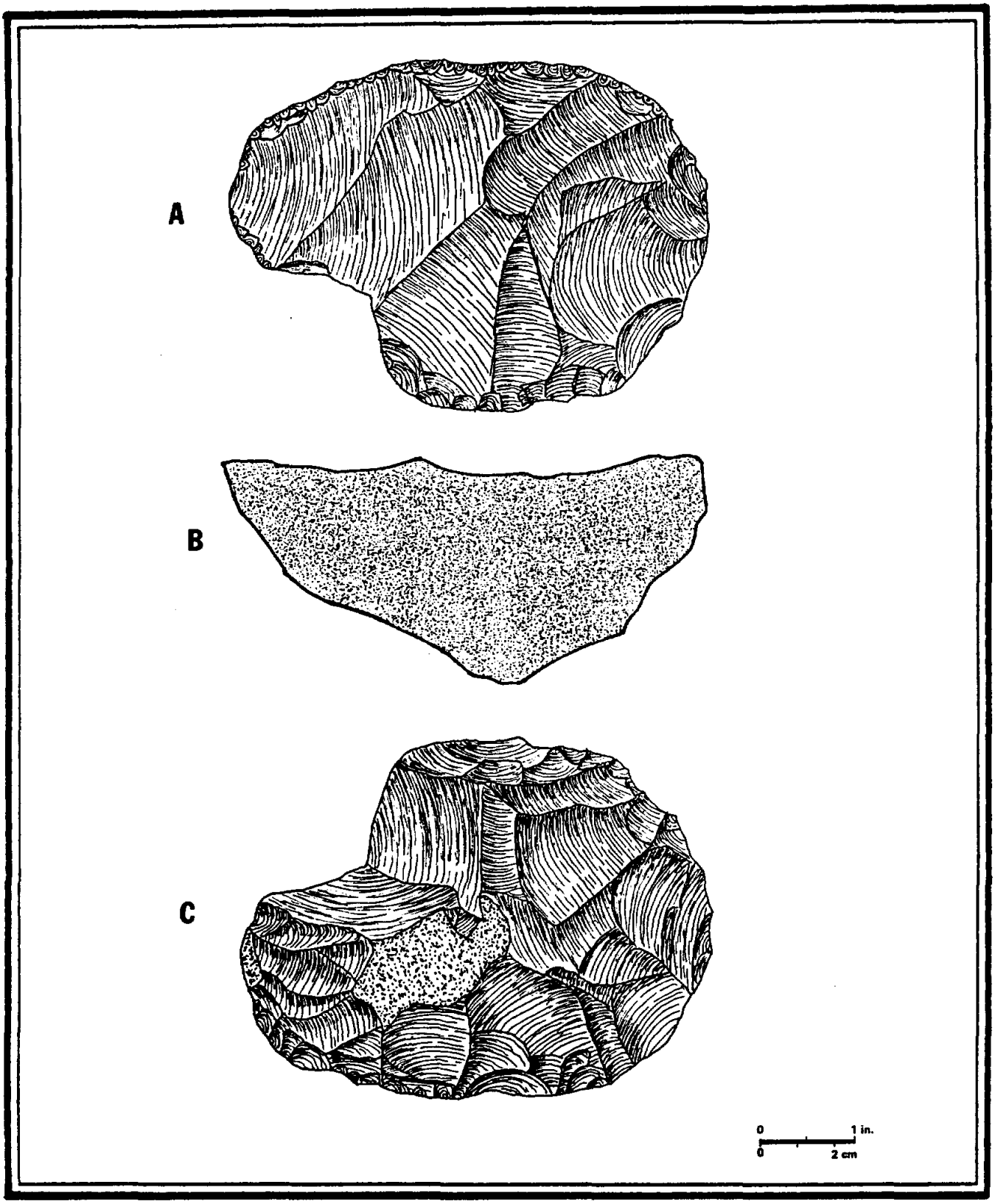

Figure 12. Bifacial core recovered from Site 41BQ215 during the survey of proposed Lake Bosque

recovered for radiocarbon dating, with the resulting age of 1530 ± 70 years before the present (See Table 1.1).

This site appears to have discrete, but adjacent accumulations of burned rock and mussel shell, admittedly somewhat plow strewn about the surface. Nevertheless, site 41BQ216 is thought to be an important one in understanding the late prehistoric utilization of the North Bosque River and the surrounding area. This Neo-American site is thought to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ217

This site was recorded in an erosional gouge that ran along the western side of Site 41BQ216 (See Figure 3.c.). At about 3.4 meters, or 11 feet, below the surface, much mussel shell was found in profile, along with other cultural material in the bottom of the gouge at a depth of about 3.7 meters or about 12 feet. No easy method of determining whether this material was in-place or redeposited from nearby Site 41BQ216 forthcoming, a fairly large sample of mussel shell was recovered from the profile along with a nearby sandstone metate (See Figure 13.).

The sample of mussel shell was submitted for radiocarbon testing, with the hope that it would prove to be a much older deposit than 41BQ216. When the sample was run, we were initially disappointed to learn that the date of the sample was essentially identical with that recovered at 41BQ216, in fact, the dates overlap (See Table 1.1). Any disappointment concerning the age of the sample faded when we calculated the amount of earth which would have to be removed before it could have been proven that no cultural material at this depth was *in-situ.* In addition, the date of 1410 ± 60 years before the present linked the metate recovered with Site 41BQ216.

Only a sub-surface redeposition of an already recorded cultural deposit, Site 41BQ217 is not recommended for further investigation. Site 41BQ217 is not considered to be potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ218

In a sorghum field on a moderate rise in the floodplain on the south side of the North Bosque, this open prehistoric campsite was found eroding from between cultivated rows (See Figure 3.c.). A moderate lithic scatter including a core, chert flakes and other debris, tools (See Figure11.b.) and tool fragments, including a Middle Archaic dart point (See Figure 5.k.). Mussel

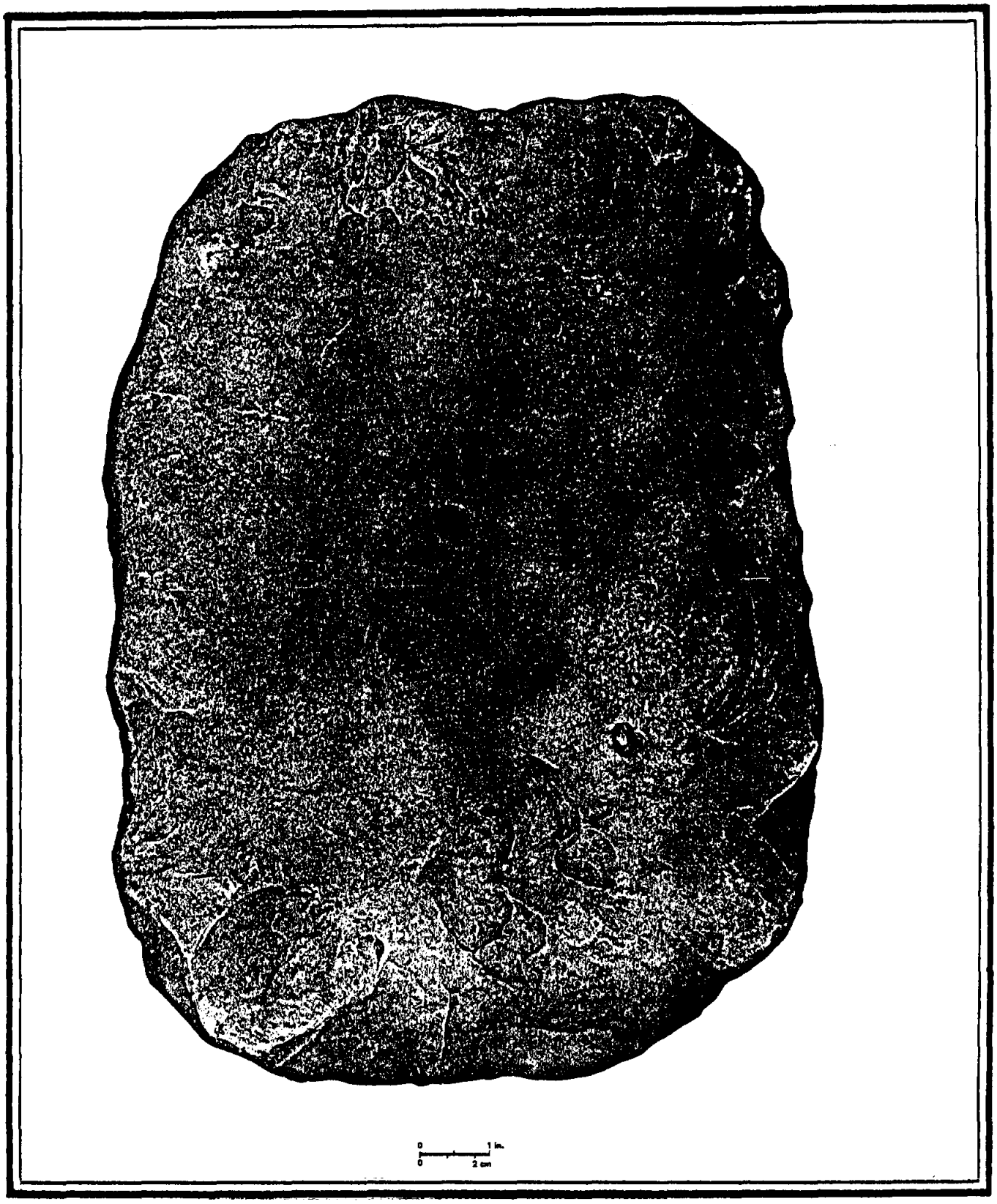

Figure 13. Metate, or milling stone recovered from Site 41BQ216 during the survey of Lake Bosque

shell fragments intermixed with thermally altered and cracked hearth rock were observed throughout the site.

While this site is somewhat eroded and derived as a result of plowing, it may contain buried deposits of archeological value. Recommended for additional sampling, Site 41BQ218 is a site that may prove eligible for inclusion within the National Register of Historic Places.

Site 41BQ219

This open prehistoric campsite on a slight rise in the floodplain is another in a cultivated field of grain sorghum (See Figure 3.c.). Visibility was excellent, and scattered burned rock was the first indicator of this locality. Mixed in with the hearth rock is a light scatter of chert and fragmented mussel shell. No time-diagnostic artifacts were recovered, but the geological position of the site could be used to speculate that it is a relatively late occupation.

Site 41BQ219 is not recommended for further investigation, and the site is not presently considered to be one eligible for inclusion within the National Register of Historic Places.

Site 41BQ220

This prehistoric site is on the second terrace above the North Bosque, well-drained by two tributary gouges on the east and west (See Figure 3.c). Once plowed and now fallow, this field is covered with the vegetation which grows in old fields, horse nettle, bull nettle, and johnson grass intermixed with short grasses and forbs. This site had been churned by the feet of cattle and although visibility was fair, only a small amount of cultural material was visible here. In areas free of vegetation where stock had been fed, a small amount of chert, some fragmented mussel shell and a few scattered burned rocks were observed, indicators of the open campsite once located here. At its elevation above +840, this site will rarely be affected by the floodwaters of Lake Bosque.

Site 41BQ220 is not recommended for further investigation. It is not presently considered to be one eligible for inclusion within the National Register of Historic Places.

Site 41BQ221

Located on the centerline of the dam on the west side of Bosque (See Figure 3.a), this historic scatter in a heavily grassed, upland savanna consists of

bottle glass and stoneware, including ironstone and polychrome underglaze on white ground. The distribution and type of late 19th century material observed are consistent with those found at a housesite, although no foundation material or above-ground features were noted. The search continued, working from the area of discovery to ever-expanding circles and transects, without results.

Without features or structural landmarks to provide a locus of origin, Site 41BQ221 is not recommended for further investigation. It is not considered to be a site for nomination to the National Register of Historic Places.

Site 41BQ222

A modern house is built where a historic house once stood on an upland terrace overlooking Willow Springs Creek to the southwest (See Figure 3.b.). Behind the current house, on a slightly lower terrace descending slowly towards the creek, was found the stone construction of the root/storm cellar, apparently contemporary with the late 19th century housesite. Bottle glass, stoneware, including ironstone and crockery, and cut nails are the residue of this historic occupation. The current house is just above the floodpool of Lake Bosque and will remain.

The remnants of the 19th century occupation at this site have been scattered by later construction as well as disturbance resulting from continuous occupation. Not recommend for further investigation, Site 41BQ222 is not considered to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ223

Erosion has contributed to the destruction of this prehistoric site on an upland slope with a grade greater than five percent. Located just southwest and on the terrace below Site 41BQ222 (See Figure 3.b.), the evidence of this open campsite includes a small biface, an end scraper, amid a very light lithic scatter. The ground surface has been disturbed through the use of heavy machinery, probably a bulldozer, to clear away mesquite, juniper and other brush to improve this pasture. This process of gaining additional range for livestock has contributed to the mixing of cultural material and erosion already under way.

Little remains of Site 41BQ223 for further investigation. This site is not recommended for designation as a State Archeological Landmark or for inclusion within the National Register of Historic Places.

Site 41BQ224

A small cemetery resting on an upland terrace slope of about eight percent, this historic site will not be affected by the floodpool of Lake Bosque (See Figure 3.c.). At least eight interments are here, most not marked. The major feature inside the cemetery fence is a limestone obelisk, with a height under six feet which reads in an arch, KING P. HARVICK, over the Masonic symbol, below which is BORN/ MAR 14TH 1822//DIED/ JAN 29 1873, underneath which is JOHN M. HIS SON LIES BURIED ON THE RIGHT, HIS TWO INFANTS LIES BURIED NEXT. To the west are two more headstones, these more typical in form, which read, J. A. ALLEN / BORN DEC 3, 1845 / DIED SPT 11, 1873 and, T.J. ALLEN / BORN FEB 22, 1853 / DIED APR 21, 1874. Two areas to the south of the Harvick obelisk bear no headstones, but the recent summer rains had differentially soaked into the disturbed and undisturbed soils. The outline of more interments were revealed as two rectangular patches of greenery in the grasses growing here.

Cemeteries are not usually considered to be eligible for inclusion within the National Register of Historic Places, and Site 41BQ224 is no exception. At an elevation above +860 feet m.s.l., the cemetery is almost twenty feet higher in elevation than the maximum pool proposed for Lake Bosque.

Site 41BQ225

This prehistoric site is located at the toe of the slope, on the first terrace above the floodplain of the East Bosque River (See Figure 3.b.) Well-drained, the site is adjacent to a seep to the south. Erosion along the terrace slope is extreme, and considerable amounts of redistributed material are in evidence. The site was initially noticed because of the presence of thermally altered and fractured limestone, the residue of hearths. Nearby, chert flakes were observed and a biface fragment and a small dart point collected. This site hugs the toe of the slope below the hill and is one of the few areas level enough to be suitable for use as a road, and so one passes through this site, causing further disturbance and accelerating erosion resulting from wheel ruts.

This site is not recommended for further investigation. It is not thought to be one potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ226

The first indicator that a historic site might be located nearby was a wrought iron fireplace shovel. We continued our search along the edge of the first terrace above the floodplain of the East Bosque (See Figure 3.b.). Historic artifacts which were observed or collected included fragments of bottle glass, and stoneware, such as ironstone and crockery. Our search finally led us to an area disturbed by the construction of a corral or cattle pen, the likely location of an earlier historic structure. During our search, we spied a ringneck snake, *Diadophus punctatus*; this one the prairie variety, with a yellow heavily spotted underside which changes to bright red near the tail (Ramsey 1985: 436).

Site 41BQ226 is thought to be the site of a late 19th century structure, the remains of which have been destroyed by subsequent construction in the same place. Sites such as 41BQ226 are generally not considered to be eligible for inclusion within the National Register of Historic Places.

Site 41BQ227

Situated between two drains on a heavily eroded sloping terrace, this thin and widely scattered prehistoric site covers a broad area (See Figure 3.b.). A search of the ground surface resulted in the recovery of fragmented projectile points, one with ground, lower lateral edges, perhaps from the PaleoIndian period (See Figure 5.b. & d.). Also collected were fragments of mussel shell, flakes of chert, mano fragments and a unifacial tool. In combination, wind, water and slope have exposed and derived Site 41BQ227, rendering it of questionable value for archeological purposes.

Site 41BQ227 is not recommended for further work. It is not considered to be a candidate for designation as a State Archeological Landmark nor one thought to be potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ228

This small historic site was really difficult to find, completely overgrown with juniper and smilax and covered with leaf mould. A displaced foundation, thought to be that of a log cabin once built here, was located below and adjacent to an old rock drift fence which parallels the East Bosque River (See Figure 3.b.). Historic artifacts from the mid-late 19th century were recovered, including mold-blown bottle glass fragments, sherds of ironstone dishes (See figure 8.c. & l.) and a fragments of a cast iron stove. A

palm-sized fossil ammonite, perhaps collected in the project area and brought home by the original residents, was found amid the scatter of historic artifacts.

At an elevation exceeding +960 feet m.s.l., this historic site will not be affected by proposed Lake Bosque. It is a site which can be revisited in the future, which we recommend, after the site has been the subject of archival research. This site might be one eligible for inclusion within the National Register of Historic Places.

Site 41BQ229

Located on a mesa-like hill, of a type locally known as a flat top, and on the Flat Top Ranch, this historic site marks the location of a late 19th and early 20th century housesite (See Figure 3.b). We followed the road that was excavated into the side of the hill up to the old house site and found remnants of a windmill, stone foundation remains and historic artifacts broadly distributed over much of the southern edge of the flat top. Artifacts were found to be in small concentrations as well, perhaps marking the site of sub-surface features. Eleven different specimens of crockery were counted from the fragments we recovered, including one fairly complete lid from a dash churn, and one fragment of earthenware. Ceramics included the remains of about a dozen plates, saucers, bowls, a teacup and a casserole cover which was decorated with black transfer underglaze in a floral pattern. Several of the ceramic sherds were marked (See Figure 8.i. & k.). Glass fragments included canning jars, bottles and pressed glass of unidentified form. Metallic artifacts included a cut nail, a cast iron stove fragment and a reed plate from a mouth-harmonica (See Figure 7.d.).

At an elevation of greater than +900 feet m.s.l, this site is well outside the effects of proposed Lake Bosque. The abundant artifacts and remaining features mark this as a site which could reveal information concerning the historic occupation of this portion of the East Bosque River, and accordingly, Site 41BQ229 is considered to be one potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ230

The heavily eroded prehistoric site has been destroyed by floodwaters which flow over it from an upstream dam during periods of extreme rainfall. A few flakes of chert and a mid-section of a large thin biface, elevated in the clay on pedestals by subsequent direct erosion by rain, were the only objects to mark past human activity here. Only twenty meters west of the East Bosque

River, this now heavily eroded drain would have been an interesting setting for further study (See Figure 3.b.).

At an elevation of +845 feet m.s.l., this destroyed site will not be affected by the creation of Lake Bosque. Site 41BQ230 is not recommended for further work. It is not a candidate for inclusion within the National Register of Historic Places.

Site 41BQ231

In the shadow of seven majestic oaks, this historic housesite is located on the edge of the terrace overlooking a drain to the East Bosque River (See Figure 3.b.). On the basis of artifacts, this site was occupied in the late 19th and early 20th century, as evidenced by glass, stoneware and metal. Fragments of glass thought to represent as many as nine bottles were found in colorless, weathered colorless glass turned purple, green, light green and brown along with a piece of milk glass lid from a Mason jar. Stoneware included white ironstone, embossed ironstone, transferwares in blue and green floral patterns in plate and saucer forms, and a couple of fragments of wheel-thrown crockery. Metallic artifacts included a wrought-iron bracket and the rusted seam of a "tin" food can.

Among the oaks is found the original foundation of the house, covered with leaf mould, or humus, and vegetation. About 15 meters to the north of these stone foundation remains is a depression, of the size and general shape associated with a root/cellar, this one collapsed. Nearby, in what was probably the yard of the original house, there is a small, temporary structure, associated with an outdoor dining table and a recent, circular limestone hearth, all surrounded with artifacts of the present.

Outside of the reservoir area, at an elevation of +860 feet m.s.l., Site 41BQ231 is not presently recommended for further investigation. It is a site which might, with documentary research and archeological investigation, prove eligible for inclusion within the National Register of Historic Places.

Site 41BQ232

This prehistoric lithic scatter is situated on a sloping terrace edge located on the east side of the East Bosque River (See Figure 3.b.). Surrounded by juniper and oak woods, the scatter is in a fossiliferous red sand eroded to red clay. The proximity of the site to the terrace edge and the East Bosque has resulted in its disturbance by a old roadway. The road is no longer passable by conventional means and may no longer be in use. This road adjacent and

through the site has greatly contributed to erosion in the ruts and surrounding area, causing downslope derivation of the already sloping cultural deposit. Artifacts found in the wash included three fragmented bifaces, all probably projectile points, several fragmentary tools and chert debris.

Outside the project area, Site 41BQ232 is not recommended for further investigation. It is not thought to be one eligible for inclusion within the National Register of Historic Places.

Site 41BQ233

Located on an upland terrace slope of six percent above the East Bosque River and surrounded by ashe juniper, this prehistoric site is found in a clearing where artifactual material has washed from the light brown sandy loam over red clay (See Figure 3.b). The surface bears a very light lithic scatter, i.e. three chert flakes, a triangular biface and a small metate. The metate is made from a hard, flat river cobble, with one face ground slightly concave, and evidence of grinding of the opposite side. No in-place features or burned rock were observed at this open campsite. The setting of the site, with a relatively high slope for comfortable occupation, is probably significantly altered since occupation, but we noticed no artificial contributors, such as machine pushing for brush clearing which would have hastened its alteration.

Site 41BQ233 is at an elevation above 850 feet m.s.l. and above the effects of Lake Bosque. This site is not recommend for further investigation or for inclusion within the National Register of Historic Places.

Site 41BQ234

This was the site of a historic house occupied in the late 19th century which was located on a high terrace edge overlooking the East Bosque River (See Figure 3.b.). It was served by the same old road which passed by the housesites, Site 41BQ234 and Site 41BQ103. When it came time to relocate the road, it was moved away from 41BQ234 and 41BQ103, but it was moved toward 41BQ234, the principal structure of which was either demolished or cleared for the right-of-way of Ranch to Market Road 927. A large pile of foundation rock from the house remains on the northwest side of the road, and here we found weathered purple pressed and embossed glass fragments and a piece of British ironstone(See Figure 8,j.).

Nothing remains of archeological value at this bulldozed housesite. It is not recommended for inclusion within the National Register of Historic Places.

Site 41BQ235

One of the larger prehistoric sites in the project area is this one located along the north side of Gibson Branch for more than 300 meters (See Figure 3.a.). This site extends into the flat terrace where it shows up in eroded areas, animal trails, roadways, ant beds, etc. Along the creek channel, erosion is extreme, with the soil cut into small hummocks stabilized by bedrock and tree roots, and here the lithic scatter is fairly heavy and mixed with moderate quantities of mussel shell fragments. Periodically, an historic artifact, a piece of ceramic, aged glass, or a fragment of metal would be noticed among the prehistoric material, the signature of a historic site in the area. The prehistoric artifacts included three projectile point fragments (See Figure 6.c.), several biface fragments, small thick bifacial scrapers, three edge-battered bifaces, assorted uniface and other fragments and many flakes which were retrieved as chert samples. Not enough mussel shell was found to be used as a radiocarbon sample, but additional sampling could probably find a usable sample, perhaps with charcoal from a hearth. Some burned rock was observed along the eroded margins of the site, thought to be late Middle Archaic to early Late Archaic in age.

This site is recommended for extensive sampling. Site 41BQ235 is thought to be a candidate for designation as a State Archeological Landmark and one that is potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ236

On an upland terrace edge on the north side of Gibson Branch, this historic house site is located in the northern portion of the prehistoric site 41BQ235. The historic artifacts found in Site 41BQ235 were traced to this area, heavily vegetated with juniper, oak, mesquite woods mixed with medium grasses and low forbs. The housesite was difficult to find, so we marked the area to aid in its relocation. Our search among the dense grass revealed the apparently intact limestone foundation remains of a cabin, presumed on the absence of cut nails, to be a log one. The artifacts include fragments of stoneware, white British marked ironstone (See Figure 8.f.), and crockery, and several fragments of glass in light green, purple, brown and colorless, in panel, sauce, beverage and other forms. In general, the artifacts depict an occupation here in the middle late 19th century, perhaps earlier.

Site 41BQ236 is recommended for further work, including clearing, mapping and a search for sub-surface features, associated with archival research. This site is thought to be a candidate for State Archeological Landmark

status and eligible for inclusion within the National Register of Historic Places.

Site 41BQ237

In danger of sloughing into Gibson Creek and already cascading down the sidewall of the channel, this prehistoric site is buried in a deposit which generally is dark brown loam (See Figure 3.a.). At a few places along the profile, color differentiation associated with charcoal and other organic staining is mixed with mussel shell, obvious indicators of cooking and cultural activity. Chert is apparent in the profile and was seen at several widely dispersed eroded areas on the margin of the site. This buried campsite has been plowed repeatedly, but never so deep as to reach the deposit of cultural material below. In one area of the site, on the edge cut by Gibson Creek with a profile created by sloughing, the depth of deposits appears to extend to 2.5 meters below ground surface, but one must be cautious about assuming it is not redeposited material from above, as was learned at Site 41BQ217. A sample of mussel shell was removed from the cleaned profile at the uppermost portion of the site which was submitted to the Radiocarbon Laboratory at the University of Texas at Austin. This sample, TX-5790, provided a date of 2040 $\pm$ 60 years before the present (See Table 1.1). This site is extensive and appears to measure more than 90 meters at its widest point.

Site 41BQ237 is recommended for further investigation. Considered to be a candidate for designation as a State Archeological Landmark, Site 41BQ237 is also one that is potentially eligible for inclusion within the National Register of Historic Places.

Site 41BQ238

This prehistoric site is located on a slight rise and down the gently sloping floodplain overlooking an old channel scar to the southwest, with the current channel of the North Bosque to the northeast (See Figure 3.a.). In a cleared field which currently is not in clutivation, traces of the site were found on the sloping surface descending to the channel; these included some flakes of chert and small fragments of mussel shell. Initially, the site gave the appearance of being very limited in size, just an expression along the channel edge, but below the plow zone. We searched from the field to the fencerow. There, the soil around the fence posts was inspected. Fragments of mussel shell and chert revealed that at a depth below the plow but within the reach of a post hole digger was this buried site. Given the depth and proximity of Site 41BQ237, Site 41BQ238 may be of similar or younger age. Like 41BQ237, this site appears to be horizontally extensive.

Site 41BQ238 is recommended for further investigation. It is considered to be a site for potential designation as a State Archeological Landmark, and one thought to be eligible for inclusion within the National Register of Historic Places.

SETTLEMENT

Sometimes, when a cultural group interacts with the environment, the interaction is reflected in alterations of the landform. These alterations can be as subtle as the introduction of soils from elsewhere on the bottom of feet into an occupation area, or the flaking of chert and not carrying away the debotage, to the extinction of many species as a result of changes in climate, habitat, and hunting pressure. Such alterations may be expressed in areas of activity or occupation, associated with recognizable evidence, such as sites. This section reviews settlement, the relationships of sites with the landform. The discussion includes soils, habitat preference and chronology.

SITES AND SOILS

There are nine principal soil types in the general area of the project, which can be divided into two major groups, those which occupy the uplands and are underlain by limestone and those which are found on the floodplains and stream terraces. The uplands soils important to settlement include the undulating Purves-Maloterre association, the Cranfill gravelly clay loam, the hilly Brackett-Eckrant association, and the undulating Tarrant association. Soils in the bottomland include the Minwells fine sandy loam, Bastrop fine sandy loam, Sunev clay loam, Frio silty clay loam and the Bosque loam (See Figure 14.).

In the uplands as well as the entire project area, the soil type most popular for settlement is the undulating Purves-Maloterre association. More than a fourth of the sites found in this survey are situated on this soil association. Of these 38 sites, 27 are prehistoric--four of which were later occupied during the 19th century by historic populations, and 11 additional historic ones. Second in popularity in the uplands is the gravelly Cranfill clay loam. Seventeen sites, nine of them prehistoric (two of these were later occupied by historic settlers), along with eight historic sites, were recorded here. There were nine sites recorded in the hilly Brackett-Eckrant association, with a considerable preference during historic settlement, or five historic sites as compared with four prehistoric sites. Nine sites were also recorded in the undulating Tarrant association. Here the strong preference for this soil type by historic settlers was profound; only one of these nine is a prehistoric site. When all the sites in the uplands are counted and compared to the lowlands, almost two-thirds of the sites are located in the uplands and of these, historic sites amount to slightly more than 45 percent.

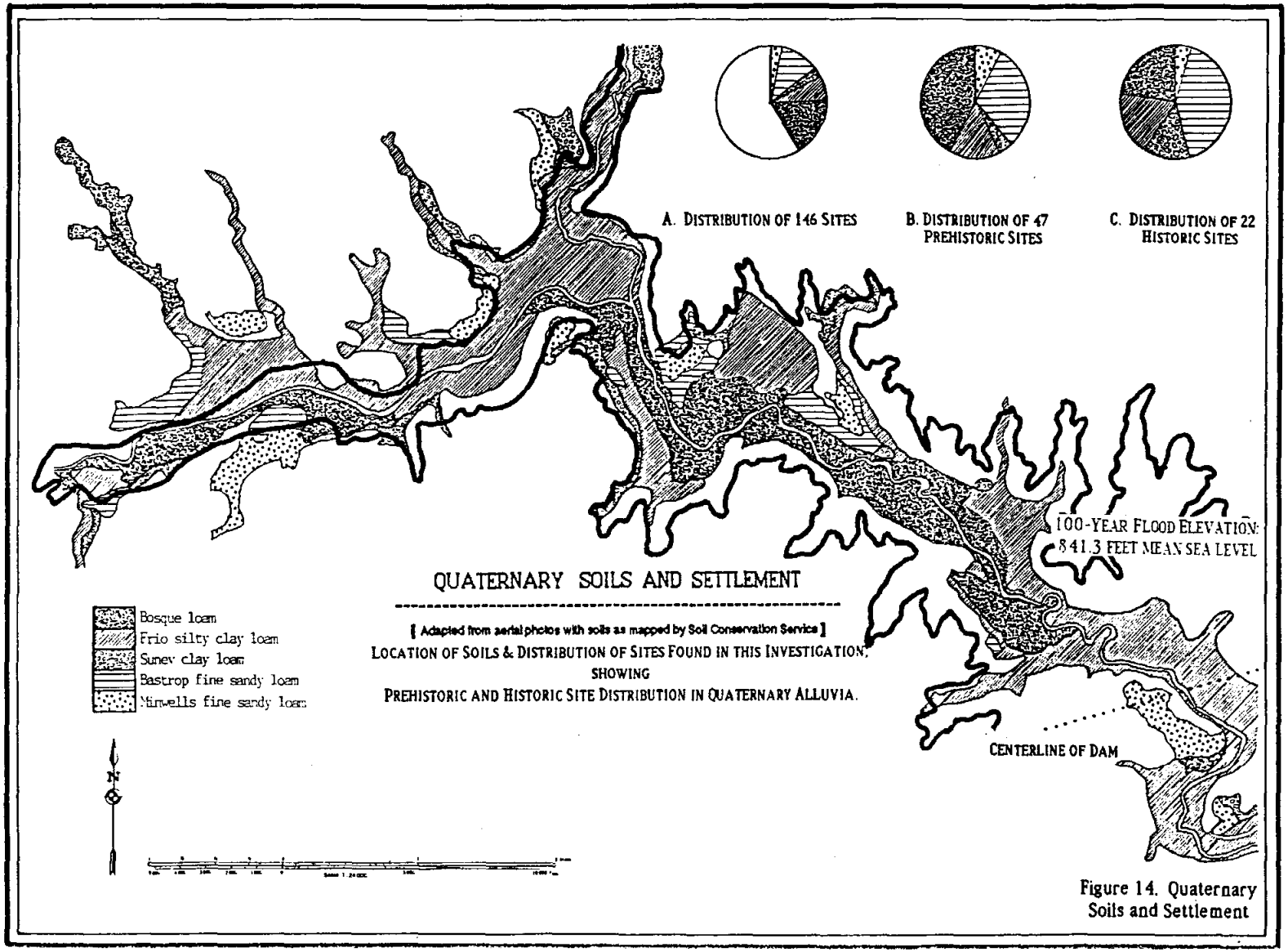

Figure 14. Quaternary Soils and Settlement

Of the soils in the lowlands, that most popular for settlement is the Bosque loam, with a total of 24 sites, one-sixth of the project total. Eighty percent of these site are prehistoric ones. Seventeen sites are found in the Bosque loam, and sixty percent of these are prehistoric. The Frio silty clay loam has a population of ten sites, seven of which are prehistoric, with one of the prehistoric sites later used by historic settlers, and three historic sites. Four sites are found in the Minwells soils, all of them are prehistoric ones with one later reused during the historic. The same number of sites are found in the Sunev clay loam, and of these four, two are prehistoric (one of these later reoccupied during the historic period) and two are historic in age.

A comparison between the prehistoric and historic selection and utilization of soils and associated environments was made by counting the number of sites which were within each alluvial soil from the standpoint of all sites found throughout the survey (See Figure 14.A.). The frequency of occurrence of prehistoric and historic sites within each alluvial soil type was determined and compared (See Figure 14. B. & C.). Prehistoric populations located more sites in the Bosque loam than anywhere else (43%), followed by the Bastrop fine sandy loam (29%), and the Frio silty clay loam (15%). Historic populations preferred those of the Bastrop (41%), then the Bosque (23%) and the Frio (18%).

To learn more about the age of these soils and the prehistoric sites within them, we sorted through our sites in the lowlands where mussel shell had been retrieved, emphasizing the selection of samples drawn from good context, from cleaned, naturally cut banks of streams or the river, profiles, sampling, etc. From these alluvial sites, we selected samples from six sites in the most popular soil type in the lowlands, the Bosque clay loam (Sites 41BQ147, 41BQ148, 41BQ169, 41BQ213, 41BQ216, & 41BQ217), and two from the Frio silty clay loam (Sites 41BQ122 & 41BQ237). And, two samples were selected from prehistoric sites in the most preferred of uplands soils, the Purves-Maloterre association (Sites 41BQ167 & 41BQ189). Along with other samples gathered to be used in determining the affect of inorganic carbon uptake on dates from mussel shell, the above samples were submitted for ^{14}C dating. Although the ^{14}C samples were drawn from just three soil types, a wide variety of microenvironments are represented. They include the confluence of a minor stream with the river channel (BQ122), a natural bedrock dam in the floodplain of the river (BQ147), the river channel (BQ148), the upland terrace edge (BQ167 & BQ189), the floodplain of the river (BQ169), a floodplain rise next to an abandoned channel of the river and Hester Branch (BQ213), a stream terrace (BQ216), a tributary gouge with the sample recovered from 11 feet below surface (BQ217), and from a profile on a stream channel (BQ237).

CHRONOLOGY

As the survey progressed, it was hoped that before the investigation was completed, a site would be found which appeared to be a single component one associated with shell. This site might be used to correlate estimated ages of projectile points with radiocarbon from mussel shell and charcoal from a hearth. It was considered the manner in which to begin to address the inorganic carbonate problems associated with the dating of mussel shell.

The site was found and given the number 41BQ216. It was associated with fragmentary arrowpoints, a *Scallorn, eddy* variety (Jelks 1962: 28-29), and two *Perdiz*(Figure 6, n, m & o), thought to have been in vogue about 800 to 950 years before the present (B. P.). No other artifacts from other time periods were discovered on the site. The site had discrete accumulations of shell and burned rock. It had an ancillary feature of interest; directly adjacent to the site was a ditch which we entered. We cleaned a profile at eleven feet below the surface, and removed a sample of shell. Unable to determine if these were stratified or redeposited materials, we gave this manifestation the site number 41BQ217, and sent the sample to the malacologist for identification as to species and thence for radiocarbon testing.

Because the sample was removed from eleven feet below the surface of 41BQ216, we estimated the date of the sample from 41BQ217 could be as much as 2,000 years older than that from 41BQ216. As the results came forth, the physicist identified the shells as essentially the same sample. On the basis of radiocarbon, our dilemma as to whether the site was a stratified multiple component one or redeposited material was answered in the laboratory (See Table 1.1). The dates, however, were about 600 years older than the time frame we had estimated using projectile points. Could this date be the reflection of the intake of inorganic carbon during the life-span of the mussel, carbon that would make the shell date older? Submitting a series of mussel shell samples for dating, we started using the 600-year-older adjustment in the laboratory, while a search of the landform continued for a mussel that could serve as a control. We submitted what we called Sample Number 10 for radiocarbon testing (Neck's Sample No. 8--See Appendix A), expecting an ultramodern date. It dated ultramodern, to the turn of the 21st century, an effect of the intake by the mussel of particles resulting from atomic events since the 1940's. Where would a modern shell that predated atomic testing be found? Several historic sites had

Table 1.1: Radiocarbon Dates from the Bosque Area

Site Number	Lab Number	Estimated Date	Based on	Radiocarbon
41BQ122	TX-5794	2000-3000 B. P.	geology	2300 ± 70 B. P.
41BQ147	TX-5795	3700-4200 B. P.	artifacts	3010 ± 50 B. P.
41BQ148	TX-5793	4000-4500 B. P.	artifacts	3830 ± 70 B. P.
41BQ167	TX-5789	1500-3000 B. P.	geology	2600 ± 80 B. P.
41BQ169	TX-5792	1200-1500 B. P.	geology	3020 ± 50 B. P.
41BQ189	TX-5788	1500-2500 B. P.	geology	1140 ± 60 B. P.
41BQ213	TX-5787	1700-2300 B. P.	geology	1350 ± 50 B. P.
41BQ216	TX-5768	800- 950 B. P.	artifacts	1530 ± 70 B. P.
41BQ217	TX-5769	2000-3000 B. P.	geology	1410 ± 60 B. P.
41BQ237	TX-5790	2500-3500 B. P.	geology	2040 ± 60 B. P.
Sample No. 10	TX-5791	ultramodern	post-atomic	+143 ± 5 B. P.
Sample No. 11	TX-5810	28 B. P.	cemetery	710 ± 50 B. P.

mussel shell associated with them, but we could not be certain that the shell was not prehistoric; perhaps shell could be found in a privy or some other historic feature to indicate it was modern. As the results from the samples we submitted came in, a chronology of ^{14}C dates was emerging, two or so at a time (See Table 1.2).

Weeks later, while visiting a historic cemetery near the project area, we found a potential sample. On a grave from 1922 were several large mussel shells. We recovered one for radiocarbon testing, estimating its age to be twenty-eight years before the present [for radiocarbon purposes, before the present begins in 1950]. Sample No. 11 returned with a date of 710 ± 50 years before the present. The sample dated 680 ± 50 years older than it was thought to be. Considering the standard deviation, our lab estimate of -600 years was not only acceptable, it is supported by this sample. The chronology of dates has been adjusted to reflect the one suggested by the radiocarbon date of Sample 11 (See Table 1.3). Not so presumptious as to be offered as true dates, the adjusted chronology is put forward as being closer to true dates than those offered above without benefit of adjustment. To those who will follow us, these sites with associated dates should prove beneficial in the search for older sites. A selective return to sites with mussel shell is recommended to find shell within intact features, associated with other kinds of datable samples.

As regards the dating of sites within the three soils types, and the span of use reflected by the ^{14}C samples (See Table 1.3), we found the dates in the Bosque clay loam were chronologically clustered into two groups, an early one from 3,150 to 2,330 B.P. (TX-5793, 5792 & 5795), and a late one, from 850 to 670 B.P. (TX-5768, 5769 & 5787). We think these late ones are not dating the Bosque loams, but are actually the dates of the sites themselves. The dates from the soil identified as the Frio silty clay loam were also clustered, from 1,620 to 1,360 B.P. (TX5794 & 5790). Sites on the upland terrace edge of the Purves-Maloterre complex revealed widely separated occupations, as expected, from 1,920 B.P. (TX-5789) and 460 B.P. (TX-5788).

As a result of the ^{14}C testing in the Bosque Reservoir area, we believe that the use of mussel shell for the relative dating of sites is an important one. Not only easy to spot in dark alluvial soils and profiles, mussel shell is durable when undisturbed, yet its brittleness allows for little disturbance. Fragments of friable shell mark areas of disturbance, even if struck only once by a plow, a posthole digger, or dug into by animals or relic hunters.

Table 1.2: Chronology of Radiocarbon Dates from the Bosque Area

Site Number	Lab Number	Estimated Date	Based on	Radiocarbon
Sample No. 10	TX-5791	ultramodern	post-atomic	+143 ± 5 B. P.
Sample No. 11	TX-5810	28 B. P.	cemetery	710 ± 50 B. P.
41BQ189	TX-5788	1500-2500 B. P.	geology	1140 ± 60 B. P.
41BQ213	TX-5787	1700-2300 B. P.	geology	1350 ± 50 B. P.
41BQ217	TX-5769	2000-3000 B. P.	geology	1410 ± 60 B. P.
41BQ216	TX-5768	800- 950 B. P.	artifacts	1530 ± 70 B. P.
41BQ237	TX-5790	2500-3500 B. P.	geology	2040 ± 60 B. P.
41BQ122	TX-5794	2000-3000 B. P.	geology	2300 ± 70 B. P.
41BQ167	TX-5789	1500-3000 B. P.	geology	2600 ± 80 B. P.
41BQ147	TX-5795	3700-4200 B. P.	artifacts	3010 ± 50 B. P.
41BQ169	TX-5792	1200-1500 B. P.	geology	3020 ± 50 B. P.
41BQ148	TX-5793	4000-4500 B. P.	artifacts	3830 ± 70 B. P.

Carefully selected from excavations, sorted as to species, and then graded for consistency, these samples should be paired with charcoal from hearths, and other ^{14}C samples, to learn their respective variation, stability and utility. If shell samples from a relatively stable, albeit high, geochemical background of carbonates such as the North Bosque River are found to be consistent in their dating, their use in investigations in the Upper Brazos River basin, where mussel shell is common in sites, could prove invaluable. The further investigaton of proposed Lake Bosque, because of the wide cross-section of sites which contain mussel shell and the variety of species, has the potential to conclusively determine their appropriate use in dating sites

Another sort of chronology was discovered associated with historic sites in the project area of Lake Bosque, one based on reed plates of diatonic mouth-harmonicas or eolinas (See Figure 7), shown in the figure with the oldest thought to be on top, and the youngest at the bottom, John Lomax would have confirmed for us something we already knew--the most common musical instruments of the west were not the guitar or violin, but the more portable ones, like harmonicas, jews harps and ocarinas, and apparently, an occasional concertina. Harmonica reed plates are ubiquitous artifacts at historic housesites. Whether additional work will serve to verify our observations--that harmonica reed plates seem to slowly change through time, changes which might be quantified into a meaningful framework--remains to be learned from further research.

Table 1.3: Chronology of Radiocarbon Dates from the Bosque Area, with suggested adjustment for inorganic carbon

Site Number	Lab Number	Estimated Date	Radiocarbon	Adjusted
Sample No. 10	TX-5791	ultramodern	+143 ± 5 B. P.	-
Sample No. 11	TX-5810	28 B. P.	710 ± 50 B. P.	680 ± 50 B. P.
41BQ189	TX-5788	1500-2500 B. P.	1140 ± 60 B. P.	460 ± 60 B. P.
41BQ213	TX-5787	1700-2300 B. P.	1350 ± 50 B. P.	670 ± 50 B. P.
41BQ217	TX-5769	-	1410 ± 60 B. P.	730 ± 60 B. P.
41BQ216	TX-5768	800- 950 B. P.	1530 ± 70 B. P.	850 ± 70 B. P.
41BQ237	TX-5790	2500-3500 B. P.	2040 ± 60 B. P.	1360 ± 60 B. P.
41BQ122	TX-5794	2000-3000 B. P.	2300 ± 70 B. P.	1620 ± 70 B. P.
41BQ167	TX-5789	1500-3000 B. P.	2600 ± 80 B. P.	1920 ± 80 B. P.
41BQ147	TX-5795	3700-4200 B. P.	3010 ± 50 B. P.	2330 ± 50 B. P.
41BQ169	TX-5792	1200-1500 B. P.	3020 ± 50 B. P.	2340 ± 50 B. P.
41BQ148	TX-5793	4000-4500 B. P.	3830 ± 70 B. P.	3150 ± 70 B. P.

SUMMARY AND RECOMMENDATIONS

When the archeological survey of Lake Bosque began on the ground, the survey team soon discovered that a considerable portion of the sites were just outside the area to be affected by the construction of this undertaking, at a slightly higher elevation. These sites outside the project were part of the overall pattern of human settlement and important in understanding the interaction of people throughout the forks of the Bosque. So, we wandered outside the area to be directly affected. Consequently, the survey recorded more sites than were initially predicted, those predictions based exclusively on the estimated acreage of the floodpool. The data gathered as a result of this added coverage were important in that they provided a look outside the hard edge imposed by the floodpool elevation on the sampling universe, to determine if there were any differences. Because the floodpool of the lake is a function, among other things, of topography and geology, perhaps it is not remarkable that many sites were discovered on the erosion-resistant, hence, rather flat edge of the uplands, just above the proposed floodpool. These and other sites above +842 feet m.s.l. total forty, or 27.6 percent of the sites located during this investigation. These sites will remain after the lake is operating.

As to the fate of these sites, their eventual obliteration can be predicted. Archeological sites are generally subject to some form of degradation or alteration, little of which enhances the interpretation of the data. The natural effects of gravity, water and wind, plants and animals take their toll, but more slowly than the blade of a harrow, turning plow, middle buster behind a tractor, or the tooth-edged bucket of a tracked loader or bulldozer. Many of the sites discovered in this investigation have been scraped by machinery to bedrock to clear away brush, a form of range management carried out through much of the project area. The cultural material is still there, out of place and mixed, altered beyond archeological utility.

Another form of damage to sites comes from those digging for specimens without regard for recording the nature of the surroundings and the circumstances of removal. So-called "relic hunters" are frequently local history enthusiasts who destroy the very heritage for which they are searching. This form of site predation is low in the project area, mostly confined to better known historic sites--only one prehistoric site is known to have been looted, and this one not recently.

Perhaps the relic hunters learned that here, save those eroded ones, prehistoric sites are hard to find. If so, they would have confirmed our observation. Upland-edge prehistoric sites are eroded, some to bedrock, so there is nothing for a relic hunter to dig there except in selected locations. The survey team used these exposed upland sites to get a better idea of the general size of sites and of the type and distribution of material culture in them. Chert samples were taken to reflect the array of materials selected by the autochthones.

Even upland sites were not heavily scattered with chert, a reflection that lithic resource material has always been a precious or traded commodity in the North Bosque valley. As we walked along and down the slopes to the midlands and lowlands, however, the chert scatters were more likely to be covered with colluviums, and on the floodplain, alluvium. Our shovel probing, which worked well in the midlands, proved of limited value in the floodplain, and rarely produced the flakes of chert or other signs of cultural activity we were seeking. Probing proved of more utility *after* a site was discovered, to determine the nature of the constituents and especially the potential depth of deposits.

Organic or carbon-staining of alluvia was uncommon, and chert was almost impossible to see in the chocolate to almost black soils in the floodplain. Occasionally, broken or burned limestone out of place in the floodplain would prove a clue to aboriginal habitations. Our most reliable indicator of prehistoric activity proved to be the fragmented remains of mussel shell, which most of the time led us to a few flakes of chert or other confirmatory evidence, although periodically, it was the only indicator we found. Another bonus associated with the shell was that its albedo provided a stark contrast to the alluvial soils, allowing for the discovery of sites at depth in a profile or along an eroding terrace edge.

The immediate concern of this investigation is the fate of the sites in the space required for Lake Bosque. As mentioned initially in this section, more than one-quarter of the archeological sites located in this survey appear to be outside the direct effects of proposed Lake Bosque. For archeological purposes, some of these sites are essentially destroyed, while others are considered significant and potentially eligible for inclusion within the National Register of Historic Places. Of these forty sites above the elevation of +841.3 feet m.s.l., sixteen are considered to be significant and perhaps eligible for National Register status (See Table 2-1 through 2-8, Effects-on-sites Characterization for Lake Bosque, for information regarding specific sites).

Table 2-1: Effects-on-Sites Characterization for Lake Bosque Project.

Site Number	Elevation Feet m.s.l.	Period of Occupation	STATUS SAL	STATUS NRE	EFFECTS OF NO ACTION Impact	Agent	Occurs	Result	EFFECTS OF CONSTRUCTION Impact	Agent	Result	EFFECTS OF OPERATION Impact	Agent	Occurs	Result
41BQ93	840-842	prehistoric	-	-	erosion	cattle	seasonal	damage	none	-	-	erosion	waves	once	damage
41BQ94	832-835	multiple	-	-	scouring	creek	seasonal	damage	none	-	-	erosion	waves	-	-
41BQ95	850-860	prehistoric	-	⊠	erosion	cattle	seasonal	damage	none	-	-	looting			
41BQ96	833-835	historic	-	-	mixing	vehicles	on-going	damage	mixing	dam	loss	none	-	-	-
41BQ97	820-842	prehistoric	-	-	erosion	cattle	seasonal	damage	mixing	clearing	loss	none	-	-	
41BQ98	812-820	historic	-	-	scouring	creek	seasonal	damage	none	-	-	siltation	lake	seasonal	-
41BQ99	802-806	historic	-	-	mixing	human	on-going	damage	none	-	-	siltation	lake	seasonal	damage
41BQ100	809-812	prehistoric	-	-	erosion	cattle	seasonal	neutral	none	-	-	none	-	-	-
41BQ101	820-830	historic	⊠	⊠	filling	wash	seasonal	positive	none	-	-	erosion	lake	seasonal	damage
41BQ102	828-840	historic	⊠	⊠	filling	wash	seasonal	positive	none	-	-	erosion	lake	seasonal	damage
41BQ103	832-836	historic	-	-	none	-	-	-	mixing	clearing	loss	none	-	-	-
41BQ104	820-870	historic	-	-	erosion	wash	seasonal	damage	-	-	-	none	-	-	-
41BQ105	834-839	prehistoric	-	-	turned	tillage	seasonal	damage	none	-	-	erosion	flood	seasonal	loss
41BQ106	805-806	historic	□	□	none	-	-	-	removal	clearing	loss	none	-	-	-
41BQ107	820-824	multiple	⊠	⊠	erosion	wash	seasonal	damage	none	-	-	erosion	lake	on-going	loss
41BQ108	805	historic	-	-	none	-	-	-	removal	clearing	loss	none	-	-	-
41BQ109	837-840	prehistoric	-	-	erosion	wash	seasonal	damage	none	-	-	erosion	flood	seasonal	loss
41BQ110	820-825	multiple	⊠	⊠	erosion	cattle	on-going	damage	none	-	-	erosion	lake	on-going	loss

Table 2-2: Effects-on-Sites Characterization for Lake Bosque Project.

Site Number	Elevation Feet m.s.l.	Period of Occupation	STATUS SAL	STATUS NRE	EFFECTS OF NO ACTION Impact	Agent	Occurs	Result	EFFECTS OF CONSTRUCTION Impact	Agent	Result	EFFECTS OF OPERATION Impact	Agent	Occurs	Result
41BQ111	805-808	prehistoric	⊠	⊠	turned	tillage	annual	damage	none	-	-	inundation	lake	pool	loss
41BQ112	828-830	historic	⊠	⊠	altered	building	on-going	damage	removal	clearing	damage	inundation	lake	pool	loss
41BQ113	845-860	prehistoric	-	-	eroded	wash	seasonal	damage	none	-	-	none	-	-	-
41BQ114	820-850	historic	-	-	eroded	slope	on-going	damage	none	-	-	none	-	-	-
41BQ115	842-848	prehistoric	-	-	eroded	wash	on-going	-	none	-	-	none	-	-	-
41BQ116	815-820	prehistoric	-	-	none	-	-	-	none	-	-	none	-	-	-
41BQ117	840-855	multiple	-	-	erosion	cattle	seasonal	damage	none	-	-	inundation	lake	flood	loss
41BQ118	840-850	multiple	-	-	erosion	cattle	seasonal	damage	none	-	-	inundation	lake	flood	loss
41BQ119	860-868	prehistoric	-	-	scraped	dozer	once	loss	none	-	-	none	-	-	-
41BQ120	853-856	multiple	-	-	altered	building	once	loss	none	-	-	none	-	-	-
41BQ121	838-850	prehistoric	-	-	cleared	dozer	once	damage	none	-	-	inundation	lake	flood	loss
41BQ122	820-828	multiple	⊠	⊠	buried	alluvial	flooding	preserved	none	-	-	inundation	lake	normal	loss
41BQ123	842-845	historic	-	⊠	none	-	-	-	F.H. 927	relocation	unknown	none	-	-	-
41BQ124	818-822	prehistoric	⊠	⊠	turned	tillage	seasonal	damage	none	-	-	inundation	lake	normal	loss
41BQ125	818-819	prehistoric	⊠	⊠	turned	tillage	seasonal	damage	none	-	-	inundation	lake	normal	loss
41BQ126	818-820	prehistoric	-	-	turned	tillage	seasonal	loss	none	-	-	inundation	lake	normal	none
41BQ127	819-824	historic	-	-	razed	owner	unknown	loss	none	-	-	inundation	lake	normal	none
41BQ128	810-816	historic	-	-	none	-	-	-	none	-	-	inundation	lake	normal	loss

Table 2-3: Effects-on-Sites Characterization for Lake Bosque Project.

Site Number	Elevation Feet m.s.l.	Period of Occupation	STATUS SAL	STATUS NRE	EFFECTS OF NO ACTION Impact	Agent	Occurs	Result	EFFECTS OF CONSTRUCTION Impact	Agent	Result	EFFECTS OF OPERATION Impact	Agent	Occurs	Result
41BQ129	820-828	historic	-	-	cleared	owner	unknown	loss	none	-	-	inundation	lake	normal	loss
41BQ130	845-846	historic	-	⊠	clearing	owner	unknown	damage	none	-	-	none	-	-	-
41BQ131	826-836	historic	-	-	cleared	owner	unknown	loss	none	-	-	inundation	lake	pool	none
41BQ132	870	historic	-	-	cleared	owner	unknown	loss	none	-	-	none	-	-	-
41BQ133	856-860	historic	-	-	cleared	owner	once	loss	none	-	-	none	-	-	
41BQ134	850-854	historic	-	-	erosion	wash	seasonal	damage	none	-	-	none	-	-	-
41BQ135	858-870	prehistoric	-	-	erosion	wash	seasonal	damage	none	-	-	none	-	-	-
41BQ136	830-850	historic	-	-	cleared	dozer	once	loss	none	-	-	none	-	-	-
41BQ137	810-822	prehistoric	⊠	⊠	erosion	wash	seasonal	damage	none	-	-	inundation	lake	pool	loss
41BQ138	808-812	multiple	⊠	⊠	cleared	owner	once	disturbed	none	-	-	inundation	lake	pool	loss
41BQ139	796-820	prehistoric	⊠	⊠	erosion	wash	seasonal	damage	none	-	-	inundation	lake	pool	loss
41BQ140	802-804	historic	-	-	razed	owner	once	loss	none	-	-	inundation	lake	pool	-
41BQ141	780-793	historic	-	-	disturbed	dozer	unknown	loss	none	-	-	inundation	lake	pool	-
41BQ142	810-820	prehistoric	-	-	eroded	wash	seasonal	loss	none	-	-	inundation	lake	pool	-
41BQ143	800-810	prehistoric	-	-	erosion	rill	seasonal	damage	none	-	-	inundation	lake	pool	loss
41BQ144	805	historic	-	-	erosion	drain	seasonal	damage	none	-	-	inundation	lake	pool	loss
41BQ145	856-862	prehistoric	-	⊠	erosion	wash	seasonal	damage	none	-	-	indirect	-	-	-
41BQ146	860-870	prehistoric	-	-	erosion	wash	seasonal	damage	none	-	-	indirect	-	-	-

Table 2-4: Effects-on-Sites Characterization for Lake Bosque Project.

Site Number	Elevation Feet m.s.l.	Period of Occupation	STATUS SAL	STATUS NRE	EFFECTS OF NO ACTION Impact	Agent	Occurs	Result	EFFECTS OF CONSTRUCTION Impact	Agent	Result	EFFECTS OF OPERATION Impact	Agent	Occurs	Result
41BQ147	820-830	prehistoric	⊠	⊠	erosion	wash	seasonal	damage	none	-	-	inundation	lake	pool	loss
41BQ148	800-820	prehistoric	⊠	⊠	erosion	wash	seasonal	damage	none	-	-	inundation	lake	pool	loss
41BQ149	810-823	multiple	⊠	⊠	turned	tillage	seasonal	damage	none	-	-	inundation	lake	pool	loss
41BQ150	848-850	prehistoric	-	-	eroded	wash	seasonal	loss	none	-	-	none	-	-	-
41BQ151	840-851	prehistoric	-	⊠	clearing	highline	once	damage	dam	spillway	loss	none	-	-	-
41BQ152	815-828	historic	⊠	⊠	erosion	wash	seasonal	damage	dam	dam	loss	none	-	-	-
41BQ153	785-805	historic	⊠	⊠	filling	wash	seasonal	positive	spillway	haul road	loss	none	-	-	-
41BQ154	800-838	prehistoric	-	-	erosion	wash	seasonal	damage	spillway	haul road	loss	none	-	-	-
41BQ155	790-830	prehistoric	-	-	clearing	highline	once	damage	none	-	-	none	-	-	-
41BQ156	775-780	historic	-	-	none	-	-	-	none	-	-	inundation	lake	pool	loss
41BQ157	820-825	historic	-	-	altered	building	on-going	loss	none	-	-	inundation	lake	pool	none
41BQ158	774-779	prehistoric	⊠	⊠	sloughing	river	on-going	damage	none	-	-	inundation	lake	pool	loss
41BQ159	833-843	historic	-	⊠	none	-	-	-	none	-	-	inundation	lake	flood	damage
41BQ160	810-811	prehistoric			erosion	wash	on-going	damage	none	-	-	inundation	lake	pool	loss
41BQ161	812-824	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	inundation	lake	pool	none
41BQ162	800-810	historic	⊠	⊠	none	-	-	-	dam	dam	loss	none	-	-	-
41BQ163	815-817	prehistoric	-	-	eroded	wash	on-going	loss	dam	dam	-	none	-	-	-
41BQ164	869	historic	⊠	⊠	none	-	-	-	none	-	-	none	-	-	-

Table 2-5: Effects-on-Sites Characterization for Lake Bosque Project.

Site Number	Elevation Feet m.s.l.	Period of Occupation	STATUS SAL	STATUS NRE	EFFECTS OF NO ACTION Impact	Agent	Occurs	Result	EFFECTS OF CONSTRUCTION Impact	Agent	Result	EFFECTS OF OPERATION Impact	Agent	Occurs	Result
41BQ165	835-838	historic	-	-	none	-	-	-	dam	dam	loss	none	-	-	-
41BQ166	842-845	multiple	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ167	832-835	prehistoric	-	⊠	erosion	wash	on-going	damage	none	-	-	inundation	lake	flood	loss
41BQ168	774-788	prehistoric	⊠	⊠	erosion	wash	on-going	damage	none	-	-	inundaton	lake	pool	loss
41BQ169	763-766	prehistoric	⊠	⊠	turned	tillage	seasonal	damage	none	-	-	inundation	lake	pool	loss
41BQ170	800-820	prehistoric	-	-	scraped	dozer	once	loss	none	-	-	inundation	lake	pool	-
41BQ171	830-840	historic	-	-	scraped	dozer	once	loss	none	-	-	inundation	lake	flood	-
41BQ172	830-835	prehistoric	-	-	scraped	dozer	once	loss	none	-	-	inundation	lake	flood	-
41BQ173	788-790	prehistoric	⊠	⊠	turned	tillage	seasonal	damage	none	-	-	inundation	lake	pool	loss
41BQ174	835-841	prehistoric	-	-	erosion	wash	on-going	damage	none	-	-	inundation	lake	flood	damage
41BQ175	812-814	geological	-	-	-	-	-	-	-	-	-	-	-	-	-
41BQ176	859-861	multiple	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ177	860-870	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ178	840-843	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ179	845	multiple	-	-	cleared	machine	once	loss	none	-	-	none	-	-	-
41BQ180	813-823	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ181	820-826	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ182	833-836	historic	-	-	displaced	machine	once	loss	none	-	-	none	-	-	-

Table 2-6: Effects-on-Sites Characterization for Lake Bosque Project.

Site Number	Elevation Feet m.s.l.	Period of Occupation	STATUS SAL	STATUS NRE	EFFECTS OF NO ACTION Impact	Agent	Occurs	Result	EFFECTS OF CONSTRUCTION Impact	Agent	Result	EFFECTS OF OPERATION Impact	Agent	Occurs	Result
41BQ183	840-845	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ184	850-853	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ185	800-802	historic	☐	☐	none	-	-	-	removal	clearing	loss	none	-	-	
41BQ186	829-834	historic	☒	☒	displaced	machine	unknown	damage	none	-	-	inundation	lake	pool	loss
41BQ187	840-844	prehistoric	-	☒	erosion	wash	on-going	damage	none	-	-	none	-	-	-
41BQ188	802-806	historic	-	-	none	-	-	-	none	-	-	inundation	lake	pool	loss
41BQ189	825-828	prehistoric	☒	☒	erosion	wash	on-going	damage	none	-	-	inundation	lake	pool	loss
41BQ190	828-830	historic	☒	☒	none	-	-	-	none	-	-	inundation	lake	pool	loss
41BQ191	839-842	prehistoric	-	☒	erosion	wash	on-going	damage	none	-	-	inundation	lake	flood	loss
41BQ192	830-832	prehistoric	-	-	cleared	machine	unknown	loss	none	-	-	inundation	lake	flood	-
41BQ193	826-829	historic	-	-	cleared	machine	unknown	loss	none	-	-	inundation	lake	pool	-
41BQ194	825-828	prehistoric	-	-	eroded	road	unknown	loss	none	-	-	inundation	lake	pool	-
41BQ195	810-818	prehistoric	☒	☒	erosion	wash	on-going	damage	none	-	-	inundation	lake	pool	loss
41BQ196	822-829	multiple	☒	☒	erosion	wash	on-going	damage	none	-	-	inundation	lake	pool	loss
41BQ197	900-905	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ198	853-857	multiple	-	☒	none	-	-	-	none	-	-	none	-	-	-
41BQ199	846-850	historic	-	☒	none	-	-	-	none	-	-	unknown	-	-	-
41BQ200	860	multiple	-	☒	none	-	-	-	none	-	-	none	-	-	-

Table 2-7: Effects-on-Sites Characterization for Lake Bosque Project.

Site Number	Elevation Feet m.s.l.	Period of Occupation	STATUS SAL	STATUS NRE	EFFECTS OF NO ACTION Impact	Agent	Occurs	Result	EFFECTS OF CONSTRUCTION Impact	Agent	Result	EFFECTS OF OPERATION Impact	Agent	Occurs	Result
41BQ201	856-862	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ202	860-870	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ203	840-845	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	inundation	lake	flood	-
41BQ204	821-830	multiple	⊠	⊠	none	-	-	-	none	-	-	inundation	lake	pool	loss
41BQ205	835-845	historic	-	⊠	none	-	-	-	none	-	-	inundation	lake	flood	loss
41BQ206	838-850	prehistoric	-	⊠	erosion	wash	on-going	damage	none	-	-	inundation	lake	flood	loss
41BQ207	835-842	historic	-	⊠	none	-	-	-	none	-	-	inundation	lake	flood	loss
41BQ208	842-849	prehistoric	-	⊠	turned	tillage	seasonal	damage	none	-	-	unknown	-	-	-
41BQ209	841-846	prehistoric	-	⊠	turned	tillage	seasonal	damage	none	-	-	unknown	-	-	-
41BQ210	843-845	prehistoric	-	⊠	turned	tillage	seasonal	damage	none	-	-	unknown	-	-	-
41BQ211	832-836	prehistoric	-	⊠	turned	tillage	seasonal	damage	none	-	-	inundation	lake	flood	loss
41BQ212	830-835	prehistoric	-	-	turned	tillage	seasonal	loss	none	-	-	inundation	lake	flood	-
41BQ213	842-846	prehistoric	-	⊠	turned	tillage	seasonal	damage	none	-	-	unknown	-	-	-
41BQ214	846-849	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	unknown	-	-	-
41BQ215	848-858	prehistoric	-	⊠	turned	tillage	seasonal	damage	none	-	-	unknown	-	-	-
41BQ216	839-845	prehistoric	-	⊠	turned	tillage	seasonal	damage	none	-	-	inundation	lake	flood	loss
41BQ217	830-840	prehistoric	-	-	redeposit	wash	on-going	loss	none	-	-	none	-	-	-
41BQ218	846-854	prehistoric	-	⊠	turned	tillage	seasonal	damage	none	-	-	unknown	-	-	-

Table 2-8: Effects-on-Sites Characterization for Lake Bosque Project.

Site Number	Elevation Feet m.s.l.	Period of Occupation	STATUS SAL	STATUS NRE	EFFECTS OF NO ACTION Impact	Agent	Occurs	Result	EFFECTS OF CONSTRUCTION Impact	Agent	Result	EFFECTS OF OPERATION Impact	Agent	Occurs	Result
41BQ219	846-851	prehistoric	-	-	turned	tillage	seasonal	damage	none	-	-	unknown	-	-	-
41BQ220	840-852	prehistoric	-	-	turned	tillage	seasonal	damage	none	-	-	inundation	lake	flood	-
41BQ221	828-832	historic	-	-	disturbed	road	unknown	damage	dam	dam	loss	none	-	-	-
41BQ222	836-848	historic	-	-	disturbed	house	unknown	damage	none	-	-	inundation	lake	flood	-
41BQ223	820-830	prehistoric	-	-	disturbed	dozer	unknown	loss	none	-	-	inundation	lake	pool	-
41BQ224	860-862	historic	-	-	none	-	-	-	none	-	-	none	-	-	-
41BQ225	828-840	prehistoric	-	-	erosion	road	seasonal	damage	none	-	-	inundation	lake	pool	-
41BQ226	834-842	historic	-	-	construction	pens	once	loss	none	-	-	inundation	lake	flood	-
41BQ227	820-850	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	inundation	lake	pool	-
41BQ228	860+	historic	-	⊠	erosion	wash	on-going	damage	none	-	-	none	-	-	-
41BQ229	900-920	historic	-	⊠	none	-	-	-	none	-	-	none	-	-	-
41BQ230	845-848	prehistoric	-	-	eroded	wash	on-going	loss	none	-	-	none	-	-	-
41BQ231	860+	historic	-	⊠	none	-	-	-	none	-	-	none	-	-	-
41BQ232	860-870	prehistoric	-	-	erosion	road	on-going	loss	none	-	-	none	-	-	-
41BQ233	850-860	prehistoric	-	-	erosion	wash	on-going	damage	none	-	-	none	-	-	-
41BQ234	834-838	historic	-	-	cleared	highway	once	loss	none	-	-	none	-	-	-
41BQ235	820-842	prehistoric	⊠	⊠	erosion	wash	on-going	damage	none	-	-	inundation	lake	pool	loss
41BQ236	822-832	historic	⊠	⊠	erosion	wash	on-going	damage	none	-	-	inundation	lake	pool	loss
41BQ237	778-780	prehistoric	⊠	⊠	sloughing	creek	on-going	damage	none	-	-	inundation	lake	pool	loss
41BQ238	789-791	prehistoric	⊠	⊠	none	-	-	-	none	-	-	inundation	lake	pool	unknown

When the field investigation began, the survey team worked from enlarged U.S.G.S. 7.5' quad topographic maps which were associated with aerial photographs at the same scale. We plotted our sites on the aerial photos and estimated our elevations from the topographic maps. Later, we used an electronic altimeter-weather station which we carried with us, periodically recalibrating it at known elevations. It was fairly accurate to within 10 feet. After we returned from the field, better maps became available. The elevations which are used in this report are based on this most recent map with contour intervals of two feet.

One hundred and five sites are below the floodpool elevation of +841.3 feet mean sea level. Of these sites, Forty-three or forty-one percent are considered to be significant. About one-quarter or eleven of these forty-three sites are above the conservation pool of Lake Bosque, at +830 feet mean sea level. Thirty-two archeological sites, or about seventy-five percent, are to be inundated by Lake Bosque operating at a normal pool elevation of +830 feet mean sea level.

Of those thirty-two archeological sites found below the normal pool of Lake Bosque, sixteen are prehistoric, seven are multiple component ones containing prehistoric and historic material culture, with the remaining nine being historic sites. All of these are within the fee simple lands to be purchased by the Brazos River Authority, and hence eligible for designation as State Archeological Landmarks. In addition to these, there is the Pearce Cemetery and the possible grave near Otter Creek (Site 41BQ185). A local informant says another grave will be found near the large liveoak at Site 41BQ112. Subsequent to a search for and notification of living relatives, excavation, exhumation, possible study and relocation of corporal remains to a nearby cemetery, such as the Hanna, Barry, Fulton or elsewhere, is suggested.

Limited sampling to obtain comparable data and to search for earlier sites is warranted at prehistoric components at the following sites below 830 feet m.s.l.: 41BQ111, the three localities of 41BQ124, 41BQ125, 41BQ138, 41BQ168, 41BQ173 and 41BQ195. Limited sampling is defined here as a series of non-contiguous units measuring 1 x 2 meters, through the cultural deposit into culturally sterile matrix. Depending upon accessibility, time of year and depth of deposit, machinery use may be appropriate. Early expenditures for special sampling, including radiocarbon dating of charcoal and other samples, malacological, geological and paleoenvironmental consulting should be considered along with the cost of machinery. This work should commence almost immediately after the decision is made to construct Lake Bosque, for as many as two of these sites may be later considered for

extensive sampling, leading to linear or broad excavation of important features or sub-areas of the sites. As time to conduct this work will be limited, investigation and excavation must be conducted throughout the seasons and should include consideration of time which will be lost because of inclement weather.

Extensive sampling of prehistoric sites 41BQ122, 41BQ137, 41BQ149, 41BQ158, 41BQ162, 41BQ169, 41BQ235 and 41BQ238 is recommended. The form of sampling units suggested here are contiguous and/or isolated 1 x 2 meters units. Linear excavation of areas generally two meters wide, with expanded units as deemed appropriate to cope with encountered cultural features is recommended. Depending on the depth, age and constituents, as many as two sites from this category might be considered for extensive, broad excavation, in units as large as five meters along one side, through the cultural deposit. Comments concerning special studies and consultants mentioned above are appropriate, only moreso. One should anticipate the need for the services of a malacologist, a geomorphologist and paleoecologist throughout this investigation.

Extensive archeological investigation is recommended at 41BQ147, a shallow Late Archaic site situated on a natural dam or ridge of Paluxy sandstone. Broad excavation units should be considered here A neighboring site, 41BQ148, is large, considerably deeper, with what appear to be sloping, stratified layers of burned rock with cultural deposits deeper than one meter. It is contemporary with but also has deposits thought to be slightly earlier than 41BQ147. The excavator should contemplate shoring or stepped-back excavations in this site; this is the one which after it was located, sloughed into the North Bosque River. Site 41BQ148 may be dug in levels as thin as 5 centimeters, in relation to the slope as determined by extensive probing, or if required, coring. This site will be slow-going if the data within it are to be effectively extracted, requiring delicate handling of faunal material, but it will be rewarding. Chert is especially abundant, with a high frequency of tool forms.

Site 41BQ189 is the most recent prehistoric site known in the project, based on radiocarbon dates. Its position on the upland terrace edge is in constrast to those sites just mentioned which are located on or near the channel of the river. Site 41BQ189 has an extensive, but thought to be shallow, deposit, generally less than 50 centimeters. Natural mixing by plants and animals may hinder interpretation of cultural materials. Using the adjusted radio-carbon dates, this site dates from about the time of the discovery of the New World. Intact features may be found by opening broad areas of this site, which is rich in chert debris and fragmented shell. Unless preserved by

pockets of alkaline soils, faunal remains other than shell are not common here.

Site 41BQ237 is a broad floodplain deposit adjacent to a creek, the fourth microenvironment recommended for excavation. A buried deposit below the plow zone, this Transitional Archaic site is horizontally extensive, with broadly separated profiles revealing remarkably consistent deposition. The soil type, tight black alkaline alluvium, is thought to be especially conducive to the preservation of organic remains. After systematic probing to determine the depth of deposit(s), the entire site is recommended for machine stripping, if feasible and it can be accomplished without significant disturbance to underlying deposits. Selective excavation of broad areas is then recommended. The writer is of the opinion that acceptable methods of stripping sterile overburden through the use of heavy or appropriate machinery must be perfected early in this mitigation phase, if sites are not going to be lost because they cannot be reached in time by conventional archeological means.

Historic sites below 830 feet m.s.l. which are thought to contain information important to an understanding of local history include the site of the house and dugout barn (41BQ101 & 41BQ102), and the site of the Ramsey Cox farm (41BQ110 & 41BQ112) represent the remains of farming complexes which were in operation after the Civil War, in the late 19th century. The house and dugout barn are thought to be relatively undisturbed, the contrary situation found at the Ramsey Cox property. Nevertheless, an above-ground feature still remains at the Cox place. Mapping, selective excavation and controlled collection of artifacts is recommended for these sites, in addition to archival research.

Clearing of vegetation, mapping of features and limited sampling at depth is recommended for 41BQ107, 41BQ152, 41BQ153, 41BQ186 and 41BQ236. One of these may prove worthy of extensive sub-surface sampling such as is anticipated at Site 41BQ138, 41BQ190, 41BQ196 and Site 204. All of these latter four are considered to be candidates for excavation, and substantive archival research.

Consistent and balanced sampling is a threshold to be crossed before final determination of which of the above sites should be scheduled for selective, but comprehensive excavation and analysis. As proposed above, many sampling units will be placed in a large number of sites to obtain as consistent and balanced an array as possible, with subsequent selection of more sites for further investigation. Following along these lines, four prehistoric sites below the conservation pool are recommended for extensive

archeological investigation including excavation, with as many as four more being added to this group. Likewise, four historic sites below the normal pool elevation of +830 feet m.s.l. are recommended for extensive investigation, with an additional one to be selected from the others being subjected to less extensive sampling. In addition, work is recommended at the two historic complexes, 41BQ101-41BQ102 and 41BQ110-41BQ112.

In the flood pool at an elevation of 841.3 feet mean sea level, are eleven archeological sites considered to be significant. Eight of these are prehistoric ones, the remaining three are historic sites. Sites in this zone are subject to differential inundation dependent upon elevation. Some are to be flooded relatively frequently, such as once every two years while others are estimated to be subject to a flooding event once during the life of the project.

Prehistoric sites in the floodpool include six thought to be significant. Sites 41BQ191, 41BQ209 and 41BQ211 are recommended for limited and comparable sampling, oriented toward determining more about the extent and nature of cultural deposits than presently known and to recover datable samples. A site may be selected from these for more extensive sampling, such as recommended for Site 41BQ206, with contiguous recovery units.

Site 41BQ216, the Neo-American site with discrete features is recommended for additional sampling to determine if in-place deposits are untouched by the plow. If any of this site remains intact, and this is thought to be the case, then linear excavation units at least 2 meters wide arranged in such a manner as to result in the dissection of these features are recommended. One site, 41BQ167 is recommended for total recovery. This small site is thought to be a hearth associated with an accumulation of food remains and chert refuse. The adjusted radiocarbon date for this site is 1920 $\pm$ 80 B. P., or about the time of Christ.

Of the historic sites in the floodpool, two, Site 41BQ205 and 41BQ207 are thought to be early historic settlers or slave cabins associated with Site 41BQ204, a site located below the conservation pool. These three sites are recommended for simultaneous or coordinated investigation including excavation--they are thought to be related and sampling must be consistent if the data are to be comparable.

An additional historic site is recommended for clearing of grass brush and trees, mapping, controlled surface collection as well as a search for subsurface features; it is Site 41BQ159, the extensive historic complex near the west side of the dam of Lake Bosque.

In total, below the elevation of +841.3 feet mean sea level, ten prehistoric sites are recommended to be subjected to limited sampling, ten to extensive sampling, one to linear excavations at least two meters wide, five to broad excavations opening areas as much as five meters wide and one small prehistoric site to total recovery.

In the same fashion, historic sites are recommended for limited sampling at five, extensive sampling at four and limited excavation at seven. A small cemetery and two other areas are recommended for investigation and relocation of corporal remains. There are other measures which can be offered to further mitigate the effects of Lake Bosque on cultural resources, some of which are suggested below:

[1] The survey of the project area included forty additional sites discovered along the margin just outside the project and its effects. These sites will remain after the lake is operational. When the survey began, ninety-two sites were known in Bosque County, with all outside the area of the project. Excluding those sites inside the project area, there is a net gain of forty in the number of sites in Bosque County, increased to one hundred thirty two sites outside the project area.

[2] With the permission of Ervin Moore, study his accumulation of prehistoric lithic material gathered from his property. The collection is to be used as the basis of a projectile point typology for the Upper Bosque Watershed and for use in typing specimens gathered as a result of mitigation efforts.

[3] In the upper reaches of Lake Bosque, at about the elevation of the floodpool are a number of prehistoric sites within close proximity to each other, sites which are considered to be significant They are recommended as being potentially eligible for inclusion within the National Register of Historic Places as a District. These sites will very rarely be affected by Lake Bosque, perhaps during events of extreme flooding coupled with high winds and wave action. The sites are accessible by vehicle, and can be reached on foot. In order to assess the long-term effects of such intermittent and extreme events, these sites are recommended for long-term monitoring. For the first decade of operation of Lake Bosque, quarterly trips to these sites could document the normal background alterations which occur on and in archeological sites through the passage of the seasons, as well as document the periodicity, using flowage records, of harmful or potentially harmful events. Depending on the outcome of the study, it could terminate or continue for another decade, with visit intervals reduced by a factor of two.

The information resulting from this work would prove useful to a host of entities involved in the protection and management of cultural resources.

The measures offered as mitigation for the Lake Bosque project collectively provide a broad spectrum of objectives which must be accomplished if we are to help preserve and understand the past. As engineering or design constraints can reshape and enhance the operation of the project, and change the characteristics of impact on cultural resources, details in the general approach may change. This technical report and suggested plan for ameliorating the impact of Lake Bosque is offered as the beginning point in the long-term management of the cultural resources left by our antecedents at the forks of the North and East Bosque Rivers.

BIBLIOGRAPHY

Ambler, J. Richard
1970 General Archeologic Samples: Wallisville Reservoir, Texas Coast, in University of Texas at Austin Radiocarbon Dates VII, 263-266, by Valastro, Davis and Varela in *Radiocarbon*, Vol. 12, No. 1, 249-280.

Aten, Lawrence E.
1975 Archeologic Samples: Trinity Bay Estuary, upper Texas Coast, in University of Texas at Austin Radiocarbon Dates X, 76-82, by Valastro, Davis and Varela in *Radiocarbon*, Vol. 17, No. 1, 52-98.

Berger, Rainer and Han E. Suess, eds.
1979 *Radiocarbon Dating. Proceedings of the Ninth International Conference on Radiocarbon Dating, Los Angeles and La Jolla.* The University of California Press, Los Angeles.

Biesaart, Lynne A., Wayne R. Roberson and Lisa Clinton Spotts, compilers
1985 Prehistoric Archeological Sites in Texas: A Statistical Overview. *Office of the State Archeologist Special Report 28*, Texas Historical Commission, Austin.

Blair, W. Frank
1950 The Biotic Provinces of Texas, in *Texas Journal of Science*, Vol. 2, 93-117.

Bosque History Book Committee, compilers
1986 *Bosque County: Land and People, A History of Bosque County, Texas.* Revised edition. Curtis Media Corporation, Dallas.

Branda, Eldon Stephen, ed.
1976 *The Handbook of Texas, A Supplement*, Volume 3. The Texas State Historical Associaton, Austin.

Briggs, Alton K.
1981 *Archeological Investigation of the Grant Building and Plaza: Monitoring and Emergency Recovery in and near the Sixth Street Historic District, Austin, Travis County, Texas.* Prepared for Crow-Austin No. 5. Lone Star Archeological Services, Report No. 1, Georgetown.

1985 *An Archeological and Historical Survey of Travis County Municipal Utility District Number Two and Ancillary Facilities near Manor, Travis County, Texas.* Prepared for Carpenter & Associates, Incorporated, Austin. Texas Antiquities Committee Permit Number 517. Ms on file, Lone Star Archeological Services, Georgetown.

Carr, John T.
1967 *The Climate and Physiography of Texas.* Texas Water Development Board Report 53. Reprinted in 1969, Austin.

Comp, T. Allen
1977 *Bridge Truss Types: a guide to dating and identifying.* American Association for State and Local History Technical Leaflet No. 95, History News, Vol. 32, No. 5.

Cutbirth, Ruby Nichols
1943 *Ed Nichols Rode a Horse.* Range Life Series, under general editorship of J. Frank Dobie. Texas Folklore Society and University Press in Dallas.

Dillehay, Tom D.
1974 Late Quaternary bison population changes on the Southern Plains, in *Plains Anthropologist,* 19 [65], 180-196.

Donner, Joakim and Hogne Jungner
1979 The Use of Marine Shells in Dating Land/Sea Level Changes, in *Radiocarbon Dating, Proceedings of the Ninth International Conference on Radiocarbon Dating at Los Angeles and La Jolla,* 397-403. University of California Press, Los Angeles.

Dooley, Claude W.
1978 *Why Stop?* Latham Printing Company, Odessa.

Erlenkeuser, Helmut
1971 Predictable low enrichment of methane isotopes by Clusius-Dickel thermal-diffusion columns for use in radiocarbon dating technique, in Z. Naturforsch, Vol. 26a: 1365-1370.

Geyh, M. A.
1965 Proportional counter equipment of sample dating with ages exceeding 60,000 B.P. without enrichment, in *Proceedings of the Sixth International Conference on Radiocarbon and Tritium Dating.* University of Washington, Pullman.

Greer, James K., editor and biographer
1978 *Buck Barry, Texas Ranger and Frontiersman.* Moody Texas Ranger Library Publications, Texas Ranger Hall of Fame, Number One. Texian Press, Waco.

Gould, Frank W.
1969 *Texas Plants: A Checklist and Ecological Summary.* Texas Agricultural Experiment Station, Texas A & M University, College Station.

Haynes, C. Vance, Jr.
1969 The Earliest Americans, in *Science*, Vol. 16, 709-715.

Holley, Mrs. Mary Austin
1836 *TEXAS.* J. Clarke & Co., Lexington, Ky. Reprinted in 1985 by the Texas State Historical Association, in cooperation with the Center for Studies in Texas History, the University of Texas at Austin.

Jelks, Edward B.
1953 Excavations at the Blum Rockshelter. *Bulletin of the Texas Archeological Society* 24, 189-207.

1962 *The Kyle Site: A Stratified Central Texas Aspect Site in Hill County, Texas.* Archeology Series, No. 5. Department of Anthropology, the University of Texas, Austin.

John, Elizabeth A.
1975 *Storms Brewed in Other Men's Worlds.* Texas A & M University Press, College Station.

Johnson, Leroy, Jr., with Dee Ann Suhm and Curtis D. Tunnell
1962 Salvage Archeology of Canyon Reservoir: The Wunderlich, Footbridge and Oblate Sites. *Bulletin 5*, Texas Memorial Museum, The University of Texas.

Jordon, Terry G.
1978 *Texas Log Buildings: A Folk Architecture.* The University of Texas Press, Austin.

Kamins, Morton
1987 "John Lomax, the ballad hunter," in *Texas Highways,* Vol. 34, No. 7, 40-44, Austin.

Krieger, Alex D.
1964 "Early Man in the New World," in *Prehistoric Man in the New World,* William Marsh Rice University Semicentennnial Publication, University of Chicago Press, Chicago.

Larson, Richard E, with Duane E. Peter, Foster E. Kirby and S. Alan Skinner
1975 *An Evaluation of the Cultural Resources at Hog Creek.* Archeology Research Program, Department of Anthropology Southern Methodist University, Dallas.

Libby, Willard F.
1979 "Forward," in *Radiocarbon Dating, Proceedings of the Ninth International Conference on Radiocarbon Dating at Los Angeles and La Jolla* University of California Press, Los Angeles.

Loughmiller, Campbell and Lynn
1984 *Texas Wildflowers; A Field Guide.* The University of Texas Press. Austin.

Lynott, Mark J.
1978 An Archeological Assessment of the Bear Creek Shelter, Lake Whitney, Texas. *Archeology Research Program Research Report No. 115.* Southern Methodist University, Dallas.

Marcy, Captain R. B.
1856 *Exploration of the Big Wichita and headwaters of the Brazos Rivers. Ex. Document No. 60, 34th Congress, First Session.* Reprinted in 1962 by Terry Brothers, Wichita Falls.

Michels, Joseph W.
1973 *Dating Methods in Archaeology.* Studies in Archeology. Seminar Press, New York.

Matthews, William H., III
1960 *Texas Fossils: An Amateur Collector's Handbook.* Bureau of Economic Geology, Guidebook 2. The University of Texas, Austin.

Olds, Dorris L.
1965 Report on materials from Brawley's Cave, Bosque County, Texas. *Bulletin of the Texas Archeological Society,* Vol. 36, 111-152.

Prewitt, Elton R.
1981 Cultural Chronology in Central Texas. *Bulletin of the Texas Archeological Society*, Vol. 52, 65-89.

Price, Paul
1987 *Environmental Assessment Report for the Lake Bosque Project, Bosque County, Texas.* Prepared for the Brazos River Authority by Paul Price Associates, Inc. Austin.

Prikryl, Daniel J. and Jack M. Jackson and others
1985 *Waco Lake, McLennan County, Texas: An Inventory and Assessment of Cultural Resources.* Prewitt and Associates, Inc., Reports of Investigations, Number 39. Austin.

Proctor, Cleo V., Jr.
1966 The North Bosque Watershed--Inventory of a Drainage Basin. *Baylor Geological Studies*, Bulletin No. 16. Waco.

Ransom, Jay Ellis, assembler
1981 *Harper and Row's Complete Field Guide to North American Wildlife, Western Edition.* Harper and Row, New York.

Redder, Albert J. and John W. Fox
1978 "An Archaeological Reconnaissance Survey of the Proposed "Comanche Crossing Park," Meridian, Texas. Unpublished Ms on file, Texas Archeological Research Laboratory, Site 41BQ71, Balcones Research Center, The University of Texas at Austin.

Republic of Texas
1838 *An Abstract of the Original Titles of Record in the General Land Office.* Niles and Company, Houston. Reprinted 1964 by The Pemberton Press, Austin.

Richardson, Willard
1857 *The Texas Almanac for 1857, with Historical and Biographical Sketches &c, relating to Texas.* Galveston News, Richardson and Company. Reprinted in 1986 by Glen's Sporting Goods, Inc., Irving.

Robinson, Lana
1984 "A Little Bit of Norway," in *Texas Highways*, Vol. 31, No. 9,18-29. Austin.

Scharpenseel, H.W.
1979 Soil Fraction Dating, in *Radiocarbon Dating, Proceedings of the Ninth International Conference on Radiocarbon Dating at Los Angeles and La Jolla*, 277-283. University of California Press, Los Angeles.

Sellards, E.H., with W.S. Adkins and F.B. Plummer
1932 The Geology of Texas. Vol. 1, Stratigraphy. *The University of Texas Bulletin* No. 3232, of August 22, 1932. Eighth Printing, 1981.

Shafer, Harry J.
1977 Late Prehistory of Central Texas, in *Bulletin of the South Plains Archeological Society*, Vol. 3, 18-24.

Sheppard, John C. with Ali Y. Syed and Peter J Mehringer, Jr.
1979 Radiocarbon dating of Organic Components of Sediments and Peats, in *Radiocarbon Dating, Proceedings of the Ninth International Conference on Radiocarbon Dating at Los Angeles and La Jolla*, 284-305. University of California Press, Los Angeles.

Skinner, S. Alan
1981 Aboriginal demographic changes in Central Texas, in *Plains Anthropologist* 26 [92], 111-128.

Soil Conservation Service
1980 *Soil Survey of Bosque County, Texas*, United States Department of Agriculture, Soil Conservation Service. U.S. Government Printing Office.

Sowell, A. J.
1900 *Early Settlers and Indian Fighters of Southwest Texas*. Ben C. Jones & Company, Austin. Reprinted 1986 by State House Press, Austin.

Stein, Julie K.
1985 "Interpreting Sediments in Cultural Settings," in ARCHEOLOGICAL SEDIMENTS IN CONTEXT, 5-19, *Peopling of the Americas Edited Volume Series:* Volume 1, Center for the Study of Early Man, Institute of Quaternary Studies, University of Maine at Orono.

Stephenson, Robert L.
1949 *Archeological survey of Whitney Basin, Bosque and Hill Counties, Texas: A preliminary report.* River Basin Surveys, Smithsonian Institution.

1970 Archeological investigation in the Whitney Reservoir area, central Texas. *Bulletin of the Texas Archeological Society* 41, 37-286.

Story, Dee Ann and Harry J. Shafer
1965 *1964 Excavations at Waco Reservoir, McLennan County, Texas: The Baylor and Britton sites.* Texas Archeologcial Salvage Project Miscellaneous Papers, No. 6. The University of Texas at Austin.

Suhm, Dee Ann and Edward B. Jelks, eds.
1962 *Handbook of Texas Archeology: Type Descriptions.* The Texas Archeological Society, Special Publication Number One, and the Texas Memorial Museum, Bulletin Number Four. Austin.

Technical Consulting Associates (TCA)
1985 *Baseline Ecology Report: Lake Bosque Reservoir Site.* Prepared for the Brazos River Authority by Technical Consulting Associates, Austin.

Texas Department of Agriculture
1974 *Texas Family Land Heritage Registry,* Volume 1, Austin.

1975 *Texas Family Land Heritage Registry,* Volume 2, Austin.

1976 *Texas Family Land Heritage Registry,* Volume 3, Austin.

1981 *Texas Family Land Heritage Registry,* Volume 7, Austin.

1982 *Texas Family Land Heritage Registry,* Volume 8, Austin.

1983 *Texas Family Land Heritage Registry,* Volume 9, Austin.

1984 *Texas Family Land Heritage Registry,* Volume 10, Austin.

Texas Historical Commission
1979 *The National Register of Historic Places in Texas* Austin.

The Dallas Morning News
1974 *Texas Almanac.* A.H. Belo Corporation, Dallas.

Toulouse, Julian H.
1971 *Bottle Makers and Their Marks.* Thomas Nelson Inc., New York.

Tull, Delena
1987 *A Practical Guide to Edible & Useful Plants.* Texas Monthly Press. Austin.

Turner, Ellen Sue and Thomas R. Hester
1985 *A Field Guide to Stone Artifacts of Texas Indians.* Texas Monthly Press, Austin.

United States Department of Agriculture
1970 *Selected Weeds of the United States.* Agricultural Research Center, USDA, Government Printing Office, Washington, D.C.

United States Department of the Interior
1984 *TEXAS: Index to topographic and other map coverage.* National Map Program, United States Geological Survey, Reston.

Valastro, Sam, Jr., E. Mott Davis and Alejandra G. Varela
1970 University of Texas at Austin Radiocarbon Dates VII, in *Radiocarbon,* Vol. 12, No. 1, 249-280.

1970 University of Texas at Austin Radiocarbon Dates VIII, in *Radiocarbon,* Vol. 12, No. 2, 617-639.

1975 University of Texas at Austin Radiocarbon Dates X, in *Radiocarbon,* Vol. 17, No. 1, 52-98.

1979 University of Texas at Austin Radiocarbon Dates XIII, in *Radiocarbon,* Vol. 21, No. 2, 257-273.

Vines, Robert A.
1960 *Trees, Shrubs and Woody Vines of the Southwest.* University of Texas Press, Austin.

Waters, Michael R.
1985 "Early Man in the New World: An Evaluation of the Radiocarbon Dated Pre-Clovis Sites in the Americas," in ENVIRONMENTS AND EXTINCTIONS: MAN IN LATE GLACIAL NORTH AMERICA, *Peopling of the Americas Edited Volume Series:* Center for the Study of Early Man, Institute of Quaternary Studies, University of Maine at Orono.

Watt, Frank H.
1978 Radiocarbon chronology of sites in the central Brazos valley. *Bulletin of the Texas Archeological Society,* Vol. 49,111-138.

Appendix A: Report on Various Molluscan Materials with Recommendations for Research Design for the Lake Bosque Project

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Prepared for

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July 1987

Below are the identification and analysis of various molluscan shells provided to the author. Sample numbers refers to numbers placed on sample bags by the author.

Sample 1

Source of this sample is the Lake Bosque Project. It was removed from the North Bosque River on 2 April 1987.

This sample consists of the remnant of the left valve of a large *Potamilus purpuratus*. Length of the original shell is estimated at 160 to 170 mm. The valve is about 12 mm thick at the pallial line.

Sample 2

This sample of shell was removed from the North Bosque River between Meridian and Iredell.

Two right valves of *Lampsilis teres* (neither water tumbled) are included. The male valve (shell length-133.5 mm) is modern with ninety-eight percent of the periostracum remaining. The shell exhibits eight to ten growth periods with fairly constant growing conditions. The female valve (129.1 mm in length) is a modern but weathered valve with about seventy percent of the periostracum remaining. Variable growth conditions are indicated over twelve to fourteen growth periods.

A single modern, but weathered and water tumbled, valve of a female *Tritogonia verrucosa* is present. The left valve measures 129.9 mm in length. The shell exhibits thirteen to fourteen growth periods of fairly constant favorable conditions, although some of the growth periods produced very narrow growth bands.

A single right valve (115.3 mm in length) represents the "robust, squared-off" phenotype of *Potamilus purpuratus*. The valve is modern but seventy percent of the periostracum is missing. "Rough" growth lines (ten growth periods) cause a stair-step effect and represent times of poor growing conditions, probably low water flow. The shell is not water tumbled but is noticeably weathered.

One pair of valves represents *Anodonta grandis* (shell length-157.3 mm, height-102.7 mm, width-69.1 mm). Most of the periostracum has been removed, but part of the hinge is present. Possibly twenty-one growth periods are present.

Sample 3

Lake Bosque Project, Site 41BQ217. This sample was recovered from a depth of eleven feet below ground surface, on 9 July 1987.

Shells of three species of bivalves are present.

Tritogonia verrucosa is represented by a single right valve from a male individual with original shell length of about 105 to 110 mm and height of 64.75 mm. The posterior margin has been removed from this old shell which has not been water tumbled. Eleven growth periods occurred during rather constant conditions.

Amblema plicata is represented by a partial left valve with the posterior margin removed. The remnant is from an old, weathered shell with no periostracum; there is no indication of water tumbling. Seven growth periods occurred during relatively constant conditions. The height measures 54.35 mm while the original length was about 75 to 80 mm.

Quadrula pustulosa mortoni is represented by a partial left valve with the posterior margin removed almost to the pallial line. Interestingly, the posteriad one-third of the outer portion of the prismatic layer is removed. This pattern could be anthropogenic if the shell were utilized as an ornament or other artifact. The shell may be slightly water-worn although *in-situ* incipient dissolution of the outermost portions of the shell is more likely. The shell exhibits twelve to thirteen growth periods under seemingly constant conditions. Original length of the shell was 50 to 55 mm, whereas the height is 48.3 mm.

These three shells from this sample are older shells from an archeological site as indicated by soil staining and absence of the posterior margin of these shells. None of these shells is charred.

Sample 4

These shells come from Site 41BQ235.

Tritogonia verrucosa is represented by a large right valve from a female individual. The poterior margin including about one-third of the pallial line is absent. The shell is not water-worn but exhibits extensive heating from the direction of the outer shell. The shell was probably placed on hot rocks or wood coals lying concave side up. The flesh of the original inhabitant was

probably cooked "on the half-shell,' but the degree of heat alteration (with loss of some surface layers of shell) suggests that this shell may have been utilized repeatedly as a cooking utensil. Growth periods are undetectable due to charring and concomitant shell flaking, but growth conditions were probably rather constant judging from examination of the cross-section of the shell on the broken edge. Original length is estimated at 145 to 160 mm with original height estimated at 77 to 82 mm.

Potamilus purpuratus is represented by a remnant whch comprises eighty to ninety percent of the hinge tooth of a right valve. The remnant is charred but not water worn. The original shell was probably about 160 mm in length.

Sample 5

This specimen comes from Site 41BQ211, recovered 9 July 1987.

Amblema plicata is represented by a remnant of a left valve of a very large specimen (original length estimated at +130 mm). The missing portion of the exterior part of the shell does not permit counting of growth periods, but growth periods indicate conditions which appear to have been rather constant. This remnant originated from a shell larger than any modern shells seen by this author and must have exceeded 130 mm. The shell has been removed from its stratigraphic placement, but is not charred, nor does it exhibit signs of water tumbling.

Sample 6

This sample was recovered from the North Bosque River channel, north of Jackson Crossing, and southeast of Iredell, Texas.

Potamilus purpuratus is represented by a single right valve indicating a modern shell which is weathered. About 15 growth periods are detectable and indicate rather constant growth conditions. The shell is very large and represents the more compressed phenotype. Length is 163.4 mm and height is 112.4 mm.

Sample 7

This sample was recovered from the North Bosque River channel, north of Comanche Crossing and south of Jackson Crossing.

This modern pair of *Potamilus purpuratus* has been dead for some time, but the purplish tint of the nacre is still evident. Eighteen growth periods are indicated; some variation in growth conditions is evident especially during the last eight or so growth periods.

Sample 8

This sample was recovered from the North Bosque River channel, between Pilot Crossing and Comanche Crossing.

This modern pair of female *Tritigonia verrucosa* has much of the periostracum missing but the nacre is fresh. At some time, the shell was damaged or suffered some dissolution in the area of the umbo as much periostracum-like flaggy material encircles the pseudocardinal teeth. Flaggy periostracum occurs in projecting layers associated with moderately abrupt periods of growth cessation. This flaggy periostracum appears to result when the animal produces new periostracum at the margin of the shell, but a change in external conditions results in a cessation of shell growth before the prismatic and nacreous layers are produced. Length of this shell is 116.2 mm, height 84.2 mm. and width is 42.8 mm (fourteen growth periods).

Sample 9

This sample was recovered in the channel of the North Bosque River, north of Comanche Crossing and south of the bridge at Jackson Crossing.

This sample consists of a single right valve from a modern specimen of *Potamilus purpuratus*. Most of the periostracum is absent, whereas the nacre is faded but still pink-purple. Moderately constant growth conditions are indicated during thirteen to fifteen growing periods. Shell measures 150.3 mm in length and 92.42 mm in height.

Sample 10

This sample is recovered from the North Bosque River, above Jackson Crossing and below Iredell.

This single left valve from a very fresh modern shell of *Potamilus purpuratus* has the nacre only slightly faded. About fourteen growth periods are exhibited in the shell which measures 173.3 mm in length and 107.65 mm in height.

Sample 11

This sample comes from the channel of the North Bosque River, north of Comanche Crossing, but south of Pilot Crossing.

This sample includes one weathered modern left valve of *Potamilus purpuratus*. The nacre is somewhat chalky, but still purplish. About nine growth periods indicate rather constant conditions during the early portion of this mussel's life, but some growth interruptions occurred during the latter period. The shell measures 133.5 mm in length and 86.85 mm in height.

Also present are five unmatched valves of *Tritogonia verrucosa* of moderate to large size. Some of these valves indicate fairly constant growth conditions, whereas other show inconsistent growth conditions. Obvious growth periods vary from three to fifteen or sixteen among the various valves present. One valve contains periostracum-like deposits above the pseudocardinal teeth. One valve exhibits a very grainy surface as if the shell is acid-etched.

OVERVIEW

The above remarks are detailed, admittedly, considering the limited number of shells examined. However, these remarks are intended to provide a sample of the types of information which can be extracted from a sample of freshwater mussels. Information gleaned from shells of these animals can be arranged into two basic areas: environmental reconstruction and cultural inferences. Environmental reconstruction involves gross analyses of water availability and various general conclusions regarding physico-chemical parameters. Cultural inferences involve determination of relative utilization of freshwater mussels and their shells as food, tools, and ornaments. Analysis may also allow inferences concerning collection sites and methods, general conclusions on food availability and site formation dynamics. No sample will provide all of the above information, but most samples (particularly in comparison to other samples) will be of value.

RESEARCH DESIGN SUGGESTIONS FOR PROPOSED LAKE BOSQUE

The following comments are made subsequent to the above analysis and discussions with personnel from Lone Star Archeological Services. The variety of information which can be extracted from a sample of freshwater mussels has been summarized in the previous section. Such information from a single point of origin is of interest and even somewhat valuable. However, more information can be analyzed if samples from several points of origin which vary in temporal and spatial context are available. With such a set of sample points, questions can be asked (and hopefully answered) about various environmental and cultural topics. Sequential samples provide data which can be synthesized to detect trends through time or different patterns of exploitation in different habitats occupied or exploited at the same time.

Preferred sample size would be forty to fifty valves. In older sites or sites with suboptimal preservation environment, extraction of valves is more difficult and only the umbonal region may be retrieved. Such umbonal areas are generally referable to species (sometimes only to genus). With fine documentation of provenience, additional inferences can be made and hypotheses tested. Following initial analysis of the shells and mapping of provenience, discussions between the malacologist and an archeologist familiar with the sites are a requisite to proper analysis and interpretation of the data.

Appendix B: Forms used during the Archeological and Historical Survey of the Lake Bosque Project

Prepared by

LONE STAR ARCHEOLOGICAL SERVICES
AUSTIN TEXAS

LONE STAR ARCHEOLOGICAL SERVICES
Georgetown & Austin

Landowner Interview Form

NAME _____ PROJECT * _____

ADDRESS _____ CITY _____ NUMBER _____

TELEPHONE _____ ZIPCODE _____ ACREAGE _____

[1] Is your property a farm ☐ or a ranch ☐? What crops ☐ stock ☐ do you raise? _____

[2] How long have you owned your property? _____

[3] Are they any structures on the property? How old are they? _____

_____

[4] Do you know of any Indian campsites on your property or places where artifacts like arrowheads or other chert tools are found? _____

[5] Are there any old ruins, chimneys, hand-dug wells or cisterns which you know of? _____

_____

[6] Do you know of any famous person or event which is associated with the property? _____

_____

[7] Do you know of any cemeteries on the property? _____

[8] Do you know of any springs, deep pools on the river, caves or limestone shelters? _____

[9] Are you aware of any unusual patches of natural vegetation or other unusual natural features? _____

_____

[10] Will you grant us permission to go on your land? _____

[11] Are there any special instructions to follow to effect entry? _____

_____

_____

Interview by _____ Signature _____

Date _____ Time _____

LONE STAR ARCHEOLOGICAL SERVICES
Georgetown & Austin

Site Worksheet Form

NAME _____ PROJECT NAME _____

ADDRESS _____ CITY _____ PROJECT # _____

TELEPHONE _____ ZIPCODE _____ PROPERTY NUMBER _____

[1] Personnel on site _____

[2] Site Setting _____

[3] Nearest Water _____ [4] Elevation _____

[5] Soil origins ([C] ☐ [A] ☐ [E] ☐ [M] ☐) Soil Description _____

[6] Ground Surface visibility _____% Vegetation _____

[7] Site Type _____

[8] Distinguishing Features _____

_____ Depth of Deposit _____

[9] Estimated age of occupation _____ Based on _____

[10] Collections? ☐ no ☐ yes _____

[11] Photos? ☐ no ☐ yes _____

[12] Recommendations? _____

Date _____ Recorded by _____