ABSTRACT

Title of Document:	HISTORIC CONSERVATION LANDSCAPES ON FORT HOOD, TEXAS: THE CIVILIAN CONSERVATION CORPS AND CULTURAL LANDSCAPE CHANGE IN CENTRAL TEXAS
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The Civilian Conservation Corps (CCC) was probably the most popular of President Franklin D. Roosevelt's New Deal programs. Many studies have examined the contribution of the CCC in national and state parks and forests, but less attention has been directed towards soil conservation work performed by enrollees on farms and ranches across the country. This dissertation examines cultural landscapes created by the CCC on farms and ranches in Central Texas that are now part of the Fort Hood Military Reservation.

Cultural landscapes created by the CCC in the 1930s are significant because they represent large-scale federal government intervention into farming practices and planning on private land. Dramatic transformations occurred in both the conservation movement and on the land itself. This can be investigated through archaeological sites associated with activities of the CCC on Fort Hood from its period of operation

(i.e., from 1933 to 1942). The significance of identified archaeological sites is evaluated based on the Secretary of the Interior's guidelines for evaluating archaeological sites for inclusion in the National Register of Historic Places.

Through the CCC, America's civilians transformed millions of acres of land across the United States from 1933 to 1942 in an effort to conserve natural resources that had been severely overexploited in preceding decades. Soil conservation and other New Deal agricultural programs primarily benefited land owners, but research on Fort Hood suggests that some tenants and sharecroppers benefited as well. Soil conservation work performed by the CCC on private land changed the way America's farming population operated their farms and included ordinary farmers in the conservation movement. Conservation was no longer the sole concern of academics, but through the efforts of federal, state, and local governments, became a major concern of ordinary farmers. This study also explores how rural planning efforts involved farmers in the decision-making process more than ever before. The reorganization of the rural landscape of Central Texas attests to the degree to which conservation measures were accepted by individual farmers.

HISTORIC CONSERVATION LANDSCAPES ON FORT HOOD, TEXAS: THE CIVILIAN CONSERVATION CORPS AND CULTURAL LANDSCAPE CHANGE IN CENTRAL TEXAS

By

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Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, College Park, in partial fulfillment of the requirements for the degree of Doctor of Philosophy
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Dedication

This dissertation is dedicated to all of the families who sacrificed their land for the establishment of Fort Hood during one of the most difficult periods in our nation's history.

Acknowledgments

This dissertation grew out of a project to identify significant historic archaeological resources on Fort Hood in Central Texas as part of the U.S. Army post's obligations under federal preservation laws. During the course of my research on Fort Hood's historic past, I had the opportunity to meet and talk to some of the former residents of the farms and ranches that were taken by eminent domain in the 1940s and 1950s. Many of those past residents still had strong personal ties to their former homesteads on the Fort. They often visited the house sites with their families on Memorial Day when the army post is opened to them; some groups hold reunions and clean-up days in the cemeteries remaining on the Fort.

These past residents still clearly felt a strong connection to their former homesteads and wished to convey their history to younger generations through repeated visits. Because all of the houses on the Fort were either burned or used for target practice by the Army shortly after the 1940s acquisitions, all that remains of many of these homesteads are foundations or concentrations of artifacts. Some families still feel the need to visit these sites year after year. There were several former residents who I had the good fortune to get to know better. My understanding of the historic archaeological sites on the fort was greatly enhanced by their willingness to share their families' experiences with me and other Fort Hood researchers. In particular, I would like to thank Lucille Thompson Fisk, Murrel Thompson, and Anice Thompson Vance from the Antelope Community who not only became great sources of information, but dear friends as well. The Civilian Conservation Corps assisted Anice and Lucille's father, Edwin Thompson, in building terraces and water storage cisterns on his farm in the late 1930s. Although little remains of the conservation features built by the CCC on the Thompson Farm, it was this story of landscape change during the Depression years that inspired me to concentrate my research on that period.

I would also like to thank the staff of the Cultural Resources Branch at Fort Hood for providing me with all of the necessary records, aerial photographs, and maps necessary to complete this project. Thanks to Karl Kleinbach and Sunny Wood who were especially helpful in arranging site visits and driving me around Fort Hood's rough terrain to locate some of the CCC conservation features discussed in this text. Thanks also go to Dr. Cheryl Huckerby, formerly the Cultural Resources Manager at Fort Hood, for her assistance and support for this project.

My research took me to many institutions that held records relevant to this topic. Those who assisted are too numerous to name, but I would like to thank the staff of the National Archives branch in College Park, MD; the Texas State Archives in Austin, TX; the Texas Collection at Baylor University in Waco, TX; and the Iowa State University Library.

My dissertation committee also provided much needed support and guidance over the course of my graduate studies. I would particularly like to thank my advisor and dissertation committee chair, Dr. Mary Sies for all of the helpful advice and comments on earlier drafts of this document. Her suggestions helped me to focus on the relevant issues and strengthen my arguments. Dr. Julie Ernstein, Dr. Don Linebaugh, Dr. Paul Shackel, and Dr. Nancy Struna also provided encouragement and useful suggestions for focusing my research.

Numerous discussions with classmates and friends have also helped me to better think through my methods and conclusions, and provided encouragement. In particular I would like to thank Matthew Cochran, Dr. Jane Dusselier, Dr. Jeremy Korr, Dr. Cheryl Laroche, Dr. Michael Lucas, and Erika Seibert. Friends and colleagues also supplied encouragement to keep me on track, especially Jerry Black, Ruth Grover, Lisa Helfert, Dr. Kenneth Holum, Anna Iamim, Dr. Jennifer Ramsay, Gail Rothrock, Dr. Andrew M. Smith, II, and Dr. Farland Stanley, among many others.

Last, but certainly not least, I would like to thank my family for all of their encouragement, support, and patience. Without them, I never would have survived this process. I would especially like to thank my parents, Allen and Grace Mary Stabler, who provided me with a sound education and unlimited support. I would also like to thank my siblings, Betsy Farrell, Ruth Franklin, Greg Stabler, Susan Stabler for all of their encouragement. They are my biggest fans and I could not have completed this work without them.

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List of Abbreviations

BIA	Bureau of Indian Affairs
CCC	Civilian Conservation Corps
DMN	*Dallas Morning News*
Dr.	Doctor
DOI	Department of the Interior
ECW	Emergency Conservation Work
e.g.	from the Latin, literally *exempli gratia*, for example
GM	*Gatesville Messenger*
i.e.	from the Latin, literally *id est*, that is
Lin. Ft.	Lineal Feet
MD	Maryland
NHPA	National Historic Preservation Act
No.	Number
NPS	National Park Service
NRHP	National Register of Historic Places
SCA	Soil Conservation Association
SCS	Soil Conservation Service
SES	Soil Erosion Service
Sq. Yds.	Square Yards
TDT	*Temple Daily Telegram*
TRC	Texas Relief Commission
TX	Texas
US	United States
USDA	United States Department of Agriculture

Chapter 1: Introduction and Dissertation Goals

The Great Depression of the 1930s was a time of significant hardship in the United States. Beginning in 1933, newly elected President Franklin Delano Roosevelt instituted his first New Deal programs to ease increasing unemployment and to stimulate economic growth. One of these initial programs was the Civilian Conservation Corps (CCC), designed to put unskilled and unemployed young men to work. Their labor was used primarily on public land to develop national parks and forests as well as state parks. The CCC was one of the most popular New Deal programs, and remained in operation from 1933 to 1942. March 31, 2008 marked the 75th anniversary of the establishment of the Civilian Conservation Corps (Helms 2008).

After the Dust Bowl in 1934, when tons of soil from Midwestern farms was lifted airborne and blown all the way to the East Coast, government officials realized they could no longer ignore the poor farming practices on private land that precipitated this natural disaster. Thus, cultural landscapes created by the CCC in the 1930s are significant because they represent a time period when the federal government began to intervene on a large scale into farming practices and planning on private land. As a consequence, dramatic transformations occurred in the conservation movement and in the land itself.

This dissertation serves as a context against which to evaluate the conservation landscapes created by the CCC in Central Texas from 1933 to 1942 for inclusion in the National Register of Historic Places (NRHP). This project examines conservation cultural landscapes created by the CCC on farms and ranches that were subsequently taken by the federal government by eminent domain in the 1940s and 1950s specifically for Fort Hood, an Army tank training facility in Central Texas (Figures 1 and 2). Fort Hood was established in 1942 to train soldiers to hunt and destroy German Panzer tank divisions that were sweeping across Europe with little opposition. The fort was expanded in 1943 and again in 1954. Thus, the period of significance for the CCC cultural landscapes extends from 1933 to 1942, the years of operation of that program.

This dissertation provides the cultural, economic, political and social setting of one area in Central Texas (now encompassed within Fort Hood) during the New Deal era from 1933 to 1942. Historic contexts are used to evaluate the information value that historic archaeological sites contain and their potential for inclusion in the NRHP. Several archaeological sites identified in the surveys on Fort Hood can provide significant information on the effect of one New Deal program, the Civilian Conservation Corps, on the lives of the civilian population of Central Texas.

Although this land was once under private ownership, its current status as federal property affords certain protection to its nearly 2,400 historic and prehistoric archaeological sites. This study identifies archaeological sites associated with activities of the CCC on Fort Hood from the period 1933 to 1942 and evaluates their significance based on the Secretary of the Interior's guidelines for evaluating archaeological sites for inclusion in the NRHP.

Drawing on American Studies approaches, this investigation focuses on the theme of cultures of everyday life by examining how President Franklin Delano Roosevelt's CCC reshaped the American landscape through the labor of unemployed young men

Figure 1: Texas counties.

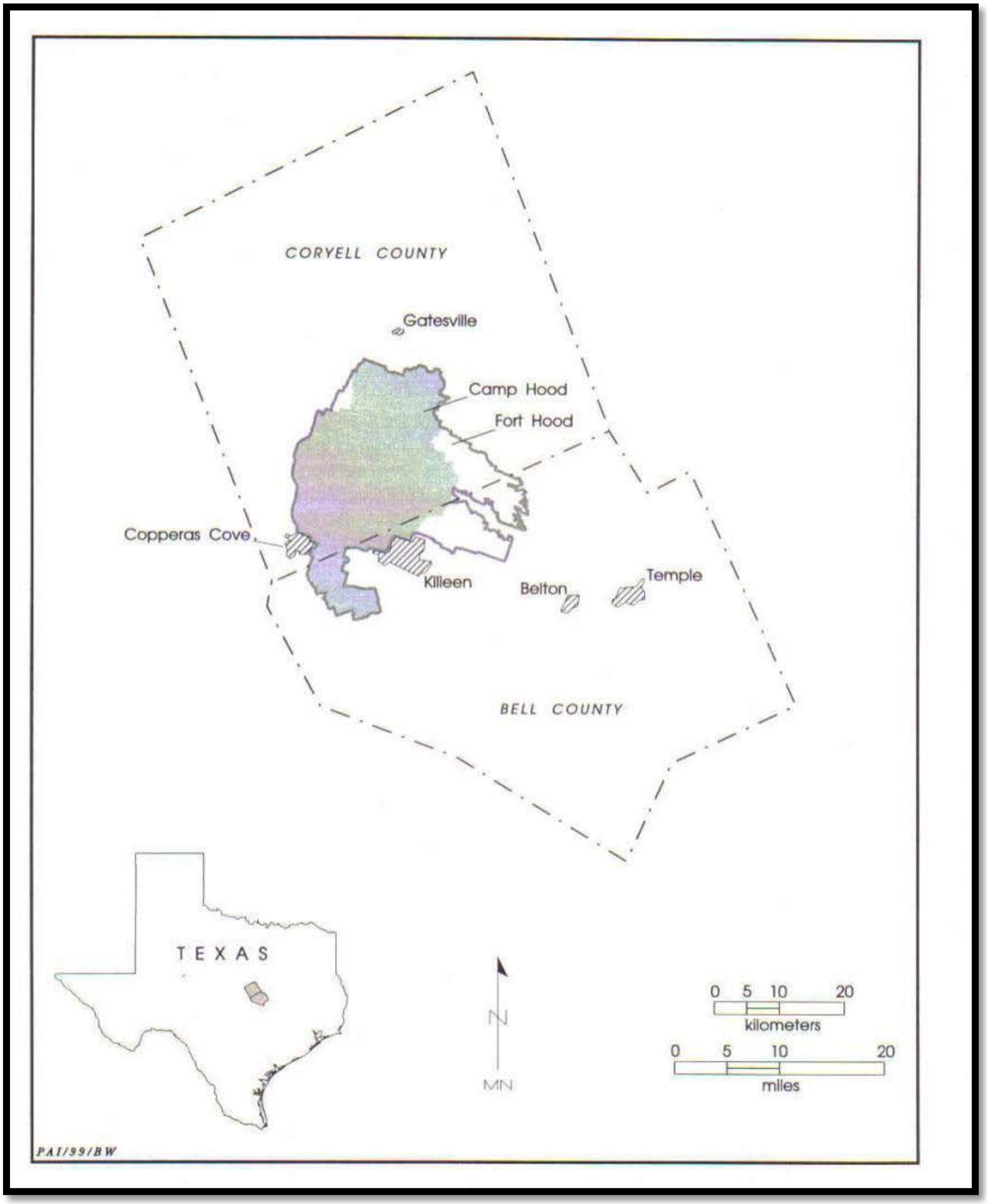

Figure 2: Location of Fort Hood in Central Texas. Shaded areas represent the 1942-1943 acquisitions and white areas represent the 1954 acquisition. Source: Freeman et al. 2001:5.

during the 1930s and early 1940s.[1] I explore how local, national, and global changes during the early 20th century affected the cultural landscape of a small area of Central Texas, encompassing portions of Bell and Coryell Counties. Through the CCC, America's civilian population transformed millions of acres of land across the United States between 1933 and 1942 in an effort to conserve natural resources that had been severely depleted through decades of overexploitation.

Soil conservation and other New Deal agricultural programs primarily benefited land owners (Volanto 1986, 1996), but this research at Fort Hood suggests some tenants and sharecroppers benefited as well. Soil conservation work performed by the CCC on private land changed the way America's farming population operated their farms and included everyday farmers in the conservation movement. In other words, conservation was no longer the concern solely of academics, but through the efforts of federal, state and local governments, became a major concern of everyday farmers. It is also clear that rural planning efforts of the period involved farmers in the decision-making process more than ever before. The reorganization of the rural landscape of Central Texas attests to the degree to which conservation measures were accepted by everyday farmers in that area.

National Register Evaluation

Focusing on private rural farmsteads in Central Texas from 1933 to 1942, this study employs Fort Hood, an Army installation in Bell and Coryell Counties, as a case study. A historic context will be developed to evaluate the potential eligibility of

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[1] American Studies employs interdisciplinary methods to understand the history and development of cultures within the United States. Intellectual themes on which the American Studies Department at the University of Maryland concentrates are: the cultures of everyday life, and cultural constructions of difference and identity.

historical archaeological features on Fort Hood that are associated with the CCC for inclusion in the NRHP. Using this context, archaeological sites and landscape features associated with activities of the CCC that were carried out between 1933 and 1942 will be identified and evaluated based on National Register guidelines.

There are four criteria for evaluating the significance of historic and cultural resources for nomination to the NRHP:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> **(A) that are associated with events** that have made a significant contribution to the broad patterns of our history; or
>
> **(B) that are associated with the lives of persons** significant in our past; or
>
> **(C) that embody 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
>
> **(D) that have yielded, or may be likely to yield, information** important in prehistory or history (Shrimpton 1997:2).

Importantly, the site or resource must possess integrity and meet one of four criteria. While most archaeological sites are nominated to the National Register under significance Criterion D, the soil conservation features built by the CCC on farms that would become Fort Hood could also be nominated under Criterion A. The CCC was a nationally significant program that transformed millions of acres of public and private land across the United States, influenced subsequent farm and soil conservation policy, and had a major impact on the history and landscape of the country. Most scholars agree that the CCC helped to transform the American landscape; work performed by these young men is still visible and continues to provide benefits to its citizens.[2]

CCC erosion camps were first administered by the Forest Service and were operated by state agencies and land grant colleges under signed cooperative agreements with the federal government. Erosion control work by the CCC camps was initially limited to gully control on private farms through the use of dams, and the planting of trees and vegetation. Gradually, the CCC camps extended their operations to include the construction of terrace outlets. Clayton County, Alabama was the site of the first soil erosion camp, which was established on June 18, 1933. By September 1934, there were 161 soil erosion camps in operation across the country. Twenty-two of those camps were allotted to the Soil Erosion Service (SES), created on September 13, 1933 (Helms 1985). A Soil Erosion Service camp, Private Erosion-76-Texas (PE-76-T), was established at Belton in Bell County in January 1934 and remained in operation until July 1935.

In March 1935, the SES was moved to the USDA and was renamed the Soil Conservation Service (SCS). The 150 CCC camps that were performing soil erosion work under the Forest Service were transferred to the SCS in April 1935. After the dust storms of 1934 and 1935, many more CCC camps were allotted to the SCS to combat soil erosion on private farms. Gatesville SCS camp SCS-26-T was organized in the city of Gatesville in Coryell County in July 1935 and remained in operation until the CCC was dissolved in 1942. Throughout the existence of the CCC from 1933 to 1942, more than 800 camps were supervised by the SCS. Soil conservation work performed by the CCC served as an agent for agricultural change by demonstrating the value of erosion control

[2] See, for example, Cornebise 2004; Gower 1965; Hillstrom 2009; Hinson 1999; Holmes 1972; Lacy 1976; Otis et al. 1986; Salmond 1967; Steely 1999; Suzik 1999; Van West 2001; Venn 1998; Waller 2001.

measures to individual farmers (Helms 1985). The Belton and Gatesville CCC camps performed soil and water conservation work on some of the Fort Hood farms, some of which were recorded in archaeological surveys.

Exploring CCC conservation landscapes requires the inventory of all elements within the farm boundaries. New Deal conservationists treated a farmstead as a unified whole. Topography, soils, vegetation, crops, livestock, and field organization were aspects of farm landscapes that the Soil Conservation Service (SCS) considered in devising individual farm plans. Those farmers who cooperated with the SCS's CCC camps were to follow the farm plans designed by SCS technicians that covered the entire farm. Therefore, the farms on which the CCC performed soil conservation measures can be considered cultural landscapes. Farmers began to cooperate to a greater degree in rural planning during the New Deal era than ever before. This was largely due to the extension of the federal government's concerns for planning in rural areas as a result of the effects of poor farming practices in earlier decades. Federal planning in rural areas became more acceptable to the American public during the mid-1930s because of the national emergency precipitated by the Dust Bowl. Federal intervention is more widely accepted in times of national emergency than in periods of relative stability.

The NPS defines a rural historic landscape as:

> a geographical area that historically has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features (McClelland et al. 1999: 1-2).

In order to evaluate a rural historic landscape, the NPS recommends that historic contexts be developed that outline the historical development of an area and the typical and unique types of activities that occurred there. The historical development of what is now Fort Hood is explored in Chapter 2; this chapter also identifies land uses throughout the historic period. This context also establishes definitions of what makes a site significant. The significant themes related to landscape features created by the CCC are agriculture and conservation, and the period of significance for these CCC landscapes extends from 1933 to 1942.

Methodology

Studying cultural landscapes, like the features that existed on what is now Fort Hood, involves an interdisciplinary approach to understand the natural terrain, the historical development of an area, cultural influences and practices, and changing technology. A multi-disciplinary approach is essential for evaluating a cultural landscape's significance as they are the result of natural forces and the cultures that shape them. Cultural landscapes can be thought of as artifacts and as documents with multiple meanings, but they are never static (Lewis 2003:86). They are constantly changing as people negotiate their position in society and from a wide range of physical processes. Humans not only shape cultural landscapes but can in turn be shaped by the landscape. Landscapes are created by many individuals and convey disparate meanings to diverse people (Wilson and Groth 2003:15; Lewis 2003:86-90). It is important to identify those who create, design, and control landscapes, as well as illuminate the types of activities and interactions that occur within them. Even such seemingly simple acts as cultivating certain plants in particular areas carry meaning and symbolism. The interaction between humans and the environment is the concern of cultural landscape studies; landscapes can convey messages, to control movement, and to shape behavior (Kryder-Reid 1996:228; Mitchell 2003:246).

A particularly useful approach to studying the conservation landscapes on Fort Hood is Jeremy Korr's 2002 revision to his cultural landscape fieldwork model (Table 1) (Korr 2002:476-510). Korr draws on the work of scholars from a variety of disciplines to outline a model that identifies three agents in the production of cultural landscapes: humans, artifacts, and nature. Drawing on material culture studies, Korr sees humans, artifacts, and nature as active agents in influencing the creation of a cultural landscape. Artifacts and natural features are not passive objects purely shaped by human culture, but themselves exert influence on humans and on each other. Korr's model ascribes a central position to the role of the natural environment in the creation of cultural landscapes, more so than most cultural landscape models (Korr 2002:476-477). The natural environment plays a key role in how rural landscapes, like that in Central Texas, are utilized and shaped.

Korr establishes five operations in his study model, each with several sub-operations (Table 1).

Table 1: The Korr landscape model (Korr 2002:482).

Operation	Sub-Operation
1. Description of Dimensions	a. Physical 1) Humans 2) Artifacts, and/or 3) Non-human natural components b. Multi-sensory c. Spiritual/sacred
2. Boundaries	a. Set in time and space b. Creators and alterers identified c. Experiential vs. abstract d. Social vs. political

Operation	Sub-Operation
3. Perceptions	a. Identify b. Aesthetics c. Cognitive Landscapes d. Language and terminology e. Spatial relationships
4. Dynamic relationship	a. Humans as agents b. Nature as agent c. Artifacts as agents
5. Cultural analysis	a. Cultural context and significance evaluated b. Power and access dynamics 1) Competing meanings 2) Images and representation c. Identify analysis d. Absent components e. Variable survivability f. Technology g. Role of the researcher

The first step is a descriptive analysis of the landscape, identifying the three basic components: humans, artifacts, and nature. It is important to identify the individuals occupying, interacting with, and directly influencing the physical or conceptual layout of a particular cultural landscape within a set time period. While some individuals or groups, such as absentee landlords or the federal government, may not occupy the land they sometimes exert greater power over shaping the landscape than the actual occupants. Korr's major question for this operation is: "Who was responsible for designing the elements of the landscape, for creating them, for maintaining them, for changing them?" (Korr 2002:484). To do this, inventories are made of the artifacts present on the landscape, as well as the natural features, such as types of vegetation, climate, and soils. All of the components that contribute to the cultural landscape should be identified with this operation (Korr 2002:482-485).

Step two involves the identification and delineation of the boundaries of the cultural landscape under investigation. Boundaries must be set in time and space and those responsible for setting those boundaries should be identified. Korr's suggested questions for this step include the following: "Who set the boundaries? When and why? Who recognized them and who did not? How did different people's perceptions of them form and change over time?" (Korr 2002:490).

Step three investigates the perceptions of a cultural landscape by the human actors who shape and use it. Questions that can be addressed during this stage are:

> What are these perceptions? How were these landscapes formed? How and why did they change? How did different humans' respective spatial organization patterns reflect their values, beliefs, rules, and landscape perceptions? What issues of taste, beauty, and appropriations does a given landscape raise? What are the cultural and political implications of a site's aesthetics? What are the spatial relationships between the various components within a landscape?" (Korr 2002:491-495).

Step four of Korr's model explores the dynamic relationship within a landscape between humans, artifacts, and nature. All three components have a part in the creation of a cultural landscape. Questions asked at this stage may include: "How do humans act as agents in shaping the landscape and the built environment? How did nature act as an agent? How did artifacts act as agents? How did the three affect each other and respond to each other?" (Korr 2002:498). The effects of natural features or systems, such as the impact of rainfall or temperature on the growth of plants, should be considered at this stage, as should how various human groups interact with one another.

The fifth step involves a consideration of the aspects of a culture that influence the creation and use of a landscape. A landscape must be evaluated in relation to its cultural, economic, and political contexts. Some of the key questions to explore at this stage are:

> What ideologies, meaning systems, social systems, shared beliefs, attitudes toward nature, attitudes toward people can the landscape help us to understand? How do the boundaries, perceptions, and dynamic tensions previously identified shed light on these issues? What set of social discourses does a cultural landscape symbolize, and how does it contribute to the development and reinforcement of those discourses? What local and/or national contextual conditions might help to explain why a particular meaning achieved dominance? Who has had the power to shape the cultural landscape itself and to access it, and who has been denied the powers of creation and access? Why did different groups and individuals decide to make certain changes and not others? How did they designate visible or invisible boundaries between sites to be altered in different ways? Who created the tools to shape the landscape, how, when, and where? How did those individuals who used the tools acquire them? Who used the tools, and what terms did they apply to the process? How did those particular tools shape the landscape in a way that alternative ones did not? (Korr 2002:499-507).

Korr notes that the operations outlined in his cultural landscape model should be adapted, reordered, and revised to fit the individual study. The key to understanding the creation and use of any landscape is identifying the dynamic relationship between the basic elements of humans, artifacts, and nature (Korr 2002:510). Various components of Korr's landscape model will be applied to the analysis of the role of humans, artifacts, and nature in the creation of conservation landscapes on Fort Hood by the CCC from 1933 to 1942.

Dissertation Goals

This study postulates that the federal government had an active, widespread role in shaping the rural landscape of Central Texas during the 1930s, through its use of the CCC to implement soil conservation measures on farmland across the area. Fort Hood provides a case study to demonstrate the expanding role of the federal government in the management of and planning on private land. The landscape will be examined to identify conservation measures instituted by rural farmers, and land tenure will be explored to determine the extent to which conservation measures benefited not only landowners, but tenants as well.

The New Deal era marked a time of great change in the economic, social, and political landscape of the nation. The Great Depression and the Dust Bowl were national emergencies that the federal government responded to by developing national programs to alleviate the unemployment situation and to better conserve and manage the nation's natural and human resources. With rural residents increasingly moving into cities and abandoning farm life as the effects of the Dust Bowl and falling prices made farming unprofitable, government officials were forced to examine poor land use practices across the country. The ongoing depression provided a ready labor pool and with them the CCC to address land use problems. Over the course of its existence from 1933 to 1942, it is estimated that the CCC transformed close to 118 million acres across the United States, thus making a significant impact on the appearance of the rural landscape (Maher 2002:437).

A major factor contributing to the demise of the land was tenant farming, widespread across the South during the Great Depression. Tenants often rented a farm for a year, sometimes more, then moved on to find better land or better rental conditions. This practice discouraged tenants from becoming attached to the land or conserving its resources. With profit being the primary objective of tenant farmers, they had little incentive to invest time or money in conserving someone else's land, especially since they were rarely compensated for those improvements (Orser 1988).

Some documentary records (National Archives Record Group 35) suggest that the CCC had an impact on the farming practices of some tenants in Central Texas by staging demonstrations and providing financial assistance for those willing to employ conservation measures on their rented farms. Owners and tenants gradually began to work together to make their farms more profitable by conserving and better managing natural resources. The present study examines the influence of the CCC and its activities on both tenant and owner-operated farms on land in and around Fort Hood.

Much has been written about the work performed by the Civilian Conservation Corps in national parks and forests[3] and in state parks and forests[4], as well as its general accomplishments from the national to local levels.[5] Other scholarship has focused on the experience of African Americans and Native Americans in the CCC.[6] Although the legislation establishing the CCC prohibited discrimination, several scholars have documented the racial inequality rampant throughout the organization. Native Americans

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[3] See, for example, Blakey 1986; Brown 1995; Burns 1982; Clancy 1997; Ditman and Clark 2006; Durant 2006; Engbeck 2002; Ermentrout 1982; Gower 1973; Hanson 1973; Harrison et al. 1988; Hendee 1988; Jackson 2007; Mark 2006b; Morgan 2006; Murphy 1982; Nelsen 1982; Ober 1976; Otis et al. 1986; Paige 1985; Redinger 1991; Sallee 1997; Savage 1991; Smith 2007; Sowards 2000; Steely 2002.

[4] See, for example, Ahlgren 1988; Cox 1978; Eaddy 2003; Housley 1995; Johnson 1983; McCaffrey and Maunder 1972; Mielnik 2008; Nelson 2008; Peterson 1978; Rouse 1988; Schrems 1994; Shofner 1987; S.T. Smith 1991; L. Smith 2002; L. Smith 2003; Steely 1999; Sullivan 1987; Utley and Steely 1998; Vyzralek 2001; Waller 2003.

[5] See, for example, Austin 1983; Baldridge 1971; Boehm et al. 2006; Booth 1991; Carew 1983; Draves 1988, 1992; Dubay 1968; Fearon 2007; Hanson 1973; Heath and Hunt 1972; Hellman 2004; Hendrickson 1976, 1980, 1981; Hill 1990; Hinson 1992; Holland 1970, 1975; Humphreys 1964, 1965; Jackson 1994; B. Johnson 2006; C. Johnson 1972b; Jolley 2007; Juillerat 2006a, 2006b; Kinder 2004, 2005; Kolvet 2006; Kolvet and Ford 2006; Lacy 1976; Lee 2005; Lewis 2005; Mark 2006a; Melzer 2000, 2005; Merrill 1981; Moore 2006, 2007; Munro 2008; Neef 1984; Olsen 1994; Patterson and Larson 2005; Patton 2005; Putnam 1973; Richardson 1972; Robbins 2008; Rosentreter 1986; Severson 1982; Sherman 1994; Sherraden 1980; Sommer 2008; Speakman 2006a, 2006b; Stetson 1978; Symon 1982; Tate 1984; VanWest 1994; Waller 2004; Webb 2006.

[6] See, for example, Burkly 1993; Cole 1986, 1991, 1999; Dougherty and Leffler 2001; Gower 1976; Holmes 1972; Johnson 1972a; Keegan 1986; Mack 2003; Montoya 1995; Patton 2001; Potter 1977; Quigley 2005; Salmond 1965; Schmitzer 1995; Volanto 2005.

were allotted separate camps that performed work on Indian reservations.[7] The majority of CCC enrollees paint a favorable picture of their time in the CCC camps; individual camp histories explore the numerous tasks performed by the young men.[8] However, there is little scholarship on the contributions of the CCC to soil conservation and its effects on private land across the country.[9] This study closely examines the effects of these CCC-sponsored soil conservation efforts on farms in Bell and Coryell counties, Texas.

The SES was established by Secretary of the Interior Harold Ickes to combat the loss of valuable top soil brought on by economic depression and drought in the early 1930s. Hugh Hammond Bennett was tapped from the Department of Agriculture to head the new agency. After witnessing the severe dust storms in 1934 and 1935 that blew from the Great Plains all the way to the East Coast, Congress passed the Soil Conservation Act on April 27, 1935. This Act represented a federal mandate to develop a long-range national program to conserve soil and water across the country (Simms 1970:11-17). The CCC performed soil and water conservation work on some of the Fort Hood farms. Some of these features remain intact on the landscape and can provide valuable information about New Deal conservation practices that can be interpreted for the public.

Historic sites related to CCC activities listed in the NRHP are all located on federal or state land and are primarily representative of activities carried out by the organization under the auspices of the NPS or Forest Service. While scholars such as Douglas Helms (1985, 1992) and Neil Maher (2000, 2001, 2002, 2008) have addressed

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[7] See, for example, Gower 1972; Hanneman 1999; Parman 1971; Parman and Wessel 1992; Shunk 1971.
[8] See, for example, Bickley 2001; Humberger 1994; Kamps and Patterson 1987; Kimmett 1984; Knox 1992; Louthan 1993; Nielson et al. 1993; Pierson 1993; Preiss 1978; Ritter 1978; K. Smith 2001; M. Smith 2001; Stepenoff 1990; Tanasoca and Richardson 1967.
[9] Less attention has been directed towards exploring the work of the CCC on private land under the SES from 1933 to 1935 and the SCS from 1935 to 1942. For some examples of this scholarship, see Alonzo 2004; Baldridge 1971; Helms 1985, 1992; Maher 2000, 2001, 2002, 2008; Mundende 2004; Seymour 1998.

the contributions of the CCC through the SCS, historical archaeological resources on Fort Hood offer a unique opportunity to study the effect of CCC efforts on the private farms that constitute the predominant type of cultural landscape of this area of Central Texas. Although the remains of the farms that were taken by eminent domain for the establishment of Fort Hood have been impacted by many years of military training, some CCC soil conservation features are still visible and retain their integrity. Integrity is the ability of a resource to convey its significance. Many of the soil conservation features on Fort Hood retain their integrity of location, design, setting, feeling and association.

Prior to the establishment of Camp Hood (later Fort Hood) in 1942, six CCC camps were located in the vicinity (i.e., in Bell and Coryell counties). Two in particular, in Belton and Gatesville, directly impacted the private farms acquired in 1942 and 1943 for the Army post. Fort Hood farmers were probably also influenced by demonstration work carried out in the Elm Creek Watershed extending across Bell, McLennan, Falls, and Milam Counties to the east.

After identifying CCC features on the landscape of Fort Hood these resources will be used to determine the extent of the CCC's impact on how the owners of private land transformed their cultural landscape due to government intervention. This work will hopefully provide archaeologists with an understanding of the types of features associated with CCC activities on private agricultural land and will provide them with a rationale for assigning significance and reasons for preservation. Soil conservation measures were planned based on the entire farm, so the CCC cultural landscapes should include all features – the house, outbuildings, fields, pastures, fence lines, stock ponds, cisterns, etc. – within the farm boundaries.

During the New Deal years, the federal government increasingly extended its authority into the economic and social facets of American life (Coleman 1989:49). New Deal farm programs sought to raise farm prices and income by reducing the supply of crops and livestock. For seventy years, the Morrill Act had supported a farm policy of agricultural development that included research, improvement of agricultural resources, on-farm education, and classroom teaching. This policy depended on increasing farm production, individual farmer choice, and competing markets. New Deal farm programs, in contrast, focused on reform, relief, and recovery. Increasingly, the federal government offered financial relief and reform by intervening in decisions on what to grow and how much to grow on private farms. Larger landowners reaped the greatest benefit from the New Deal farm programs, generally without sharing them with tenants or farm hands. Interestingly, the income gap between those at the top and those at the bottom actually increased during this period (Paarlberg 1989:39, 41-42). While large landowners clearly fared the best, the work performed by the CCC actually benefited some tenants and small farmers.

The New Deal intervened to a large degree with the practice of agriculture on private property by instituting rural planning. President Roosevelt perceived no problem with placing restrictions on private property if it served the greater public good. The federal government was not seeking to take over private property, but to have some say regarding how that property was used. President Roosevelt saw the project of subduing nature as a cooperative endeavor to be carried out not by individuals, but by organized groups (Eden 1989:220; Frisch 1989:192, 194).

Geographer Richard Schein observes that, “interpreting a cultural landscape is a geographically specific exercise that requires interrogating the role of landscape in social and cultural reproduction, as well as understanding the landscape within wider social and cultural contexts” (Schein 1997: 660). This study places the Fort Hood farms in their local, regional, and national context to illustrate how local to global events affected the development of the Central Texas landscape. Improvements made to the Fort Hood landscape by the CCC in the form of conservation measures inspired farmers to adopt the federal government’s conservation ideology. Historical archaeologists are now developing historic contexts to evaluate the significance of sites on local, regional, and national scales and I will approach the historic cultural landscape of Fort Hood on several scales, from the local to national. Oral histories collected from local residents and published in 2002 will be used to establish how people interacted with and used their local landscape during the early 20th century (Dase et al. 2003). I use secondary sources to branch out into the regional and national scales.

Schein also notes that studying American landscapes is unique because “most U.S. landscapes are created piecemeal within a cultural milieu that idealizes liberal individualism, laissez-faire capitalism, and political democracy” (Schein 1997: 663). Thus, the U.S. landscape is formed from numerous individual choices, and these choices are all part of larger agricultural discourses. Features such as terraces, outlet ditches, dams, water cisterns, and stock tanks are part of a soil conservation discourse that largely originated with the federal government. Farmers could choose to utilize all, some, or none of these conservation measures. New Deal programs such as the CCC were only effective because of the local support they garnered.

Aerial photographs from the 1930s and 1940s are used to identify terracing, outlet ditches, strip cropping, contour plowing, and stock tanks to determine the degree to which farmers adopted the federal government's strategies of soil conservation during the New Deal era. In concert with aerial photos, archaeological surveys assist in identifying conservation features such as cisterns, dams, terracing, and contour plowing. Individual choice can be seen in these landscapes, but the extension of features, such as terraces, across property lines indicates that farmers also began to act more cooperatively to conserve natural resources. The federal government could not compel farmers to adopt conservation measures, but instead attempted to educate them by placing conservation features in areas where they could be readily seen by a large number of people.

This present study also examines the increased role of the federal government in rural planning. The federal government was allowed to expand its influence over urban and rural planning during this era because of the economic and natural emergencies (Great Depression and the Dust Bowl). Many of the rural planning and soil and water conservation policies instituted during the New Deal are still in operation today. While some conservatives claim that New Deal policies were a complete failure and that it was World War II that lifted the nation out of recession, historical evidence suggests that some programs, such as the CCC, were a huge success. Conservative critics also believe that the New Deal began a period when the federal government intervened excessively in the lives of individual citizens that persists today (Fleming 2002; Folsom 2008; Kennedy 1999; Powell 2003; Shlaes 2007; Smily 2003). New Deal proponents agree that President Roosevelt's programs did not end the Depression, but they did gradually help the economy to improve and provided destitute Americans with the assistance needed to prevent total ruin. Without government assistance during the New Deal, the country could have completely collapsed. Many popular New Deal programs that provided unemployment benefits, insurance on bank deposits, social security, etc., are still in effect today (Hillstrom 2009:110).

Not all New Deal programs were popular with the rural population. Some of the programs that left a lasting impression on several of the former Fort Hood residents were the Agricultural Adjustment Administration's cattle and cotton reduction programs. John Darel Bay recalled that during the early 1930s, the government killed some of their cattle to reduce their numbers. Farmers were allowed to choose the cattle to be killed. The cattle were rounded up, taken to a pen or an area where a ditch had been dug, and were shot by a government agent. The carcasses were then burned after local people took what meat they could from the animals. Not all of the meat could be saved because of the lack of refrigeration on most of the Fort Hood farms. Many farmers also had to plow up a certain proportion of their cotton crop in 1934 under provisions of the Agricultural Adjustment Act. It was difficult for the residents to understand why animals and crops were being destroyed in a time of such desperation in the country (Dase et al. 51-52, 212, 553, 575, 578, 789, 837-838, 945, 1004, 1048, 1059, 1148, 1269).

However, the CCC remained one of the most popular New Deal programs. The CCC benefited not only the young men who participated in the program and their families, but also the nation's natural resources. The CCC reclaimed many acres of formerly exhausted land and restored the productivity of many farms across the country. Had the federal government not acted during this time of crisis, much of the farmland across the country would likely have been rendered unproductive within a few years (Hillstrom 2009:71-73).

Dissertation Organization

To understand the impact the CCC had on the farms that would become part of Fort Hood, a historic context of prior land use in the project area is detailed in Chapter 2. Using an agricultural and rural life context, compiled by the Cultural Resource Management program at Fort Hood in 2000 (Freeman et al. 2001), I will establish trends in agriculture during historic occupation of this land, focusing specifically on the causes of poor farming practices that contributed to soil erosion in the early 20th century. This context relies upon numerous primary and secondary sources to establish who owned the land, what types of crops were grown, when droughts occurred, how many farms were operated by tenants, and how much land was put into cultivation.

Environmental historians Donald Worster (1979, 1992) and William Cronon (1991) have argued that the natural environment is an integral part of the historical development of an area. Cronon also notes that trade is a major factor in determining the character of the cultural landscape, as it establishes connections with distant places. Thus, new plant species, for example, can be introduced to an area as a consequence of trade. Fluctuations in national or international markets and demand can influence what and how much is grown by farmers. The historical context in Chapter 2 provides background on the natural environment of Fort Hood, details the types of crops grown, and examines trade networks. Demand for certain crops, a favorable climate, the ability to transport those crops to nearby markets, and the price of crops all factor in to farmers' decisions to concentrate on certain cash crops.

Technology and farm mechanization also altered the way farmers related to and organized their land. Availability of technology and the extent of its use can transform the landscape in radical ways (Cabak et al. 1999). Conservation technology, including terrace building, fence building, outlet channel construction, and dam building, was introduced to rural farms by the CCC. This study will examine the ways in which this technology changed the appearance of the land.

Identifying connections between local, national, and global economies and politics can help us to understand why people exploit the land the way they do. For example, in *Nature's Metropolis: Chicago and the Great West* (1991), Cronon illustrates how the development of the city of Chicago was intimately tied to its hinterland and the natural resources located in that hinterland. Cronon's study provides a sound outline for connecting city and countryside, as it is important to understand how local conditions and metropolitan interests shaped the landscape.

Donald Worster (1979) has argued that a capitalist ideology towards nature is what caused the Depression and the Dust Bowl. Farmers were driven to derive the maximum profit and to do so, plowed up land that was formerly covered in native grasses or trees, converting it to farm land with new farm machinery. Instead of practicing diversified farming, they tended to plant a majority of their farm in a single cash crop. During the 1930s, money became concentrated in the hands of fewer landowners as a result of government programs initiated to curtail overproduction. These landowners then had the capital to invest in farm machinery that could place more land into agricultural production and lessened the need for tenants, laborers, and sharecroppers. Eastern capital also contributed to the establishment of large farms and ranches in the West and the subsequent overexploitation of the land.

Climate and topography also influenced what and how much could be grown, but farmers often ignored the natural limitations of their farms, causing massive erosion and soil exhaustion. It is necessary to document the extent of bad farming practices prior to the advent of the New Deal programs, to determine the overall effect of the CCC on the conservation of natural resources on the Fort Hood farms. Records of the Extension Service (National Archives Record Group 33) are valuable in this endeavor, as agents note the practices in each county that resulted in erosion and poor farm management. Extension Service reports also identify positive changes that farmers were making to alleviate erosion problems. It is crucial to understand who had the power to change the landscape and the underlying ideologies that shaped the landscape.

Farmsteads, particularly those dating to the 20th century, are some of the most common sites recorded in archaeological surveys. This study emphasizes the importance collecting and preserving the valuable historical information contained within 20th-century archaeological sites, particularly New Deal landscapes. Archaeologists are increasingly realizing the importance of understanding and examining 20th-century sites. Susan Henry argues that the major technological changes and events that occurred during the 20th century have greatly altered our lives in the present. A wealth of information can be provided by the archaeological record on this material change in American culture. Small family farms, which were once the norm, have practically vanished in America, having been subsumed by large commercial operations. This has significantly altered the primary production unit in this country, not to mention the many families who were affected by commercial and mechanized agriculture. Many of these sites are located on federally owned and managed lands and are also subject to major land development projects. It will be important to preserve some of these 20th-century sites to tell the story of the transformation of this country from a rural to an urban society (Henry 1995). Moreover, archaeologists are increasingly at the forefront of discussions regarding recent-past resources and advocating diachronic landscape analyses that include consideration of mid- and even later 20th-century components of their sites (e.g., Ernstein 2000; Ernstein et al. 2005).

While farmsteads are the most common type of site in the United States, this does not mean that they are any less important than sites that are rarer. The fact that these sites represent the daily lives of a majority of the population from the colonial period to the late 20th century should make them even more important to the study of the historical and cultural development of the country. After passage of the National Historic Preservation Act in 1966 and other legislation devised to protect archaeological and historic sites, cultural resource management has expanded and has added a great deal to our knowledge of historic farmsteads and the practice of tenancy.[10]

Chapter 3 provides background history on the establishment and overall organization of the Civilian Conservation Corps. Administration of the CCC in Texas and the numbers, types, and locations of camps within the State will be discussed against that backdrop. That chapter also explores the political, economic, and social context for the Depression years to analyze the effectiveness of New Deal programs, in general, and the

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[10] See, for example, Bennett et al. 1996; Eidenbach 1989; Hawthorne 1994; Hawthorne-Tagg 1997; Jurney and Bohlin 1993; Jurney and Green 1993; Jurney et al. 1988; Jurney and Moir 1987; Majewski et al. 1997; McDonald et al. 1992; Moir and Jurney 1987; Rock 1988; Smith and Orser 1993.

CCC in particular. Activities of the CCC camps that directly impacted the farms that became Camp Hood in 1942 and 1943 are detailed.

Landscape features associated with conservation measures advocated by the federal government and constructed by the CCC are described and defined in Chapter 4. Inspection reports compiled by each CCC camp describe the various conservation measures and address the problems they encountered in carrying out their programs. New Deal programs ushered in a new level of intervention by the federal government in the lives of individual citizens. Thus, Chapter 4 investigates the degree of which federal intervention and the extent to which it altered the cultural landscape of Central Texas. New Deal federal rural planning efforts are reflected in major changes to the Central Texas landscape in the form of various erosion control measures.

Chapter 4 also describes archaeological features associated with the CCC on Fort Hood that were identified either by archaeological survey or by former residents. The sites are placed in their environmental and social contexts to determine whether they are eligible for listing in the NRHP. Questions of why these sites are worthy of study and preservation are addressed.

Archaeological surveys were begun on Fort Hood in 1978 to fulfill the requirements of Sections 106[11] and 110[12] of the National Historic Preservation Act

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[11] Passed in 1966, the NHPA provides for the protection of prehistoric and historic resources significant to local, state, regional, or national history. Section 106 of the NHPA instructs federal agencies to take into account adverse effects that any federally-funded or permitted action may have on cultural resources that are either listed or determined to be eligible for inclusion in the National Register of Historic Places (NRHP). Criteria used to evaluate the eligibility of archaeological sites for inclusion in the National Register are listed at the beginning of this chapter.

[12] Section 110 was added to the NHPA when it was amended in 1980 to:

> expand and make more explicit the statute's statement of Federal agency responsibility for identifying and protecting historic properties and avoiding unnecessary damage to them. Section 110 also charges each Federal agency with the affirmative responsibility for considering projects

(NHPA) of 1966. Federal legislation, including the NHPA of 1966, as amended, Executive Order 11593[13] and the Archeological and Historic Preservation Act of 1974, provide for the identification, management, and protection of archaeological sites on federally-owned land. Close to 1,100 historic archaeology sites have been recorded on Fort Hood.

Chapter 4 also provides an examination of several of the conservation landscapes on Fort Hood for inclusion in the NRHP. Their significant features will be inventoried, their integrity evaluated, and justification provided for their eligibility for inclusion in the NRHP. The conclusion to the chapter poses some research questions to pursue for other researchers of historic conservation landscapes.

Chapter 5 discusses the elements of the soil conservation programs initiated during the New Deal era that continue today. It provides a summary of the findings of this dissertation and recommends future directions for archaeologists evaluating archaeological sites related to the CCC in other locations. This study provides archaeologists with a context within which to evaluate the significance of landscape

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and programs that further the purposes of the NHPA, and it declares that the costs of preservation activities are eligible project costs in all undertakings conducted or assisted by a Federal agency. The 1992 amendments to the Act further strengthened the provisions of section 110. Under the law, the head of each Federal agency must do several things. First, he or she must assume responsibility for the preservation of historic properties owned or controlled by the agency. Each Federal agency must establish a preservation program for the identification, evaluation, nomination to the National Register, and protection of historic properties. Each Federal agency must consult with the Secretary of the Interior (acting through the Director of the National Park Service) in establishing its preservation programs. Each Federal agency must, to the maximum extent feasible, use historic properties available to it in carrying out its responsibilities (National Park Service 1998:20499).

[13] Executive Order 11593, passed in 1971, grants federal agencies the authority and responsibility to conduct archaeological surveys and to inventory properties they control. In addition, it directs the federal government to preserve cultural resources on federal property that may be eligible for listing in the NRHP. The Archeological and Historic Preservation Act of 1974 authorizes any federal agency to use federal funds to investigate and recover cultural resources that may be impacted by their programs, licenses, or permits.

elements related to the SCS branch of the CCC that were built by America's everyday citizens between 1933 and 1942.

Conservative critics decry the New Deal era as the beginning of the greatest expansion of the federal government's reach into the lives of its individual citizens.[14] This is a criticism still promulgated today now fueling the debate over health care reform. The CCC was one of the most popular and successful of the Roosevelt administration's New Deal programs. This organization provided young men on relief rolls with useful work, changed their outlook on conservation and environmental issues, provided economic and physical benefits to the local communities in which they served, and funneled money to their families. Conservation work performed by the CCC on private farms across the country saved a great deal of the nation's prime farmland and made farmers aware of how their actions affected their neighbors. The CCC is a prime example of how the actions of the federal government were responsible for solving some of the economic and social problems of the nation. Many of the soil and water conservation methods instituted during the New Deal years are still used today (Helms 1985, 1992; Maher 2000, 2001, 2002, 2008).

[14] See, for example, Fleming 2002; Folsom 2008; Kennedy 1999; Powell 2003; Shlaes 2007; Smily 2003.

Chapter 2: Historic and Environmental Context

Establishing a Context

The NPS recommends that the federal government, states and local jurisdictions create historic contexts to evaluate the significance of historic sites or landscapes (Shrimpton 1997:1). Historic contexts outline the patterns of historic development of an area and the cultural associations of its inhabitants. Themes are developed to link particular sites or landscapes to important trends. Among the major agricultural patterns in Bell and Coryell Counties, Texas, were a reliance on cotton and corn cultivation, combined with livestock production, particularly cattle, sheep, and goats. National and world markets drove the demand for Texas cotton, beef, wool, and mohair, and affected which crops Bell and Coryell County farmers grew on their farms. At the same time, topography, soils and climate limited where and how much of certain crops could be grown. As transportation systems expanded and improved farmers in Central Texas had better access to domestic and foreign markets. Finally, laissez faire capitalism drove farmers to produce single cash crops in increasing amounts to maximize their farm profits.

Drawing on Korr's first operation of the description of dimensions, this chapter outlines the natural character of the Fort Hood lands and discusses the major cash crops grown in Bell and Coryell Counties, including cotton, corn and sorghum, and livestock production – including cattle, sheep, and goats. Characteristics of the natural landscape, along with market demands, influenced how the land in Bell and Coryell counties was used. Overexploitation of the land, due to a relentless quest for profits and the spread of tenancy, led to severe soil erosion and loss of soil productivity.

Using Korr's operation number four, a description of dynamic relationships, I will approach landscapes as a reflection of the interaction of humans and the natural environment. Landscapes reflect the cultural ideals and economic goals of those who inhabit them. The rural American landscape has been heavily shaped by the desire of farmers to transform land into marketable products, and values and beliefs shape how nature is used (Glassberg 2004:23-25; Scarpino 2004:147).

Laissez faire doctrine, as applied to land in the United States, sought to reap the greatest profits in the shortest period of time with little regard for the future fertility of the land. Unfortunately, huge swaths of land were badly damaged or destroyed before the effects of this misuse became evident. In the early years of settlement in the United States, farmers used the seemingly endless supply of land until it was exhausted and then moved to another tract. By the 1930s, nearly twelve million upland acres were permanently destroyed and about three million acres of lowlands were rendered unfit for cultivation due to the accumulation of gravel and sand from over wash of eroded materials. Many stream channels also became clogged and choked with sediment (McGowen 1940:9).

Capitalism, with its continuous search for profit and expanded markets, has had a profound effect in shaping the American landscape. During the early 20th century, several economic, political and natural factors combined to give rise to the Great Depression and subsequent Dust Bowl. Donald Worster argues that unrestrained capitalism was the prime factor in creating both of these national disasters. During this period, the population in the United States was rapidly expanding, as were both national and foreign markets. World War I marked a turning point in American agriculture when the Turks began to cut off shipments of wheat from Russia to Europe. To meet growing demand, European countries turned increasingly to the United States for their wheat imports. About the same time, new and efficient types of farm machinery were employed to plow up marginal grasslands in the central part of the country (Worster 1979:87-93).

While huge profits accrued from these technological advances, the soil suffered. For example, the one-way disk plow worked the soil into a fine powder that could easily be blown away. Threshers and combines could be moved around from farm to farm with ease, allowing farmers to rely less on human labor. Mechanization of agriculture under the capitalist system allowed large land owners to increase and disperse their holdings. Tenants were increasingly pushed off the land, as it was more economical to use machines to farm. Little attention was paid to the natural limits of the new land being converted to agriculture. Hot dry winds blowing through the Midwest, along with serious drought conditions in the early 1930s, combined to lift the soil formerly held in place by sturdy grasses, and blow it all the way to the East Coast (Worster 1979:87-93).

Fort Hood's Natural Environment

One of the major operations in Korr's model for understanding cultural landscapes is to identify the natural elements of a landscape. The natural environment is given a central role in Korr's model and provides certain limitations to human action. Thus, in studying cultural landscapes, it is important to fully explore the physical settings in which they are produced. This section describes the major types of landforms found on

Fort Hood and the types of crops grown. Climate, topography, vegetation, and soil type dictate what types of crops are grown and which livestock can be sustained. This chapter also looks at how specific agricultural choices were affected by climate and topography. The final part of this chapter discusses the major world, national and local events that affected agricultural choices and examines how transportation networks determined where products of the Fort Hood farms were shipped.

Fort Hood Military Reservation, located in Bell and Coryell counties, encompasses 339 square miles, 878 square kilometers, or 217,300 acres (Figure 2). Belton, the county seat of Bell County, is 10 miles east of the Fort and Gatesville, the county seat of Coryell County is about five miles north. Fort Hood is located in the Lampasas Cut Plain physiographic region (Figure 3). Landforms consist of uplifted limestone that was once on the floor of the Lower Cretaceous Sea from 65 to 135 million years ago. These landforms have subsequently been eroded by rivers, streams, and heavy rains. A major fault line, the Balcones Escarpment, lies east of Fort Hood and extends from the vicinity of Waco southwest into Mexico. This fault line delineates the Lampasas Cut Plain from the eastern Blackland Prairie zone and separates the most productive cotton lands in Texas from more rolling, marginal zones. Characteristics of the Lampasas Cut Plain region are high flat-topped ridges that are cut by low, wide erosional stream and river valleys (Nordt 1992:1; Stabler 1999:2-3).

Fort Hood can be divided into three environmental zones: the uplands, intermediate slopes, and lowlands. Elevations range from 590 to 1,230 feet above sea level. Lower elevations occur on the east side of the Fort around Lake Belton and higher elevations are found in the southwestern sector of the Fort. Characteristic of the uplands

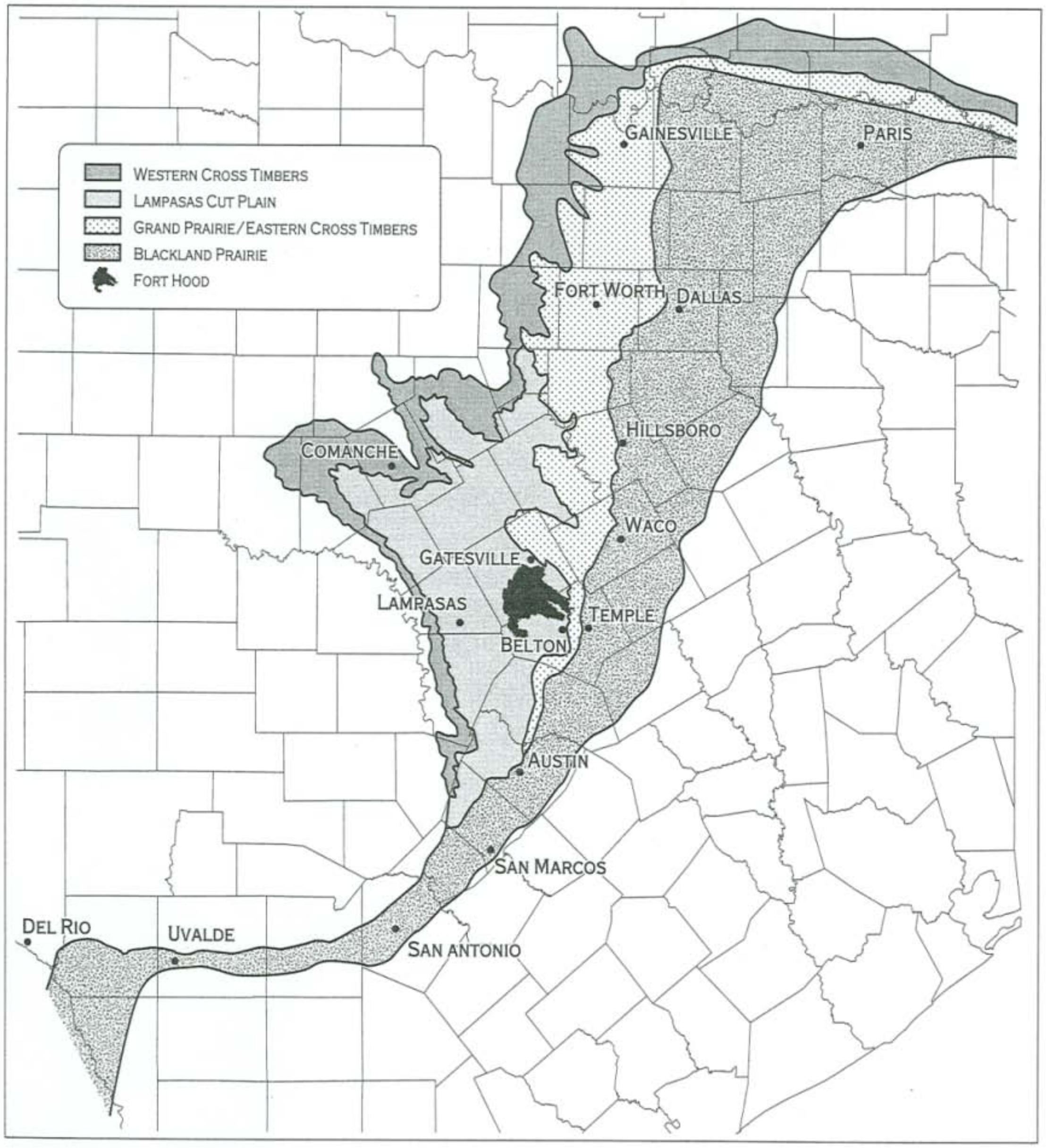

Figure 3: Physiographic regions of Central Texas. Source: Pugsley 2001:16.

is the very dense and weather-resistant Edwards, Duck Creek, and Comanche Peak Limestone caprock (Figure 4). Flat-topped mesa-like uplands are formed due to the resistance of the Edwards Limestone to weathering and soils above this rock are thin. Comanche Peak Marl and Walnut Clay formations constitute the intermediate slopes and are less dense, causing them to easily erode and weather. These very steep slopes support little vegetation due to heavy erosion and are covered by very thin and poor soils. Lowlands appear along the major drainages running through the Fort and are gently sloped. Soils contain Walnut Clays redeposited from the intermediate slopes above. These soils support the majority of the vegetation in the area and were the lands heavily farmed in the historic period (Carlson et al. 1994:7; Stabler 1999:3).

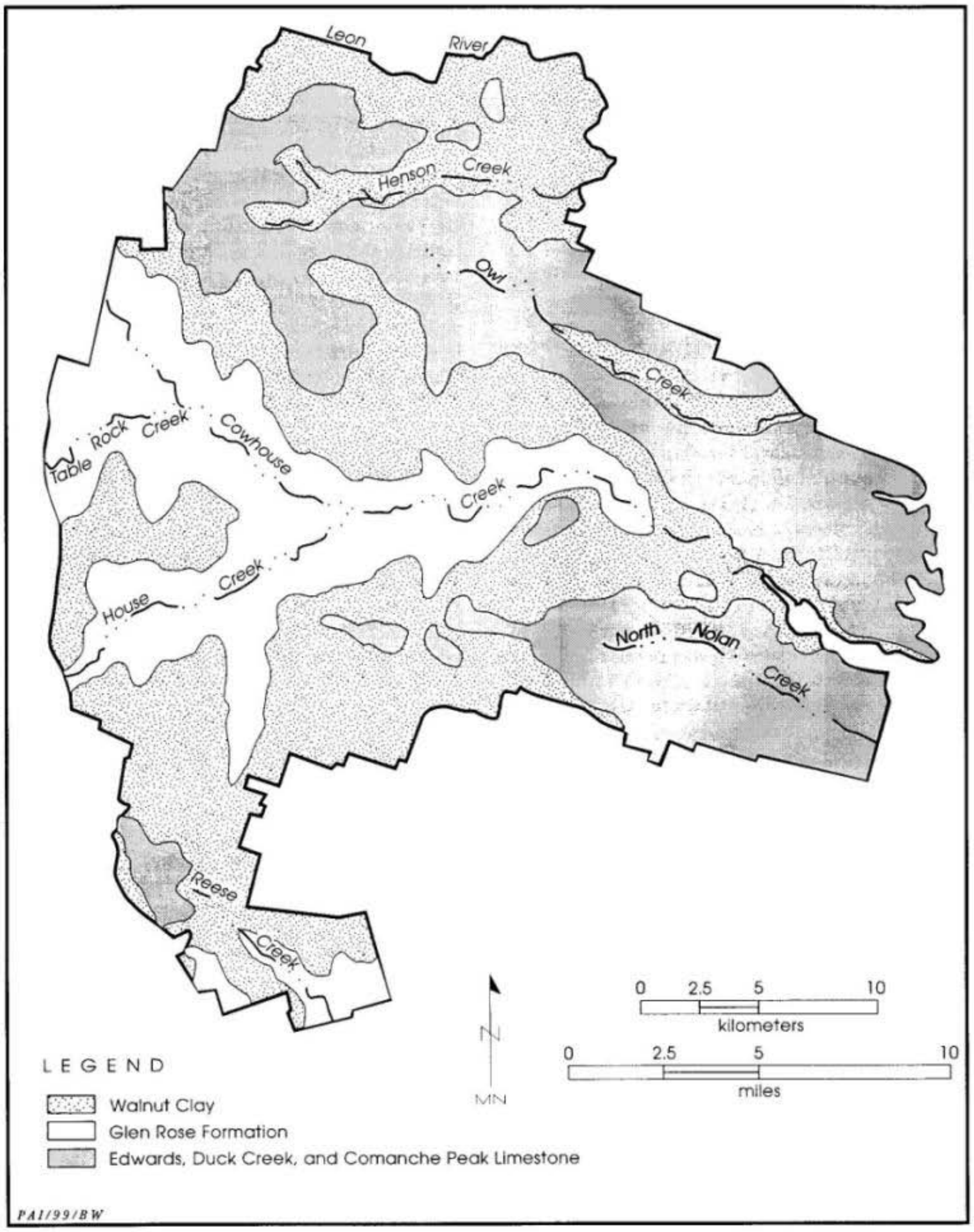

Figure 4: Geological formations on Fort Hood. Source: Stabler 1999:5.

The climate of the Fort Hood area lies between the subtropical subhumid and subtropical humid climatic zones. A moist, humid coastal climate is characteristic of the spring, summer, and fall months and a semi-arid climate prevails during the winter. Short cold snaps occur in the winter from cold arctic fronts dipping into Central Texas from Canada. Annual precipitation averages about 33.4 inches or 85 cm, with highest amounts occurring during the spring and early autumn. Very little precipitation is received from mid-June to late August (Huckabee et al. 1977; Larking and Bomar 1983; Stabler 1999:3).

Fort Hood is drained by three major tributaries: the Leon River in the north, Cowhouse Creek, through the center of the fort, and the Lampasas River in the south (Figure 5). The Leon and Lampasas Rivers flow into Little River, a tributary of the Brazos River. Major tributaries on Fort Hood flowing into the Leon River include Cowhouse Creek, Henson Creek, Owl Creek, Shoal Creek, and North Nolan Creek. Minor tributaries flowing into Cowhouse Creek include Cottonwood Creek, Henson Creek, Oak Branch, Riggs Run, Stampede Creek, Stephenson Branch, Table Rock Creek, Taylors Branch, and Wolf Creek. Reeses Creek drains the southern portion of Fort Hood into the Lampasas River. These waterways never served as transportation routes, as they are too shallow to accommodate large watercraft. Numerous springs occur throughout the Fort Hood lands and were more common in the past. Historic farming occurred primarily in the lowland valleys adjacent to these drainages. Topography, soils, and landforms largely determined where agriculture and ranching flourished (Ellis et al. 1994:17; Stabler 1999:3-6).

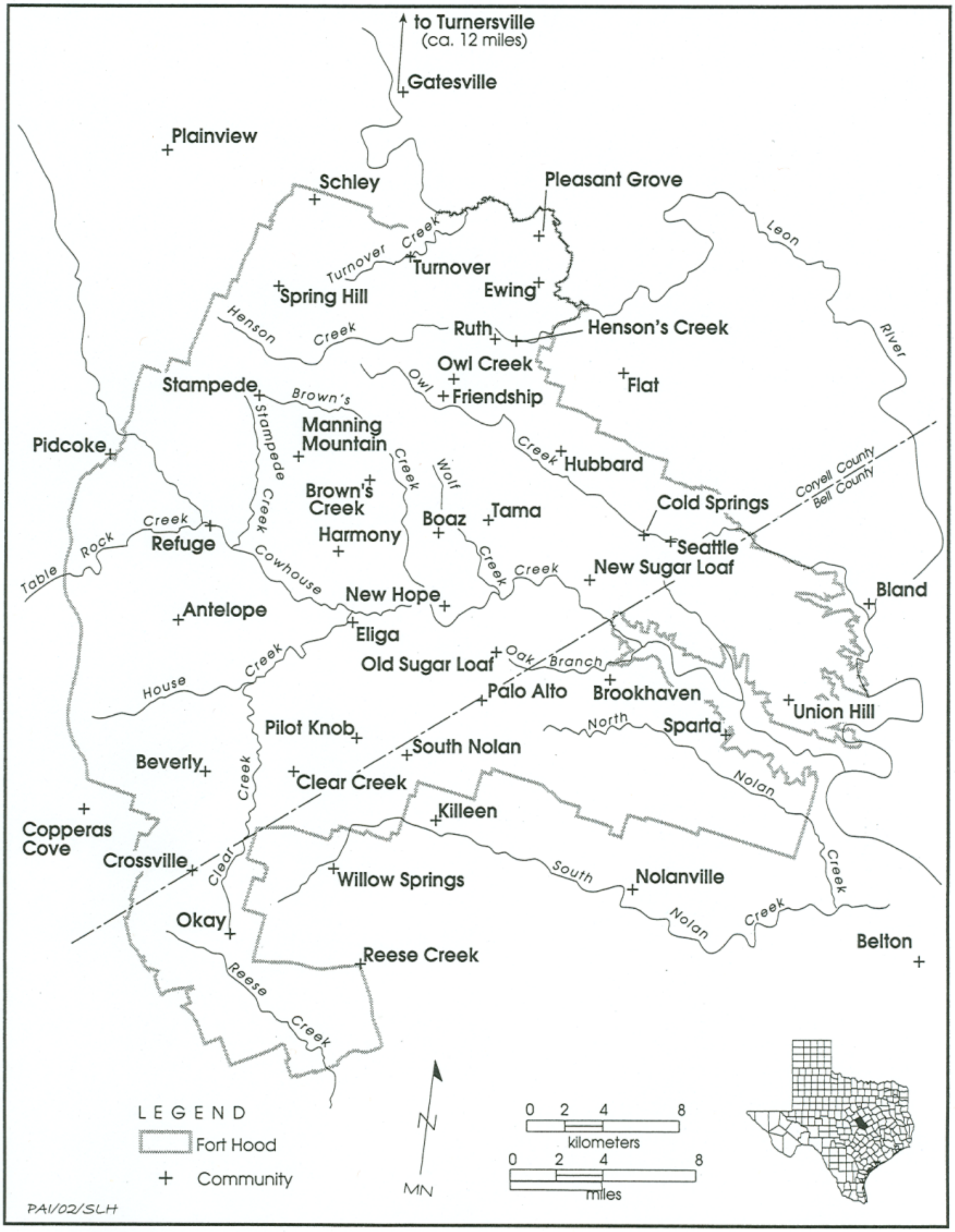

Figure 5: Major drainages and communities on Fort Hood. Source: Dase et al. 2003:6

Fort Hood lies between two vegetation zones with eastern elements characteristic of the Blackland Prairie and western elements of the Edwards Plateau (Figure 6). Eastern portions of the Fort today contain dense oak and juniper forest and scrub. Uplands of the western and southern areas are characterized by an open savannah and forest environment with scattered stands of trees. Major drainages are lined with hardwood trees (Carlson et al. 1994:7-8; Espey Houston and Associates 1979; Stabler 1999:6).

Cotton and Corn Production in Bell and Coryell Counties

The climate, soils, and topography of an area limit what can be grown. Thus, Fort Hood with its rolling topography and areas of flat grassy plains was particularly well suited to a diversified form of agriculture. Cotton, the cash crop, could only successfully be grown in the fertile soils along drainages, while the grasslands and scrub-covered uplands favored cattle, sheep, and goat ranching (Table 2). World markets influenced which cash crops were grown and which livestock were raised. This, in turn, determined how the land was utilized and how it was shaped by American capitalist beliefs.

Table 2: Agricultural products - State of Texas, Bell County, and Coryell County (compiled from Bureau of Census statistics).
*** = no data**

Agricultural Products	1910	1920	1925	1930	1940
TEXAS					
Cotton – Acres	9.930, 179	11,522,537	16,658,356	16,813,568	8,105,711
Cotton – Bales (approx. 500 lbs.)	2,455,174	2,971,757	4,856,142	3,793,392	2,724,442 (Square = 1,500 lbs. seed cotton)
BELL COUNTY					
Cotton – Acres	190,217	172,829	226,157	228,871	107,386
Cotton – Bales	58,050	49,112	73,202	57,574	30,435 (Square)
CORYELL CO.					
Cotton – Acres	114,751	78,338	135,399	109,846	25,019
Cotton – Bales	17,985	28,852	35,438	24,369	5,831 (Square)
TEXAS					
Corn – Acres	5,130,052	4,748,655	3,686,581	4,250,747	4,700,475
Corn – Bushels	75,498,695	108,377,282	54,143,427	66,251,026	40,309,001
BELL COUNTY					
Corn – Acres	78,176	57,783	57,355	67,073	68,459
Corn – Bushels	1,153,364	2,228,993	1,267,610	1,492,221	1,071,322
CORYELL CO.					
Corn – Acres	55,617	36,508	37,889	40,842	48,939
Corn – Bushels	410,767	1,200,453	698,767	916,766	966,159

Agricultural Products	1910	1920	1925	1930	1940
TEXAS					
Oats – Acres	440,001	1,862,933	1,212,817	1,148,110	1,270,741
Oats – Bushels	7,034,617	63,989,423	36,052,273	27,260,261	32,306,788
BELL COUNTY					
Oats – Acres	20,548	54,370	27,923	36,356	29,160
Oats – Bushels	444,454	2,466,778	886,899	890,471	865,793
CORYELL CO.					
Oats – Acres	17,984	43,179	39,101	56,189	39,302
Oats – Bushels	178,050	1,513,018	1,284,215	1,503,150	932,381
TEXAS					
Wheat – Acres	326,176	2,414,903	1,311,776	2,969,511	2,744,064
Wheat – Bushels	2,560,891	36,427,255	20,881,516	44,077,764	28,096,367
BELL COUNTY					
Wheat – Acres	1,507	33,789	1,333	1,333	3,927
Wheat – Bushels	14,722	582,229	35,413	33,789	58,429
CORYELL CO.					
Wheat – Acres	5,290	44,847	3,571	11,534	4,351
Wheat – Bushels	35,661	811,555	63,735	139,970	65,459
TEXAS					
Kafir Corn and Milo Maize - Acres	573,384	1,482,663	1,199,734	1,700,692	5,463,555
Kafir Corn and Milo Maize – Bushels	5,860,444	36,456,343	23,107,075	23,797,270	44,314,753
BELL COUNTY					
Kafir Corn and Milo Maize - Acres	11	507	445	3,544	28,936
Kafir Corn and Milo Maize – Bushels	135	15,551	11,421	73,751	351,097
CORYELL CO.					
Kafir Corn and Milo Maize - Acres	33	570	1,481	2,514	11,873
Kafir Corn and Milo Maize – Bushels	450	11,079	33,121	41,441	99,492
TEXAS					
Cane Sorghum – Acres	55,027	35,589	*	5,144	*
Cane Sorghum – Tons	101,691	122,170	*	*	*
Syrup Made – Gallons	448,185	1,689,205	*	244,386	*
BELL COUNTY					
Cane Sorghum – Acres	478	357	*	10	*
Cane Sorghum – Tons	639	1,180	*	*	*
Syrup Made – Gallons	772	16,934	*	418	*
CORYELL CO.					
Cane Sorghum – Acres	803	354	*	14	*
Cane Sorghum – Tons	787	1,437	*	*	*

Agricultural Products	1910	1920	1925	1930	1940
Syrup Made – Gallons	144	15,846	*	632	*

The agricultural history which follows presents the major developments over the period of Anglo-American occupation of the study area to provide background on the factors that shaped the cultural landscape during the historical period and the practices that caused erosion and soil fertility problems. Various aspects of cotton and corn production and the technology developed to aid in that production are detailed to illustrate how this type of agriculture affected the natural environment of the study area and the people who inhabited it. National and international events that affected corn and cotton production are highlighted to illustrate why certain crops were favored over others and why certain cultivation techniques were utilized on Central Texas farms.

What later became Bell and Coryell counties was a land sparsely populated by Spanish and Anglo-American settlers in the 1830s and 1840s. Those settlers who migrated to the area during this period came primarily from the lower South and brought with them cotton cultivation and slavery. They began locating their rectangular and square land surveys along the fertile river and stream bottoms. Texas' climate and topography is ideally suited to the cultivation of cotton, with its mild climate, large flat expanses, and rolling hills. After Texas gained independence from Mexico in 1836, it had no industry. Cotton became the major cash crop and was used to barter for manufactured goods produced in the United States (Fehrenbach 1968:248-250).

In 1845, the United States annexed Texas, precipitating the Mexican-American War from 1846 to 1848. Under the peace treaty signed with Mexico in 1848, the United States government made provisions for the protection of inhabitants of Texas from Native

American incursions and also for the protection of overland trails leading to the California gold fields. The initial solution was to establish a line of forts along what was then the edge of Anglo-American settlement, stretching from Fort Worth in the north to Fort Inge in the south (Figure 7) (DMN October 8, 1933).

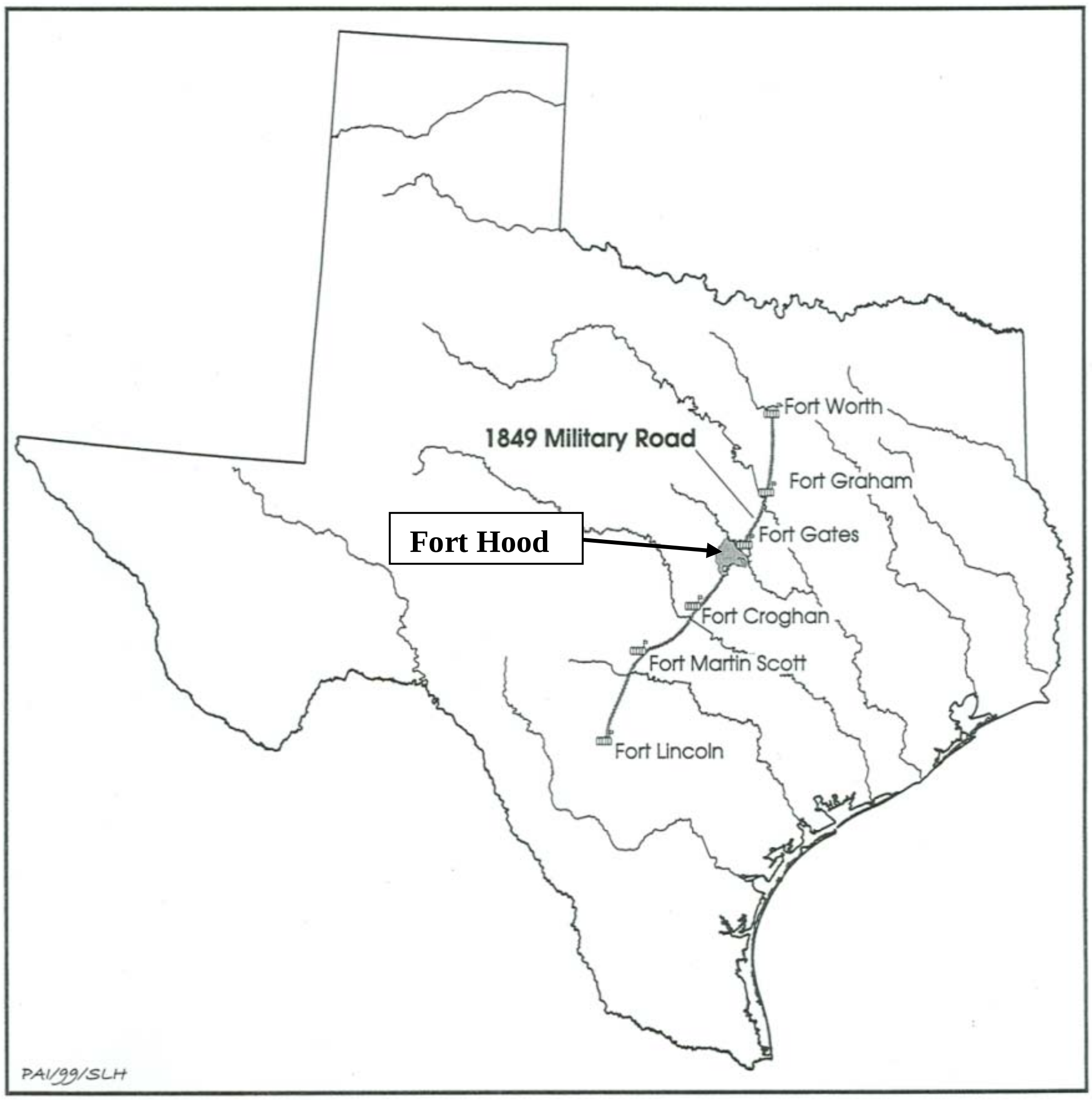

Figure 6: Military road from Fort Lincoln to Fort Worth. Source: Freeman et al. 2001:74.

Settlement in what would become Coryell County was encouraged by the establishment of Fort Gates, about 5 miles east of Gatesville, in October 1849. More settlers began to enter this territory, showing confidence in the ability of the U.S. Army to provide protection from Indian raids. Some families living close to the fort profited from provisioning the establishment with corn and beef. A military road was built by the Army from Fort Inge to Fort Worth to facilitate the movement of troops and provisions (Freeman, et al. 2001:9; Scott 1965:50; Stabler 1999:12; Stephens and Holmes 1989:35).

Settlers from southern states began flocking to Texas over land routes, while immigrants of German and Slavic origins entered through the Gulf ports and spread into Central Texas along the Colorado and Brazos rivers. Settlers in what would later become Bell and Coryell counties engaged primarily in stock raising, with cattle, horses, and hogs running free on the range. Blackland Prairie land, which would later become the most productive cotton land in the state, was avoided because the new settlers did not realize it would be productive. Bottomlands along rivers and streams were cleared for planting of subsistence crops. Wheat, not cotton, was the staple crop, and was supplemented with corn. At this time there was no easy way to transport cotton to larger markets, so it was not profitable to grow (Freeman, et al. 2001:9; Scott 1965:50; Stabler 1999:12; Stephens and Holmes 1989:35).

Bell County was carved out of Milam County on January 22, 1850, by an act of the Texas Legislature; its new county seat was named Nolanville. It was renamed Belton on December 16, 1851. On March 15, 1854, the Texas Legislature approved the creation of Coryell County, containing about 640,531 acres out of the northern portion of Bell County. Initially, the county seat was located at Fort Gates, but was moved to its present location at Gatesville on May 27, 1854. Wheat and corn remained the primary crops. Since transportation networks were poor, most crops were used for home consumption, while surpluses were transported by ox-cart to Houston on overland trips from two to three months in length, often over muddy unimproved roads (Freeman et al. 2001:9-10; Scott 1965:56; Stabler 1999:14; Tyler 1936:107, 114, 168-171).

After the Civil War agriculture expanded, with wheat and corn still the primary crops. Although still not the major cash crop, cotton was spreading to marginal lands. Grist and flour mills were established along some of the major waterways to further process wheat and corn, and cotton gins processed the increasing cotton crops (Freeman et al. 2001: 24-26).

Farmers' cooperative organizations began to develop – the most prominent of which in Bell and Coryell counties were the Patrons of Husbandry (i.e., the Grange) and Farmers' Alliance. The Grange movement emphasized farm self-sufficiency, economy in farm management, and thriftiness. Cooperation was also encouraged in marketing, manufacturing, and purchasing. Cooperative stores were set up in communities and general merchandise from wholesale branches owned by the organization was sold to members, whose farm products in turn were sold by the cooperative. However, the Grange did not address the problem of overproduction, which was the demise of many farms (Freeman et al. 2001:27).

Bell County began improving its road system in the 1870s by constructing iron truss bridges over the major rivers and by designating first class roads. Taxes were levied for road improvement. Roads were maintained by landowners living along them and their work was supervised by an overseer. In 1878, Bell County was tied into the telegraph network by connecting a line between Belton and Round Rock. The line was extended to Lampasas in 1879 with offices in Palo Alto (inside of what is now Ft. Hood) and

Lampasas. This line was extended to Gatesville in 1880. The Southwestern Telephone and Telegraph Company connected Temple and Belton with other Texas towns by 1884. The development of roads enabled residents in Central Texas to transport their products more easily to centralized markets, while the telegraph connected them more readily to distant places (Stabler 1999:16; Tyler 1936:268, 305-311).

Railroads first reached Bell County in 1880 with the completion of a line of the Gulf, Colorado, and Santa Fe Railroad from Galveston on the coast to Temple. This line was later extended to Ft. Worth and Lampasas and other western counties in 1881, with many new towns, such as Killeen, sprouting up along the line. A second railroad line, the Missouri, Kansas, and Texas Railroad, popularly known as the Katy line, reached Bell County in 1881. A third railroad, the Texas and St. Louis Railroad, was built to connect the Mississippi River to the Rio Grande from Cairo, Illinois, to Laredo, Texas, and reached Gatesville in 1882. This line was bought by the St. Louis Southwestern Railway Company of Texas in 1891 and primarily served the cotton producing areas of Texas. Railroads provided cheap transportation for farmers sending their surplus products to distant markets, allowing them to avoid the two to three month trip over muddy dirt roads to Houston. They also connected large cities, such as Dallas, Galveston and Houston, and connected the state with Kansas City, St. Louis, Chicago, Memphis, and Shreveport (Buenger 2001:40-42; Freeman et al. 2001:27-30; Scott 1965:130-131; Stabler 1999:17; Tyler 1936:313-319).

Changing markets and technological advances spurred alterations in the Bell and Coryell county landscape during the 1880s. Railroads brought in large numbers of new immigrants to Texas, largely from the Deep South, some of whom served as tenants for larger farmers. Flour from northern mills was cheaply transported to the region and sold at low prices. Low flour prices discouraged farmers in Bell and Coryell counties from growing their own wheat and milling it at local establishments. During the 1880s, many farmers ceased growing wheat in favor of cotton, which would attract a higher price and was now cheaper to transport to larger markets (Freeman et al. 2001:27-30; Stabler 1999:17; Tyler 1936:295, 297, 318).

New farming technology was, in turn, brought to Central Texas over the railroads. Barbed wire, invented in the 1880s, became widely available and was used in the stock raising areas of Bell and Coryell counties. With the introduction of barbed wire, fences were built to keep livestock contained, replacing the rock and brush fences built to keep livestock out of agricultural fields. Better plows and farming equipment made it possible to more easily plow up grass lands, converting them into agricultural fields. Well-drilling equipment expanded the limits of agriculture by making irrigation water available to areas distant from streams and other sources of surface water. This technology became widely used by the late 1880s. An explosion of new farming implements produced in northern factories occurred in the 1880s and this technology was made readily available to rural farmers and stock raisers via the railroad. With the improvement of technology and a means to transport the product to urban markets, cotton production expanded in the 1880s and 1890s (Freeman et al. 2001:27-30; Stabler 1999:17; Tyler 1936:295, 297, 318).

Cotton is a soil depleting crop, meaning that it leaches certain nutrients from the soil without returning them. If continuously planted in the same field over a long period of time without replacing the lost nutrients, cotton can cause the loss of soil fertility.

Weeds have to be removed between the cotton plants to ensure that the cotton receives the most nutrients from the soil. Likewise, a sufficient amount of space has to be left between the plants for the cotton bolls to fully develop. This exposes more of the ground surface to the elements and wind and soil erosion can occur. Therefore, the increased reliance on cotton as a cash crop on Central Texas farms increased the rate of soil erosion and nutrient loss in the soil. Without a system of crop rotation, where nutrients are returned to the soil by planting crops such as legumes, cotton quickly exhausted the region's soils.

During the late 19th century, capitalism transformed Central Texas' rural landscape from open range and fields producing subsistence crops, to an enclosed landscape worked increasingly by tenant farmers to produce as much profit as possible from the land. Increased cotton production accelerated the spread of tenant farming and emphasized commercial rather than subsistence crops (Freeman et al. 2001: 30-33). From the end of the Civil War to the 1890s, there was a shift in Bell and Coryell counties from subsistence crops to cash crops, such as cotton and wheat. At the same time, cattle and horses, while still important, began to take a back seat to sheep (Freeman et al. 2001: 34-35).

In 1893, a small depression enveloped the country, agricultural prices fell, credit was only available at exorbitant interest rates, and cash was scarce. Real estate transactions slowed during the 1890s on the Fort Hood lands. Adding to the misery was a drought in 1893. This depression continued through the late 1890s. Many farms were lost through foreclosure and tenant farming became even more prevalent. During and after the 1890s depression, the tenancy rate rose significantly. As noted in Chapter 1, tenancy was not conducive to good farm management because tenants had little incentive to make improvements to someone else's farm when they would not be compensated for those improvements (Freeman et al. 2001:49-51; Stabler 1999:17; Tyler 1936:329).

Plentiful rains in 1900 lifted Bell and Coryell counties out of the depression by producing high crop yields. However, a new menace arrived in 1902 in the form of the boll weevil, which destroyed the 1904 and 1905 cotton crops and affected every crop afterwards through 1909. Agriculture gained in importance after 1900 with stock-raising becoming a secondary activity. Coryell County did not contain much of the Blackland Prairie soils that produced large cotton crops in other parts of Texas, so wheat remained an important crop there, along with corn, sorghum, cane, kaffir corn, oats, and milo maize, grown as feed. Boll weevil infestation and continuous drought in the early 20th century encouraged Bell and Coryell county farmers to rely more on diversified farming instead of gambling on a single cash crop (Freeman et al. 2001:49-51).

During the early 20th century, new transportation advances connected Bell and Coryell counties with larger areas and provided swifter delivery of farm products to local, national, and world markets (Tables 3 and 4). Automobiles became more numerous in the early part of the 20th century, prompting Bell and Coryell county officials to improve road surfaces. Many roads were graveled, steel bridges were placed over major streams, and concrete culverts and spillways were built across minor streams. Motor-driven tractors also began to be utilized during this period, allowing farmers to plow larger plots of land in a shorter amount of time. Construction of a new railroad line by the Stephenville North and South Texas Railway in 1911 from Hamilton to Gatesville also opened new markets for Coryell County farmers (Freeman et al. 2001:51; Scott 1965:172; Stabler 1999:19-20; Tyler 1936:346-347).

Table 3: Production and consumption of cotton in the United States.

YEAR	COTTON PRODUCED (Bales)	COTTON CONSUMED (Bales)
1850	2,469,093	575,506
1860	5,387,052	845,410
1870	3,011,996	796,616
1880	5,755,359	1,570,344
1890	7,472,511	2,518,409
1900	9,393,242	3,873,165
1905	13,451,337	4,278,980
1906	10,495,105	4,909,279
1907	12,983,201	4,984,936
1908	11,057,822	4,539,090
1909	13,086,005	5,240,719
1910	10,072,731	4,621,742
1911	11,568,334	4,498,417
1912	15,553,073	5,129,346
1913	13,488,539	5,483,321
1914	13,982,811	5,577,408
1915	15,905,840	5,597,362
1916	11,068,173	6,397,613
1917	11,363,915	6,788,505
1918	11,248,242	6,566,489
1919	11,906,480	5,765,936
1920	11,325,532	6,419,734
1921	13,270,970	4,892,672
1922	7,977,778	5,909,820
1923	9,729,306	6,666,092
1924	10,170,694	5,680,554
1925	13,639,399	6,193,417
1926	16,122,516	6,455,852
1927	17,755,070	7,189,585
1928	12,783,112	6,834,063
1929	14,296,549	7,091,065
1930	14,547,791	6,105,840
1931	13,755,518	5,262,974
1932	16,628,874	4,866,016
1933	12,709,647	6,137,395
1934	12,664,019	5,700,253
1935	9,472,022	5,360,867
1936	10,420,346	6,351,160
1937	12,141,376	7,950,079
1938	18,252,075	5,747,978
1939	11,623,221	6,858,426
1940	11,481,300	7,783,774
1941	12,297,970	9,721,703
1942	10,494,881	11,170,106

Table 4: Cotton exports from the United States (each bale is approximately 500 pounds; Tables 3 and 4 compiled from Cotton Production and Distribution. Department of Commerce, Bureau of the Census, Bulletins 140-179, Seasons of 1918-1942).
*** = no data**

Year	Total	United Kingdom	Germany	France	Italy	Spain	Belgium	Russia	Austria-Hungary	Netherlands	All Other Europe	Japan	Canada	Mexico	All Other Countries
1900	6,201,166	2,302,128	1,619,173	736,092	443,951	246,612	148,319	54,950	44,919	74,635	63,635	323,202	109,983	18,522	13,045
1901	6,661,781	3,106,857	1,629,935	754,329	365,359	237,346	154,682	53,171	37,238	53,180	52,325	78,558	102,980	35,103	718
1902	7,001,558	3,132,324	1,705,815	775,773	445,437	270,602	132,232	73,446	39,757	22,418	61,679	178,505	129,016	27,500	7,054
1903	7,086,086	2,799,096	1,915,094	806,673	444,950	266,336	157,351	181,938	39,912	42,542	82,243	152,826	127,640	66,507	2,978
1904	6,126,386	2,475,752	1,797,354	734,286	363,295	184,862	105,213	168,506	28,158	16,055	61,488	45,870	88,795	56,172	580
1905	8,609,698	3,967,254	2,011,679	818,304	534,735	295,537	145,564	129,060	62,572	31,163	72,911	336,575	115,857	79,082	9,405
1906	7,268,090	3,181,143	1,871,441	817,583	486,607	241,747	114,673	112,480	56,375	18,490	44,486	147,269	141,908	29,285	4,603
1907	9,036,434	3,966,119	2,315,651	1,006,633	567,916	275,868	154,168	121,141	113,630	29,092	65,083	262,283	150,343	732	7,775
1908	7,633,997	2,956,352	2,385,663	889,083	418,921	262,744	119,470	98,371	90,049	27,684	62,125	200,396	113,997	4,767	4,375
1909	8,895,970	3,665,355	2,438,090	1,098,173	565,695	301,789	157,631	96,675	94,782	30,129	58,174	208,943	131,453	42,575	6,506
1910	6,413,416	2,444,558	1,887,657	968,422	393,327	178,455	102,346	67,203	57,220	18,823	43,378	95,000	125,592	29,604	1,831
1911	8,067,882	3,461,054	2,202,707	1,021,998	436,296	242,073	150,225	84,941	79,530	18,124	48,713	156,724	156,824	4,631	4,042
1912	11,070,251	4,343,108	3,156,171	1,228,294	636,077	313,500	211,903	112,262	125,564	35,242	83,821	480,934	181,667	16,129	145,579
1913	9,124,591	3,716,898	2,443,886	1,074,987	500,823	317,954	226,967	74,907	113,182	14,537	55,376	396,779	152,015	20,977	15,303
1914	9,521,881	3,581,501	2,884,324	1.139.399	537,357	297,339	227,474	99,076	106,511	35,053	63,725	353,440	150,993	35,671	11,018
1915	8,807,157	3,919,749	294,194	692,699	1,127,400	464,504	5,057	82,125	455	544,035	898,096	428,806	182,790	39,727	127,520
1916	6,168,140	2,760,890	0	890,376	836,915	340,246	0	173,449	0	102,087	169,154	503,077	197,659	23,695	170,592
1917	6,176,162	2,895,423	0	1,055,749	687,158	394,093	0	49,189	0	62,161	184,717	530,892	187,201	5,298	124,281
1918	4,641,023	2,387,101	0	658,553	369,213	259,194	0	15,945	0	10,098	82,572	583,546	249,973	10,706	14,122
1919	5,525,893	2,494,009	0	773,744	557,549	281,343	72,652	310	55,386	57,949	203,949	809,313	203,015	1,707	14,967
1920	7,087,487	3,444,794	420,758	596,391	617,263	275,034	209,572	0	42,858	186,476	183,729	876,250	216,606	1,141	16,615
1921	5,744,698	1,746,945	1,280,278	603,334	508,154	254,088	162,390	0	5,862	98,754	155,056	637,455	146,921	70,602	53,384
1922	6,184,094	1,766,362	1,344,032	760,697	509,713	308,080	170,247	0	4,008	96,203	135,614	817,830	185,607	6,195	139,325
1923	4,822,589	1,285,068	920,911	634,417	496,714	218,020	167,686	7,247	2,958	75,618	167,646	635,605	194,492	15,492	27,331
1924	5,655,856	1,704,020	1,189,965	703,854	545,596	203,658	154,125	120,318	2,144	112,456	153,233	543,889	145,492	1,082	32,965
1925	8,005,228	2,527,066	1,733,816	887,780	726,309	271,073	207,949	286,367	571	151,285	157,430	862,057	197,798	81	50,527
1926	8,051,491	2,257,209	1,641,844	902,616	745,261	305,709	200,452	235,775	618	125,891	155,250	1,124,834	240,909	568	126,668
1927	10,926,614	2,530,245	2,737,959	999,335	779,014	340,672	273,506	*	*	*	806,801	1,615,755	259,774	*	311,883
1928	7,542,409	1,411,406	1,987,657	865,218	686,801	304,646	201,603	*	*	*	712,211	959,304	223,384	*	71,848
1929	8,043,588	1,830,846	1,796,798	774,574	716,802	273,210	202,113	*	*	*	617,265	1,309,183	254,377	*	31,922
1930	6,689,796	1,256,042	1,687,366	811,520	652,430	260,474	169,733	*	*	*	402,531	1,020,016	181,569	*	22,588
1931	6,759,927	1,053,774	1,639,947	914,223	476,503	250,885	137,899	*	*	*	320,215	1,228,410	189,597	*	119,818
1932	8,707,548	1,344,385	1,570,312	483,092	649,059	305,567	135,870	*	*	*	395,816	2,293,831	186,921	*	250,957
1933	8,419,399	1,491,853	1,848,864	863,832	803,857	312,673	182,612	*	*	*	574,472	1,743,302	176,374	*	121,049
1934	7,534,415	1,278,426	1,318,066	709,024	649,041	275,406	121,339	*	*	*	635,250	1,845,601	269,537	*	57,406
1935	4,798,539	738,154	341,850	372,656	474,106	240,235	97,194	*	*	*	601,754	1,524,395	225,499	*	74,613

Year	Total	United Kingdom	Germany	France	Italy	Spain	Belgium	Russia	Austria-Hungary	Netherlands	All Other Europe	Japan	Canada	Mexico	All Other Countries
1936	5,972,566	1,409,547	765,485	680,927	379,896	207,114	157,236	*	*	*	559,237	1,479,167	248,288	*	49,217
1937	5,440,044	1,144,362	649,647	655,248	397,636	279	153,959	*	*	*	508,443	1,550,499	306,640	*	59,374
1938	5,598,415	1,551,843	653,945	715,850	505,379	1,260	189,524	*	*	*	746,592	690,513	245,955	*	274,768
1939	3,326,840	401,370	321,335	338,023	275,943	16,755	88,260	*	*	*	616,305	864,278	229,048	*	89,694
1940	6,191,712	1,904,877	18,992	724,025	542,400	270,459	199,899	*	*	*	582,347	914,254	412,424	*	214,011

Farm prices declined at the outbreak of World War I in 1914 with cotton dropping to five cents a pound (Table 5). Food shortages in Europe brought on by the conflict prompted those countries to import foodstuffs from the United States. In response, farm prices rose for a short time in 1915 and 1916, stabilizing the American economy. Cotton prices rose to 28 cents per pound in 1917. As a result, farmers in Texas began to clear all available land to plant more and more cotton. Forty million acres of previously unplowed land across the United States were put into cultivation, thirty million acres in the Great Plains alone. Farmers also reallocated how they used land already in cultivation, leading to poor farming practices, such as converting grazing or fallow land to grain production. Across the region, grazing lands were overgrazed and corn, wheat, and cotton were overproduced (Buenger 2001:63-64; Saloutos 1982:3-5; Sitton and Utley 1997:56; Stabler 1999:20; Tyler 1936:368-377).

Table 5: Average price obtained by producers for cotton and cotton seed in Texas.

YEAR	LINT COTTON (cents per pound)	COTTON SEED (cents per ton)
1914	7.22	15.36
1915	11.02	29.30
1916	16.63	45.80
1917	26.00	64.24
1918	29.48	62.28
1919	34.40	59.93
1920	17.31	21.38
1921	16.76	28.05
1922	21.90	31.66
1923	27.77	39.15
1924	22.98	32.03
1925	20.33	31.97
1926	12.72	20.56
1927	20.11	34.18
1928	17.64	33.40
1929	16.89	31.70
1930	9.61	22.69
1931	5.57	9.45
1932	6.23	9.06
1933	9.86	13.77
1934	12.51	35.31

YEAR	LINT COTTON (cents per pound)	COTTON SEED (cents per ton)
1935	10.99	31.03
1936	11.83	30.60
1937	8.44	20.03
1938	8.23	20.96
1939	8.72	20.19
1940	9.97	21.95
1941	16.22	47.20

The collapse of Russia after 1917 and other factors resulting from World War I forced European countries to rely on the United States for foodstuffs and other raw materials. The post-war boom encouraged American farmers to strive for higher levels of production and in the process they further abandoned good farming practices. Many Bell and Coryell county farmers bought Model T cars and built new farm houses with the profits made from their cotton crops during this period. New farming implements were also purchased with the huge cotton profits of the early 20th century. Mules and horses were still used to operate new farm machinery that included riding planters and cultivators. Some farm machinery was developed that could be pulled by four mules and would cover two rows. Another depression loomed on the horizon after a drought in Central Texas caused major crop failures (Buenger 2001:63-64; Saloutos 1982:3-5; Sitton and Utley 1997:56; Stabler 1999:20; Tyler 1936:368-377).

Prices began to fall once again in 1920 and by 1929, a depression ensued (Norwood 1940:56). As prices declined in 1920, many farmers went bankrupt. Small farmers suffered the most because they had expanded their operations to such an extent that it was difficult to readjust their operations to the smaller markets. Many farmers also continued to plant too much of their cash crops and overproduction also drove prices down (Saloutos 1982:5).

By the 1930s cotton was the leading crop of Texas, and forty percent of the cotton produced in the United States was grown in the state. Texas also produced twenty-five percent of the world's cotton (Table 2). The amount of cotton actually used in mills in Texas, however, amounted to only about four to five percent of the total crop, while about seventy to ninety percent of Texas' cotton crop was shipped to foreign countries (Texas Planning Board Vol. III 1936).

Staple length and overall cotton quality were examined by the cotton buyer before a price was offered for the bale. Buyers included local men with connections to larger handlers, along with traveling representatives of cotton purchasing and shipping businesses. Cotton trading in Texas was dominated in the 1930s by Anderson, Clayton and Company, a Houston-based organization. This company alone shipped over one million bales of Texas cotton, close to ninety percent of the total production, to American and European mills annually. By the 1920s, Anderson, Clayton and Company had established trading firms in Europe, Egypt, India, and China (Volanto 2005:11).

Cotton is a cheap raw material that can be produced in large volumes and is used for a wide variety of purposes worldwide. During the 1930s, most of the cotton grown around the world was exported and the chief importers included France, Great Britain, Germany, Italy, and Japan. India, Egypt, and the United States were among the major cotton exporters. Great Britain's most valuable export was finished cotton goods and cotton exports in Japan were second only to silk. Demand for American cotton grew steadily until about 1934, when importers began to turn to other countries for their supplies. About this time, other countries were improving the quality of their cotton to the point that they could successfully compete with American varieties. Other countries also encouraged consumption of their own cotton both at home and abroad (Thadani 1939:9-19).

Following World War I, many European nations aimed to become self-sufficient states by practicing economic nationalism. Europe had been the largest consumer of American raw and finished products; however, following the first World War, most European countries sought to produce as much of their essential needs as possible. Following World War I, acquisition of modern technology by other countries around the world allowed them to manufacture their own commodities and rely less on the United States for raw materials and finished products (Schoffelmayer 1935:1-6).

From the 1880s to the 1930s, Texas was the leading producer of raw materials in the United States, ranking first in the production of cotton, cattle and hides, sheep and wool, Angora goats and mohair, and other farm products. Although Texas dominated the production of cotton from the 1880s, there was never a capacity in the state to consume a significant portion of the annual crop. From 1923 to 1932, Texas produced an average of 4,633,000 bales of cotton, of which 90 to 95 percent was sold to foreign markets, chiefly Europe (Schoffelmayer 1935:8-10).

Most of Texas' cotton was transported by railroad to the Gulf ports for export. Overseas markets began to decline in the 1930s due to retaliatory restrictions placed on American products in reaction to high tariffs imposed by the United States.

European countries entered into reciprocal trade agreements with neighboring countries to exchange needed commodities. Worldwide cotton production began to expand in the 1930s, and foreign countries were able to produce similar quality cotton to the United States and had the ability to sell it at lower prices. Cotton acreage was also being reduced in the United States in the 1930s through the New Deal farm programs (Schoffelmayer 1935:11-13).

For many years the United States produced from one-third to two-thirds of the world's cotton, virtually holding a monopoly. By the late 1930s, India, China, Brazil, Russia, and Egypt were the leading cotton producers outside of the United States, and exports from the United States declined dramatically. Great Britain began to import more cotton from India and Anglo Egyptian Sudan, while Germany replaced American imports with cotton from South America. Japan turned to India, Egypt, and South America to replace imports from the United States. France and Italy decreased their imports of American cotton, but did not import much additional cotton from other countries (Kyle and Alexander 1940:91-98, 119-120).

North Central Texas counties with blackland soil were the highest producers of cotton in Texas. Most cotton in the state was grown along river bottoms and on rolling terrain, the latter necessitating the use of terracing to hold the soil and water on the sloping hillsides. Cotton was usually sold to the ginner, along with any excess seed not needed for the next season's planting. Cottonseed was converted in mills to cottonseed oil, used in shortening and salad oil. Cottonseed was also used as feed for cattle. Bales were compressed in the major ports for shipment overseas and then weighed, graded, and stapled (Anderson, Clayton & Company 1937).

Cotton farms across the country had the highest rate of tenancy. The 1930 census indicates that 73 percent of cotton farms were tenant-operated, whereas 32 percent of all other farms were operated by tenants. Tenancy increased as agriculture in the United States became more commercialized, and was especially prevalent in the South. A common problem was that share croppers and other types of tenants were not compensated by the landlord for improvements they made to a farm. This discouraged tenants from maintaining buildings and soil fertility. Over one-third of all tenant farmers moved every year and few stayed on a farm long enough to institute a five-year crop rotation. Most tenant farmers operated under verbal agreements and few had written leases. Such conditions did not encourage tenant farmers to conserve the soil, repair buildings, or plant cover crops. Instead, many tenants often exploited the soil for an immediate return (McGowen 1940:30-33).

In 1930, most of the cash crop farms in Texas were operated by tenants, whereas diversified and self-sufficient farms were operated by full owners. The large cotton producing areas in the Blacklands and Fort Worth Prairie areas contained the highest number of tenants in Texas. After 1930, the percentage of owner-operated farms began to rise. Between 1930 and 1935, under the government crop reduction program, the amount of cropland harvested dropped by five million acres. Cotton and wheat were the major crops targeted for reduction, placing the heaviest burden on tenant farmers. The tenancy rate was reduced from 60.9 percent in 1930 to 57.1 percent in 1935 as the result of the restriction of production under the Agricultural Adjustment Act, mechanization, and other factors (Norwood 1940:72-73).

While cotton was the most important cash crop in Texas, other crops, such as corn, oats, wheat and sorghum were consumed primarily on the farm or within the local community. By 1940, corn was grown in every state in the country, with three-quarters of American farms growing the crop. The United States produced three-quarters of the world's corn crop at the end of the 1930s. Corn was second only to cotton in southern states and most farms planted at least 15 acres. Most corn produced on American farms was used on the farm as feed or for home consumption. Corn was very important in southern diets in the form of meal, hominy, or grits and indirectly as pork. Corn was the most important grain crop in Texas and was produced in large quantities in almost every county, but little was shipped out of state because corn was used primarily as feed for the large herds of cattle. In fact, very little corn was transported outside of the county in which it was grown and even less reached the large markets (Kyle and Alexander 1940:139-141; Texas Planning Board Vol. III 1936). Necessary soil nutrients for successful corn cultivation include potassium, phosphates, and nitrogen. Thus, plants that are ideal for crop rotation with corn include perennial legumes such as alfalfa and red clover, as they have high nitrogen content (The Ontario Corn Producers Association 2009).

Sorghum, a drought resistant and a soil building crop, became an increasingly important crop in the 1930s. This crop was most suited to the Southern Plains and Texas was the largest producer in the 1930s, accounting for about fifty percent of the country's output. Texans commonly planted the sweet and forage sorghums to use as feed for livestock and to produce syrup. Broomcorn, a type of sorghum, was also used in the production of brooms. Sorghums were valuable for fighting cotton root rot, plowed under to replenish the soil, and often used in strip cropping to prevent erosion (Kyle and Alexander 1940:161-190).

The boom in cotton prices following World War I led farmers in Central Texas to attempt to plant every available acre in the crop. Profits from the sale of cotton in the late 1910s and early 1920s allowed many farmers to retire mortgages and purchase their first automobiles. However, many farmers chose to continue to plant cotton in the same fields year after year, exhausting the soil's fertility. Crop rotation, used to rebuild the soil's nutrients, was largely ignored.

The expansion of cotton cultivation also spread tenancy. Absentee owners encouraged their tenants to plant as much of the land in cotton as possible. After numerous seasons of planting nothing but cotton, the land on many tenant farms became exhausted and was unable to produce large crops. Tenants could not produce enough cotton to break even and eventually moved on to other land. Many farmers tended to plow their rows up and down the hills rather than across them with the natural contours because they believed this made their fields appear orderly, causing severe erosion on slopes.

Oral History Data on Farm Crops in Bell and Coryell Counties

Between 1998 and 2001, Prewitt and Associates, Inc. of Austin, Texas collected oral history interviews from 52 former residents of the Fort Hood farms and ranches. The informants, 28 men and 24 women, ranged in age from 67 to 100 at the time they were interviewed and averaged 19 years of age when their farms were taken by the United States government in 1942, 1943, and 1952 for the creation and expansion of Fort Hood. Most of the informants' recollections covered the early- to mid-20th century, but some offered stories passed down by family members of conditions during early settlement in the 19th century. Informants lived in a variety of communities across the Fort. Most of the interviewees were children of farm owners, but some families were renters as well. Experiences varied between owners and renters, with those renting from family members faring better than those renting from absentee landlords. Former residents, although stating that everyone in their communities experienced hardships and helped one another out, also were cognizant of class differences and knew who the well-off and leading farmers were in their communities (Dase et al. 2003:1-3). For additional farm statistics, see Appendix I.

Some of the major crops identified by informants as being grown on the Fort Hood farms during the 1930s and early 1940s included cotton, corn, broomcorn, oats, maize, Sudan grass, hay, and cane (Sitton 2003:71). Cotton was the major cash crop and during the 1930s broomcorn became popular as a supplemental cash crop. Most families on Fort Hood were large in order to provide the necessary labor to harvest the cotton crops (Figure 8). All family members helped to plant, chop, cultivate, and pick cotton. Those farmers who did not have enough family labor would hire neighbors and other community members to work in the fields. Many farms were often not large enough to divide between the large number of children after the parents passed away, so several of the younger siblings often had to find rental farms until they had sufficient means to purchase their own (Dase et al. 2003:862-863).

Depending on where the farms were located, cotton was transported to Gatesville, Killeen, Copperas Cove, or Pidcoke to be ginned. There were some cotton gins in the small communities on Fort Hood in the early 20th century, but these had almost disappeared by the 1930s. For example, Pidcoke was not on a rail line and its gin ceased operation in 1938 (Dase et al. 2003:915). Improvement in the roads made

Figure 7: The Colvin Family picking cotton in 1908, Fort Hood Oral History Collection, The Texas Collection, Baylor University, Waco, Texas.

it easier to transport cotton to the larger towns with railheads. Farmers usually sold their cotton bales to the gin because they had nowhere to store the bales on their farms.

Cotton was identified as the major cash crop by most of the informants and several informants reported that their farms would produce between one-third and one-half bale of cotton per acre. Because of a major drought in 1925 and several of the informants stated that their families went to West Texas that year to pick cotton so they would have money with which to operate for the next growing season (Dase at al. 2003:54-55; 358).

John Easley noted that his great uncle Millard Powell planted cotton right up to his house and on every available space (Dase et al. 2003:532). Increasing the area of cotton cultivation exposed more of the soil to wind and water erosion. This was a common practice on tenant farms, where as much of the cash crop was grown as possible, but bad farming practices were also evident on owner-occupied farms. Frankie Juanita Wright Trantham noted that her father had two good fields but later put one on a hill that did not do well (Dase et al. 2003: 1083). Soils on slopes did not contain as many nutrients as bottom lands and were more susceptible to erosion. Kyle Hilliard, whose father was a tenant farmer, noted that none of the farmers used fertilizer, did not rotate their crops, and eventually wore out the land by growing cotton (Dase et al. 2003: 873). Cotton was grown primarily along the stream and creek bottoms, where the rich black soils were prevalent, but was expanded to more rolling terrain after World War I, when cotton prices were high. Without crop rotation, continuous cotton cultivation decreased yields because of the removal of necessary nutrients.

Corn was another major crop grown, but was used primarily as feed for livestock and was ground into cornmeal for home consumption. Very little corn from the Fort Hood farms was sold at market. However, H.P. Brookshire, Jr. noted that his father, Tade Brookshire, grew corn for feed and as a cash crop (Dase et al. 2003:195). Corn is also a row crop, thus its cultivation also increases the area of soil that is exposed to erosion. While corn does not deplete the soil of nutrients as quickly as cotton, it is still necessary to use crop rotation to renew the necessary nutrients in the soil.

Broomcorn, a type of sorghum, was grown as a cash crop in the 1930s. After it was cut and dried, it was used to make brooms. John Daniel Wolf, Jr. remarked that his father started to raise broomcorn and promoted it with other farmers. His father would deliver broomcorn to about a half dozen groups around Texas. Broomcorn was well suited to Central Texas and in the 1930s it was in high demand, as everyone used brooms. J.D. Wolf had a baler that would bale the broomcorn into three hundred- to four hundred- pound bales. Bales were then taken to broom factories in Sealy, to the east of Houston, or small factories in Evant and Abilene. J.D. Wolf sold most of his broomcorn to the Seventh Day Adventist School at Keene, Texas, near Cleburne. There was also a blind man who lived with the Wolf family who made brooms (Dase et al. 2003:1180-1182). Broomcorn required adequate nitrogen, phosphates, and potash for growth and development.

Cane sorghum was grown for syrup and livestock feed, and there were numerous syrup mills in the many small communities dotting Fort Hood. Owners of the syrup mills would retain a certain amount of the syrup in return for use of the mill. Mill stones were turned by a mule walking in a circle. Syrup from the crushed cane would run down channels to a vat, where it was cooked and thickened. Syrup was often used as a substitute for sugar (Dase et al. 2003:331). Nutrients necessary for the successful production of cane sorghum include lime, phosphorus, potassium, calcium, and magnesium.

In addition to the types of crops grown, Fort Hood informants also elaborated on the various tenure arrangements that were common on the farms in their communities. Sharecropping was the customary form of tenant farming on the Fort

Hood lands and tenants rented based on one-thirds and one-fourths or halves. The owner took one-third of the corn and one-fourth of the cotton or one-half of all crops for rent. Melba Goodwin Bennett noted that when her father rented a farm on the Sadler property in the Stampede community, he rented on thirds and fourths (Dase et al. 2003:66). Frank Black, who lived in the Ewing and Ruth communities, stated that there were some large landowners in Stovall Valley who rented to tenant farmers, operating as sharecroppers (Dase et al. 2003:90). Sharecroppers generally only provided labor and none of the farm machinery or work stock. Margaret Bert Wilhite Bounds recalled that her father rented a farm from D.L. Cummings, who owned large tracts of land in the Sparta community on the eastern side of Fort Hood. Her father would set aside a portion of his corn, cotton, and hay in a different barn for rent (Dase et al. 2003:112).

Rental agreements were often executed verbally and not in written form. Farms were rented from large absentee landowners, who often lived in the larger towns. Some landlords offered fair rental terms, but judging from the descriptions of Fort Hood informants, their families moved often to find better rental terms or more fertile lands.

A farm's productivity often determined how long a family stayed on any one farm. Some families moved every year, as there were rarely written leases to honor. J.M. Carroll's father sharecropped and worked in the oil fields. He recalls that his family moved a lot and he lived in three of the Fort Hood communities, including Killeen, Maple, and Sugar Loaf (Dase et al. 2003:231). Zell Kinsey Copeland's father died when she was five years old, but her mother continued to farm with the help of

Zell's five brothers and one sister. Zell recalled moving many times and that they rented on either halves or thirds and fourths. Her family lived in five of the Fort Hood communities, including Brown's Creek, Friendship, Ewing, Maple, and Owl Creek (Dase et al. 2003:383-423). Tenant farmers had to move often and wandered from community to community seeking the best terms. The fact that tenants moved so often indicates that rental terms were not agreeable or that the lands that were offered for rent were not productive enough to realize a profit.

Livestock Production in Bell and Coryell Counties

Throughout the 1850s, Bell and Coryell counties were primarily stock-raising areas. Large cattle drives followed the trails through Central Texas en route to Louisiana, Missouri, Kansas, and Illinois (Freeman et al. 2001:9-10). During initial settlement from 1850 to 1865, livestock raised on farms and ranches in Coryell County included horses, cattle, oxen, sheep, hogs, and mules. Settlers relying on agriculture occupied the lowlands along drainages and those pursuing ranching utilized the intermediate uplands where grasses were prevalent. Horses and cattle ranged freely over the largely unbounded landscape and natural vegetation, such as bois d'arc trees and brush, and stones were used to fence off agricultural fields from livestock (Freeman et al. 2001:23).

After the Civil War, families fleeing the South began to settle in Central Texas. Cattle production increased on the free range after the Civil War. Since there were no railroads in Central Texas until the 1880s, overland cattle trails were opened to Jefferson, Texas; Shreveport and New Orleans, Louisiana; and Dodge City, Abilene, and Ellsworth, Kansas. The Chisolm Trail, a major cattle trail to Kansas, extended through the eastern part of Bell County, providing a means for ranchers to market their beef. The sheep industry also expanded in Central Texas at this time, spurred by the investment of foreign capital and the imposition of a tariff on wool (Freeman et al. 2001: 24-26).

Several ranches in the southern part of Fort Hood concentrated primarily on sheep. Sheep raisers formed cooperatives to obtain fair prices and to influence legislation. For example, the Woolgrowers' Association was established in the 1880s. Another important farmers' organization was the Farmers' Alliance, initiated in the 1870s. This organization sought to protect ranchers from theft of their livestock, to discourage further settlement, and to form a sense of community among local agriculturalists. Cattlemen organized groups such as the Stock Raisers Association of North West Texas. In the Midwest and Northeast United States, the demand for Texas beef encouraged the expansion of the ranching industry in Texas. Many of the intermediate uplands were being plowed with new machinery, pushing the cattle raisers into marginal uplands and westward (Freeman et al. 2001:27-33).

Cattle ranching was one of the primary occupations in Texas during the early years of settlement. The tall natural grasses that grew in the flat plains in Coryell County were ideal for cattle production. Native vegetation consisted of tall and mid-growing varieties of grasses and herbaceous flowering plants, called forbs. Many of the native grasslands have since deteriorated due to heavy grazing and the tall grasses have been replaced by mid- and short varieties and poor-quality forbs. Grazing of native grasslands is supplemented by grazing of improved pasture lands and cropland. Types of soil limit the varieties of grasses and improved pasture crops that will grow on them. Taller grasses are more palatable to livestock, but can quickly be replaced by shorter, less palatable varieties if overgrazed (McCaleb 1985:35-36).

While Texas was still a Republic in 1842, cattle drives began to New Orleans and interior cities. Cattle were first shipped from Texas in 1848. By 1850, cattle were driven from Texas to California and then to Chicago in 1856. Most Texas cattle were sold on the Plains, although some ended up in California, New Mexico, and Arizona. Shipments of cattle from Texas ports were taken to New Orleans and Cuba. Several packing plants were established in Corpus Christi to ship Texas beef to distant ports. Once the railroads reached Texas in the 1870s and 1880s, cattle were taken by rail to Kansas City, St. Louis, and Chicago. During this period, Texas cattlemen began to learn more about Hereford cattle at state fairs on the Plains; ranchers in Texas established Hereford herds during the 1880s and 1890s (Ashton 1936:7).

As the Northern and Eastern U.S. became increasingly industrialized in the late 19th century, manufacturers turned to Texas and the West for more of their raw materials. Texas was well-suited to cattle production with its large expanses of grassland. Cattle ranching proved to be a lucrative endeavor and large cattle drives of Texas longhorns began in the 1860s up the Chisolm Trail, which ran through Bell County east of Fort Hood to Dodge City and other Plains railheads. Corporations dealing in the cattle business sprang up in the North and East and sold bonds to interested parties in England and Scotland. Joseph G. McCoy, an Illinois livestock dealer, was instrumental in establishing Abilene in Kansas. Other cow towns, such as Newton, Wichita, and Dodge City in Kansas, began to sprout up as the Santa Fe Railroad continued its march westward (Wentworth 1936:70). Large corporations began buying up land in northwest Texas and by the 1880s controlled most of the cattle industry in West Texas. Several large ranches developed in the Fort Hood area, including the Pace Ranch, the Sadler Ranch, the Manning Ranch, and the Strickland Ranch.

Ready water supplies were also necessary to support the large cattle herds in Texas. In the 1880s, well drills and windmills allowed ranchers to reach untapped supplies of water in aquifers to provide water for their stock. This opened up larger areas to farming and ranching, as agriculturalists did not have to rely solely on surface water for irrigation. The introduction of barbed wire in the 1880s also transformed ranching in Texas. Previously, cattle were run on the open range and were herded to market over open trails. Barbed wire cut off free range for livestock and obstructed the cattle trails leading to the plains. Enclosure of the free range permitted ranchers to segregate and improve their livestock herds. Spanish longhorns were not suited to closed ranges and the new order of ranching (Sheffy 1936:118-119).

English experiments in the early 19th century to produce a strain of cattle with the maximum amount of meat led to the development of Herefords. Herefords were introduced to the United States in the early 19th century and quickly found their way to the Ohio and Mississippi River valleys. By 1879, Herefords had reached the Texas Panhandle and quickly proved their superiority to longhorns. Companies in the North and East soon began to send large numbers of Hereford cattle to Texas in the 1880s (Sheffy 1936:118-119).

Prior to the 1880s, there were no large meat processing plants in Texas. Therefore, the cattle had to be driven to railheads to be shipped to eastern plants. In 1885, money was fronted by thirty Fort Worth businessmen to build a packing plant and stockyard in Fort Worth. The Swift and Armour companies both built new packing plants in Ft. Worth in 1902 and the Fort Worth Stock Yards Company opened a year later. Stockyards had been organized in Fort Worth by 1893 and provided a well-regulated central market to local ranchers. Order buyers operated in the stockyards, particularly Matt Hayes of Hammond, Indiana, who bought for the export market (Unknown 1936:80-81). By 1936, Texans owned one-tenth of all the cattle in the United States, amounting to some 6,861,000 head. At that time, Fort Worth was the largest livestock market in the Southwest and one of the largest in the entire United States (Reeves 1936:61).

By the 1930s Texas was the nation's leading producer of wool and mohair (Table 6). While they had more than seven million sheep and five million Angora goats, Texas did not have a woolen mill or factory to produce any finished products. Most of the wool and mohair was shipped from Texas to Boston and other Eastern markets. Finished products were then sent back to Texas with shipping costs ultimately passed on to the consumer (Schoffelmayer 1935:15).

Table 6: Livestock production in Texas, Bell County, and Coryell County (compiled from Bureau of Census statistics).
*** = no data.**

LIVESTOCK PRODUCTION	1910	1920	1925	1930	1935	1940
CATTLE						
Texas	6,934,586	6,156,715	5,845,918	5,853,471	3,834,464	6,281,537
Bell County	24,428	19,216	20,200	25,872	14,756	27,804
Coryell County	27,631	23,572	22,345	26,325	15,053	24,479

LIVESTOCK PRODUCTION	1910	1920	1925	1930	1935	1940
HORSES						
Texas	1,170,068	991,362	837,969	762,042	*	514,837
Bell County	10,097	6,688	5,380	5,494	*	3,592
Coryell County	9,671	7,222	6,474	5,727	*	5,736
MULES						
Texas	675,558	845,932	1,010,339	1,040,106	*	537,801
Bell County	10,683	11,264	13,512	14,439	*	7,676
Coryell County	6,641	6,598	8,249	7,400	*	3,555
SHEEP						
Texas	1,808,709	2,573,485	3,137,129	*	*	8,447,809
Bell County	11,379	7,859	10,049	21,560	31,123	50,141
Coryell County	26,427	5,034	14,873	51,595	59,762	104,211
GOATS						
Texas	1,135,244	1,753,112	1,791,325	*	*	2,894,756
Bell County	2,690	2,033	3,754	16,081	12,100	21,909
Coryell County	1,096	5,370	4,581	27,606	22,540	33,396
SWINE						
Texas	2,336,363	2,225,558	1,166,253	1,561,461	*	1,513,912
Bell County	17,990	17,535	8,091	12,901	*	10,771
Coryell County	10,279	11,632	6,943	6,668	*	6,606

Livestock added to the erosion problem on Central Texas farms. Some farmers overgrazed their pasture lands by attempting to support too many animals on too small acreage. Farmers also tended to allow their livestock to graze on stubble left in the agricultural fields after they were harvested. Removal of vegetative cover by the livestock allowed the short heavy winter and spring rains to gouge gullies into the unprotected fields. As the sale of wool and mohair became more profitable, ranchers in Central Texas ever acquired larger numbers of sheep and goats. In many cases the additional sheep and goats were grazed on land that could not support them.

Oral History Data on Livestock Production in Bell and Coryell Counties

Most of the Fort Hood farmers owned cows, principally for milk and butter, but some owned large herds that were sold for beef; they were grazed on the grassy plains on the western and southern parts of the Fort. After 1915, sheep and goats were raised for their wool and mohair (Figure 9) (Sitton 2003:90).

John D. Bowen lived in the Clear Creek Community and his parents, Owen Harrison Bowen and Minnie Swope Bowen, raised about 500 head of sheep, 300

Figure 8: Feeding sheep on a ranch in Coryell County, Fort Hood Oral History Collection, The Texas Collection, Baylor University, Waco, Texas.

goats, and 60 cattle. They also farmed 240 acres with single-row farm equipment, with which they raised cotton, corn, and oats. Corn was fed to the mules and oats were fed largely to the riding stock. The Bowens rented a house that sat on a 3,500 acre ranch owned by J.W. Pace, who lived in Killeen. The ranch was split into three parts and the Bowens leased one part of the land. Buildings on the Pace Ranch included a large barn, a sheep shed, a goat shed, a horse barn, and two windmills. Wool and mohair was taken to Lampasas on a flatbed Ford truck and sold there. C.K.

Sadler, who owned a large ranch in the Antelope Community, owned a shearing machine. Sadler employed several Mexicans to shear the Bowens' sheep and goats. Hogs were killed every year and the meat was stored in a smokehouse and storm cellar. As rent, J.W. Pace collected one-quarter of the cotton and one-third of the other crops grown on the land. However, the Bowens did not have to pay rent on the 900 acres of pasture they used to graze their livestock (Dase et al. 2003:165-168, 176).

Only about 100 acres on the top of Manning Mountain was suitable for cultivation. Juanita Fleming, whose father farmed some of the land on Manning Mountain, recalled that the rest of the land was used for grazing cattle, sheep, and goats. Men were hired to shear the sheep and the wool was taken to market. Juanita's Grandfather Manning owned about 250 cattle and had a cattle dipping vat on his property. When it was time to sell cattle, they were driven to the railhead in Copperas Cove and were eventually taken to Fort Worth. The Flemings moved often to find better and more land on which to raise their cattle, goats, and sheep (Dase et al. 2003:596-613). James W. Calhoun recalled that the Mannings had a lot of sheep that were tended by a Mexican sheep herder. The Mannings were well-off and built a large house during the Depression (Dase et al. 2003:217).

Gladys Merle Keener Chastain's family lost their farm near Gatesville during the Depression and moved back to the Maple Community, where they were sharecroppers on their Uncle Lee Hopson's farm. The Keeners then moved to a farm near Manning Mountain, where the soils were too poor to grow row crops. Land around Manning Mountain was only suitable for stock-raising and the Keeners began to raise sheep and goats on this farm (Dase et al. 2003:328). Lois Pearl Shults Cathey's family had a diversified farm and raised about 50 sheep and 25 goats, and planted about 30 acres in cotton (Figure 10) (Dase et al. 2003:284-285).

Land in the Okay Community consisted mostly of scrub uplands, more suitable for livestock ranching. Ernest Allen Cole's grandfather, Finis Henderson, owned from five to seven farms in the Okay Community in the southern area of Fort Hood. Finis Henderson was a farmer and a rancher and had many sheep and goats. Ernest's Uncle Charlie Henderson leased a large portion of his father, Finis Henderson's, land and grazed cows and between five to six hundred goats. There were several Mexicans who sheared the goats, and the mohair was taken to Lampasas where it was sold (Dase et al. 2003:368-369).

Clements W. Duncan of the Okay Community recalled that their neighbor, Mr. Waddell, mainly raised goats and cattle. An uncle who lived up the road owned a large ranch and owned hundreds of sheep; sheep were sheared twice a year (Dase et al. 2003:443-448).

Robert E. Gault's family lived in the Antelope Community and had a diversified farm, growing cotton, corn, and hay on the rich bottomlands and grazed cattle. His father owned 60 head of cattle, forty-nine of which were Herefords (Dase et al. 2003:690).

Norris Sidney Graves' father worked on the almost 4,800-acre Strickland Ranch. Most of the property was grassland and there was just enough farmland to raise feed for the livestock. Norris' father leased about 380 acres near Pidcoke and raised mostly sheep and goats, but also had some cattle (Dase et al. 2003:738, 746).

Florence Haedge's family lived on a 300-acre ranch in the Antelope Community. Her family raised some cotton, but most of their income came from cattle they grazed on the open prairies (Dase et al. 2003:780, 797). Likewise, Murrel Thompson's family also raised cattle in the Antelope Community. Murrel's father and his Uncle Roy Thompson farmed and ranched together. His Uncle Roy owned about 500 to 600 acres of land to the east of his father's farm and ran cattle on that property. Murrel recalled that their neighbors, the McDonalds, owned about 800 sheep (Dase et al. 2003:1037, 1047).

Frankie Juanita Wright Trantham lived on a 570-acre ranch in the Antelope Community. Her father raised cotton, corn, maize, and later broomcorn, along with cattle, sheep, goats, and horses. Their farm had more pasture land than crop land. Frankie's father owned about 100 sheep and 10 to 25 goats. Shearers would come from Copperas Cove or Gatesville to shear the sheep and goats (Dase et al. 2003:1082-1086).

Norman Ricketts Hall lived on a stock farm in the Palo Alto Community that had 700 acres of pasture land and 110 acres of cultivated land. The hills were used for ranching and lowlands for cultivation. His father first raised cattle, then turned to sheep and goat ranching. He recalled that there were always Mexican families working on the ranch to harvest the fields and shear the sheep and goats. One pasture was set aside for sheep, another for goats, and cattle were grazed in both. Wool from sheep and mohair from goats was sold in the markets (Dase et al. 2003:819, 830-833).

J.W. Shults' family lived on a 180-acre farm in the Ewing and Friendship Communities. They had about thirty to forty head of sheep and goats each and also raised hogs and calves (Figure 10). Part of their land was also planted in cotton, corn, and a feed crop for the livestock. Goats were sheared twice a year and sheep were sheared once a year, and the mohair and wool were sold for cash. Almost every small

Figure 9: Carl and W. L. Brown with their large herd of sheep in the Ewing Community in Coryell County, Fort Hood Oral History Collection, The Texas Collection, Baylor University, Waco, Texas.

town had wool buyers, who took the wool and mohair to larger markets to the west, such as at Brownwood and Lampasas (Dase et al. 2003:996-998, 1006).

Andy Wolf of the Maple Community recalled that his family owned about 1,200 goats at one time and that they also had many Delaine and Rambouillet sheep. Their farm and ranch consisted of about 640 acres in Wolf Valley (Dase et al. 2003:1159-1160; 1163). J.D. Wolf was born on the McNeese Ranch in the Brown's Creek Community. His father was a ranch employee and a cattleman. Their family later rented a farm on his grandfather's (Henry Wolf) place. J.D.'s father raised cattle, goats, and sheep, while his grandfather had raised cattle and sheep and grew only a few row crops (Dase et al. 2003:1179-1180, 1183).

Cattle, sheep, and goats were raised for their cash value. The grassy plains on the western side of Fort Hood in the Antelope Community, to the northwest of Killeen in the Clear Creek Community, and to the south in the Okay Community were ideal for grazing livestock. Rocky, scrub-covered uplands around Manning Mountain and in the Brookhaven Community were also prime areas for raising sheep and goats, since crops could not be grown on such marginal land. Many of these ranchers also grew some corn or cotton to supplement their incomes.

Cattle, sheep, and goat raising contributed to erosion problems on the farms because some ranchers grazed more animals on their property than the land could support. Native long-stemmed grasses were overgrazed and could not rejuvenate on their own; they were quickly replaced by shorter grasses that were not as palatable to grazing livestock. In addition, farmers allowed their livestock to graze on the plant residue left in the fields after harvest. This eliminated nutrient replenishment in the soil and increased erosion in the cultivated fields.

Farm Mechanization

While gas tractors were first marketed between 1900 and 1910, most of these machines were large and cumbersome and were better suited to plowing, seeding, and threshing on the large-scale Western wheat farms. By 1912, lightweight tractors appeared on the market and afterwards became a major source of farm power. Tractors became so diversified by the 1930s, that there was a type for almost any farm purpose (Kyle and Alexander 1940:404-405).

Many of the former Fort Hood residents mentioned that farmers continued to plow with horses and mules into the early 1940s. While farmers began to purchase tractors in the 1920s, the use of tractors was not widespread until the late 1930s. In addition to tractors, numerous cars were purchased from the high profits obtained from the post-World War I cotton crops. Farmers who could purchase farm machinery also made additional profits by performing services for their neighbors who did not own machinery (Figure 11). Farm machinery was often shared between neighbors, so that farmers who did not own tractors could borrow equipment to plow more land and plant more row crops.

Figure 10: Members of the Strickland Family standing atop bags of oats threshed by the large threshing machine in the background, Fort Hood Oral History Collection, The Texas Collection, Baylor University, Waco, Texas.

Jerome Keener Blackwell states that his father eventually bought an Oliver Hart Parr 4-row tractor, an 8-disk plow, and a one-way plow that could cover a six-foot area at one time. Jerome's father was able to pay for the tractor in one year by plowing the fields of neighbors at a cost of one dollar per acre. The Blackwell family also owned an old hay baler and would bale hay for neighbors at a cost of seven cents per bale. An old platform canvas type binder was used during the fall harvest to cut grain for neighbors at a cost of one dollar per acre. When Jerome's father purchased the tractor he also acquired a hammermill with a screen that could be used to grind corn. This service was also provided to neighbors (Blackwell n.d.:55).

John Easley's family sharecropped and in the late 1930s rented a farm from Judson and Ivy Jones, who owned several large farms in the Ruth Community. Judson Jones purchased a John Deere tractor, known as a "Popping John," in the late 1930s. The Easleys and their cousins, who rented and lived on an adjoining farm also owned by the Joneses, shared the tractor to plow their fields. Judson Jones provided all of the farm equipment on his rental farms (Dase et al. 2003:528).

John Darrel Bay's father farmed with mules until he purchased a tractor in 1938 (Dase et al. 2003:15). Frank Aubrey Black and John Easley recalled that members of the Brown family in the Ewing community were aggressive farmers and community leaders. The Browns ran a cotton gin and had a thresher that they moved from farm to farm at harvest time (Dase et al. 2003:95).

Many farmers had single- and double-row plows (Dase et al. 2003:146, 165,541-542). Ernest Allen Cole recalled that his grandfather purchased a Fordson tractor, but his family continued to plow with mules, as did most everyone else in the community (Dase et al. 2003:381). Robert E. Gault's father purchased his first tractor, a one-row Allis-Chalmers tractor with wide set wheels, in 1938. However, this tractor was too slow and Robert's father eventually acquired a two-way Farmall B tractor with rubber tires. Prior to purchasing the tractors, Robert's father used a middle-buster, a cultivator, and a John Deere planter (Dase et al. 2003:718).

Murrel Thompson of the Antelope Community noted that his father plowed the corn grown on their property with a cultivator and it was not until later in the 1930s that he acquired a Fordson tractor. Some of the farm equipment the Thompsons used included cultivators to plow the row crops, double-disk and triple-disk plows for breaking land, a grain drill for planting oats, a reaper to cut the oats, and a row binder to cut hegari. All of this equipment was pulled by mules until Murrel's father purchased the tractor (Dase et al. 2003:1039-1040). Louis J. Tomastik also lived in the Antelope Community and his father bought his first tractor in 1933 or 1934. It was a John Deere tractor with steel wheels. Prior to buying the tractor, Louis' father farmed with mules (Dase et al. 2003:1057).

Andy Gordon Wolf and John Daniel Wolf, Jr., who lived in the Brown's Creek and Maple communities, respectively, recalled that when tractors first came out, their father traded all of his mules for an F-12 or F-20 Farmall tractor. He also had a two-row planter and a cultivator. John Daniel Wolf, Sr. would do custom plow work for others in the community. It was noted that many farmers in the community were reluctant to purchase tractors when they first appeared on the market because they thought they were too heavy and would pack the ground too much (Dase et al. 2003:1155).

Fort Hood families connected to the outside world by listening to the radio, reading local newspapers, such as the *Gatesville Messenger*, *Killeen Daily Herald*, and the *Temple Daily Telegram*, and farming magazines, such as *Farm and Ranch*, *The Progressive Farmer*, and *Watson*, a political magazine (Figure 12). Many of the magazines were acquired from the Watkins or Rawleigh peddlers, who bartered wares such as medicines, household flavorings and spices, and other household items (Dase et al. 2003:199, 269, 310, 416, 845). Radio provided entertainment, such as the *Grand Ole Opry*, *Amos and Andy*, and news, including the latest cotton prices (Dase et al. 2003:319, 715, 843, 999, 1046, 1117, 1263).

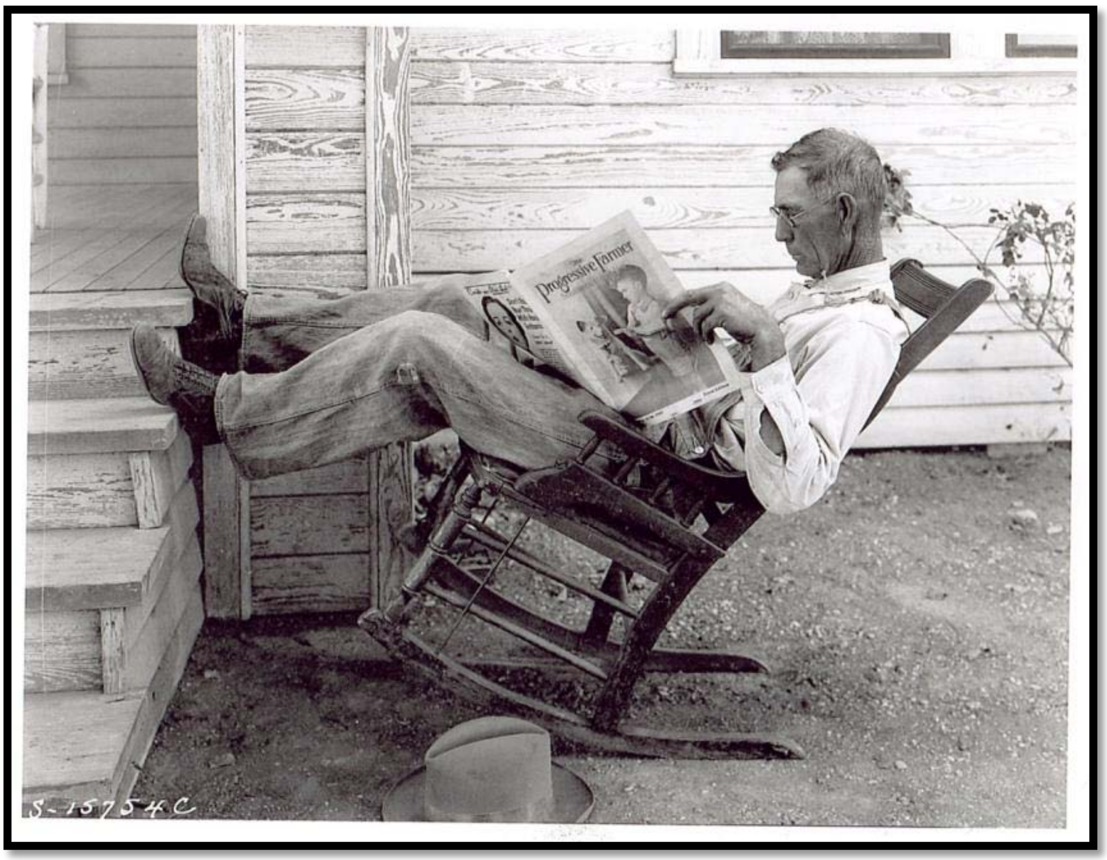

Figure 11: A Texas farmer browses *The Progressive Farmer*, Fort Hood Oral History Collection, The Texas Collection, Baylor University, Waco, Texas.

Most of the Fort Hood farms were not mechanized at the time of acquisition by the United States government in 1942 and 1943. Many farmers still plowed with horses and mules. Tractor owners were primarily property owners, although some landowners did purchase tractors for their tenants to use. Government intervention on private land prior to the Great Depression was minimal. One government agency, the Agricultural Extension Service, was founded in the early 20th century and made some inroads introducing conservation ideas to Central Texas farmers. However, most farmers in the area were suspicious of the intentions of the federal government and were not as open to government intervention.

The Agricultural Extension Service

The federal government began to educate rural farmers on conserving natural resources with the establishment of the Agricultural Extension Service. This service had its beginnings in Texas when the boll weevil swept across the state in the early 20th century, destroying cotton crops. Farmers in Terrell, Texas, such as Seaman Knapp, initiated the search for new farming methods in 1903 and settled on the demonstration method as a means to educate farmers. Knapp's agricultural ideas were disseminated widely by railroad agricultural agents, who spread the word of new farming methods, crop diversification, and the use of fertilizers across the state of Texas. These agents also provided free railroad passes to farmers interested in attending short courses and educational courses at Texas A&M in College Station or at the University of Texas in Austin (Bryan 1938:5-7; Buenger 2001:46).

Success of demonstration projects depended on the proposed methods, personal contact between the demonstrator and the extension agent, and participation of the farmer in the methods taught. Demonstration methods relied on farmers learning what they were taught by the Extension agents and then having them demonstrate the methods to other farmers. Improvement in the transportation and communication systems in the country not only allowed farm products to travel to their destinations quicker and cheaper, but also spread demonstration methods more quickly (Bryan 1938:5-7; Buenger 2001:46).

The Agricultural Extension Service opened an office in Bell County in 1914 at the request of large cotton farmers, bankers, and merchants to address land use and farm management. Cooperative extension work was authorized under the Smith-Lever Act of 1914 and was designed as a partnership between the United States Department of Agriculture and land-grant universities that were established under the Morrill Acts of 1862 and 1890. Extension work was made a division of Texas A&M College under the Smith-Lever Act. Legislation in the various states enabled local governments or organizations at the county level to serve as a third party in this cooperative endeavor. Agents were contacted through the land-grant colleges to provide rural communities with practical information on agricultural methods and home economics using instruction and demonstration methods (Bryan 1938:11; Held and Clawson 1965:39-40; National Archives Record Group 33).

Soil conservation measures were first introduced to Bell and Coryell county farmers by extension agents. However, their methods were too expensive for most of the poorer farmers or tenants to employ on their farms. The extension service was able to assist some farmers in cooperation with county commissioners' courts and it is estimated that between 1914 and 1935, about nine million acres in Texas were terraced and contoured (Williamson 1937). County and home demonstration agents also began to operate in Bell and Coryell counties in the early 20th century. Because this agricultural assistance came from the federal government, rural farmers were wary of it and did not readily accept the program (Freeman et al. 2001: 51-52).

An economic boom brought on by the start of World War I increased prices for agricultural products and created a demand for cotton and grains. However, drought in 1917 and 1918 again limited agricultural output in Central Texas. Throughout the 1920s, cycles of wet and dry years created more uncertainty and hardship for Central Texas farmers (Freeman et al. 2001: 51-52). When agricultural prices began to fall in the 1920s, the emphasis was shifted from encouraging unlimited production to urging farmers to grow their products at the lowest possible cost, making wise marketing decisions, and remaining on their farms (Bryan 1938:13-14).

Beginning in the 1920s, the Agricultural Extension Service assisted in forming farm and ranch cooperatives in which products such as cotton and wool were pooled and sold at market at higher prices than could be obtained if selling individually. Once farmers and ranchers realized the monetary benefits of cooperative marketing, more began signing up for these programs. Through scientific advances developed on agricultural experiment stations, such as that in Temple, new varieties of crops provided larger yields and were resistant to common agricultural pests and diseases. In 1921, the Bell County extension agent noted that a new strain of cotton seed, Belton Cotton, was planted on the R.L. Garrett farm one mile north of Killeen. Local farmers estimated that the Belton Cotton seed produced about 100 pounds per acre more than Bennett Cotton, which was planted in an adjoining field (Extension Service Annual Reports, Bell County 1921).

Extension agents also introduced soil and water conservation measures that increased farm productivity. Terracing demonstrations were held to exhibit the benefits of terracing to prevent soil erosion. Through demonstrations, farmers learned how to build their own terraces and were able to assist others in carrying out similar operations. By 1925, most communities in Bell County had witnessed a terracing demonstration conducted by the Extension Service. Extension agents began observing farm use in their areas of operation and in 1927 Bell County's agent noted that practically every farm in the county was in need of terracing. Farms that had been terraced earlier in the 1920s were reaping monetary benefits that were well noted by neighbors. Once farmers realized they could procure a higher profit from their land by terracing it, more began to implement soil conservation measures on their farms. Extension agents began holding terracing schools in Bell County in 1927, which reached more farmers, who in turn initiated additional terracing projects in the county (Extension Service Annual Reports, Bell County 1927).

Coryell County lagged behind Bell County in its extension program because they were without an agent until 1927. In establishing Coryell County's program, the extension agent met with community leaders and made observations of farms under his jurisdiction to determine which projects would be carried out. Several communities in Coryell County formed their own organizations to help outline future projects, generate interest in the work, and to carry out the work (Extension Service Annual Reports, Coryell County 1927). Terracing schools were also organized in Coryell County and were attended by large numbers of farmers and school boys. In the late 1920s, terracing levels were supplied to several schools in Coryell County so that school boys could be taught how to lay out their own terraces (Extension Service Annual Reports, Coryell County 1928).

Bell and Coryell County Commissioners eventually made county road building equipment available for a fee to farmers for terracing purposes. In 1929, farmer representatives from each community in Bell County formed a new organization known as the Bell County Terracing and Soil Conservation Committee. Its purpose was to encourage the farmers of Bell County to terrace their land to prevent soil erosion. Additionally, the Bell County Agricultural Club was established in 1929. Comprised of the leading agriculturalists in the county, this organization met every month to discuss problems and encouraged cooperation among county farmers. Establishment of these organizations marked the greatest expansion of the Extension Service into farming operations in Bell County to that point (Extension Service Annual Reports, Bell County and Coryell County, 1929).

County agents continued to note that terracing was still a major expense for farmers, thus hindering the spread of the practice. Extension agents encouraged farmers to carry out the work themselves, which would lessen the cost. In the early 1930s, Bell and Coryell counties began purchasing equipment particularly for terracing purposes to reduce the cost to farmers for installing these conservation measures. Extension agents began relying more and more on schools and local clubs to spread the interest in terracing and to teach farmers the techniques. Farmers were taken on tours of farms that had their land terraced and these were contrasted with farms that did not employ soil conservation practices. Thus, farmers could visually see the greater productivity of the farms that had been terraced, compared with the gullied lands that had not (Extension Service Annual Reports, Bell and Coryell Counties, 1930-1933).

Prior to the Roosevelt administration assuming office, the federal government employed Agricultural Extension Agents to convince American farmers to conserve their land. County administrators and leaders were influential in determining which projects would be carried out by the Extension Service. Extension agents organized various clubs to promote terracing, encourage farmers to adopt new strains of standardized crops that would produce higher yields, and to cooperate with other farmers to make their land more productive. Terracing methods were taught through demonstrations on selected farms that were located in strategic places, preferably next to major and frequently traveled roads. In the early 1930s, efforts were concentrated on holding terracing schools for teachers and supplying rural schools with terracing levels. Teachers were expected to impart their newly learned conservation measures to their students. All of these efforts were aimed at making terracing appear to be a normal practice (Extension Service Annual Reports, Bell and Coryell Counties 1921-1933).

The Agricultural Extension Service laid the groundwork for the extensive conservation measures employed by President Franklin Delano Roosevelt on exhausted farms across the United States. Bell County had an extension agent beginning in 1914, but Coryell County did not obtain a full-time agent until 1927. Some of the conservation methods, such as terracing and using improved strains of cotton seed, were initiated by the Extension Service and were expanded by New Deal programs such as the CCC.

Conclusion

Korr's first operation of describing the human, natural, and artifact elements of a landscape were outlined in this chapter. Korr's fourth operation, that examines the dynamic relationship between humans, artifacts, and nature, was also explored in this chapter. The natural landscape of Fort Hood was ideal for growing cotton and sustaining livestock, such as cattle, goats, and sheep. It also limited what could be produced. Subsistence crops were grown when Anglo-American settlers first entered the area, but as transportation networks improved, it became more economical to transport cash crops to central markets. Many of the families migrating to Texas came from the Lower South and they brought with them a preference for growing cotton as a cash crop.

Foreign markets often dictated how much cotton was grown on Central Texas farms. Cotton prices soared after World War I, prompting Central Texas farmers to plant every available acre in the crop. Huge profits were realized up through the early 1920s, when European countries began to recover from the war and concentrated on becoming more self-sufficient. This discouraged farmers from practicing a more diversified form of agriculture that included crop rotation. The 1920s cotton boom transformed the Fort Hood landscape into vast cotton fields that were quickly depleted of their fertility by the continuous cultivation of cotton.

By the late 1920s agricultural extension agents noted widespread erosion problems on many of the Fort Hood farms. This problem was compounded by the common practice of grazing livestock on the stubble left in the fields after they were harvested. Livestock had to be grazed on the fields because farmers were not producing enough feed for them, primarily because they were trying to grow more cotton. Farmers' capitalist perception of the natural landscape led them to produce as much as they could for the maximum profit.

Poor farming practices and exploitation of the land eventually led to the Dust Bowl in the early 1930s, picking up tons of soil off of the Great Plains and redepositing it all the way to the East Coast. As a result of this disaster, the federal government realized it had to intervene to conserve the nation's natural resources. President Franklin D. Roosevelt, always a proponent of conservation, introduced legislation in Congress in 1933 to create an army of young men, eventually known as the Civilian Conservation Corps (CCC), who would assist in conservation of natural resources across the US. Given the critical role of this agency in farmland conservation, Chapter 3 provides a general discussion of the establishment and accomplishments of the CCC nationwide, in Texas, and in Bell and Coryell counties. Through the transformation of the land by Roosevelt's "Tree Army," the federal government hoped to instill its conservation ideals in the general population.

Chapter 3: The CCC and Soil Conservation

Introduction

This chapter outlines the historical development and organization of the CCC. Most scholars agree that the CCC was one of the most popular of the New Deal programs established by Franklin D. Roosevelt.[15] While many scholars have detailed the contributions made by the CCC to federal and state parks and forests, less attention has been directed toward understanding the contributions made by the CCC to private property in the form of soil conservation measures. Thus this study will supplement the scholarship of Douglas Helms (1985), Neil Maher (2008, 2002, 2001, 2000), and Gregory Seymour (1998, 1995, 1994) on CCC contributions to soil conservation on private land.

Chapter 3 employs Korr's fifth operation, considering the aspects of the cultures that created and used the Central Texas landscape during the New Deal era from 1933 to 1942. Various economic and cultural factors that contributed to erosion problems on Central Texas farms were examined in Chapter 2. This chapter, in contrast, explores the political efforts by the Roosevelt administration to instill a conservation ethic in the rural farm population in hopes of improving addressing the many problems facing farmers. Attitudes of Central Texas farmers toward nature will be detailed, as well as the federal government's conservation ideology. The presence

[15] See, for example, Andrews 2005; Bindas 2007; Fearon 2007; Helms 1985; Hinson 1999; Lapping et al. 1989; Leighninger 2007; Lyons 2005; Robbins 2008; Roth 2002.

of intact conservation features on the landscape reveal much about the federal government's ideas and efforts to protect the nation's valuable natural resources. It also reveals the degree of acceptance of the federal government's conservation ideology by the rural population of Central Texas. The Dust Bowl was the national disaster that prompted the federal government to act to address the problem of natural resource conservation. As a result of the positive impacts the CCC had on private rural farms, this program became one of the most popular of all New Deal efforts.

This chapter first discusses some of the main aspects of Roosevelt's New Deal programs and how these programs affected the national landscape. Rural planning during the New Deal was instituted across the country by the federal government in an attempt to conserve the nation's natural resources. While many of the New Deal agricultural programs principally benefited land owners, tenants also received some relief. Evidence of the government's increased involvement in rural planning is apparent in the soil conservation structures promoted by the SCS and the CCC from 1933 to 1942.

New Deal Rural Planning

New Deal scholars note that under the administration of President Franklin D. Roosevelt, beginning in 1933, the federal government became more involved in the daily lives of most Americans. One of the major assumptions of the New Deal programs, begun in 1933, was that it was the responsibility of the federal government to alleviate the economic and social problems of the American population (Kirkendall 1985: 15, 19; Venn 1998:5, 36). At any one time between 1933 and 1942, at least ten percent of the American population received aid from one of the New Deal programs;

at times this percentage rose to over 20 percent, as in February 1934 (Bremner 1985:82-83). Public assistance was received by more than 45 million Americans (or about 35 percent of the population) during the 1930s. The relationship between the federal government and the American public was significantly altered under the Roosevelt administration. State governments were heavily relied upon to implement the new federal programs, but popular support ensured their continued existence (Venn 1998:55, 60, 74).

President Roosevelt had a special appreciation for the nation's natural resources. Under his administration, soil conservation and river valley development advanced significantly. Everyday farmers across the country learned soil conservation methods through a variety of New Deal programs, especially from the CCC camps under the direction of the SCS (Leuchtenburg 1985:223-224). Under President Roosevelt's administration, everyday farmers learned more about the natural environment in which they lived, the science of soil management, and how to better manage their environment. Natural resources were managed and monitored more than ever before. President Roosevelt helped to institute a new conservation ethic that reached all levels of society. During the New Deal era the federal government became the leader in the development of natural resource policy and management (Black 2005:36-39). New Deal planners attempted to institute conservation measures across the regional landscape without regard to property boundaries. Conservation was seen as one element in the solution to larger social and economic problems (Sutter 2005:96, 100).

More than ever before, the Roosevelt administration sought to alleviate problems on privately held land in rural areas. The primary aim was to rehabilitate the rural poor by instituting a resource policy that encouraged soil conservation, the retirement of marginal land, flood control, and other remedies that restored the land (Phillips 2005:107). An examination of the Central Texas landscape can assist in determining the degree to which farmers of accepted and implemented the Department of Agriculture's conservation program.

Other New Deal programs under the Agricultural Adjustment Administration (AAA), also addressed farm and conservation issues. Keith Volanto notes that the New Deal AAA programs were only successful because the federal government did not dictate to farmers what and how much to grow. These programs relied on the direct support, input, and cooperation of local farmers, who were instrumental in implementing New Deal programs in their communities. Volanto notes that New Deal programs had a significant impact on the economic problems of Texas farms, but most scholarship has focused on the political history of the era (Volanto 2005: xi-xii). The same can be said of the CCC programs, as they too relied on local support to implement and spread conservation practices in rural areas across the nation.

Numerous scholars have reported on the tremendous impact of the CCC on the public and private landscape of the United States (see footnotes 3, 4, and 5 on p. 15). Over the almost 10 years of the program, billions of trees were planted, new telephone lines were laid, thousands of miles of roads and trails were built, grazing ranges were restored, erosion control measures were implemented on thousands of farms, and many forms of wildlife were protected. Yet, contributions of the CCC to the conservation of natural resources did not end in 1942, when funding for the program expired, as many of the lessons learned from experimentation with soil conservation measures during the New Deal era are still practiced today (Lyons 2005:204-207).

The CCC brought soil conservation ideas to ordinary Americans and began a partnership between professional conservationists and the public. This was one New Deal program that was popular with and benefited all classes of society (Maher 2008:11). Initial CCC projects were concerned with the management of timber resources and most of the early camps were located in national and state forests, with a few devoted to private forests. Over the course of its existence, this pattern continued with about fifty percent of all CCC projects allotted to the Forest Service. The remainder of the camps served a number of other agencies, including the SCS (Maher 2008:51).

The large dust storms of 1934 brought soil erosion concerns to the forefront of national policy, and President Roosevelt commissioned a national survey of soil resources under the direction of Hugh Hammond Bennett and the newly formed Soil Erosion Service (SES). This survey documented erosion problems on about half of the country's farmland and proved that the problems were worse than previously believed (Maher 2008:60). After the Dust Bowl and the establishment of the SCS in 1935, that agency supervised the next highest percentage of CCC camps at about 30 percent (Maher 2008:63).

CCC conservation measures on private farms markedly increased soil productivity. Maher notes that "terracing undertaken by the Corps in Texas increased cotton production by an average of 68 pounds per acre, and CCC contouring in the same state raised returns on grain sorghum by 128 pounds on a similar size parcel of land. When the Corps helped farmers to combine both terracing and contour furrowing, field output was even more impressive, increasing grain sorghum growth in Texas by an astounding 262 pounds per acre" (Maher 2008:66).

Prior to the New Deal, conservation activities originated with individuals or groups who developed ideas and tried to spread them to farmers. None of these various conservation activities appears to have had much effect on everyday farmers (Trimble 1985:163). With assistance from the federal government, the states began to take the lead on conservation measures in the late 19th century. Land-grant colleges were established, experiment stations constructed, and the Agricultural Extension Service introduced to spread the conservation philosophy to farmers. While additional terracing of land was implemented, terraces were often poorly constructed and not maintained, sometimes causing more harm than good.

The dramatic dust storms, floods, and droughts of 1934 and 1935 resulted in land use planners becoming more involved in decisions regarding the use and protection of farm land across the country. Land use planners worked closely with state and federal agencies to gather data on the economic status of individual farmsteads, soil and crop conditions, and public needs. Planners identified at least 100 million acres of submarginal farm land that should be retired from cultivation. Land use planning began to gradually make inroads in rural communities and their work can be seen in the landscape features tied to soil conservation activities (Saloutos 1982:159).

New Deal reformers considered rural planning and conservation as crucial to the revitalization of the American economy. They understood the connections between humans and their natural environment and tried to reconcile the two through rural planning. Roosevelt's administration perceived the poor condition of the country's farmland as a national problem and instituted rural planning on a national scale. By focusing on individual farms, they sought to rehabilitate the country's rural poor by conserving the natural environment. Thus, during the New Deal era, the federal government assumed the responsibility for providing rural welfare (Phillips 2007:3, 9, 63, 82).

Some New Deal programs, such as those administered by the AAA, primarily benefited landowners, while providing little relief to tenant farmers and sharecroppers. In fact, some AAA programs allowed land owners to force tenants and sharecroppers off the land and placed local programs in the hands of local elite farmers, who then controlled who would receive government benefits. Since government payments were made directly to landowners, tenants and sharecroppers often failed to get their fair share of the proceeds. Landowners often used government money to purchase tractors and other new farm machinery or to hire wage laborers, thus forcing more tenants and sharecroppers off the land (Volanto 2005:55, 63, 126).

During this period, the mechanization of agriculture reorganized the countryside into larger farm units operated by wage laborers. However, many farms abandoned the one-crop system and practiced a more diversified form of agriculture. Fewer people lived on farms and many former tenants and sharecroppers moved to larger towns or cities to find employment (Biles 1994:154-155).

Environmental historian Donald Worster notes that the Depression-Dust Bowl era marked a time when US citizens began to realize the limits of the natural environment and the need for conservation. While crop shortages were not an issue during the 1930s, restraints were needed to calm an overexpanded economy brought on by exploitation of the land. The federal government realized the need to convince citizens that it was necessary for public institutions to assist in managing privately-owned land. Private land owners had to be made aware of how their actions were affecting all those around them and in other parts of the country (Worster 1979:185-212).

New Deal conservation measures involved taking marginal land out of production, instituting rural zoning, developing new and improved soil conservation practices on farms, and attempting to alleviate rural poverty. Worster notes that New Deal era agronomists promised improved farm conditions by scientifically manipulating the land. While much of the focus was on increasing profits and productivity, the motivation was to make the land pay off without completely exhausting or destroying it (Worster 1979:185-212).

Prior to the Dust Bowl, the federal government had only a vague understanding of different types of soils and their distribution across the country. To institute new rural land planning methods, the federal government needed to compile a large database on the country's soils; this process included taking aerial photographs, drawing maps, and classifying soils on a county by county basis. The types of soil in an area determined the kind of conservation methods employed on farmland. Contour plowing and the use of terracing was encouraged to slow down the rate of water runoff and allow it to be absorbed by the soil. Demonstration areas were established to show farmers how to introduce these new practices. Soil conservation districts were organized to spread the new practices outside the demonstration areas and to police those who were not convinced to change their ways (Worster 1979:216-219).

Even though most of the New Deal farm programs benefited farm owners and large land holders, tenant farmers also benefited. Tenants often played an active role in installing and maintaining soil conservation measures on their landlord's property. This is evident in some of the testimonials of former CCC members, and there are cases where landowners worked very closely with their tenants to institute soil conservation methods on their farms for their mutual benefit.

The New Deal rural planning efforts of the federal government are reflected in major changes to the Central Texas landscape in the form of various erosion control measures. The presence of these features on both owner-operated and tenant-operated farms suggests that both owners and tenants understood the value of soil and water conservation and benefitted from the federal government's New Deal programs to address those issues. Soil and water conservation measures are largely found in areas where CCC camps were located. The federal government was principally responsible for building these features and teaching farmers the value of conservation during the New Deal era.

CCC Establishment, Organization, and Purpose

A general discussion of the development and history of the CCC and its role in Texas is essential context for understanding the specific role of the CCC in Texas and in Bell and Coryell counties. Specific types of work performed by the SCS camps in Bell and Coryell counties are identified and some of the major accomplishments in those areas are examined. This chapter illustrates the degree to which the federal government influenced rural farm policy and convinced everyday farmers to accept and implement conservation practices on their land during the New Deal era. Many enrollees implemented soil conservation techniques they learned in the CCC on their own farms and some obtained soil conservation jobs after they left the Corps.

John Salmond outlines the administrative history of the CCC at the federal level in his 1967 book, *The Civilian Conservation Corps, 1933-1942: A New Deal Case Study*. While Salmond's book does not examine the role of the states in camp administration, Kenneth E. Hendrickson, Jr. (2003) and Mark Alan Wellborn (1989) provide an administrative history of the CCC in Texas. Administrative histories by John C. Paige (1985) and Alison T. Otis et al. (1986) outline the role of the CCC in national parks and forests. Other histories on the role of the CCC in state and national parks and forests have emerged from Section 110 of the NHPA requirements to inventory significant cultural resources on state and federal land. Many buildings, trails, dams, lakes, and other features constructed by the CCC in state and national parks and forests from 1933 to 1942 are still in use today.

Several articles and books have been written on CCC contributions in Texas state and national parks and forests. Steely and Monticone (1986) inventoried and described features constructed by the CCC in Texas State Parks. While various case studies, such as Davis Mountains State Park (Lingo 2008; Taylor 2007), White Rock Lake in Dallas (Butler 2003), Kingdom State Park in Palo Pinto County (Briscoe

2000), Mother Neff State Park in Coryell County (Utley and Steely 1998), Longhorn Cavern in Burnet County (Moyers 1964), Tyrell State Park in Jefferson County (Touchet 1972), and parks and forests in the Lufkin District in East Texas (Garbutt 2007), have explored CCC work in parks and forests, less attention has been directed to the soil conservation efforts of the CCC on private land. This study addresses the gap in the scholarship on the CCC's soil conservation activities by examining soil conservation features located on Fort Hood. Soil conservation features, such as terracing and terrace outlet ditches, had to be continuously maintained and were altered as new methods and techniques were developed. Therefore, some of these features do not retain their original design or placement on the landscape. Many of these features are located on private land, but may be surveyed in archeological studies involving large-scale building or development projects.

Several scholars have also written histories of the CCC soil conservation camps, for example Robert H. Thonhoff's (2003) history of SCS Camp Kenedy in Karnes County, Texas. Environmental historians, such as Douglas Helms (1985) and Neil Maher (2002, 2001, 2000), have sketched the history of the SCS and its role in transforming the American landscape during the 1930s. Armando C. Alonzo (2004) outlines the role of Hispanic farmers and ranchers in South Texas in the soil conservation movement. This study examines the archaeological remains of soil conservation measures implemented or influenced by the CCC on Fort Hood in Bell and Coryell Counties, Texas, for what they can illuminate about the increasing role of the federal government in rural planning.

On March 21, 1933, President Franklin Roosevelt introduced a bill to Congress, known as Emergency Conservation Work that proposed to provide jobs for 250,000 unemployed young men in the nation's forests. This was one component of President Roosevelt's vast relief effort instituted during his first one hundred days in office. Funding for the organization was obtained from savings from government salaries and veterans' compensations. Emergency Conservation Work was enacted by Congress on March 31, 1933, and while the program was popularly known as the CCC, the name was not officially changed until 1937. Men on state relief rolls were employed for six months, with an option to reenroll for an additional six months. All of the basic necessities, including clothes, food, and medical treatment were provided by the federal government, along with a $30 per month salary; $25 of this was to be sent to the enrollee's dependents (Albright et al. 1990: E2; DMN March 22, 1933; Emergency Conservation Work 1934).

President Roosevelt utilized existing departments within the federal government to organize the labor, work, and administration of the Corps. Robert Fechner was appointed Director of Emergency Conservation Work through an Executive Order issued on April 5, 1933. Fechner was general vice president of the International Association of Machinists and Roosevelt believed that his position would ameliorate some of the concerns of labor unions. An advisory council of four representatives from the Departments of Agriculture, Labor, Interior, and War assisted the director in the daily operations of the program. Enrollee selection was the responsibility of the Department of Labor – except for Veterans, who were selected by the Veterans' Administration. W. Frank Parsons was appointed head of the United

States Employment Agency and served in that role throughout the existence of the CCC. State agencies, usually the unemployment-relief commissions, were appointed by the Department of Labor to select the men for the camps (Cornebise 2004:9; Emergency Conservation Work 1934).

It was the responsibility of the Department of Labor to establish the general policies and standards for making enrollee selections. Each state had its own relief organizations to distribute the new federal relief aid apportioned by New Deal programs beginning in 1933. Most of these organizations were already in place prior to the New Deal, their duties were simply expanded to manage the new relief programs initiated by the Roosevelt administration (Emergency Conservation Work 1934; Hendrickson 2003:804-806; McKay 1989:E-41-42).

Texas Governor Miriam Ferguson created the Texas Relief Commission (TRC) in February 1933 to manage and distribute federal and state relief funds. In April 1933, Governor Ferguson approved the TRC as the agency that would select enrollees for the CCC in Texas. Colonel Lawrence Westbrook, a Waco businessman and former state delegate, was appointed Executive Director of the TRC. Westbrook served from 1932 to 1934, and was replaced by Adam R. Johnson, a former city manager of Austin. General instructions were conveyed by the Labor Department to the selection officers, and then onward to county and city relief agencies (Wellborn 1989:20-39).

At the county level, County Committees of Welfare and Employment were appointed by the Commissioners' Courts. These committees evaluated aid requests and determined who was eligible for direct relief and for work-relief programs, such as the CCC. Commissioners' Courts determined the size and functions of the Welfare Committees in their county, retaining some autonomy from the state and federal governments (Emergency Conservation Work 1934; Hendrickson 2003:804-806; McKay 1989:E-41-42; Wellborn 1989:20-39). Field representatives, appointed by the director, supervised districts that included several counties, oversaw the implementation of policies and programs, and coordinated between the state and the commissioners' courts. One county administrator was appointed for each county and was responsible for operations in their county, advising the field representatives of any problems. Under the TRC, County Committees of Welfare and Employment were replaced by County Boards of Welfare and Employment and now disbursement of relief fell to the county administrator rather than the County Committees, lessening the influence of the Commissioners' Courts (Wellborn 1989:20-39).

Initially, those eligible for selection were required to be American citizens between the ages of 18 and 25, physically fit, unmarried, unemployed, and have dependents to which at least $22 to $25 of their $30 stipend would be allotted. The age range was expanded to 17 to 28 in October 1933. While local agencies were encouraged to select men from the relief rolls, this was not a requirement. Age and marital restrictions were applied due to the nature of the work and camp life, and because the unemployment problem was especially prevalent among young men (Albright et al. 1990:E-3; Cornebise 2004: 11; Emergency Conservation Work 1934; Hendrickson 2003:806; Salmond 1967:34).

To make the camps more acceptable to local communities, administrators allowed for the selection of a number of local experienced men, referred to as LEMs, whose marital status and age were not restricted. About eight of these men were chosen for each camp. LEMs were to live on or near the area where the work was to be performed, be unemployed and have experience in the type of work performed. A provision in the Act creating the CCC stated that discrimination would not be made on account of race, color, creed, or politics. Enrollment in the corps was strictly voluntary (Albright et al. 1990:E-3; Cornebise 2004: 11; Emergency Conservation Work 1934; Hendrickson 2003:806; Salmond 1967:34).

Quotas for each state were established by the Department of Labor. State agencies appointed the local offices to handle selection and then determine the number of men to be chosen from each locality within their state. Local agencies were responsible for reviewing relief lists and selecting the men best suited for participation in the CCC. Members of the local relief agency met with the families of the selectees to discuss the type of work to be performed, the obligations of the enrollee, and the enrollee’s rights. In the initial phases of work, projects were selected by either the Forest Service or Park Service and were then approved by the Director of Emergency Conservation Work (Emergency Conservation Work 1934).

Texas was allotted 11,750 positions in the initial selection and from April 23 to 25, 1933; young men could enroll at twenty-two locations in the state; by May 1933 work camps were opened. Most of the early enrollees from Texas were sent to other states since Texas did not have any federal parks or forests in the early 1930s (DMN May 2, 1933).

Selection of work projects on national forests and parks and supervision of the work fell to the Departments of Agriculture and Interior. Any work conducted on state or private land, excepting state parks, had to be recommended by the Department of Agriculture, which was then charged with assisting state authorities in carrying out approved projects. Similar projects on state parks fell under the authority of the Department of the Interior (Cornebise 2004: 9; Emergency Conservation Work 1934).

E.O. Siecke, director of the Texas State Forest Service, oversaw forest projects on both state and private land. The State Forest Service or the general public could submit proposals, and if the project met with Siecke's approval, the proposal was forwarded to the U.S. Forest Service. Work in the forests included building trails, roads, and fire lanes, planting trees, landscaping, constructing fire towers and shelters, pest control, and thinning the forests. Enrollees could also be called on to perform emergency work such as fire fighting or assisting with flood control. If the project was approved, the War Department selected the site for the camp and arranged for construction of camp buildings. Initially, the focus of CCC work in Texas was on public parks (DMN April 19, 20, 1933; May 2, 4, 1933; Wellborn 1989: 51-66).

Wendall Mayes of the Texas State Parks Board performed duties similar to those of Siecke's for parks and lands. Work approved on state lands included the construction and maintenance of roads and trails, forest improvement by cutting, tree planting, nursery work, seed collection, boundary surveys, sign posting, and fire protection. Work carried out in the state parks by the CCC continues to benefit people to this day. The largest undertaking in Texas was Big Bend State Park established in 1933, which was supervised by the NPS, even though it was not designated a national park until 1944. Work approved on private land included the erection of brush dams and tree planting on gullied lands. After the Dust Bowl in the summer of 1934, the focus of CCC work in Texas shifted to soil conservation. Approximately 156,400 young men in Texas enrolled in the CCC over its nine-year existence (DMN April 19, 20, 1933; May 2, 4, 1933; Wellborn 1989: 51-66).

All aspects of camp life, including enrollment, equipping, conditioning, construction of camps, supply, and administration, fell under the auspices of the War Department. The country was divided into nine corps areas commanded by a major general or brigadier general. Each corps area was divided into districts, which were commanded by officers stationed at designated army posts. These officers served as liaisons between the Corps area command and the individual camps. Camps were commanded by a captain or first lieutenant in the regular Army or Army Reserves, with the assistance of several junior officers and enrollee leaders. Camp commanders were directly responsible for camp administration, the welfare of the enrollees, and personnel matters. The CCC proved to be a valuable command training ground for junior officers in the regular Army and Reserves. Camp field personnel under the Departments of the Interior or Agriculture included a camp superintendent and eight to ten foremen. Superintendents organized work projects, instructed the foremen, and formed the enrollees into small work groups (Cornebise 2004:9, 12; Lacy 1976:72-73; Salmond 1967:84-87).

Texas fell within the Eighth Army Corps Area, along with Arizona, Colorado, New Mexico, Oklahoma, and Wyoming. Within each area, the Army provided a CCC Enrollment Officer, Motor Transport Officer, Liaison Officer, Corps Area Educational Advisor, and Executive Officer. The Enrollment Officer chose the young men and coordinated with the Motor Transport Officer who ensured the enrollees reached their camp destination. Liaison Officers dealt with public relations, complaints against military personnel made by civilians, and problems of discipline. Educational Advisors coordinated the education programs in the camps. The Executive Officer coordinated all of the efforts of the other officers. For administrative purposes, Texas was subdivided into four districts: East Texas, North Texas, South Texas, and Fort Bliss. District officers facilitated between the area officers and camp commanders were (Wellborn 1989: 66-72).

Conditioning generally took place over the course of two weeks, after which the enrollees were transported to their work camps where they would spend the next six months. Enrollees worked eight hour days from Monday to Friday; if work was missed due to inclement weather, the time was made up on Saturdays. Those men who showed exceptional ability could be promoted to leadership, technical, or supervisory positions and received extra pay. Each enrollee was required to work for six months. If the enrollee found employment in that time, he would be allowed to leave the Corps. Men could reenroll for one more six month period, but this time frame was later extended. Each camp was ideally allotted 200 men (Emergency Conservation Work 1934).

On April 14, 1933, Emergency Conservation Work was approved for Indian reservations with an initial quota of 14,400 Native Americans to be selected by the Bureau of Indian Affairs (BIA) and the Department of the Interior (DOI). Most of these men were married and lived near the work projects, lessening the need for camps for these projects. Tribal councils were given wide responsibility over the administration of the work projects on the reservations (Cornebise 2004:11-12; Salmond 1967:33-34). Veterans were also targeted for the CCC with their selection handled by the Veteran's Administration. Veterans were housed in separate camps and primarily performed conservation work suited to their age and experience. Most of the veterans had served in World War I; about 225,000 veterans participated in the CCC throughout its nine-year existence (Cornebise 2004:11-12; Salmond 1967:36-37).

Although the legislation stipulated that enrollees would not be discriminated against because of their race, African Americans did not enjoy the same rights as other groups. In the beginning, there were some integrated camps in areas where there were not enough African American enrollees to form a separate camp. Eventually, African Americans were organized into separate camps and were not allowed to work outside of their home states. All African American work projects had to be approved by the state's governor. Because of objections from local communities, many of the African American camps were established on Army posts. The highest position an African American could hold in the camps was Educational Adviser. Eventually a few African Americans were placed in command and supervisory positions in select camps (Hendrickson 2003: 811; Lacy 1976:74-77; Salmond 1967:88-100).

Because the CCC was such a popular program among citizens, politicians used its popularity to bolster their own political aspirations. Congressmen could make direct requests for projects and usually backed these up with requests from local residents, stating their desire for the camp. Besides the work performed in the local area, a CCC camp also benefited communities economically. Enrollees spent their money in the towns close to their camps and the money sent home by the enrollees was also spent by family members in their local communities (Salmond 1967:102-110).

Citizens popularly referred to the CCC to as Roosevelt's Tree Army, most likely because most of the camps initially were located in national, state, or private forests. Camps in these areas focused on with forest improvement and protection. Fire prevention measures included the construction of fire roads, lookout towers, and telephone lines. Dead trees and flammable underbrush were cleared and fire breaks were constructed. Forest improvement was the second aim and many trails were built, along with cabins, garages, and shelters to aid forest management (Salmond 1967:121-124).

The CCC also developed forests for recreational purposes, constructing dams to form lakes and improve fishing conditions, and building campgrounds and ski jumps. Thousands of acres of forest land were replanted by the CCC. Grazing areas on forest lands in the West were also replanted with grasses, ponds were built to water livestock, unwanted rodents were exterminated, and bridges and fences were erected. Between three and 27 CCC camps per year operated in state, national, or private forests in Texas over the program's nine-year existence (Salmond 1967:121-124).

After the Forest Service, the second greatest number of camps was administered by the SCS. Their projects involved the demonstration of soil conservation practices to farmers, work on private farms cooperating with the SCS, and the establishment of experiment stations to research new methods of erosion control. Most of the SCS camps were placed in southern and western states where poor farming practices were most prevalent and where drought had ravaged crops and soil. Water erosion was checked by the construction of terraces on sloping land; they were then drained by outlet ditches. Engineering and surveying were important skills in the construction of terraces and provided enrollees with experience that could lead to future employment. Erosion gullies were graded and resodded, erosion control dams of concrete, rock, or sod were constructed, and fences were built. Texas had between three and 38 Soil Conservation Service camps operating at one time (Salmond 1967:124-125).

The Department of Agriculture's Bureau of Biological Survey used CCC camps to convert submarginal lands into nature preserves, stock rivers and ponds with fish, build nesting areas, and treat injured or sick animals. Texas had only one Bureau of Biological Survey CCC camp in Aransas County at the Aransas Migratory Waterfowl Refuge (Salmond 1967:125).

Camps administered by the DOI fell primarily under the NPS and performed work to improve and protect national parks. The CCC did much to develop the national parks for recreation. Their duties were similar to their counterparts working in the national forests. Specifically, CCC crews in the national parks opened up new areas to tourism by building roads, camp sites, picnic tables, fireplaces, visitor centers, and guest cabins. They also built dams to form lakes and swimming pools. The federal government also purchased new lands that were developed into parks by the CCC. The largest of these was Big Bend National Park, a more than 800,000-acre swath of land in southwest Texas. This was the only national park in Texas at the time and the location of the only NPS CCC camp in the state. CCC companies also preserved historical sites and monuments within the parks (Salmond 1967:126).

Under the Bureau of Reclamation in the DOI, CCC companies built dams and canals for irrigation projects. The Division of Grazing was allotted several camps to develop water resources in drought areas by drilling wells and piping water from springs. They also participated in rodent and insect control projects. Texas had only one Bureau of Reclamation camp in El Paso (Salmond 1967:127).

While the original legislation provided for only two years of operation for the CCC, the program was renewed an additional two years by President Roosevelt on April 18, 1935. This expansion sought to extend relief opportunities for more youths and called for 2,916 camps, 2,106 under the Department of Agriculture and 690 under the DOI, with authorization to operate until March 31, 1937. The participants' age limit was raised to 28 years and maximum length of enrollment was extended to 18 months. At the end of the September 1, 1935 enrollment period 2,514 camps housed 502,000 men. An election year in 1936 prompted Roosevelt to cut back the number of camps and enrollees to trim the budget. By January 1, 1936, 489 camps were closed, reducing the number of enrollees to 428,000 in 2,428 camps. The number of enrollees was again reduced to 300,000 on January 31, 1937 with 10,000 Indians and 5,000 territorials (Cornebise 2004: 17-18; GM October 10, 1941; Lacy 1976: 65-66; Salmond 1967:57-65, 153, 216-217).

Congress renewed the CCC in June 1937 and provided for its operation through June 30, 1942. The CCC was placed under the Farm Security Agency in June 1939, and in December 1939 John T. McEntee became director. With the specter of war looming, the duties of the CCC began to shift toward national defense concerns in 1940. Enrollees were trained in noncombatant roles that were vital to military operations. In October 1941, John T. McEntee announced that 200 camps would be closed, leaving only about 900 in operation. An average of 6,000 CCC men left the camps each month to accept employment or to join the Army (Cornebise 2004: 17-18; GM October 10, 1941; Lacy 1976: 65-66; Salmond 1967:57-65, 153, 216-217).

After the bombing of Pearl Harbor in December 1941, the function of all CCC camps shifted to contributing to the war effort under the Victory War Program. By May 1942, 175 CCC camps and more than 12,000 enrollees were assigned to military reservations. All camps were placed on war related projects by June 1942. This shift in function also prepared many of the young men in the CCC for military service during World War II. About 90 percent of the CCC's three million enrollees served in the armed forces. While Congress abolished the CCC on June 30, 1942, the program had a lasting effect on its enrollees and on the appearance of the American landscape (Maher 2001:352-355). With the United States entering the war in Europe, Congress agreed on June 26, 1942 to allot $8 million to liquidate the CCC (Cornebise 2004: 17-18; GM October 10, 1941; Lacy 1976: 65-66; Salmond 1967:57-65, 153, 216-217).

In November 1943, Major John D. Guthrie, formerly General Inspector of the CCC, published an article in *The Scientific Monthly* outlining the contributions made by the CCC to the American landscape. Guthrie noted that the CCC advanced the conservation of natural resources in the United States by many years. The organization, he wrote, transformed the national landscape through their work and taught the American public how to carry out this work on their own. Guthrie estimated the total present and future value of the work performed by the CCC as $2,000,000,000. The CCC transformed 40,000,000 acres into more productive farm land and its improvement of grazing lands in the West secured beef and wool resources. By planting billions of trees the enrollees improved two and two-thirds million acres of land that were previously bare and unproductive. These tree seedlings also checked erosion and protected wildlife (Guthrie 1943).

Across the nation, prior to the Dust Bowl, valuable topsoil was being washed away and cavernous gullies were forming on what was once productive farm land. Many farms were abandoned because the productive topsoil had been washed away and the land was damaged beyond easy repair. The soil conservation measures employed in 45 states to check the loss of soil included building check dams, terraces, channel outlets, contour furrows and ridging, sodding and seeding, road grading, and water spreaders. Guthrie notes that “318,076 permanent and 6,341,147 temporary check dams were built, 33,087 miles of terraces were built; 638,473 acres were planted to stop sheet erosion; 431,321 outlet structures were built” (Guthrie 1943:409). One hundred fifty six CCC companies were performing work on 92 military reservations in 1941 and 1942 to free up military personnel for combat training. Guthrie’s conclusion was that due to the efforts of the CCC conservation had become a household word. Since soil conservation work was performed only on farms that cooperated with the SCS, these numbers reveal that many farmers deemed the work important and requested CCC assistance from the federal government (Guthrie 1943).

Erosion Problems in the Fort Hood Area

As noted above, environmental historians, such as Donald Worster (1992, 1979) and William Cronon (1991) have argued that the natural environment is an integral part of understanding the historical development of an area. Jeremy Korr's cultural landscape model also recognizes the primacy of nature in the formation of cultural landscapes. Factors such as natural conditions, historical use of the land, and national and international markets had an effect on the landscape. Some soils were more susceptible to erosion than others, especially if they were located on slopes that had been cleared of natural vegetation. If prices for cash crops were high, farmers tended to clear more of their marginal farming land to produce a higher yield, thus causing more erosion. Annual reports from the CCC camps, newspaper articles, and oral histories provide information on these factors.

The farms in the Gatesville camp area were located west of the Blackland Prairie, within the Grand Prairie physiographic region of Texas. Soils in this region are similar to those in the Blackland Prairie region, ranging in color from black to brown to red. Soils in the stream valleys were the most productive for farming and upland and prairie areas were most conducive to ranching activities. However, it was noted that erosion had cut so deeply in areas that the bare rock was exposed, forming stony soils (Gatesville Camp Report 1936:5).

Farming was not the only activity that contributed to soil erosion, but poor stock management exacerbated the problem. Cattle ranching was predominant in the area from 1853 to 1869 and cattle were driven to market primarily to Kansas. Corn was cultivated for home consumption. With an increase in population from 1870 to

1890, cotton began to be cultivated as the major cash crop and corn was also produced in large amounts. Cattle ranching continued on land that was too marginal for grazing the number of animals on Central Texas ranches. Pastures were overgrazed, leaving bare patches exposed and susceptible to erosion. Agriculture in Coryell County remained diversified because of the topography and nature of the land. From 1920 to 1935, sheep production rose significantly, while hog raising decreased (Gatesville Camp Report 1936:11).

Leading crops in Coryell County in the 1930s included cotton, corn, and small grains, and most farms also raised cattle and/or sheep. Sheep and cattle were commonly grazed in fields during the summer and early fall, leaving little crop residue to rebuild the nutrients in the soil. Heavy rains in the spring often washed large amounts of soil off of the unprotected fields (Gatesville Camp Report 1936:12).

Before the CCC camp arrived in Gatesville in 1935, the most common erosion control methods utilized on local farms consisted of the construction of diversion and drainage ditches and rock walls, and placing small grain crops on the upper portions of slopes. No coordinated program of erosion control had been adopted on any of the farms. Some terraces were built with the assistance of the Agricultural Extension Service, but they were usually poorly constructed and maintained (Gatesville Camp Report 1936:12).

Major problems noted by technicians with the Gatesville CCC camp in 1935 included farmers plowing their rows up and down slopes rather than across them with the natural contours (Figure 13), overgrazing of fields and pastures, cultivating too close to drainages, and failure to plant a vegetative cover on fields during the seasons

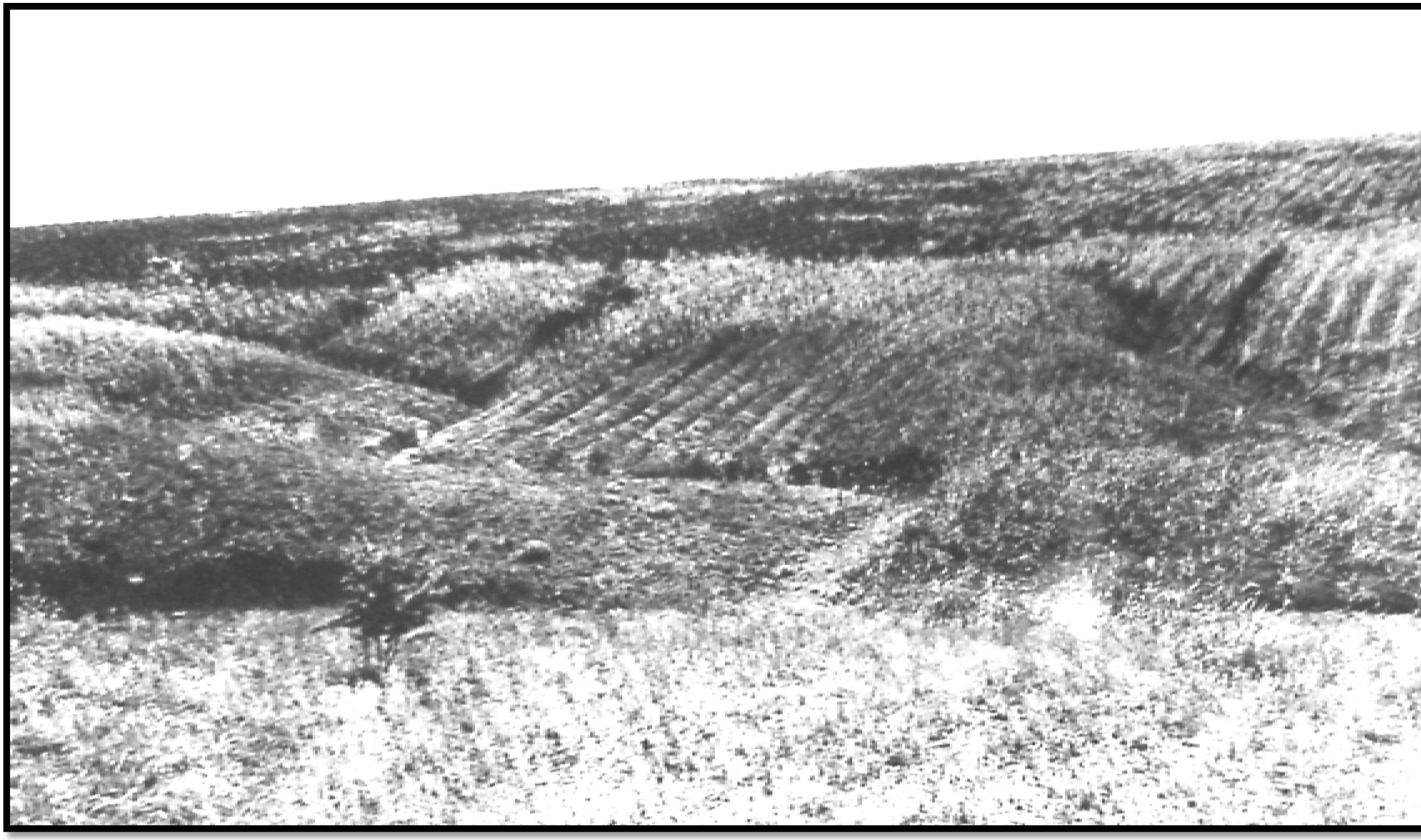

Figure 12: Rows run up and down a hill causing gullying. Source: RG 114 Annual Report Fiscal Year Ending June 30, 1934, Central Texas Project No. 4, Temple, Texas, p. 3.

of heaviest rainfall. In 1935, every farm in the camp area had been affected to some degree by sheet erosion due to the presence in many areas of shallow or rocky soils. Because of the shallow soils, gullies were broad and shallow; it was estimated that one-fourth of the topsoil in the camp area had been lost through sheet erosion and that one-third of the area was gullied (Gatesville Camp Report 1936:12-13).

Land ownership in the camp area was relatively stable, with most land having been owned by local people, and 40 percent of farms were owner-operated. It was evident that farmers were struggling to break even because erosion had decreased crop yields. Farm buildings were falling into disrepair, new equipment was being bought on credit, and mortgages were increasing. Decreasing farm production did not leave the farmers much money to implement soil conservation measures (Gatesville Camp Report 1936:14).

Camp technicians found that poor farming practices were increasing erosion in the camp area. Farmers were reluctant to give up their old farming practices of running rows up and down the slopes and building ditches because other methods, such as the construction of terraces and terrace outlets, were too expensive. However, camp personnel noted that if soil conservation measures were not promptly instituted, the economic condition of the area would significantly deteriorate. For instance, many stock tanks were silted in because they were located at the base of cultivated fields. The Leon River, the major drainage running through the camp area, also exhibited significant silting and spring floods were causing major losses of property along its course. Smaller drainages were also showing signs of silting, primarily from runoff from rocky slopes over the cultivated fields in the valleys (Gatesville Camp Report 1936:15).

One of the major problems noted within the Elm Creek Watershed Project, covering Bell, McLennan, Falls, and Milam Counties was land tenure. About 65 percent of the farms were operated by tenants, who commonly signed one-year leases and moved frequently. This practice caused a lack of systematic crop rotation, the continuous planting of cotton on the same land, sometimes for more than ten years. Many farmers burned the crop residue left in the fields rather than plow it under, causing the loss of soil fertility. Large gullies formed because of the practice of running crop rows up and down a field, rather than along its natural contours (Temple Camp Report 1934:1-2).

Types of Soil Conservation Work Performed by the CCC in Central Texas

A variety of erosion control techniques were used to reduce the rate of water runoff from fields and to prevent soil from washing away. Terraces were built along the contours of a field and slowed water flow on sloped fields. Terrace outlet channels and diversion ditches were constructed along the edges of terraces and fields to carry off excess water. Channels and ditches were planted with sod, and check dams were placed at intervals to slow the rate of water flow and allow some of the sediment to settle out. Contour cultivation was also utilized to prevent the formation of gullies from rainwater runoff. Strip cropping checked the flow of water downhill by planting row crops and cover crops in alternating strips along the natural contours of a field. The crops planted in the strips were rotated on a fixed schedule to replenish the nutrients in the soil. Several of these soil-saving techniques were typically used in concert to control erosion. For additional information on the work performed by the CCC camps in the vicinity of Fort Hood, see Appendices II, III, and IV.

Terracing

In many parts of Texas, there is insufficient level land to plant enough crops for a farmer to make a living. Therefore, many moderate-to-steep slopes were farmed to grow enough cash crops and feed to support the farmer’s family. When water from rains flows downslope, it carries some of the soil away, gains speed as it flows downward, and can cause erosion and gullies. Terraces function to slow the rate of water flow down a slope and are constructed across the path of the water flow. Terracing prevents large volumes of water from scouring out gullies and carrying away valuable topsoil from fields. While terraces do not completely prevent soil from washing down a slope between terraces, they slow down water flow so that soil particles have a chance to drop out of suspension at the edge of the terrace, allowing most of the soil to remain in the fields. Terracing alone cannot stop soil erosion and is most effective when used with contour plowing, strip cropping, cover crops, and crop rotation. Different types of terraces are used on different types of soils and slopes. Terraces are not effective on sandy soils, rocky land, or shallow soils overlying bedrock and are avoided on slopes greater than 8 to 12 percent (Figure 14). Sandy soils will not hold the shape of the terrace, now will shallow soils. Terraces cannot slow water flow effectively enough to prevent gullying on slopes above 8 percent. Terraces not only retard soil erosion, but also hold water so that it has time to soak into the soil (Henry and Nichols 1937; Troeh et al. 1991:247-248).

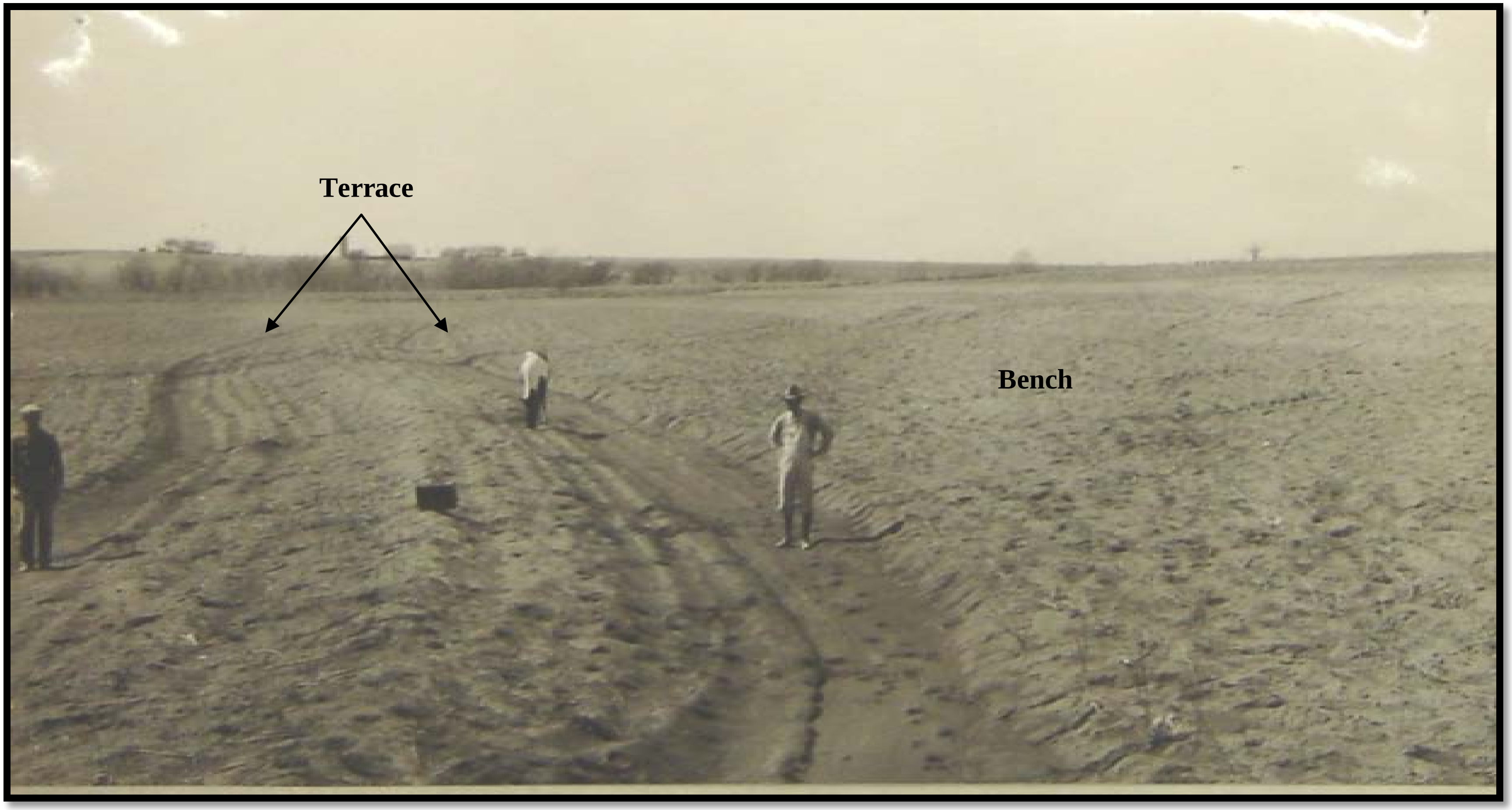

Figure 13: Broad base mangum type terrace near Troy, Bell County, Texas. Channels at the top and bottom of the terrace hold water on the field (RG 144 Annual Report, Fiscal Year Ending June 30, 1934, Soil Erosion Service, U.S.D.A., Central Texas Project No. 4, Temple, Texas, p. 9).

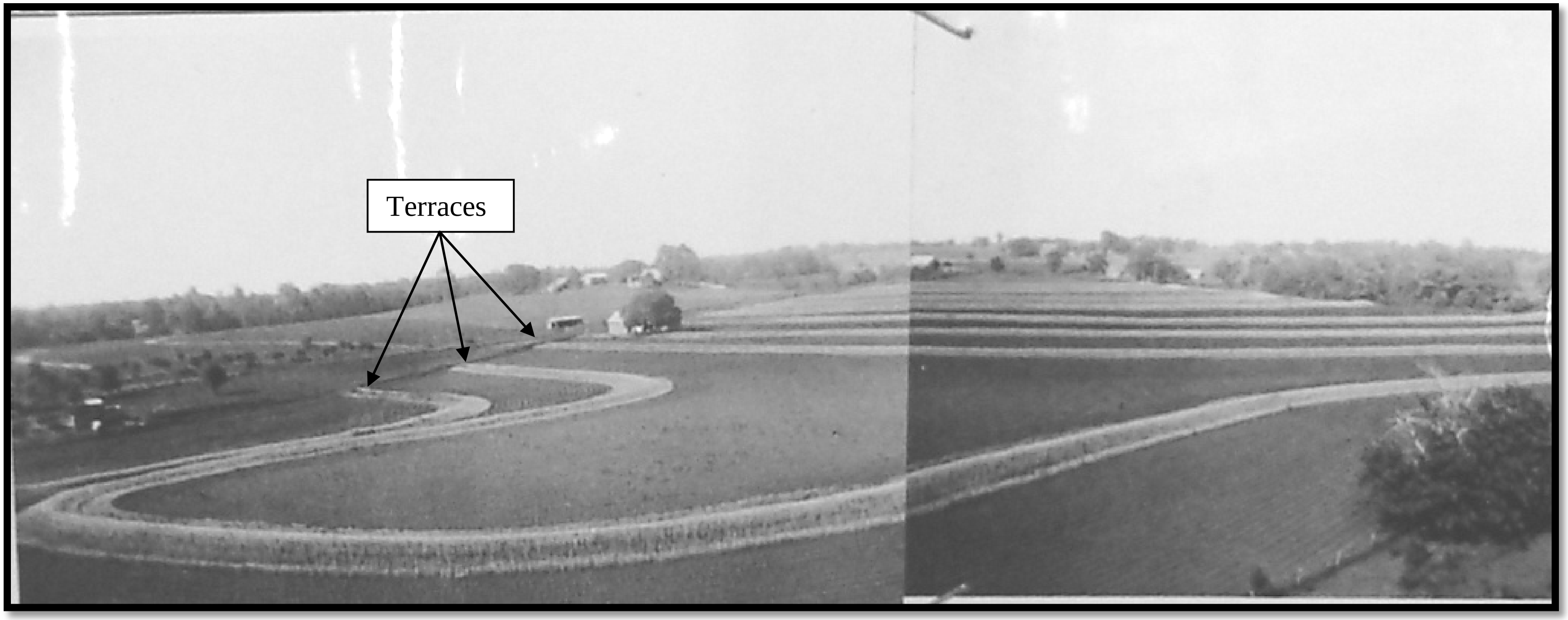

Figure 14: Terracing, strip cropping, and contour cultivation. Cash crops are planted on the benches and erosion-resistant crops are planted directly on the terraces. Crops are rotated to retain fertility. Fields are plowed following the natural contours of the land (RG 114 First Annual Report, Nacogdoches, Texas, 1935-1936).

Fields are shaped to the curve of the land, instead of laid out in regular squares or rectangles, and soil is mounded up at intervals to form a step-like terrace structure. Excess water is collected in channels and directed to an outlet channel that takes overflow water away from the field. Terraces are constructed so that cultivation is possible across the entire structure. Terracing is one of the most effective means of erosion control on a cultivated field if the terraces are properly constructed and maintained (Bennett 1939:443-444; Maher 2001:121-124).

One popular style of terrace utilized by Central Texas farmers was the mangum terrace. A mangum type terrace is built by mounding up soil from both sides to form the central bank of the terrace. Crops can be planted on the terrace itself. Another popular type of terrace, the Nichols terrace, is built up only from the top side of the terrace.

The grade of the terrace is often determined by the soil type and should be the least grade that will allow excess water to run off the field. Most terraces have a grade of four inches or less per 100 feet. Terraces are placed far enough apart to allow the area in between to be tilled. They are also spaced so as to sufficiently slow the rate of runoff of the water from the area above. Terraces have channels that are less than 7 to 8 square feet and from 15 to 20 inches deep. Depending on the slope of the field, a terrace is usually from 15 to 40 feet wide. The slope of the terrace channel or ridge should not be more than one foot of vertical height for every 4 to 5 feet of horizontal length. Terrace length is generally kept between 1,600 and 1,800 feet in order to allow it to drain water effectively. Fields with slopes in excess of 10 to 12 per cent were not considered fit for cultivation by the SCS and often those fields were retired from cultivation or turned into pasture land (Bennett 1939:450-455).

Terraces are generally used on fields with steeper slopes where other erosion control techniques alone, such as contour cultivation and strip cropping, are not sufficient. Terraces do not aid in the fertility of the soil, but are designed to control erosion. Therefore, terraces are often used together with crop rotation, strip cropping, and contour cultivation (Figure 16). Over 33,000 miles of terraces were built by the CCC (Maher 2001:121-124).

Terrace Outlets

Runoff from fields, whether terraced or not, is controlled by drainage ways or outlets. Outlet channels that direct excess water from the ends of terraces are usually shallow and covered in close-growing vegetation, such as grasses. Outlet channels that are located on steeper slopes often require a series of check dams to slow water velocity (Figure 17). In designing a system to dispose of excess water, the relation of the outlet to the adjacent farm land, as well as adjacent and downstream farms has to be considered. It is always more practical to implement soil conservation measures on adjacent farms in order to maximize the methods’ efficacy. Over the life of the program, the CCC built about 430,000 outlet ditches (Bennett 1939:477-483; Maher 2001:121-124).

The lower end of the outlet channel is usually flat and broad in order to disperse the runoff water over a larger area (Bennett 1939:487). Outlet channels perform most effectively if their vegetative cover is well established and they are constructed prior to building terraces. Some channels require notched dams made of

Figure 15: Terracing, strip cropping, contour tillage, Bermuda grass, and sodded outlet channel (RG 114 First Annual Report, Nacogdoches, Texas, 1935-1936, p. 24).

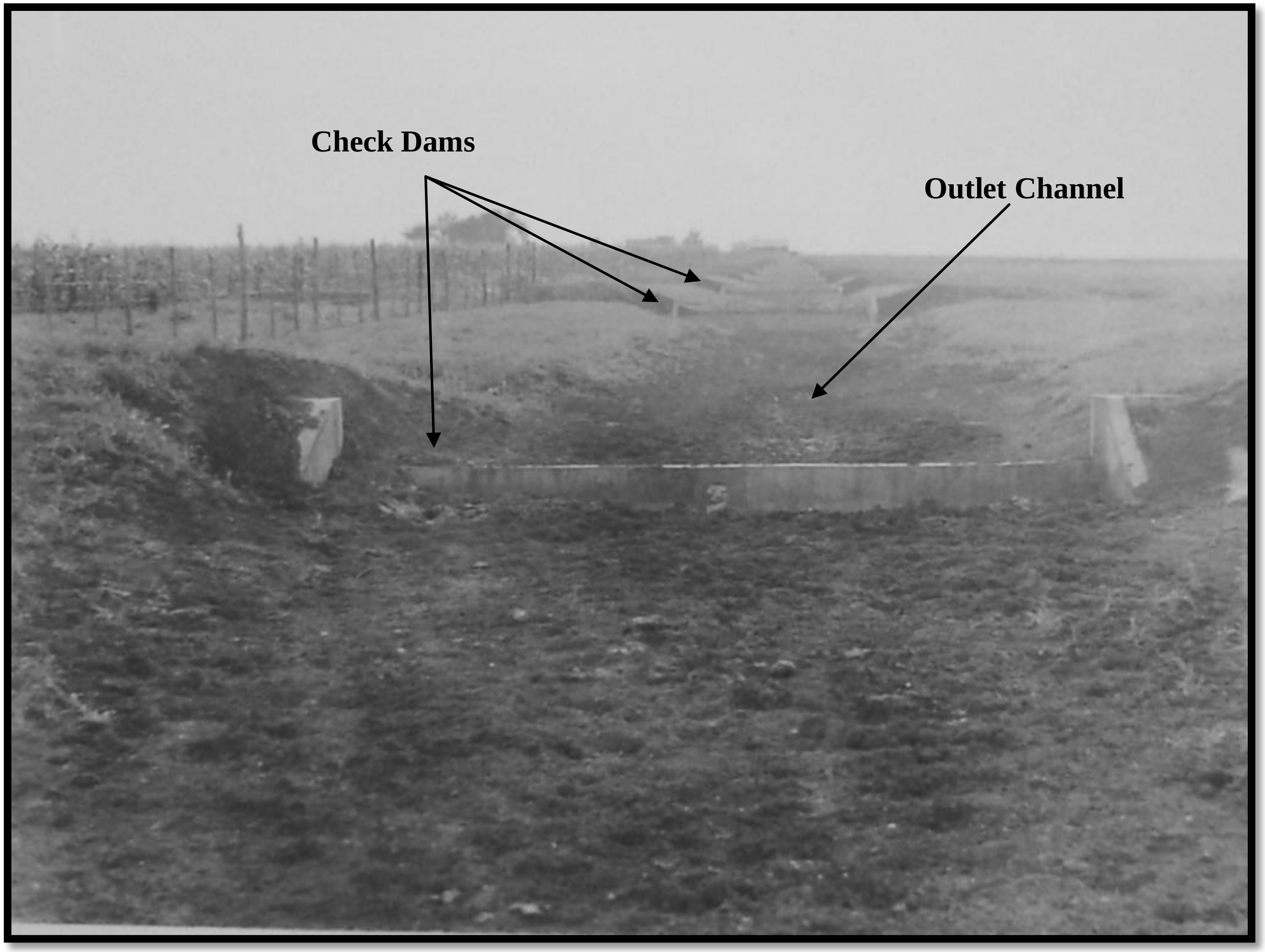

Figure 16: Concrete check dams in terrace outlet channel near Bartlett, Bell County, Texas (RG 114 Annual Report, Camp SCS-7-T Bartlett, Texas, July 15, 1935-July 1, 1935, p. 25).

brick, stone, concrete, or concrete blocks to slow the rate of runoff. Notches in the dams are wide enough to handle the amount of excess water from the drainage area (Figure 18). The structure has impervious foundations and extends far enough into the sides of the channel to prevent seepage around the structure. Local materials are often utilized to reduce the cost of construction (Bennett 1939:492-495).

Natural drainages or depressions are often used as terrace outlet channels. Outlet channels divert the excess water off of the terraces and away from the field (Figure 19). The upper terrace should always be constructed first, with successive terraces following down slope.

Diversion ditches are placed on the downhill side of the terraces to carry away runoff water from a field. They are usually placed at the top or bottom of steep slopes or on property lines. Diversion ditches direct excess water that accumulates in the terrace channels off of a field and divert it to other parts of the farm or into ponds. Placement of diversion ditches is very important, as they direct runoff to areas of the farm where the runoff will not cause erosion and gullies. Most diversion ditches are vegetated as they are meant to move water more swiftly than on terraces, so that sediment will not settle out or cause scouring in the channel. Diversion ditches are usually constructed in a trapezoidal shape with a flat bottom from 3 to 20 feet (1 to 6 m) wide and sloped sides and channel depth between 15 to 40 inches. However, the size of the channel is often determined by the amount of water it is meant to convey (Troeh et al. 1991:257-258).

Temporary or permanent dams are placed in gullies or outlet ditches to slow the rate of water runoff. These structures help to control erosion until vegetation

Figure 17: Rock masonry and concrete check dam in terrace outlet channel (RG 114 Annual Report, Fiscal Year Ending June 30, 1935, Soil Conservation Service, U.S.D.A., Central Texas Project No. 4, Temple, Texas, p. 58).

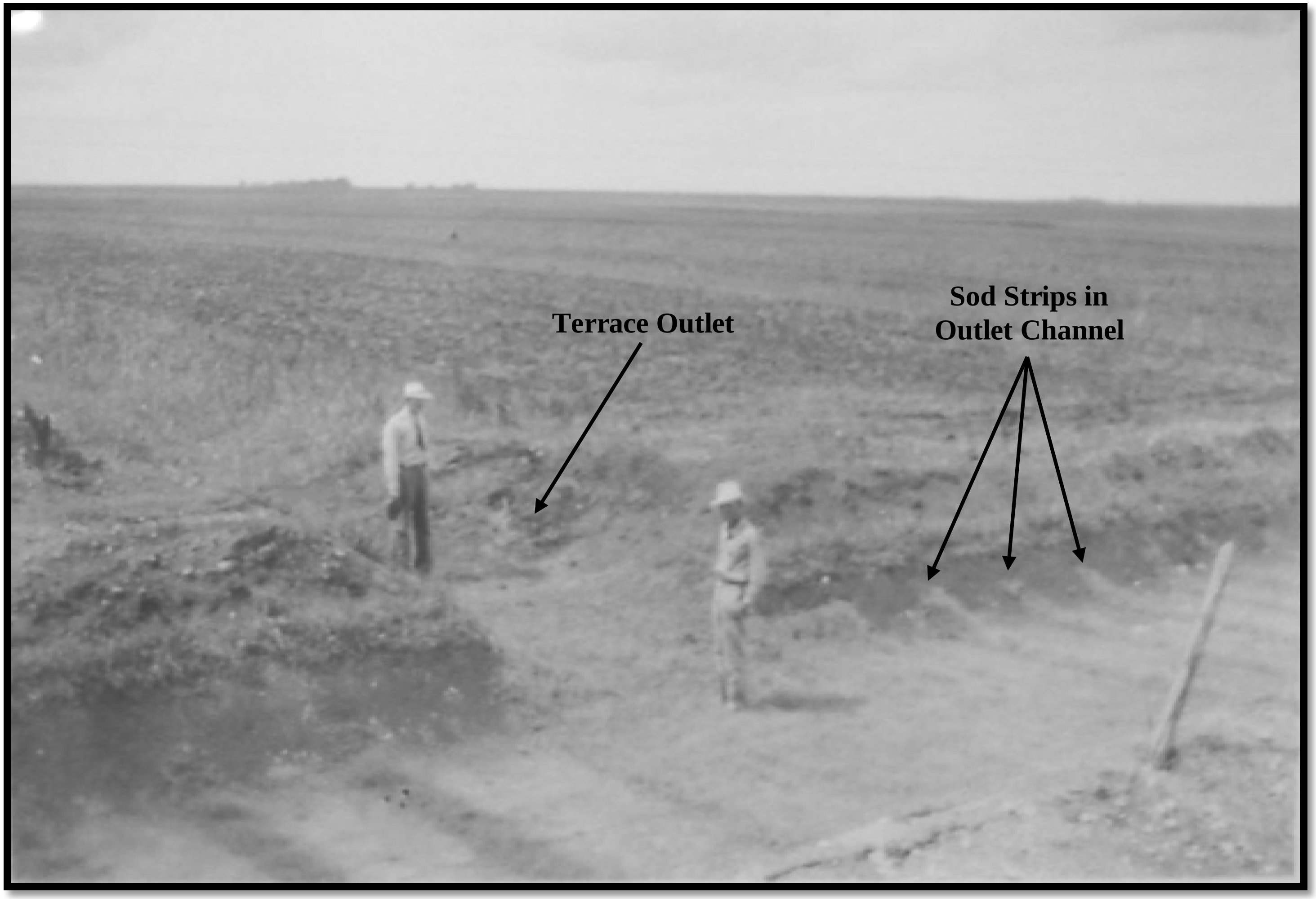

Figure 18: Sodded terrace outlet emptying into strip sodded channel northeast of Gatesville, Texas (RG 114 Annual Report, ECW Camp SCS-T-26, Gatesville, Texas, July 1, 1935-June 30, 1936, p. 35).

grows on the sides of an outlet or diversion ditch. The CCC commonly used drop structures, or small dams, to protect steep slopes and channels and to trap sediment. A main wall is placed across a gully or ditch and to anchor the structure cutoff walls are extended into the channel banks, so that water cannot flow around it. A notch is placed in the center of the dam to serve as a spillway, beneath which one finds an apron or stilling basin that slows water flow. To stabilize the front of the apron, a toe wall is set into the soil parallel to the main wall. Side walls run from the main wall to the end of the apron or beyond, and buttress walls may need to be installed between side walls if the main wall is long (Troeh et al. 1991:263-264).

Contour Cultivation

Contour plowing is typically deployed in combination with strip cropping and terracing to prevent erosion. Contour cultivation involves plowing along the natural contours of a field with rows laid out parallel to the slope. Contour cultivation holds water and soil on a field and can be used alone on fields with gentle slopes (Figure 20). Contour plowing has similar effects to terracing the land. It slows erosion and reduces the amount of soil carried away by heavy rains. The greater and longer the slope, the less effective contour cultivation becomes. This practice did not become widespread among farmers until the 1940s (Bennett 1939:434-442; Troeh et al. 1991:127, 235-239; Maher 2001:121-124).

In areas where water is scarce, furrows are constructed with a lister. Furrows are small ditches about 6 inches deep, 25 inches wide at the top, and 4 inches wide at the bottom, placed about 42 inches apart (Figure 21). Contour furrows store water

Figure 19: Crops rows run on the contour holding water after a rain (RG 114 Annual Report Fiscal Year Ending June 30, 1934, Central Texas Project No. 4, Temple, Texas, p. 26).

Figure 20: Contour furrows across a pasture (RG 114 Annual Report ECW Camp 15-T Littlefield, Texas, July 1, 1935-July 30, 1936, p. 25).

where it falls and allow it to seep into the soil (Bennett 1939:434-442; Maher 2001:121-124). In 1939, fifteen farmers cooperating with the Gatesville CCC camp had contour furrows run on their pastures to conserve water and improve their pastures. Contour furrowing on pastures was a relatively new practice in 1939, but was quickly gaining acceptance because of its proven ability to improve pasture land (GM January 12, 1940).

Strip Cropping

Strip cropping consists of planting alternating narrow strips of close-growing crops following the contours of the hill. Strip cropping is used on sloped fields to break the rate of water flow into shorter distances (Figure 22). Soil is less likely to be picked up by water flowing downhill and carried in suspension if its rate is slowed. Nonerosion-resistant crops, such as corn or cotton, are often alternated with erosion-resistant crops, such as grasses or legumes, which grow close together (Figure 23). Strips of erosion resistant crops slow the rate of water flowing over the fields and catch valuable topsoil that is picked up by fast moving water. Crops planted in the strips are usually rotated every year to maintain soil fertility (Bennett 1939:346-354; Cornebise 2004:16; Maher 2001:118-120). In some cases, permanent vegetative strips are planted and a single crop or rotated crops are planted in the plowed strips. Strips should be of limited width to prevent excessive runoff and for the vegetative strips to allow sediment to drop out (Troeh et al. 1991:128, 200-203).

Crop Rotation

Crop rotation consists of alternating different types of crops on a single piece of land. Crops used in the rotation are generally a cultivated crop, a small grain, and a

Figure 21: Strip cropping and contour cultivation Bartlett, Bell County, Texas (RG 114 Annual Report, Camp SCS-7-T, Bartlett, Texas, July 15, 1935-July 1, 1936, p. 11).

Figure 22: Strip cropping near Heidenheimer, Bell County, Texas (RG 114 Annual Report, Fiscal Year Ending June 30, 1935, Soil Conservation Service, U.S.D.A., Central Texas Project No. 4, Temple, Texas, p. 30).

grass or legume (Figure 24). Ideally, the time a cultivated crop occupies a field is reduced to a minimum and the time grasses and legumes occupy the field is maximized. Cultivated crops tend to leave more area exposed to erosion, whereas grasses and legumes cover more of the ground surface and have more extensive root systems that hold the soil in place. Cultivated crops also pull more nutrients from the soil, whereas grasses and legumes replenish many of these nutrients when plowed under (Bennett 1939:339-346).

Cover Crops/Sodding

Bermuda grass was popular in the Gatesville CCC camp area as a quick sod cover for pastures and pasture strips (Figure 25). Bermuda grass was excellent for erosion control, grew quickly for grazing, and was most successful when transplanted from pieces of sod (Figure 26). The sod could be placed in contoured furrows or ridges, in strips across the channels of waterways. Other grasses suitable to the Gatesville area included rescue grass, Italian rye grass, Dallis grass, Bur Clover, and Black Medic (GM December 10, 1937).

Buffalo grass was became more popular in Coryell County as a means to sod pastures with the arrival of the SCS. Very little seeding or sodding of Buffalo grass in Coryell County was done before the arrival of the SCS CCC camp in Gatesville. From the time the CCC camp was established, Buffalo grass was being used successfully on cooperating farms for contour sodding of land retired from cultivation, sodding contour ridges in pastures, chunk sodding gullies, strip sodding terrace outlet channels, and placing across the tops of terrace outlets to prevent Bermuda grass from spreading into cultivated fields (GM January 14, 1938).

Figure 23: Sorghum planted on terrace lines with cotton in between, northern Bell County, Texas (RG 114 Annual Report Fiscal Year Ending June 30, 1934, Soil Erosion Service, U.S.D.A., Central Texas Project No. 4, Temple, Texas, p. 8).

Figure 24: Bermuda grass sod pasture northwest of Bartlett, Bell County, Texas (RG 114 Annual Report Camp SCS-7-T, Bartlett, Texas, July 15, 1935-July 1, 1936, p. 22).

Figure 25: Loading machine cut sod northeast of Gatesville, Texas (RG 114 Annual Report E.C.W. Camp SCS-T-26, Gatesville, Texas, July 1, 1935-June 30, 1936, p. 40).

Gully Control

Gullies commonly form on unprotected land where runoff water collects. The most economical method to curtail gully expansion is the use of close-growing plants over the entire ravine. Gullies can be classified as small, medium, and large (Figure 27). Small gullies can be checked by plowing the area smooth, employing contour strip-cropping methods, or retiring the field from cultivation and planting a permanent vegetative cover. Medium-sized gullies require the control of erosion and water runoff higher up slope and at the head of the gully (Bennett 1939:363-368).

Erosion control measures, such as terracing, most often are applied over the entire field where the medium-sized gully is located. The sides of the gully can be plowed and the soil turned into the bottom or the sides can be graded with a bulldozer to reduce the slope (Figure 28). Temporary dams can be utilized to check runoff water until a vegetative cover is established. Large gullies are those that are so deep and wide that they cannot be reclaimed for cultivation or pasture. These types of gullies often can only be treated with the planting of vines or trees (Bennett 1939:363-368).

Construction of Small Reservoirs

Along with soil conservation, the SCS also stressed water conservation. Small reservoirs could be most economically constructed by placing earthen dams across a drainage or enclosing an artificial depression (Figure 29). Ample spillways for reservoirs and ponds for livestock were stressed. Mud was kept out by reducing or abandoning grazing and cultivation in the watershed, building settling basins, check

Figure 26: Deep gullies formed by runoff from cultivated fields near Belfalls, Bell County, Texas (RG 114 Annual Report, Fiscal Year Ending June 30, 1934, Soil Erosion Service, U.S.D.A., Central Texas Project No. 4, Temple, Texas, p. 14).

Figure 27: Cooperating farmer plow sloping a gully with the assistance of CCC labor northeast of Gatesville, Texas (RG 114 Annual Report E.C.W. Camp SCS-T-26, Gatesville, Texas, July 1, 1935-June 30, 1936, p. 38).

Figure 28: Construction of a stock pond in the Elm Creek Watershed area (RG 114 Annual Report 1937-1938, Elm Creek Project, Tex.-1, Temple, Texas, Region 4, p. 28).

dams or vegetated waterways upstream, or floodgates in a diversion ditch (GM December 25, 1936).

CCC and Soil Conservation

At the end of the first enrollment period on September 30, 1933, erosion control was the third major type of work project undertaken by the CCC and would later develop into one of the most important aspects of the CCC program. By the end of the first enrollment period, erosion control was completed on 388,034 acres and an additional 151,555 acres were partially completed. To regulate stream flow and check runoff from heavy rains, 68,450 erosion control dams were built. A total of 21,534 acres were revegetated. Erosion control projects were placed under Forest Service and NPS supervision and were noted as one of the most beneficial aspects of CCC projects (HD December 30, 1933).

Early in the program's existence, it was observed that farmers were taking note of the new erosion control methods and instituting them on their own farms. The Tonto Creek CCC Camp in the Tonto National Forest in Arizona built 1,000 soil erosion check dams to control the washing of soil on grazing lands. Local landowners who observed the CCC work began to imitate the soil erosion protection work on their own land after having the methods demonstrated to them by the CCC (HD May 5, 1934).

At the end of the third enrollment period, there were 34 Soil Erosion Service (SES) CCC camps and by the end of the fourth period, there were 51. By the end of the third enrollment period on September 30, 1934, the SES camps had built 31,905 dams, protected 425,000 square yards of banks, planted 489,489 linear feet of gullies, built 166,390 ditches and terrace outlets, and benefited 200,000 acres of land across the country. Thousands of farmers had witnessed the demonstration work performed by the CCC and many began to apply these approaches on their own farms (HD December 22, 1934).

By January 31, 1935, the 51 SES CCC camps had built 102,195 check dams, leveled and graded 2,096,277 square yards of banks, planted 3,204,761 linear feet of gully banks, built 636,642 linear yards of ditches and terrace outlet channels, applied rodent control on 37,472 acres, made topographical surveys of 1,931,400 square yards of land, and collected 115,775 pounds of seeds for planting (HD February 16, 1935). Hugh Hammond Bennett, Chief of the SCS, noted in December 1935, that enrollees leaving the CCC were returning to their own farms with the knowledge of the causes of erosion and how to contain it with the methods they learned. These former enrollees, in turn, passed on this knowledge to their neighbors and assisted them in controlling erosion on their farms (HD December 21, 1935).

Severe drought and the ensuing Dust Bowl in the spring and summer of 1934 ushered in a new phase of CCC work across the country. Tons of topsoil from the Midwest was lifted airborne and blown as far east as the Atlantic Ocean. Crops were destroyed and livestock had difficulty finding water. The devastation of so much private farm land in the Midwest prompted the federal government to consider using federal funds to encourage better farming practices and irrigation methods to stem erosion and drought. To address this new menace, the CCC was authorized to enroll 50,000 additional men, including 5,000 veterans, from the drought-stricken areas. The CCC had now expanded to 353,000 men in 1,625 camps (Salmond 1967:55-56). This period also marks a greater involvement by the federal, state, and local governments in rural planning.

After the dust storms struck in the spring and summer of 1934, President Roosevelt recommended that a National Soil Survey be commissioned, and Congress granted and tasked it to the SES. The SES, situated under the Department of the Interior, itself had only been in operation since it was created by Congress on September 19, 1934. The survey, directed by Hugh Bennett, was conducted by a team of 115 soil specialists which evaluated every county in the country, marking a new phase in government involvement with private property. The survey, completed in mid-November 1934, was used to locate CCC camps in the areas most affected by erosion and allowed the SES to plan soil conservation measures on the rural landscape (Maher 2001:110-114).

Three types of erosion, sheet, gully, and wind, were noted in every county, with sheet erosion being prevalent in the South, gullying in the West, and wind erosion on the Great Plains. Erosion patterns were mapped by the SES, which issued a warning that more than half of the land in the country had experienced moderate-to-severe erosion. Farmers and the federal government were awakening to the fact that soil erosion was severely impacting the nation's landscape. After the Dust Bowl, the CCC's work projects shifted from primarily being concerned with forest conservation and preservation to also conserving the soil resources of the country (Maher 2001:110-114). This heightened concern for soil conservation is reflected by a sharp increase in the number of SCS CCC camps between the 4th and 5th enrollment periods (October 1934 to September 1935, Tables 6 and 7).

Although President Roosevelt and Secretary Fechner had balked at placing work projects on private property when the CCC was first established, the Dust Bowl changed their stance on this issue. Roosevelt and his administration convinced Congress that soil erosion on private property was detrimental to the public good. Soil conservation work was expanded and Congress allotted an additional fifty million dollars for drought relief (Maher 2001:110-114).

Table 7: Number of CCC Camps per Enrollment Period (compiled from Annual Reports of the Director of Emergency Conservation Work, 1933-42).

	Period																		
Type of Camp	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
National Forest	597	439	463	467	747	567	485	484	441	336	321	332	323	321	312	321	213	107	69
State Forest	315	324	306	305	409	345	295	284	241	174	175	180	178	175	177	249	106	40	24
Private Forest	219	223	171	177	278	213	169	170	147	110	109	100	105	100	99	95	63	25	11
Private Erosion	111	100	111	94															
Soil Erosion Service			34	51															
Soil Conservation Service					544	398	454	456	432	364	349	365	365	393	391	318	306	190	112
State Park	102	239	315	335	475	398	329	341	314	224	208	233	219	165	151	158	103	32	14
Army	3	4	4	5	77	46		46	44	32									
National Park	70	61	108	86	115	50	59	45	60	41	61	47	68	97	118	106	113	79	75
National Monument	4	11	8	14	18	17		12	11	11									
Biological Survey	3	2	3	3	26	21		23	29	31					36				
Military Park	7	12	16	14	17	16		24	13	9									
State Erosion	6	7	8	9															
Federal Levee	4	1	1	1	1	1													
State Levee		3	3	3	3														
Federal Land Grant	6	8	4	5	5	3		3	3	2									
Corps of Engineers	28				31	32		28	22	10									
General Land Office	1		1		2				2	1					6				
Navy		3	3	2	4	6		4	2	2									
Tennessee Valley Authority		25	23	19	30	22		21	19	29									
TVA State Park			5	9	10	6		6	4	2					3				
TVA Forest Service					8	6		5	5	5					18				
Private Land		2	2																
Agriculture		1	1	2															
Bureau of Reclamation			1	2	35	32		34	34	34					44				
Bureau of Plant Industry					2	1		2	2	2					2				
Bureau of Animal Industry					6	6		5	4	4					1				
Mosquito Control					15	13		13	11	7									
Drainage					88	46		46	46	39									
Grazing					50	51		45	45	45					89				
Beltsville Research Center															3				
County Park															22				
Metropolitan Area															13				

Table 8: Number of CCC Camps in Texas (compiled from Annual Reports of the Director of Emergency Conservation Work, 1933-42).

	Period[16]																		
Type of Camp	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
State Forest	3	3	3	3	3	2	1	1	1	1									
Private Forest	9	14	9	13	10	8	7	7	7	6	6	6	6	4	4	4	3	3	1
National Forest				4	14	11	9	9	9	7	7	6	6	6	6	6	5	2	2
Private Erosion	7	11	11	10															
State Park	15	14	17	15	26	24	23	24	20	18	16	16	16	10	9	9	5	5	1
National Park														1	1	1	1	1	
Soil Erosion Service			2	3															
Soil Conservation Service					38	34	32	32	30	29	27	27	27	27	27	27	23	20	3
Bureau of Reclamation					1	1	1	1	1	1	1	1	1	1	1	1	1		
Army					5	5	5	4	4	3									
Bureau of Biological Survey												1	1	1	1				
Fish and Wildlife Service																1	1	1	
County Park														2	2	2	2	2	
Metropolitan Park														3	4	4	3	3	
National Defense (SCS)																			7
National Defense (Dept. of Interior)																			3
Total	**34**	**42**	**42**	**48**	**97**	**85**	**78**	**78**	**72**	**65**	**57**	**57**	**57**	**55**	**55**	**55**	**44**	**37**	**17**

[1616] Enrollment periods extended over six months. The 1st enrollment period extended from April 1-September 30, 1933; 2nd from October 1, 1933-March 31, 1934; 3rd from April 1-September 30, 1934; 4th from October 1, 1934-March 31, 1935; 5th from April 1-September 30, 1935; 6th from October 1, 1935-March 31, 1936; 7th from April 1-September 30, 1936; 8th from October 1, 1936-March 31, 1937; 9th from April 1, 1937-September 30, 1937; 10th from October 1, 1937-March 31, 1938; 11th from April 1-September 30, 1938; 12th from October 1, 1938-March 31, 1939; 13th from April 1-September 30, 1939; 14th from October 1, 1939-March 31, 1940; 15th from April 1-September 30, 1940; 16th from October 1, 1940-March 31, 1941; 17th from April 1-September 30, 1941; 18th from October 1, 1941-March 31, 1942; and 19th from April 1-September 30, 1942.

On April 27, 1935, the SES was made a permanent agency, renamed the Soil Conservation Service (SCS), and transferred from the Forest Service to the Department of Agriculture. By the end of 1935, thirty percent of CCC camps were under the supervision of the SCS. Drawing on the National Soil Survey, about one quarter of these camps were located in the states where the dust storms caused the most damage and the remainder were placed primarily in the South where erosion was also prevalent. These camps performed work on privately-owned farms that were within a 20-mile radius of the camp (Cornebise 2004:16; Helms 1985; Maher 2001:115-117; Simms 1970:17-19).

To make the work on private land more palatable to the public, farmers were required to sign a five year cooperative agreement in which they consented to assist in the work, provide the equipment and materials to carry out the project, and maintain the improvements after the work was completed. Work performed on the cooperating farms was designed to demonstrate to other farmers in the vicinity how to responsibly and economically conserve and maintain the soil and water resources on their property. Therefore, soil conservation officials could argue that because of this demonstration value, projects on private land were beneficial to the larger populace. Over nine years, the SCS supervised about 300 camps with a total of nearly 50,000 men for the purpose of assisting farmers in saving the soil on their farms (Cornebise 2004:16; Helms 1985; Maher 2001:115-117; Simms 1970:17-19). CCC soil conservation work on private property significantly shaped the rural American landscape.

Conservation Work in Texas and Region 4

Up to September 1934, New Deal programs had expended $550,000,000 in Texas alone. By August 1934, Texas was allotted 47 CCC camps with 9,400 enrollees. Benefits in the form of conservation and the development of forest and range resources, was valued at $11,854,234 (DMN October. 21, 1934). Erosion control work performed in Texas by the CCC in 1934 consisted of 6,645 check dams, including 3,156 concrete dams and 3,489 of rock masonry. A total of 48,370 acres were drained by these dams (DMN January 17, 1935).

In January 1936, Fort Worth, Texas, was designated as the Region 4 headquarters of the SCS; the region includes Arkansas, Louisiana, and Texas, except for the high plains area (Figure 30). The Fort Worth office assumed supervisory and administrative direction of five units of field operations including 19 project watershed demonstrations, 60 erosion control camps, two Soil Conservation Experiment Stations, four Soil Conservation Nurseries, and a Research Division. The 19 project demonstrations were located on defined watersheds of about 25,000 acres each (GM January 24, 1936).

Work on individual farms was determined based on demonstration value and the ability of the farmer to carry out the erosion control recommendations. In some cases, erosion control measures also were applied to adjoining farms. To best utilize the camp labor, most of the demonstration work associated with these camps was conducted on closely grouped farms rather than individual scattered farms. A technical staff, under the Project Manager, supervised the work of the enrollees (GM January 24, 1936).

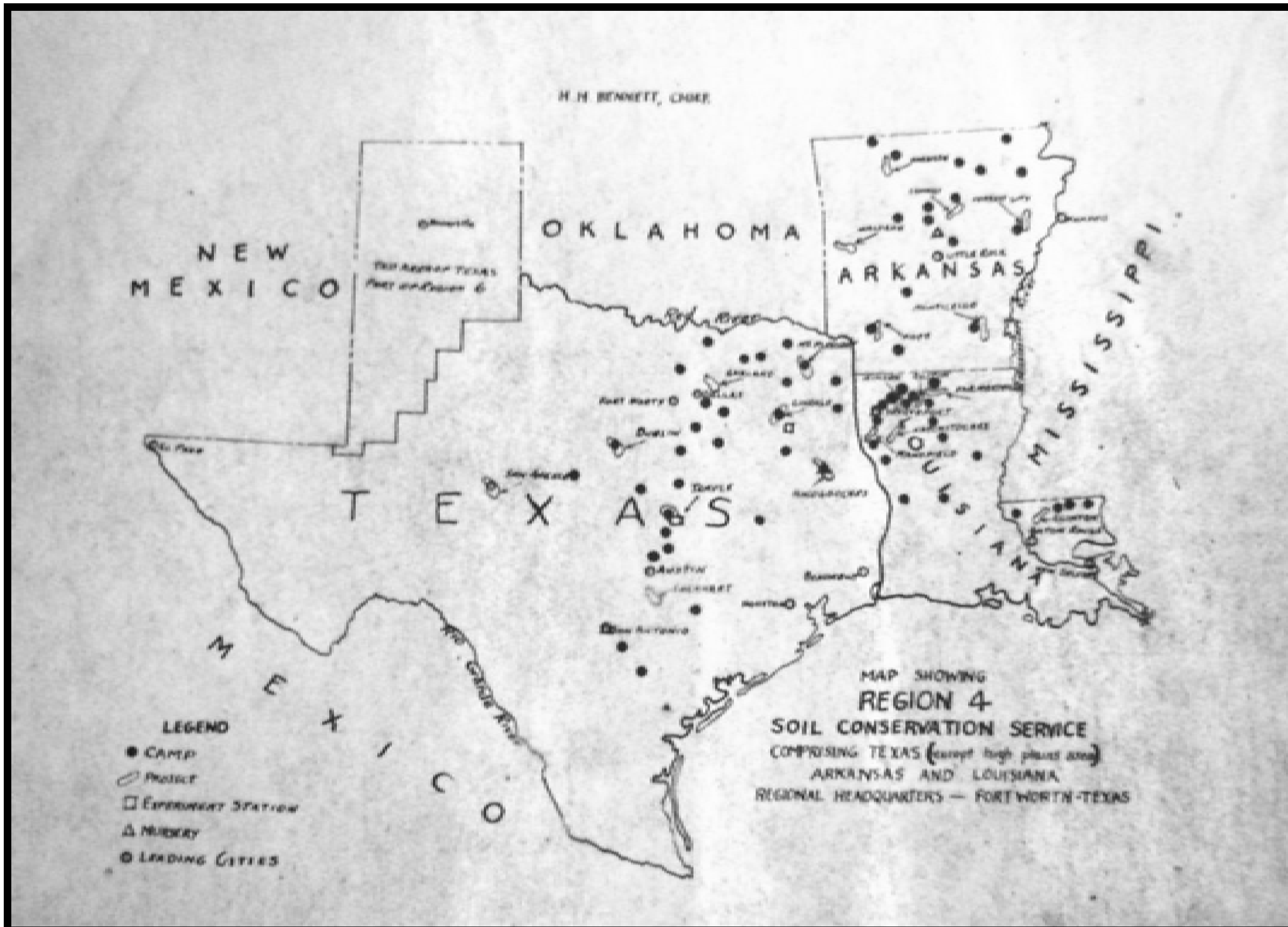

Figure 29: Soil Conservation Service Camps, Projects, Experiment Stations, and Nurseries, Region 4, 1936 (RG 114 Camp Annual Report, ECW Camp SCS-23-T, Marshall, Texas, August 7, 1935-June 30, 1936).

In these camp areas, farmers assumed more responsibility for the erosion control work by providing the materials and equipment necessary to carry out the recommended work. Five year cooperative agreements were drawn up and signed by the farmer and a representative of the SCS. The cooperating farmer also was required to be a member of the soil conservation association in their area. Work was done only at the invitation of the farmer (GM January 24, 1936).

In 1936, a survey of farming operations in Region 4 under the SCS's 20 project and 57 soil conservation camps indicated that erosion control methods and practices instituted by farmers cooperating with the CCC camps were being adopted on farms throughout Texas, Louisiana, and Arkansas (Figure 30). The survey found that the spread of erosion control practices was due largely to visits by individuals and groups of farmers, who actually see the application of the erosion control methods constructed on cooperating farms (GM August 22, 1936).

According to the 1936 survey, one or more approved erosion control methods were implemented on some 3,266 farms covering 245,535 acres. Improved crop rotations were adopted on 896 farms comprising 62,803 acres of land, while strip cropping was protecting 22,544 acres on 518 farms and contour cultivation was being practiced on 106,072 acres on 1,938 farms. Terraces were protecting 117,395 acres on 1,988 farms; approved terrace outlets were built on 16,445 acres on 404 farms; contour furrowing for soil and moisture conservation was placed on 7,800 acres on 286 farms; gully control work was performed on 7,304 acres on 490 farms. On 433 farms, 6,918 acres of badly eroded or steeply sloped land were retired from cultivation and revegetated and converted to permanent pastures. County extension agents and vocational agricultural teachers were seen as largely responsible for spreading SCS erosion control methods and practices (GM August 22, 1936).

A report from Region 4 headquarters was issued on November 19, 1936 detailing the accomplishments of soil conservation work in Texas. Soil conservation measures were being applied to 803,615 acres in Texas under 3,298 cooperative agreements between individual farmers and the SCS. A total of 34,622 acres of land was retired from cultivation and converted to pasture or woodland; contour ridges or furrows were built on 39,302 acres of pasture land; contour cultivation was protecting 41,256 acres; strip cropping and contour cultivation were protecting 37,655 acres; contour cultivation and terraces were protecting 103,453 acres; 7,680 miles of terraces were built to prevent erosion on steep or eroded slopes; 1,228,813 trees were planted (GM November 20, 1936). These numbers show that the SCS was making substantial inroads into convincing farmers in Central Texas to institute soil and water conservation measures on their land and indicates that farmers were accepting rural planning recommendations.

On farms where erosion control work was performed, farmers covered an average of 62 percent of the costs. In 1936 there were 32 soil conservation CCC camps and 13 demonstration projects in Texas, which carried out the same type of coordinated erosion control program. Texas had 44 Soil Conservation Associations with a total membership of 12,473. Interest in soil conservation measures was evident by the visitation of 1,562 groups with a total of 28,471 individuals to project and camp areas, sponsored primarily by county agents and vocational agricultural teachers. As a result of these visits, 58 Texas counties requested that SCS CCC camps be established in their area (GM November 20, 1936).

In February 1937, the SCS was called upon to assist in controlling erosion along Texas highways (Figures 31 and 32). An initial cooperative highway erosion control demonstration was established west of Madisonville, Texas, with the expectation that similar projects would be placed along selected highways in Texas with different soil conditions. Most of the damage to highways was caused by uncontrolled runoff water. The SCS called for the construction of designed waterways controlled by vegetation along highways (GM February 19, 1937).

In September 1938, it was reported that more than 4,356 farmers who owned 706,282 acres in Texas outside of the Panhandle area, had established complete conservation farming methods on their land. These farms were located in the nine project areas and 23 CCC camp demonstration areas of the SCS in Texas. As a result of this work, the carrying capacity of old and new pastures was increased by 25 to 50 percent with practices including seeding and sodding pastures to adapting pasture grasses and legumes such as clovers and lespedezas. More than 60,000 acres of formerly cultivated land in Texas were converted to pasture to control erosion. Over 93,000 acres of old and new pastures on cooperating farms were contour-ridged or furrowed, increasing the forage value on these farms (GM September 2, 1938).

In 1941, 788,852 acres of land in 214 Texas counties were terraced, 39,838 acres of permanent pasture in 93 counties were terraced, 21,940 acres in 66 counties were ridged, 84,168 acres in 100 counties were contour-furrowed, 21,163 acres in 21 counties were chiseled, and water was distributed from spreader dams across 115,683

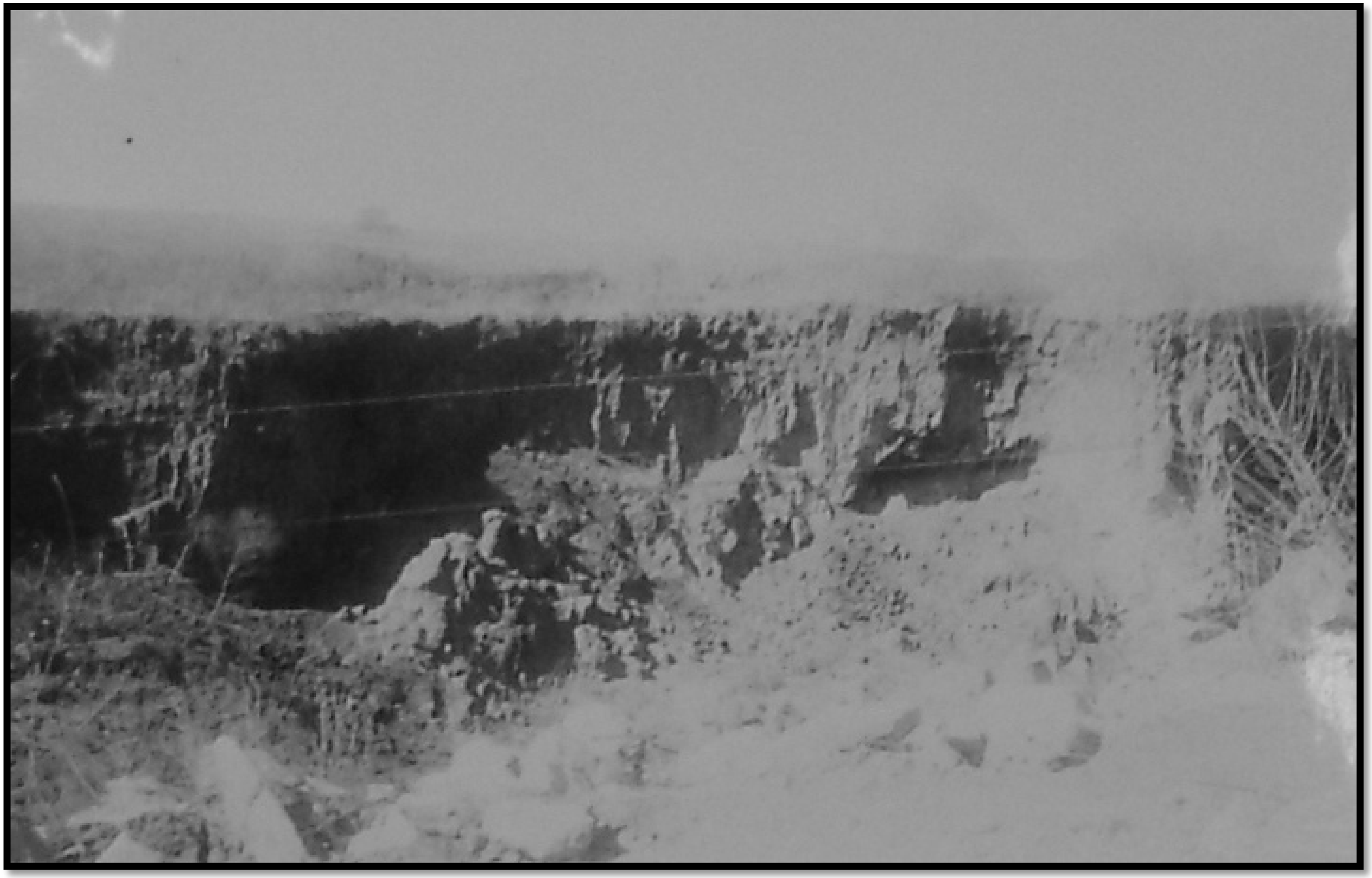

Figure 30: Roadside gully before treatment on a farm west of Gatesville, Texas (RG 114 Annual Report, E.C.W. Camp SCS-T-26, Gatesville, Texas, July 1, 1935-June 30, 1936, p. 39).

Figure 31: Roadside gully after treatment on a farm west of Gatesville, Texas (RG 114 Annual Report, E.C.W. Camp SCS-T-26, Gatesville, Texas, July 1, 1935-June 30, 1936, p. 39).

acres of grassland in 77 counties. Tractor-grader units owned by counties built terraces or ridges on 343,540 acres (GM January 23, 1942).

These numbers indicate that as more SCS CCC camps were established across Texas and farmers were able to see first-hand the benefits of soil and water conservation methods, they were increasingly eager to seek government assistance and accept federal rural planning recommendations. Some farmers observed the CCC's soil and water conservation methods on demonstration farms and learned how to construct the features themselves. Farmers could also see the greater productivity of farms that were cooperating with the CCC camps and the higher profits those farms yielded.

The CCC in Bell and Coryell Counties, Texas

Over its nine years of operation from 1933 to 1942, the CCC located four Private Erosion, SES, or SCS camps in Bell and Coryell Counties to combat soil erosion and conserve soil and water on private rural land. An examination of the work projects associated with these camps documents the evolution of rural planning during the New Deal period and demonstrates the increasing influence of the federal government in the daily lives of rural populations. This transformation of the Central Texas landscape is evident from aerial photographs.

The earliest CCC camp established in the area was located at Belton, the county seat of Bell County, in January 1934. Extension service agricultural engineer, M.R. Bentley announced on October 21, 1933, that four new soil erosion camps would be established in Texas at Bowie, Belton, Graham, and Taylor. Labor for soil erosion projects was furnished by the CCC and the implements and teams were supplied by the farmers. Projects under the soil erosion camps included permanent terrace outlet construction and the placement of masonry check dams in gullies (DMN October 21, 1933).

Belton Private Erosion Camp PE-76-T was in operation from January 24, 1934 to July 15, 1935. Camp Belton, under the direction of the U.S. Forest Service, was placed in Confederate Park in Belton and was completed on December 8, 1933 (TDT December 9, 1933). A CCC camp at Clifton, Texas, with a contingent of 250 men, was moved to Belton shortly after the camp was finished (TDT December 12, 1933). Work projects approved for the Belton camp included the construction of spillways and terrace outlet ditch check dams made of rock or concrete on farms that were already terraced (TDT December 22, 1933). However, in January 1934, some of the men were detailed to the Elm Creek Watershed project in Bell County to build terraces (TDT January 12, 1934).

By January 13, 1934, 36 farmers signed agreements to have the Belton CCC camp perform soil erosion work on their land. Since building terraces was not within the purview of this camp, this task was assigned to the county agricultural extension agent. At this time, the Roosevelt administration felt that the construction of terraces by the CCC camps would be perceived by the public as excessive use of federal funds for private benefit. Therefore, Bell County purchased 15 graders that would be provided by the county commissioners free of charge, while farmers were required to provide work teams to pull the graders (TDT January 13, 1934). This indicates that the local government was assuming greater responsibility in assisting the federal government and local farmers in rural planning. Only farms that had regulation terraces with outlet ditches emptying on the farm, rather than into a ditch lining a public road, were eligible for CCC assistance (BJ January 18, 1934; TDT January 17, 1934).

Work performed by the Belton CCC camp served to prolong the life of a farm's terraces and to prevent soil erosion on the entire farm. One farm in Tennessee Valley, which now lies below Belton Lake on the east side of Fort Hood, was almost complete by the end of February 1934 (TDT February 23, 1934). This indicates that farms in the eastern portion of Fort Hood received erosion control assistance early on in the program's history.

The Bell County extension agent was instrumental in encouraging farmers to terrace their land so that the Belton CCC camp could perform soil erosion work on their farms. He mailed out cards to all the farmers on his list inviting them to have this work done (TDT February 27, 1934). The Bell County Chamber of Commerce provided the graders to perform terracing work and encouraged Bell County farmers to carry out soil conservation measures (BJ March 22, 1934). Belton CCC camp PE-76-T was disbanded on July 15, 1935, and the men were sent to Waxahachie, Texas, where a new camp was started (BJ July 18, 1935; TDT July 17, 1935). Buildings abandoned by the Belton camp were transported a few miles south to Bartlett, where a new CCC camp was being established to work on the Elm Creek watershed.

While the federal government's reluctance to expend too much federal money on private property resulted in earlier soil erosion CCC camps concentrating on improving terracing systems already established on rural farms, the dust storms of 1934 changed the role of the federal government in the rural planning process. CCC enrollees primarily constructed terrace outlet channels and check dams to manage the runoff water from the terracing system. This type of work was perceived as less intrusive and more acceptable to the general public. County agricultural extension agents were much more active at this stage of CCC operations in assisting farmers with establishing erosion control measures on their property. After the devastation wrought by drought and poor farming practices, the federal government developed a more aggressive erosion control program on private farms, and rural planners began to concentrate more on establishing a complete erosion control system along entire watersheds that crossed property lines.

Hugh Hammond Bennett, head of the soil service division in the Department of the Interior, announced in late January 1934 that a soil erosion control project covering 206,000 acres would be established in Central Texas. Badly-eroded farms and pastures along the Elm Creek watershed in Bell, Falls, McLennan, and Milam counties were expected to be reclaimed through this project. About 300 square miles of blackland prairie cotton land, including 1,250 farms, would be covered by the project. Soil experts were to inspect each farm in the project area and propose an erosion control plan for the entire watershed. President Roosevelt authorized eleven of these soil erosion control projects across the country in 1934 to raise public consciousness of soil erosion and its effects on agriculture (DMN January 25, 1934).

In July 1934, the Elm Creek project, headquartered in Temple in Bell County, was expanded by 50,000 acres, into Falls County. At that time, 90 percent of the farms in the expansion area were under contract and about 400 CCC workers were performing terracing and other work (DMN July 28, 1934). Farmers and ranchers in the Fort Hood area were no doubt aware of this large demonstration project and some may have visited the farms where soil conservation work was being conducted. These large demonstration projects along individual watersheds were designed to employ a complete soil and water conservation program over an extensive area.

Two SES camps were established in Bell County in May 1934 at Temple (SES-1-T) and at Troy (SES-2-T) to perform work on the Elm Creek watershed. Both camps were staffed with World War I veterans and their primary tasks were to build terrace outlets and spillways, fixing gullies, and planting permanent vegetation on steep, eroded slopes (Temple Camp Report 1934:6). As in the Belton area with the Private Erosion camp, in the early years of conservation work, the farmers were responsible for building the terraces with their own animal teams and graders were provided by the SES. Enrollees from the two CCC camps assisted in building terrace outlet ditches with temporary and permanent check dams built of local rock and cement (Temple Camp Report 1934:10-12).

With the federal government's expanded presence in the rural countryside as a result of the devastation of the Dust Bowl, two additional SCS CCC camps were placed in Bell and Coryell counties in July 1935. Camp SCS-7-T was established in Bartlett in Bell County and camp SCS-26-T in Gatesville, the county seat of Coryell County. Work areas for each of these camps covered approximately 800,000 acres located within a 20-mile radius around the camps. The Bartlett camp was initially attached to the Elm Creek watershed project, but became independent in 1938 (Gatesville Camp Reports 1936:1; Bartlett Camp Report 1936:1; Bartlett Camp Report 1939:1). The Temple and Troy CCC camps were transferred to the SCS in

April 1935 and continued to perform the same types of work. In October 1935, the Troy SCS CCC camp was closed and its men transferred elsewhere.

The Belton and Gatesville camps performed work on farms that were taken by the federal government to build Camp Hood. Bartlett camp SCS-7-T's 20-mile radius extended into the southernmost portion of Fort Hood, but it is not certain whether this camp performed work on any of the farms in that area of the post. The large Elm Creek watershed project undoubtedly influenced Bell and Coryell county farmers and spread conservation practices to areas outside its purview, as is evident from the camps' annual reports, along with other sources.

The types of work performed by the CCC varied from camp to camp. Each camp filed a monthly report detailing its activities and the number of man hours spent on each task. Camps also filed annual reports describing the environmental characteristics of the area within the realm of their influence and erosion problems prevalent within the project area. Each camp was periodically visited by CCC officials, who reported on conditions within the camps, problems, and accomplishments. Local newspapers also provide a glimpse into the impacts the CCC made on the local community.

Numerous newspaper articles document the value of demonstrations performed by the CCC on cooperating farms. SCS camps regularly demonstrated soil conservation methods on cooperating farms and gave tours to interested farmers, often influencing these farmers to themselves sign cooperative agreements or agree to carry out conservation measures on their farms. Camps preferred to focus on areas where several adjoining farmers agreed to enter into cooperative agreements, as they would not have to waste their time traveling to farms scattered across the landscape.

In the Gatesville camp area, cooperative agreements were signed by 38 farmers, 15,940 feet of diversion ditches were constructed, and 85 miles of terraces were built to protect 1,200 acres of farm land by the end of June 1935. In addition three pasture strips were established for terrace outlet protection, 3½ miles of terrace outlet channels were completed, strip crop protection was established on 1,469 acres, and contour cultivation on 1,385.2 acres was achieved (Gatesville Camp Report 1936:18-25).

There is evidence that non-participating farmers were also changing their attitudes towards soil and water conservation. Many who were interested in having CCC work done on their farms were reluctant to sign an agreement until they examined how soil conservation measures actually worked on neighboring farms. Many others still believed that soil and water conservation measures were not necessary. The Gatesville CCC report, ending June 30, 1936, listed several farmers who were adopting soil and water conservation measures without having signed a cooperative agreement with the SCS. For example, Fort Hood property owners J.C. Bunnel (Tract 540), Ab Williamson (Tract D-187), Fletcher Colvin (Tracts F-281 and G-363), Julius Smith (Tract 628), and Sam Strickland (Tract D-426), terraced and contour-cultivated their farms in spring 1936, and Sam Henson (Tract D-169), terraced, strip-cropped, and contour-cultivated his farm without signing a cooperative agreement with the SCS (Gatesville Camp Report 1936:25-35).

Heavy rains in July 1936 demonstrated the value of soil conservation measures put in place by the SCS in the Plum Creek drainage in northern Coryell County. Inspection of farms cooperating with the Gatesville CCC camp found that no completed terraces broke and that strip crops significantly slowed down the rapid runoff of the flood waters to such an extent that soil in suspension dropped above or in the stripped areas. Terrace outlet channels lined with sod carried off excess water from the terraces with no scouring. In contrast, unprotected fields showed severe washing of massive amounts of topsoil to lower levels and in some cases completely covered growing crops. Similar results were noted by the Temple Experiment Station in the Elm Creek watershed. Farms utilizing a total program of erosion control, such as strip-cropping, terracing, sod-lined terrace outlet channels, and contour plowing, suffered little-to-no erosion while unprotected fields lost tons of soil, were badly gullied, and were permanently damaged (GM July 17 and 24, 1936).

Prior to establishment of the CCC camp in 1935, farmers in the county were becoming discouraged because prices were falling and soil erosion was becoming a major problem, reducing the productivity of the land. In 1935, productivity per acre was the lowest it had ever been. Subsequent to the foundation of CCC camp in Gatesville and the installation of soil conservation measures in the area, farmers regularly testified to the benefits received through the program. Strip crops noticeably held soil on the land better than almost any other method. The effectiveness of strip cropping was evident after some particularly heavy rains in the county in 1937. Many farmers were also reaping benefits by rearranging their farms, including relocating fences, establishing temporary and permanent pastures and meadows, and implementing a systemized plan of crop rotation (GM February 11, 1938).

Rufus J. Brown, a farmer in the White Hall community, instituted a complete erosion control program on his 125-acre farm in 1937. Erosion control measures proved so effective that Brown decided to place a second farm he owned, containing 441 acres in the Ewing community (Tract 546), under cooperative agreement with the Gatesville CCC camp. The 441-acre farm is now part of Fort Hood. Brown noted that from 1900 to 1917, he planted about 125 acres of his Ewing farm in cotton, which yielded from 42 to 56 bales per year. Yields dropped in subsequent years and the yield in 1937 was below the previous average. Plans for the program on the 441-acre farm at Ewing included not only complete erosion control measures for every cultivated acre, but also a pasture program consisting of alternate and controlled grazing by the use of cross fencing, and even grazing by using sheep and goats with cattle. A three-year rotation of cotton, corn, and oats or millet was also planned (GM December 10, 1937).

Soil conservation measures implemented on the Daisy Hampton Farm near Pidcoke included the half-and-half method of strip cropping with small grain and row crops of equal widths. Rotation of grain and row crops within the strips would occur every two years. Two fields of 40 acres and 60 acres were organized, with one field planted in cotton and small grain strips and the other in corn and small grain strips. These fields would be rotated each year. Cross fences between the fields were removed to allow grazing of the small grain by sheep (GM April 22, 1938).

George Bamburg, a cooperating farmer with the SCS CCC camp in Gatesville, noted that for every dollar he spent on soil conservation work on his farm, he had received three in return and expected greater benefits in the future. Bamburg's farm was located about 4 miles east of Gatesville. Some land covered in cedar and badly eroded was converted to pasture, allowing Bamburg to graze more livestock on his farm. On his cultivated land, Bamburg used a combination of strip cropping, contour cultivation, and terracing. He placed a demonstration plot of Hubam clover in one field which proved an effective soil building crop and he planned to seed the entire field in clover in 1939. Hubam clover was shown by the Temple Blackland Experiment Station to resist cotton root rot because it matured before the root rot set in. A pasture strip was also placed between the Bamburg Farm and its adjacent neighbor, stemming the spread of Johnson grass. Soil conservation measures on the Bamburg property increased productivity and made the farm easier to work and manage (GM July 1, 1938).

In September 1938, there was a rush on terrace construction by farmers cooperating with the Gatesville CCC camp. Four large rigs and two small rigs were used to build the terraces, consisting of a Farmall Tractor and Texas Terracer (Figure 33). Roadside work had been completed on the D.R. McClellan, Tom Freeman, and Alf Lockhart Farms, and new agreements were signed by H.K. Jackson, Mrs. Wade Hampton, and H.S. Compton for work on their farms (GM September 23, 1938).

As of October 1938, more than 121 farms covering 25,164 acres were cooperating in the soil and water conservation plan laid out by the Gatesville CCC camp. Since its establishment in 1935, the CCC camp retired more than 823 acres of

Figure 32: Tractor and 12-foot road grader building a terrace, Bell County, Texas (RG 114 Annual Report Fiscal Year Ending June 30, 1935, Soil Conservation Service, U.S.D.A., Central Texas Project No. 4, Temple, Texas, p. 45).

cultivated land to permanent pasture. Contour plowing was being utilized on 12,892 acres and strip crops were being planted on 228 acres. Strip cropping was being used in conjunction with 243 miles of terraces protecting 4,211 acres and 5,460 yards of terrace outlet channels were built and sodded to grass on 58 acres. In 1938, winter crops of Hubam clover provided protection for land in the winter and early spring. When turned under while still green in the spring, the clover provided organic material for the soil as fertilizer and absorbed and retained water in the soil (GM October 7, 1938).

D.R. McClellan, one of the former Fort Hood landowners in the Schley community, noted in February 1939 that even though an erosion control program had been implemented on his farm, it had already proved its worth by stopping gullies in his fields, utilizing each acre to the best advantage, and generally improving the appearance of the farm (Figure 34). McClellan had realized early that erosion control was necessary on his farm and was one of the first farmers to sign a cooperative agreement with the CCC camp. The work took three years to complete, and McClellan felt that the long-term benefits accrued from the conservation work would more than outweigh the costs (GM February 10, 1939). McClellan operated his farm in the Schley community with a tenant, who presumably also benefitted from the greater productivity of the soil.

R.C. Dyess, a farmer in the Schley community, expressed a favorable opinion about soil conservation work carried out by the CCC in an April 28, 1939, newspaper article. Mr. Dyess observed the beneficial results obtained on the Lonnie Flentge Farm and this changed Dyess' opinion about the utility of the program. A neighbor of

Figure 33: Terraced field with diversion ditch in foreground, D.R. McClellan Farm, now part of Fort Hood, Coryell County, Texas (RG 114 Annual Report E.C.W. Camp SCS-T-26, Gatesville, Texas, July 1, 1935-July 30, 1936, p. 42).

Mr. Dyess who had two drainage ditches emptying water through the Dyess Farm, had signed an agreement with the SCS in 1935. One of the gullies was filled in while the other was strip sodded and used as a drainage ditch to carry off the water. Mr. Dyess thought the concentration of runoff water in one ditch would create more flooding and therefore, did not sign an agreement with the SCS. However, after three years observing the results from the strip-sodded channel, he realized that this caused less erosion on his farm than the two previous ditches. Dyess' neighbor also built terraces, planted strip crops, practiced contour tillage, and built a terrace outlet channel on his farm. After observing the benefits accrued by his neighbor from these conservation measures, Mr. Dyess was convinced that the measures implemented by the SCS were the most effective to conserve farm lands for the future (GM April 28, 1939).

Evidence that farmers were beginning to think more cooperatively is apparent in the 1936 to 1937 Elm Creek watershed project annual report. A total of 112 farms within one part of the watershed had cooperatively instituted soil and water conservation measures on their land across property boundaries. This number increased to 165 farms from 1937 to 1938 covering 29,179 acres. Erosion control measures, such as terracing and outlet channels, crossed property lines. Cooperative drainage agreements were signed by farmers on adjoining properties, as they began to realize they needed to work together to conserve their soil and water. Instituting soil and water conservation measures on one farm without taking into account the surrounding properties was not very effective and other farmers in the region began to note the effectiveness of a widely-coordinated program implemented across property boundaries (Temple Camp Report 1937:1; Temple Camp Report 1938:1).

Farmers were increasingly rearranging fence lines in order to cultivate their land following its contours rather than in straight rows up and down hills. New fences were also being built to protect recently planted woodlands from livestock, to keep livestock off of vegetated gullies, farm ponds, and areas retired to grass (GM October 1, 1937). The SCS also encouraged farmers to build farm roads on the contour, which functioned almost like terraces, to reduce soil erosion (GM October 8, 1937).

Evidence that rural planning was being accepted by more farmers is apparent in the Elm Creek watershed. From 1938 to 1939, three small interior watersheds within the Elm Creek project area instituted a complete erosion control program. A total of 71 farms encompassing 8,000 acres in the northern part of the Elm Creek watershed were controlling erosion on a watershed basis. These practices crossed property lines and were built with the cooperation of numerous farmers. Planning for the conservation measures was begun at the crest of the watershed. Every farm received the treatments it required to work in concert with other farms until the stream bed was reached. In one case, a single terrace and terrace outlet system spanned six farms. Within the three interior watersheds, 19 cooperative terrace and terrace outlet systems served 39 farms. Drainage agreements were secured for cases where one farmer had to take terrace runoff from a neighboring farm (Temple Camp Report 1938:2-3).

Farmer testimonials, camp reports, and newspaper articles indicate that by the late 1930s, more and more farmers, both owners and tenants, were realizing the benefits of soil and water conservation measures promoted by the SCS CCC camps and either began to ask for government assistance or were building the features themselves. Farmers were also acting more cooperatively and were more accepting of federal planning measures.

Enrollee Education

In his study of the conservation movement from 1929-1942, Neil Maher notes that the New Deal changed the base of support for conservation from an elite, highly educated class, to everyday working Americans. Citizens, who previously had little contact with the federal government, now felt its presence in their everyday lives. CCC enrollees came primarily from families who were poor and were on state relief rolls, and many came from tenant farming families. From 1933 to 1942, the CCC enrolled more than three million young men who learned conservation ideology and techniques through their project work and in the camp educational courses that were offered after work hours (Maher 2001:5-20, 146, 167-176, 247-248, 258).

Enrollees constituted unskilled labor and, therefore, each camp was provided with a number of conservation professionals who taught the needed skills on the job. These professionals also instilled in the enrollees the theoretical reasoning behind the conservation projects. Agronomists assigned to the camps taught enrollees about the negative impact of erosion and how to prevent it. On-the-job learning was reinforced by courses in the evenings on conservation methods. Enrollees' time in the CCC often made them more conservation minded and transformed them into proponents of the conservation movement in general. They often remembered conservation methods after leaving the Corps and employed those methods on their own farms or sought jobs in conservation fields (Maher 2001:5-20, 146, 167-176, 247-248, 258).

Each camp had an educational program staffed with teachers provided by the WPA or the local community. Camp technical staff also offered courses in agricultural engineering, mechanical drawing, agronomy, and soils, among others. On-the-job training in soil and water conservation measures was offered in the field. These courses and hands-on work helped to communicate the federal government's conservation ideals to the general public (Gatesville Camp Report 1936:29).

Many enrollees were able to buy their own farms from money they saved from their time in the CCC and carried out soil and water conservation measures they learned while in the Corps on these farms. Chester Cowan, a cook with the Gatesville CCC camp, joined the Corps in September 1934. He was able to save enough money during his time in the CCC to purchase a 25-acre farm about five miles from Gatesville. After leaving the CCC, Cowan planned to plant fruit trees and operate another portion of his property as a truck farm (HD December 10, 1938). Chester Cowan's father, William S. Cowan, is listed as a general farm laborer in the 1930 census and was renting his farm. Chester Cowan's case is an example of how the CCC assisted a tenant farmer in becoming a farm owner after his service in the Corps.

Another enrollee, John Averett, was assigned to a SCS camp in Ashland, Alabama, in 1934. Averett performed soil conservation demonstration work within the camp's work area and became interested in farming. During the two years he spent in the SCS camp, Averett became proficient in the approved soil conservation measures implemented by the SCS and learned how to build terraces with a tractor.

After being discharged from the CCC, Averett purchased a farm in Hale County, Alabama, and implemented the approved soil conservation practices on his own land. Observing Averett's work, his neighbors began to implement soil conservation measures on their farms. In addition, Averett obtained a job with his county soil conservation association driving a tractor to build terraces on nearby farms (HD December 24, 1938).

Enrollee William T. Anderson of Bay Springs, Mississippi, joined the CCC in 1935 and was sent to camp SCS-11 in Buford, Georgia, where he remained for 18 months. While in the CCC, Anderson learned the SCS' approved soil conservation practices, including terracing, strip cropping, and contour furrowing. Anderson returned to Mississippi after his discharge from the CCC, married, and worked on one of his father-in-law's farms. Anderson eventually returned to Buford, where he purchased a small farm. He applied some of the conservation measures he learned in the CCC on this farm and constructed terraces, planted his fields on the contour, established permanent strips, and converted some of the land to permanent pasture. Anderson's farm produced a higher crop yield than many of the farms in his neighborhood, which he attributed to the methods he learned while enrolled in the CCC (HD January 1939).

Edwin R. Burton joined the CCC in April 1936 and was sent to Company 1734 in Bethany, Missouri. He was able to save enough money during his three years in the CCC to make a down payment on an 80-acre farm about 12 miles from the camp. After being discharged from the CCC, Burton was retained by the CCC camp as a project assistant and continued to work on his own farm part-time. Burton learned valuable information regarding soil conservation while serving as a team leader in the camp. He planned to grow corn on 10 acres and plant the remainder in hay and grass (HD April 8, 1939).

About 75 percent of the enrollees in SCS CCC Company 869 in Kaufman, Texas, came from homes within 100 miles of the camp. Soils in the camp area consisted of black land, similar to that on the farms from which the enrollees came. Training that the enrollees received in the Kaufman camp enabled them to enact approved soil conservation measures on their own farms once they returned home (HD September 28, 1940).

Many young men from the country's relief rolls learned soil and water conservation techniques by hands-on training in the field and also through evening educational programs offered by the CCC. Whereas soil conservation was largely the concern of academics and government agencies prior to the 1930s, New Deal programs introduced ordinary Americans to conservation ideals and expanded the base of support for these programs. Many opportunities were provided to ordinary Americans to witness first-hand how such conservation measures as terracing, strip cropping, contour cultivation, and the retirement of gullied and exhausted lands to pasture, could conserve the country's natural resources. These conservation measures were made possible by government investment in the nation's ordinary citizens.

Conservation Organizations

Government officials encouraged the formation of conservation organizations to educate local farmers on approved soil saving measures and to encourage them to work more cooperatively to preserve natural resources over larger areas. These organizations were instrumental in spreading conservation practices to farmers, and assisted in gaining the support of local farmers for rural planning.

After establishment of the Temple and Troy CCC camps in Bell County, the SES embarked on a major educational program to encourage farmers to form community erosion clubs in the Elm Creek watershed. Clubs held regular meetings and were shown motion pictures of work carried out on their own farms and other work within the watershed; the movies showed before and after scenes of the erosion control work. It was hoped that these meetings would illustrate to the farmers the value of erosion control work and encourage farmers to work cooperatively with the SES in this endeavor (TDT May 29, 1934). By August 1934, farmers in the Elm Creek watershed formed 10 soil erosion clubs to discuss problems specific to farming in the blackland areas, and by June 1935, 12 soil conservation clubs were operating in the Elm Creek watershed (DMN August 23, 1934; Temple Camp Report 1935:122).

On August 12, 1935, the Gatesville Soil Conservation Association (SCA) was organized with 46 charter members; by June 1936, membership had increased to 244. Educational meetings for farmers were held regularly by the Association, with CCC camp technicians serving as the principal speakers. This association was of great assistance to the CCC camp in that they encouraged farmers to adopt soil conservation methods, lobbied the Coryell County Commissioners Court to lower the price of heavy equipment needed to build terraces, and interested businessmen in the work (Gatesville Camp Report 1936:16-17).

Alf Lockhart, a cooperator with the CCC camp in Gatesville, noted at a SCA meeting in January 1938, that the SCS's planning work for his farm revealed to him the damage caused by erosion in his community. Lockhart noted that until recent years, erosion was not a concern because most of the land was planted in grass. However, with the steep rise in cotton prices and lowering livestock prices, more pasture land was converted to crop land and it was at this time that erosion became particularly noticeable. The erosion caused by the conversion from pasture to cotton led Alf Lockhart to terrace part of one of his fields that was becoming severely gullied. However, his initial terrace system was found to be inadequate and more terraces had to be added further downslope to retard the gullying. The SCS CCC camp helped Lockhart to realize a complete erosion control program should be planned on his farm (GM January 28, 1938).

In the post-WWII era, former enrollees organized their own conservation and alumni groups, such as the Citizens for Conservation and Trustees of the Earth, the American Conservation Enrollees, and the National Association of Civilian Conservation Corps Alumni (Maher 2001:352-355). Even after the dissolution of the CCC, its impact was felt throughout the country and many farmers continued the practices they had learned. Many of the SCAs also continued to function even after the CCC ceased to exist. The Civilian Conservation Corps is the only New Deal program with an alumni association.

Dissemination of Information

As noted above, camps spread conservation ideas to local communities through demonstration projects and open houses in the camps. The Corps also embarked on a national media campaign to showcase the work performed by the camps and to promote conservation techniques. Print media was the prime instrument used to spread the news about the CCC's work. By sending out hundreds of press releases to local newspapers, placing feature articles in nationally-syndicated magazines, and producing pamphlets on CCC work that were sent to local Chambers of Commerce and other influential community groups, the publicity department of the CCC led a successful campaign to spread the ideals of land and soil conservation throughout the country (Maher 2001:5-20, 146, 167-176, 247-248, 258).

Radio was also heavily used by Corps publicists to broadcast speeches on CCC work by President Roosevelt, Robert Fechner, and other officials, of explaining the work being carried out by the CCC and why it was important. The publicity department also produced more than 30 films focusing on CCC work. With this media barrage, the public was well informed about the CCC's impact on the nation's landscape (Maher 2001:5-20, 146, 167-176, 247-248, 258). The national popularity of the CCC was reflected in a Gallup Poll taken in 1936 in which 82 percent of the respondents favored continuing the Corps (Maher 2008:163).

Schools also began to incorporate courses on soil erosion and methods on how to minimize it into their curricula. Courses were often taught to the teachers in nearby colleges or through workshops at the camps themselves. Teachers, in turn, would impart what they learned in these soil conservation courses to their elementary and high school students (Maher 2001:5-20, 146, 167-176, 247-248, 258).

Newsletters were also produced by some of the camps and watershed projects to provide information to local farmers, document accomplishments, and announce tours or lectures. Shortly after the Elm Creek watershed project was established, the SES began publishing a newsletter on a regular basis that was directed to the farmers in the project area, providing them information on effective erosion control measures and keeping them apprised of upcoming talks or events (Temple Camp Report 1934:25).

The SES newsletters for the Elm Creek watershed provided regular updates on the progress of soil erosion work in the watershed. Work initially began on the Big Elm Creek and was planned to eventually extend to the North and South Elm Creeks, which feed into the Big Elm. The Elm Creek Watershed project was intended to demonstrate soil erosion control methods to farmers not only in the watershed but in surrounding areas. Terracing of cultivated fields was stressed, as well as the importance of converting fields on steep slopes and hillsides to permanent pastures (TDT June 21, 1934).

Newspapers were also instrumental in conveying the accomplishments of SCS CCC camps to the public. Local papers, such as the *Temple Daily Telegram*, with circulation within the Elm Creek watershed project, published almost daily articles and announcements on the erosion control work being performed on local farms. Newspaper articles also served to educate the general public on the importance of conserving the soil and water on their farms (Temple Camp Report 1934:25).

SES personnel gave numerous talks on soil and water conservation to local and state organizations, and displays were assembled for local and state agricultural fairs (Temple Camp Report 1934:27). All of these efforts were directed toward educating the general public on the utility of rural planning and the importance of saving the nation's soil and water.

Tours of camp areas and farms on which soil conservation demonstration work was performed provided first-hand examples to local farmers of the operation and effectiveness of erosion control measures (Figure 35). For example, in May 1937, the Gatesville CCC camp conducted field tours of various farms within the project area showing different phases of erosion control. Visitors were expected from Gatesville and surrounding communities, as well as from other counties (GM May 21, 1937).

As of May 1937, 76 farms with 15,173 acres in the Gatesville camp area had signed five year cooperative agreements with the SCS. Out of the land under agreement, 826 acres were found to be too steep or eroded to support cultivation and were retired to permanent pastures or waterways. Erosion control measures that would be exhibited included contour cultivation, strip crops, terracing, vegetated terrace outlets and outlet channels, meadow outlet strips, wildlife plantations, and gully control. Farmers cooperating with the Gatesville camp were largely responsible for the spread of erosion control methods across areas outside of the camp by demonstrating to other farmers the benefits of such measures (GM May 21, 1937).

Many farmers outside of the operational areas of the SCS CCC camps and demonstration projects visited the project offices for information and advice (Figure 36). For example, the Temple CCC camp reported that from 1936 to 1937, more farmers outside of the project area were regularly requesting technical information and advice on soil conservation practices. Farmers outside of the area were also attending scheduled tours of farms with complete erosion control programs. Many towns and communities outside of the demonstration area were requesting tours of

Figure 34: Local farmers and SCS staff members on a field day inspection stop at a farm on which strip cropping is used to control erosion, Temple, Bell County, Texas (RG 114 Annual Report Fiscal Year Ending June 30, 1935, Soil Conservation Service, U.S.D.A., Central Texas Project No. 4, Temple, Texas, p. 126).

Figure 35: Erosion specialist visiting a farm owner and farm operator, Bell County, Texas (RG 114 Annual Report Fiscal Year Ending June 30, 1935, Soil Conservation Service, U.S.D.A., Central Texas Project No. 4, Temple, Texas, p. 19).

farms containing soil and water conservation features (Temple Camp Report 1937:1). Conservation practices continued to spread to a greater degree in subsequent years. Vocational agricultural teachers were instrumental in spreading conservation practices and providing advice (Temple Camp Report 1938:1).

The CCC celebrated its five year anniversary on April 5, 1938. As part of the celebration, the Gatesville CCC camp invited friends and relatives of the enrollees and camp staff, and the general public to the camp for an open house. Most of the enrollees in the camp were Coryell County residents. Field tours were taken of several farms on which erosion control measures were implemented by local farmers in cooperation with the CCC camp. The intent was to better acquaint the general public with the work performed by the camp and form a closer bond with local farmers. Enrollees of the Gatesville CCC camp worked on 103 farms in 1937, covering about 22,000 acres. Work projects included building 23,921 rods[17] of fence, removing 9,409 rods of old fence, laying off about 250 miles of terrace lines, and sodding 954 acres retired to pasture. They also gathered 25,000 pounds of Buffalo grass seed, 10,664 pounds of plum seed, and 8,514 pounds of Little Blue Stem grass seed that was sent to the SCS nursery in San Antonio. Daily work performed by enrollees included tree planting, gully control, laying off terrace lines, checking terrace specifications, and building terrace outlet channels and contour furrows. The soil conservation program was popularized by the local CCC camp as hundreds of farmers visited cooperating farms where they worked and began instituting the same measures on their own farms (GM April 1, 1938).

[17] A rod is a unit of length equal to 5.5 yards or 16.5 feet.

Conservation and Tenant Farmers

While New Deal farm programs generally benefited land owners much more than tenants, the CCC was one program that provided some benefits to tenants. Prior to the 1930s it was common for landowners and tenants to execute only verbal rental agreements, resulting in uncertainty for tenants. Under verbal agreements, tenants having little incentive to make improvements to the rental farm or conserve its natural resources. New Deal programs encouraged the development and use of signed leases and contracts to spell out the responsibilities of each party in a form that would be defensible in a court of law. A November 1937 article in the *Gatesville Messenger and Star Forum* noted that tenants and farm operators, along with farm owners, were recognizing the need for soil and water conservation and that cooperation between land owners and operators or tenants was necessary for proper land use (GM November 26, 1937).

One of the biggest obstacles faced by the Elm Creek watershed project from 1936 to 1937 was gaining full cooperation from tenant farmers. To address this issue, the demonstration project concentrated on educating tenant farmers about the advantages of remaining on a farm for a longer period and making improvements through the land owner that would make the farm more profitable. Many land owners were rewarding their tenants for following certain conservation practices. Through written rental contracts, land owners were also requiring tenants to follow the conservation plans developed for their farms by the SCS (Temple Camp Report 1937:2).

Progress was made during the 1938 fiscal year on the use of flexible farm-livestock leases in the Elm Creek Watershed. Absentee landlords had been reluctant to retire eroded and gullied fields to pasture, meadows, or feed crops as part of a complete erosion control program under the typical thirds and fourths rental agreements. Tenants also objected to growing feed crops that they had to pay for with cash rent. The farm-livestock leases satisfied most of these concerns and also helped landlords and tenants to institute a complete erosion control program on their farms that benefited both parties (Temple Camp Report 1939:20).

The new soil erosion control program was not only popular with land owners, but with tenants as well. Stell Davis, who rented the D.I. Glass Farm near Gatesville, noted that since erosion control measures were implemented on the farm, his cotton yields rose considerably. Elimination of gullies also allowed Davis to plant more land. Another renter noted that the development of pastures on his rental farm increased his income due to the higher production of milk and cream. A third renter stated that terracing, strip cropping, and contour tilling eliminated many of the seeps on the farm he rented. Land that was once too wet to plow and plant was now available for cultivation. Another renter noted that his livelihood depended on the productivity of the soil. Therefore, it was in the best interest of renters to prevent more land from being destroyed by erosion and gullying (GM February 11, 1938).

By May 1940, 7,045 acres of land on 102 farms was terraced in the Gatesville CCC camp area. Terraces, contour tillage, and strip crops on the Tom Freeman Farm, located 7 miles southwest of Gatesville, allowed tenant E.R. Johnson and Freeman to realize an extra profit. Other tenants on farms where the owners implemented soil conservation measures also noted that the farms they were operating produced much more than they had prior to the implementation of conservation measures (GM May 10, 1940).

While tenants did not fare as well under the New Deal programs as large landowners, there is evidence that some tenants benefited from written leases and the increased productivity of farms on which landowners instituted soil conservation measures. Long-term leases ensured that tenants would remain on a farm for longer periods of time and would maintain the erosion control measures placed on the farm.

Conclusion

During the New Deal era from the 1930s to the early 1940s, the federal government became more involved in rural and urban planning. Citizens who had never before come into contact with federal agencies were afforded relief and assistance from the federal government that was unprecedented. However, these programs relied upon local support for their implementation. The CCC was one New Deal program that was popular with a majority of Americans because the program provided jobs, tangible benefits in the form of farm and park improvements, and provided needed cash income for poor rural residents. Although a majority of the New Deal farm programs primarily benefited large land owners, tenants did receive some assistance in the form of more stable lease agreements and higher crop yields.

This chapter explored the ideologies, meaning systems, social systems, shared beliefs, and attitudes toward nature, Korr’s fifth step, that are evident in the Central Texas landscape. Prior to the New Deal, a laissez-faire capitalist attitude toward nature prevailed. Farmers thought little about how actions on their own farms affected their neighbors. Most aimed to produce the highest profits possible during the agricultural boom and placed marginal land in cultivation. Massive dust storms in 1934, known collectively as the Dust Bowl, were caused by the inattention of farmers to soil and water conservation. Fields were almost completely exhausted of their nutrients from constant planting of cash crops, such as cotton, without crop rotation or fallow periods.

Through many New Deal programs, such as the CCC, the federal government's conservation ideology began to slowly infiltrate the most isolated of communities and make a marked impression on the rural landscape. Rectangular fields yielded to curvilinear ones planted in more than one crop, resulting in soil stability and nutrient replenishment. Farmers began to operate more cooperatively, and soil conservation measures often extended across property lines and worked in combination over an entire watershed. Farmers' attitudes toward nature began to change from one of pure profit to one of profit through responsible stewardship of natural resources.

Farm boundaries began to shift during the New Deal era. Smaller farms were yielding to larger ones due to the increase in farm mechanization. Farms were reorganized to place marginal land back into pasture land or woodland. Fence lines were reorganized to better manage the natural and animal resources. Cooperation among farmers became more widespread and conservation measures were often built and tied into one another across entire watersheds.

During the New Deal era, the federal government had more power over shaping the Central Texas rural landscape than ever before. Many Central Texas farms were developed with little planning prior to the New Deal, as many farmers were mistrustful of the federal government. However, a major natural disaster allowed the federal government to demonstrate to farmers why rural planning was both beneficial and necessary. This allowed the federal government to have a greater ability than ever before to shape the rural landscape and how its owners and tenants used it.

CCC enrollees learned approved soil and water conservation methods which they were able to employ on their own farms after being discharged, and spread these methods to neighbors. Some CCC enrollees were also able to buy their own farms from the money saved while in the Corps. The CCC was one federal program that benefited ordinary citizens and turned the conservation movement into a local concern rather than a purely academic endeavor.

Many of the New Deal agricultural programs and policies benefitted land owners, forcing some tenants off of the land. However, the CCC benefitted not only landowners, but tenants as well. Tenants on farms that had instituted conservation measures with the assistance of the CCC realized higher profits and were able to obtain longer leases from farm owners. Many CCC enrollees, who had come from tenant farms, were able to save enough money through their service to later purchase their own farms. The money sent home by enrollees also helped to sustain many tenant families.

The CCC was very active in Texas. There were few public parks established in the state at the time that New Deal programs were implemented. There were no national parks or forests in the state prior to 1933 because at the time Texas entered the Union in 1845, it was allowed to keep all of its unappropriated lands to pay off its debt. Therefore, the focus of CCC activity in Texas was on soil and water conservation on private farms. The CCC transformed thousands of badly-eroded acres in Texas into prosperous farm land. Chapter 4 examines in detail some of the soil and water conservation features recorded in the archeological surveys on Fort Hood farms in order to more closely explore the impact of the CCC soil conservation efforts on the landscape.

Chapter 4: Soil Conservation Features on Fort Hood

"Foremost among the factors that differentiate cultural landscape preservation from its associated fields is the recognition that the landscape is both artifact and system; in other words, it is a product and a process. The essential dynamic qualities of a cultural landscape, regardless of a designer's intention or the use patterns of a cultural group, mark it as separate from other resources we seek to protect through traditional historic preservation…A landscape may be both a system in itself and part of a larger system (Alanen and Melnick 2000:16)."

Cultural Landscape Studies

Cultural landscape studies draw on many disciplines, including anthropology, archaeology, cultural geography, cultural studies, environmental history, material culture studies, and others. Cultural landscapes are dynamic features that are shaped by both human or natural forces. Cultural landscapes play an active role in shaping culture and transmitting cultural ideals, and as such, reflect the societies that create them, inform us about the processes and modes of production, and about social relations. Trade networks may also become apparent through a careful reading of the cultural landscape. It is important to study cultural landscapes on multiple scales, including local, national, and global, as events and social relations at each of these levels affect how land is utilized and how it is shaped (Hood 1996:139; Johnson 1999:220; Orser 1996:32).

Individuals and communities operate within larger social, national, and international networks¸ and elements of cultural landscapes can assist in identifying and interpreting these networks. Landscape changes reflect not only individual choice, but also alterations in social and productive relations. As noted in Chapter 2, events occurring in countries thousands of miles away from Central Texas shaped the organization and utilization of the rural landscapes under investigation. For example, demands for raw materials that could not be produced overseas led Central Texas farmers to expand the percentage of land on their farms for cultivation of these crops. The overexploitation of the land for capitalist gain that followed led the federal government to reorganize its relationship to rural property owners. This new relationship between rural farmers and the federal government is evident in the cultural landscapes of Central Texas in the form of conservation measures encouraged and constructed with federal assistance.

Study of Twentieth-Century Archaeological Sites

Twentieth-century archaeological sites are often deemed not worthy of study because of their recent age, the wealth of written records from the period, and their perceived lack of research value. Lees and Noble (1990) note that there is no consistent methodology for recording and evaluating sites from the recent past. Archaeologists have also had difficulty in evaluating agricultural complexes and small farmsteads, in that fewer features and artifacts are found on smaller farmsteads. Brooks and Jacon (1994:70) suggest that by examining groups of farmsteads, their significance becomes more apparent. This methodology can address questions about settlement patterns, community formation, cultural landscapes, trade networks, and family relations, among others (Brooks and Jacon 1994:70). Patricia Rubertone also notes that the study of broader cultural landscapes can inform historical archaeologists about how social relations were defined by space, as well as the strategies used by people to adapt to the natural environment of a region (Rubertone 1989).

Susan Henry (1995) notes that every facet of daily life was affected by the numerous social, political, and economic changes occurring during the first half of the 20^{th} century. Technological advances changed the ways in which humans related to the natural environment and their ability to shape the landscape. Thus, archaeologists can learn a great deal from 20^{th}-century archaeological sites by examining how they are arranged on the landscape. Former site occupants can also provide information on the spatial layout and operations of 20^{th}-century farms. Henry also suggests that 20^{th}-century sites may be better studied in relation to other sites within a community, as groups rather than as individual sites. She calls for the development of research questions for 20^{th} century sites that address the major changes occurring in the 20^{th}-century and how Americans coped with those changes (Henry 1995:12).

Hardesty and Little (2000) acknowledge that 20^{th}-century farmsteads are commonplace and plentiful, adding to the confusion over how to extract significant data from them. Historical documentation relating to these sites is also more complete and abundant, leading researchers to question how archaeology can add to this wealth of written data (Hardesty and Little 2000:3). That said, they argue that the archaeological record can provide important information on daily life, the impact of technological changes on the landscape, and community relations not available in written documents (Hardesty and Little 2000:26-27).

Groover (2008) similarly notes that the major factors contributing to the perception that farmstead sites are insignificant are their abundance and their age.

Groover suggests that the information potential of farmstead sites is only limited by the research designs and questions asked. Farmstead sites, he argues, can provide significant information on landscape change, rural household dynamics, and cultural processes if the right research questions are posed (Groover 2008:6). Groover promotes world-systems theory as a means to develop historic contexts of farmstead archaeology. World-systems theory examines the redistribution of raw materials from the undeveloped periphery to an industrial core area. The search for ever-increasing profits leads to new developments and is a major instrument of change. This economic system approach connects small family farms to larger distribution centers that send agricultural products to local, national, or global markets (Groover 2008: 18-19).

As noted in chapter 2, national and global demands for cash crops produced on Central Texas farms encouraged farmers to plant more of their land, including marginal areas, in those crops. The major cash crop, cotton, was planted in rows which increased the potential for erosion. The types of soil in which cotton was planted and the slope of the land also added to erosion problems. Because of poor farming practices, farm production decreased by the 1930s.

With the onset of the Great Depression, the federal government created make-work programs to put the unemployed back to work. Federal government intervention through New Deal programs altered the landscape through their focus on retaining valuable top soil, increasing production, and raising profits. Twentieth-century rural conservation landscapes reflect this change in the relationship between the federal government and rural farmers.

National Register Evaluation

Cultural landscapes were first recognized as a significant resource type for nomination to the National Register of Historic Places by the National Park Service in 1981. In 1984, the NPS published *Cultural Landscapes: Rural Historic Districts in the National Park System* (Melnick et al. 1984) to provide guidance on preserving these features on lands under the federal park system. National Register Bulletin No. 30, *Guidelines for Evaluating and Documenting Rural Historic Landscapes* (McClelland et al. 1999) was subsequently developed to provide guidance for preserving cultural landscapes in rural settings.

National Register Bulletin No. 30 defines a rural historic landscape as "a geographical area that historically has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features (McClelland et al. 1999:1-2)." Significant themes can be developed in historic contexts that outline the major historical trends of an area. Grouping sites by themes assists in determining whether a site is a common or unique type within the area of study. Several types of historic land use and occupation are listed in the bulletin. Historic conservation landscapes on Fort Hood fall under the agriculture and conservation site types (McClelland et al. 1999:1-3).

The next step in evaluating a landscape's significance is to assess its integrity to determine if it still contains enough of the attributes related to its period of importance. There are seven qualities of integrity to consider: location, design, setting, materials, workmanship, feeling, and association. Overall, a property must retain the general character and feeling related to its period of significance to be eligible to the National Register. The presence of some characteristics may be more important than others in conveying the significance of a property (McClelland et al. 1999:22).

Martha Doty Freeman, Amy E. Dase, and Marie E. Blake (2001) developed a historic context for historic archaeological sites on Fort Hood in 2001. Two major themes were identified: Agriculture on Fort Hood Lands, 1849-1942 and Rural Development on Fort Hood Lands, 1849-1942. Associated property types for the agriculture on Fort Hood lands, 1849-1942 context include: 1) ranch and farm headquarters, 2) nondomestic agricultural properties, 3) commercial properties, 4) institutional properties, and 5) infrastructure properties. Associated property types for the rural development on Fort Hood lands, 1849-1942 context include: 1) domestic properties, 2) commercial properties, 3) agricultural processing properties, 4) industrial properties, and 5) infrastructure properties.

Evaluations were made of the 710 known historic archaeological sites within the 1940s acquisition area. Of those 710 sites, 83 were recommended as eligible, 197 as potentially eligible, and 427 as not eligible; historic archaeological sites were found to be eligible to the National Register under Criteria A, B, and D. Three sites could not be assessed based on lack of information. Recommendations were made for additional archival, oral informant, and archaeological evaluation based on the results of the study (Freeman et al. 2001:xv).

Specific aspects of integrity for the sites at Fort Hood are described in the context:

> "Location as an aspect of integrity that pertains to historic properties at Fort Hood is the place where the historic property was constructed. Design is the combination of form, plan, space, structure, and style of a property. Where archeological sites are concerned, design is the space a property occupies, combined with its proportion, scale, and associated technology, together with the materials that remain at the site. Setting, which is both the immediate and more-distant physical environment that surrounds a property, is an especially important aspect of integrity as it pertains to agricultural properties at Fort Hood. Despite nonagricultural activities that have occurred on Fort Hood lands since 1942, the landscape remains remarkably intact. For the most part, it retains much of its open, nineteenth-century and early twentieth-century character while reflecting modifications made as a result of "human activity, occupancy, or intervention…" While Fort Hood has not retained buildings commonly associated with historic rural landscapes, many historic sites associated with agriculture exist within a recognizable "concentration, linkage, or continuity of areas of land use, vegetation…structures, roads and waterways, and natural features" (U.S. Department of the Interior 1997:44-45). These qualities make the sites and their associated landscapes immediately recognizable to former residents.
>
> The fourth aspect of integrity that is pertinent to assessing agricultural properties on Fort Hood lands is comprised of materials, the physical elements deposited during a certain period of time and in a particular pattern to form a property. Feeling is a property's expression of an aesthetic or historic sense of a certain period of time and usually has a strong relationship to integrity of setting and the overall landscape. Association is the link between history and the property (Freeman et al. 2001:130-131)."

All of the Fort Hood conservation landscapes that will be discussed below could be eligible to the National Register under Criterion A because the Civilian Conservation Corps was a national program that impacted thousands of acres of the American landscape and can provide information on a broad pattern of history during the 1930s. Conservation landscapes can also be eligible under Criterion D for their potential to yield information important to the historical development of the farms and ranches on Fort Hood during the 1930s and early 1940s. While Fort Hood's landscapes contain many layers of significance from the prehistoric period to the present, the focus of the present study is on the period from 1933 to 1942, the time in which the Civilian Conservation Corps was active. The boundaries of the properties discussed are defined as the tract boundaries at the time of acquisition of the farms and ranches by the United States government in the 1940s.

An examination of National Register Multiple Property nominations indicates that only four out of the forty-six nominations identifying CCC-built features as significant resources recognize the importance of erosion control features built by the Soil Conservation Service camps on private land. This study expands on the importance of the work of the CCC on private land in the form of soil conservation measures. Only three states, Iowa, Minnesota, and South Dakota, have developed contexts for evaluating soil conservation features built by the CCC on private land during the Depression. Many of the multiple property contexts recognize features built by the CCC in state and national forests and parks. Most state and national forests and parks were developed by the CCC during the Great Depression. However, the CCC also made significant contributions to soil and water conservation on private property and the following multiple property nomination forms recognize the importance that work.

The Conservation Movement in Iowa, 1857-1942 (Conrad 1991) nomination form recognizes CCC soil conservation measures primarily as landscape features, such as terraces, the planting of grass waterways, and the excavation of catch basins. Some of the more prominent resource types include check dams and other water control structures designed to slow the rate of runoff from cultivated fields. This nomination form suggests treating soil conservation features associated with the CCC in Iowa as historic landscapes (Conrad 1991:F-27-28). “In large part, these historic places reflect particular cultural values which conservation-minded people shared. These values were imposed on the landscape in many forms (Conrad 1991:E-2).” The Iowa Conservation Movement context suggests that land modifications made on private land by the CCC probably changed the landscape as much as or more than their activities in national and state parks. The context notes the difficulty in locating and identifying intact features dating from the 1930s or before in that most of them are situated on private land and have been modified over time (Conrad 1991:G-15).

The *Historic Farmsteads of Lyon County, Iowa, 1860-1944* (Nash 1994) context also recognizes the importance of landscape features in the interpretation of historic farmsteads in Iowa. This context takes into account all features of a farmstead, including standing structures, archaeological deposits, and landscapes. Farmsteads consist of not only the farm house and barn, but all ancillary structures, along with land and water features. These environmental features would include alterations made to the farm landscape by the CCC (Nash 1994). One important contribution of this context to the study of historic farmsteads is that it recognizes the importance of documenting and studying not only the farm buildings but the entire farm landscape.

Rolf Anderson’s *Federal Relief Construction in Minnesota, 1933-1941* (1990) multiple property nomination form identifies features associated with federal relief programs in Minnesota. This context notes that fourteen CCC camps in Minnesota operated in cooperation with the Soil Conservation Service (Anderson 1990:E-21).

Conservation features can be nominated under this context if they were financed by the federal government, were built before 1941, represent a particularly important project, if the features exhibit a distinctive construction method or work of a master, or if the feature represents the only example of its type (Anderson 1990:F-17-21).

South Dakota has also developed a context for federal relief construction from 1929 to 1941 (Dennis 1998). Seven CCC camps were supervised by the Soil Conservation Service in South Dakota. Demonstration of effective conservation practices for controlling wind and water erosion was the primary objective of these camps. Associated features include terraces, contour lines, pasture furrows, strip cropping, check dams, and shelterbelts. These conservation structures were deemed significant because this was the first large-scale effort by the state to manage its natural resources. Soil conservation work performed by the CCC reduced erosion and spread conservation farming methods throughout the state (Dennis 1998:E-16, F-67, F-72).

While soil and water conservation features have largely been altered or otherwise impacted over time because of their location on private property and the need to maintain or alter them as new and better methods were developed, the CCC conservation measures employed on the farms and ranches on Fort Hood have in some cases been very well preserved. This preservation has occurred for two principal reasons because: 1) they have not been impacted by subsequent farming activities, and 2) they are not regularly impacted by military training activities. These features are significant because, as in other states, they represent a period when the state of Texas and the federal government began to protect natural resources on private land and enacted rural planning on a large scale. The next section will provide data on soil and water conservation features identified in archaeological surveys on Fort Hood in Bell and Coryell counties, Texas.

Soil and Water Conservation Features on Fort Hood

Archaeological surveys of Fort Hood were conducted from 1978 to the present and recorded more than 1,100 historic and more than 1,100 prehistoric archaeological sites. Army engineers located and marked the corners of the archaeology survey units, one by one kilometer Universal Transverse Mercator (UTM) grid squares (called quadrats or quads). Archaeology crew members started at one of the marked corners and spread out in a line between 20 m and 30 m apart depending on ground cover and topography. The crew then swept through the survey unit, recording cultural and environmental features, such as isolated artifacts, fence lines, foundations, and ponds. Sites were defined when at least two artifacts were identified within a 10 square meter area. When sites were identified, the crew defined the horizontal extent of the cultural deposits or features, completed a site form, and mapped its location (Skinner et al. 1981:41-43).

Soil and water conservation features identified in the surveys include terraces, terrace outlets, contour plowing, check dams, drainage ditches, soil retention walls, fence lines, stock ponds, and above ground cisterns. Of the approximately 1,050 tracts of land purchased for Fort Hood, about 220 contain soil and water conservation features. Not all of these features were built by the CCC, but many of them were influenced by work that the CCC did on Fort Hood farms and by demonstrations performed on cooperating farms in the camp's area of influence. While not all of the soil conservation features and walls were recorded as archaeological sites, especially features such as terraces, which cover large areas, most historic features were noted in the quadrat survey files.

This section will detail landscape features and historical archaeological sites, identified in the archaeological surveys on Fort Hood and from historical aerial photographs that are most likely associated with CCC activities. Farms within the Fort Hood boundaries fell within the work areas of the Belton Private Erosion Camp PE-76-T and the Gatesville Soil Conservation Service Camp SCS-26-T. Three other soil conservation CCC camps in Temple, Troy, and Bartlett were located nearby in Bell County and probably also had some influence on Fort Hood farms. Temple, located in Bell County and to the east of Fort Hood, was a major center for the Soil Conservation Service in Texas. Many demonstrations of conservation methods were held at the Temple Blackland Experiment Station, which was established in 1929.

Aerial photographs of Bell and Coryell counties were produced for the SCS in 1938 to assist in identifying erosion problem areas on farms. Another set of aerial photographs were created in 1941 when the Army was searching for a site for the construction of a tank training facility. A third set of aerial photographs were taken in 1952 at the time Belton Reservoir and the expansion of Fort Hood were contemplated. Terracing, strip cropping, and contour cultivation are visible in these aerial photographs, as well as major property lines. Soil conservation features are also identifiable in modern aerial photographs. These aerial photographs are available to researchers at the National Archives branch in College Park, Maryland. Aerial photograph GIS layers from 1938 and 2004 were provided to me by the Fort Hood

Directorate of Public Works Cultural Resources Branch. Oral history data, CCC camp reports, and newspaper articles were used to identify the types of work performed on some of the farms.

Every community on Fort Hood contained farms with soil and water conservation features, showing the extent of influence of the CCC camps. It is evident from the annual reports of the CCC camps that soil and water conservation practices were not widespread until the camps were established. However, once farmers saw the benefits of soil conservation, such as increased crop yields, they realized the benefits of implementing such programs on their own farms. The CCC encouraged farmers to cooperate not only with their organization, but with other farmers, so that poor farming practices on one farm would not affect soil conservation measures put into effect on other farms. Some farmers who elected not to apply for government aid, built soil conservation features on their farms themselves. The federal government could not force farmers to adopt conservation measures, but the land owners had to apply to the CCC to have their farms surveyed and evaluated.

An example of the implementation of soil conservation measures across a wide area is evident in the Palo Alto community. An evaluation of 1938 and 2004 aerial photographs indicates that terracing was commonly used on fields that were traditionally planted in cotton or other row crops, such as corn. Kyle Hilliard, a resident of the Palo Alto community, noted that almost everyone in the Killeen and Palo Alto communities were cotton farmers. Aerial photographs indicate that many of the farms in these two communities were terraced by 1938 (Figure 37).

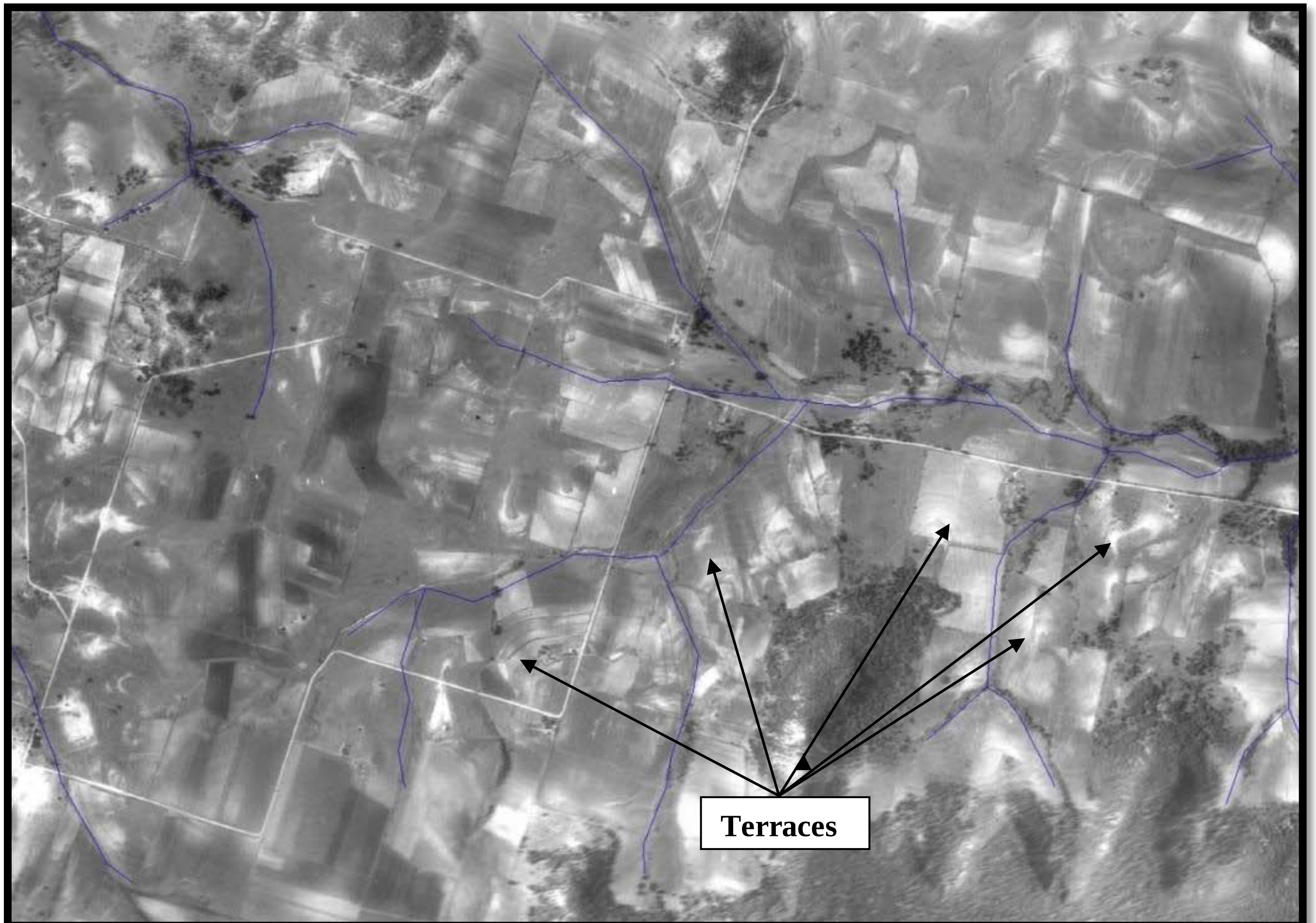

Figure 36: Palo Alto community showing the extensive use of terracing, 1938 aerial photograph.

The following section details soil and water conservation features identified in the Spring Hill/Schley, Brookhaven, Ewing and Copperas Cove communities. These communities were chosen because there is documentary or archaeological evidence for the construction of soil conservation features on the farms or they are located in areas of the Fort where the soil conservation features could be easily interpreted for the public. Every community on Fort Hood contained soil and water conservation features, but some areas have been severely impacted by military training or are inaccessible.

Spring Hill and Schley Communities

Located in the northwestern corner of Fort Hood, the Spring Hill and Schley communities were some of the first to adopt new soil conservation measures encouraged by the federal government through the CCC camp in Gatesville (Figure 5). This area is situated about six miles southwest of Gatesville along Old Georgetown Road, a major north-south route during the late 19th and early 20th centuries. Several of the property owners were absentee landlords and operated their farms in Spring Hill and Schley with tenants. Five farms located adjacent to one another, consisting of Tracts 500, 502, 1500, 1501, and 1502, will be examined in this section. All of these farms are located within the Shoal Creek watershed. Shoal Creek originates approximately eight miles southwest of Gatesville and flows northeast through the above mentioned tracts to the Leon River, a major tributary of the Brazos River. Extension Service and Gatesville CCC camp reports indicate that flooding and silting along the Leon River watershed were major problems in Coryell County. It appears that the SCS attempted to address this problem by building erosion control features with CCC labor and farmer cooperation along the entire Shoal Creek waterway.

Letha Milroy Farm, Tract 500

Tract 500, a 304-acre farm in the Joseph Thompson Survey, was located in the southern portion of the Schley community (Figure 38). Letha Milroy obtained the 304 acre farm from the partition of her father's estate in 1920. According to the 1920 and 1930 census records, Letha Milroy lived in the town of Brenham in Washington County, Texas and did not reside on the farm in Coryell County. Her husband, Erle R. Milroy died between 1917 and 1920 and Letha continued to reside with her father-in-law, Alexander D. Milroy, who was a cotton buyer in Brenham. The Coryell County farm was operated by tenants.

The Milroy farm, bordered on the east by Old Georgetown Road, appears on a map in the 1936 Gatesville CCC camp report as a farm that had been mapped but whose owner had not yet signed a cooperative agreement. Aerial photographs from 1938 show that terraces were begun by that time on the northern and western portions of the property. Tract 500 is currently in an area of heavy military maneuvers, so it is difficult to detect much of the terracing in modern aerial photographs. Major soils on the property include Topsey clay loam (BtC2, three to eight percent slopes), Slidell silty clay (SlB, zero to two percent slopes), and Topsey-Pidcoke association (TpC, two to eight percent slopes) (Figure 39). These types of soils were ideal for cultivation if the land was terraced. Terraces in the northern part of the Milroy farm were placed within a cultivated field containing Topsey-Pidcoke association soils. Excess water from the terraces was diverted to outlet channels that emptied into small

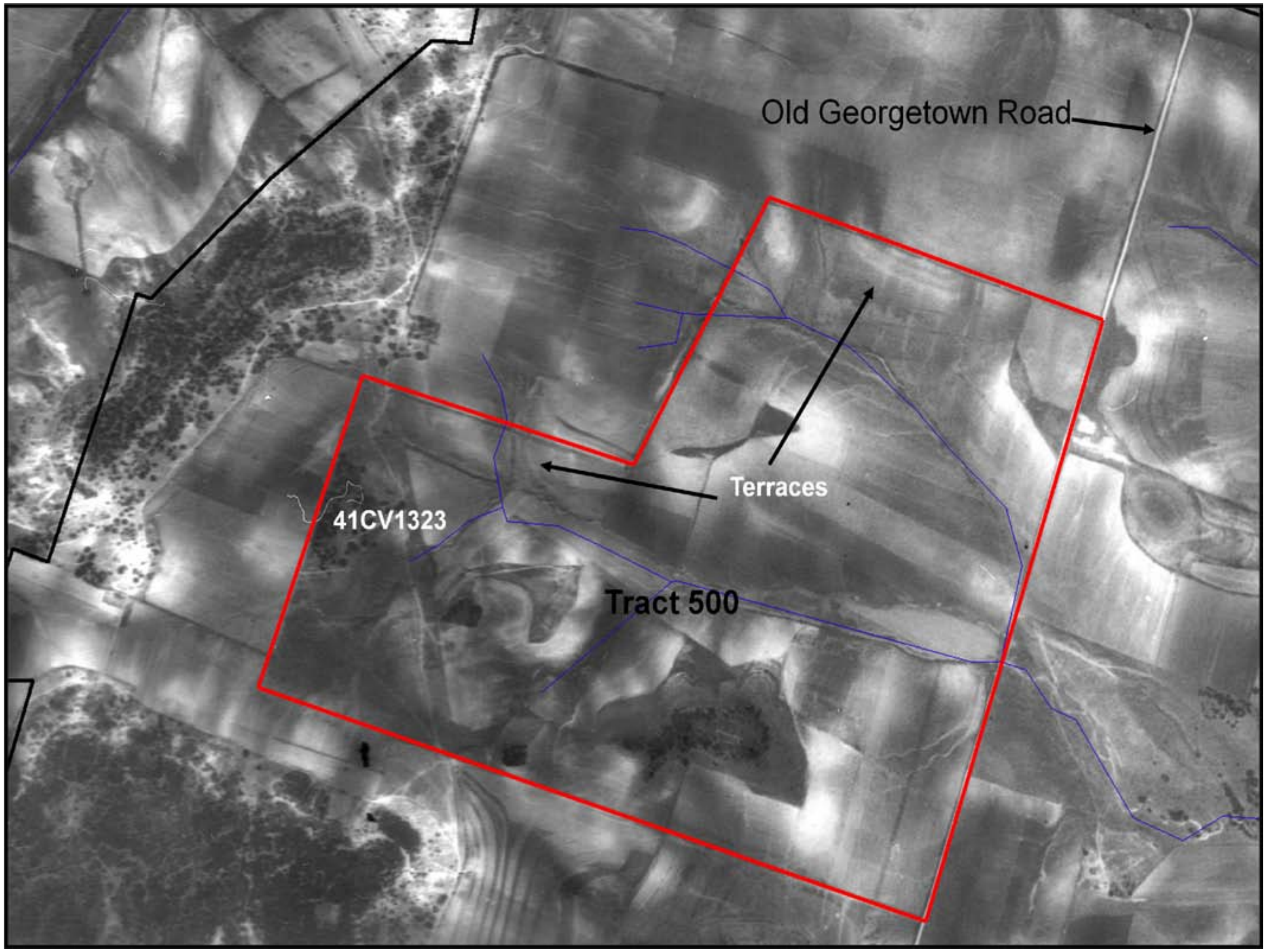

Figure 37: Letha Milroy Farm, Tract 500, 1938 aerial photograph.

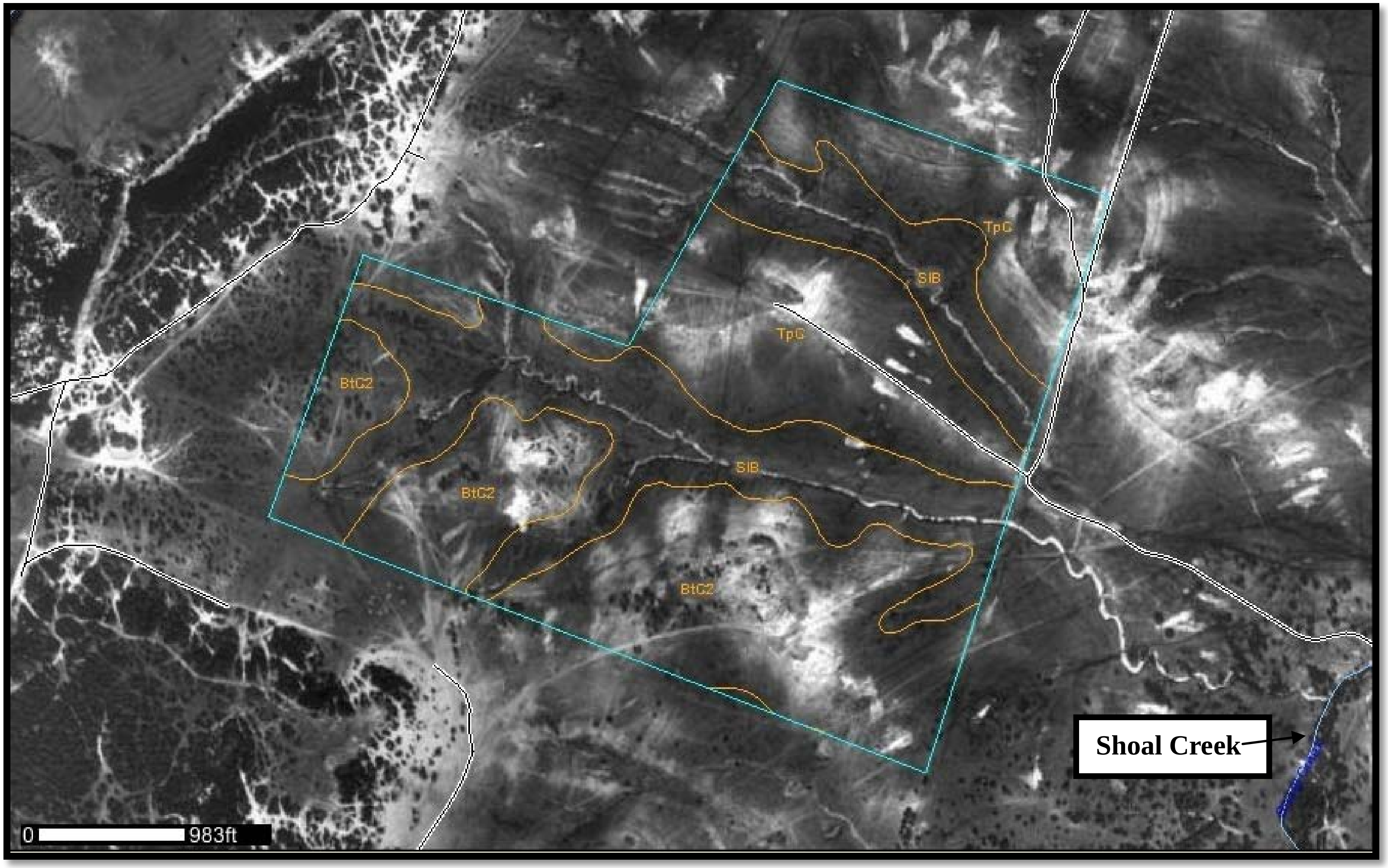

Figure 38: Soils on the Letha Milroy Farm, Tract 500. Source: United States Department of Agriculture, Web Soil Survey - http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx viewed June 1, 2009.

tributaries leading to Shoal Creek to the east. Patterns of light and dark areas in the 1938 aerial photograph indicate the tenant on the Milroy farm was utilizing strip cropping on the cultivated fields.

A house site occupied by the tenant who operated the Milroy farm is represented by archaeological site 41CV1323, in the southwestern portion of the farm (Figure 38). A corral area near the house suggests livestock management as well as crop production. Terraces were not built on the southern portion of the Milroy farm suggesting that those fields were reorganized by the SCS technicians and converted to pastures for livestock. Terraces were noted in the quadrat files, but these features were not recorded as archaeological sites or as part of site 41CV1323. Site 41CV1323 was in poor condition when it was first recorded in 1986. Due to its loss of integrity, the site was determined not eligible for the National Register in the Fort Hood historic agricultural context (Freeman et al. 2001:234).

Dan R. McClellan Farm, Tract 502

The 492.3-acre Dan R. McClellan farm (Tract 502) was located in the north central part of the Spring Hill community and abuts the Milroy farm (Tract 500) along its southern boundary (Figure 40). McClellan purchased the farm in February 1932, but he resided in Gatesville, where he is listed in the 1930 census as a furniture retail merchant. Dan McClellan and his wife, Vivian McClellan, owned four other farms within the confines of what is now Fort Hood during the 1930s and operated this 492-acre farm with tenants.

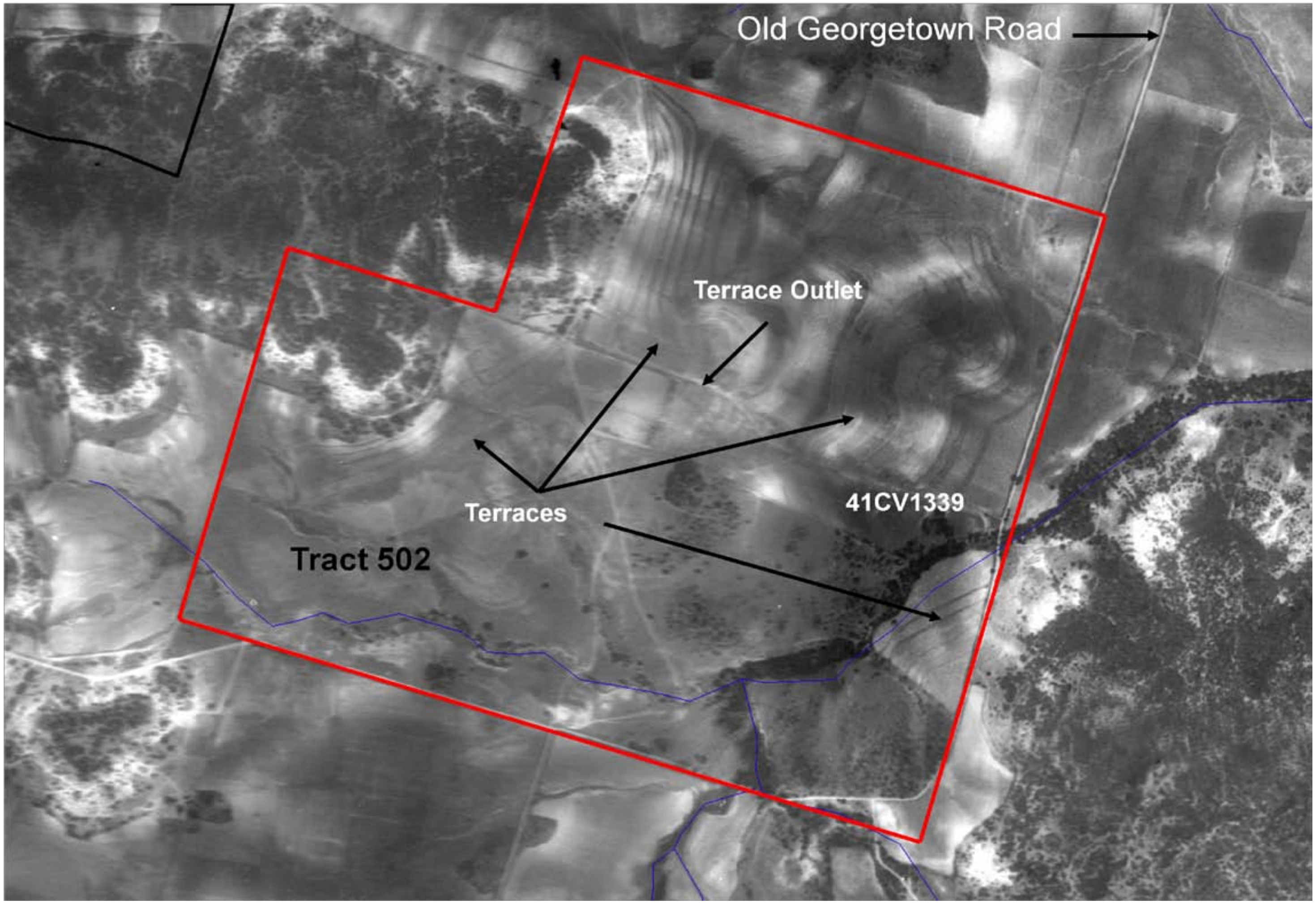

Figure 39: Dan R. McClellan Farm, Tract 502, 1938 aerial photograph.

McClellan’s farm is bordered by Old Georgetown Road on the east and south. Major soil types within the farm include Topsey clay loam (BtC2 - three to eight percent slope), Slidell silty clay (SlB - zero to three percent slope), and Doss-Real complex (DrC – one to eight percent slope) (Figure 41). Other minor soil units include Real-Rock outcrop complex (12 to 40 percent slope), Eckrant-Rock outcrop complex (one to five percent slope), and Cho clay loam (one to three percent slope). Topsey clay loam and Doss-Real complex soils are best suited for rangeland and are very susceptible to erosion if cultivated. Slidell silty clay soils are typically used for cropland and are well suited for that purpose (McCaleb 1985: 16-17, 19-20, 27-28). As is evident from the soils map, the terraces on the McClellan farm were placed in areas where Topsey clay loam and Doss-Real complex soils were cultivated to prevent erosion.

According to the Gatesville CCC camp annual report for 1936, the McClellan farm was one of the 38 under agreement with the Soil Conservation Service at that time (Figure 42). These agreements were in effect for five years and included a coordinated program of soil and water conservation and reorganized land use. Work carried out on the McClellan farm included terracing and the construction of a diversion ditch to carry off excess water (Gatesville Camp Report 1936:42). Figure 40 illustrates how these features worked together. Terracing was more effective with certain soils and the terraces on the McClellan farm were placed in cultivated fields with less than 10 percent slope. Terraces were constructed so that overflow water was diverted off of the fields into a terrace outlet channel that emptied into a natural drainage, Shoal Creek. The terrace outlet channels were lined with sod to slow the

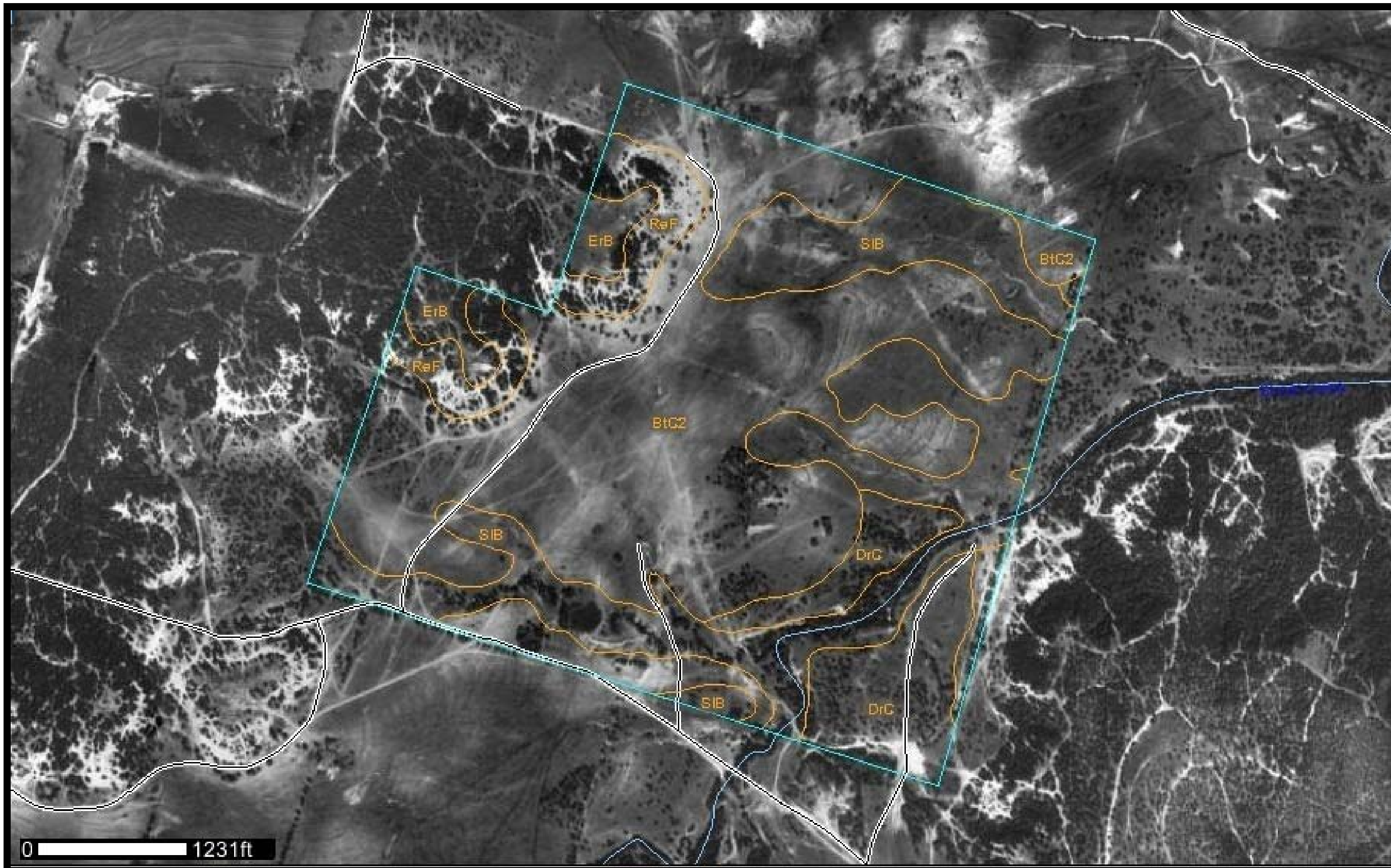

Figure 40: Soils within the Dan R. McClellan Farm, Tract 502. Source: United States Department of Agriculture, Web Soil Survey - http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx viewed June 1, 2009.

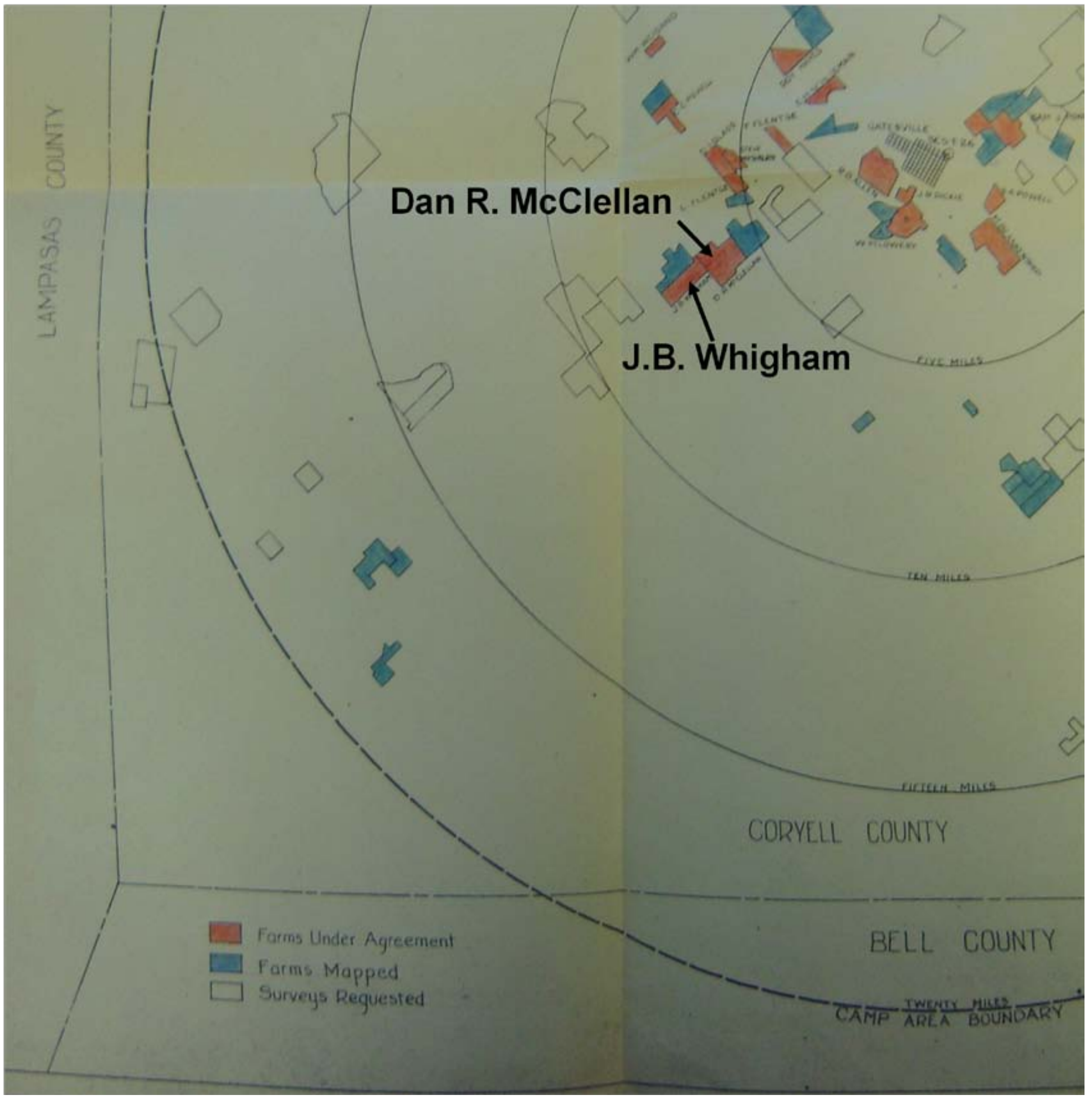

Figure 41: Map of Gatesville CCC camp area showing the location of the Dan R. McClellan (Tract 501) and J.B. Whigham (Tract 502) farms in the Schley and Spring Hill communities. Source: Gatesville Camp Report 1936.

rate of runoff and to allow sediment to drop out before reaching the drainage. Other fields in the southern portion of the farm were converted to pasture and no longer cultivated.

A picture of the work completed on the McClellan farm appeared in the 1936 annual report for the Gatesville CCC camp (see Figure 34). Terracing is clearly visible in the 1938 aerial photographs and it is evident that erosion control methods were employed across the entire farm. Soil conservation features built on the McClellan farm would have been readily apparent to travelers along Old Georgetown Road, a major thoroughfare from Georgetown to Gatesville.

The house site occupied by the tenant who operated the McClellan farm is represented by archaeological site 41CV1339 in the east central part of the farm next to Old Georgetown Road and north of Shoal Creek (Figure 40). The terraces built with the assistance of the CCC remain in good condition. They can be seen from the ground today, although the area is now covered in tall grasses. Site 41CV1339 was determined to retain moderate archaeological integrity and is eligible for listing in the National Register. Associated property types include ranch and farm headquarters under the agriculture context and domestic and infrastructure (a bridge foundation on Old Georgetown Road over Shoal Creek) under the rural development context. Additional archival and archaeological investigations were recommended on site 41CV1339 (Freeman et al. 2001:235,246). Conservation features within the boundaries of the McClellan farm should also be considered along with site 41CV1339 as important components to convey the site’s significance. The entire farm should be seen as a cultural landscape and treated as such.

Three farms to the south of the McClellan farm (Tracts 1500, 1501, and 1502) also contain conservation features (Figure 43). According to the 1936 Gatesville CCC camp report, Tract 1500, the J.B. Whigham farm, was a cooperating farm at that time and Tract 1501, the Harry McClesky farm had been mapped, but was not yet under agreement with the SCS. CCC work was not carried out on Tracts 1500 and 1501 until after 1938, as terracing does not appear in the 1938 aerial photographs.

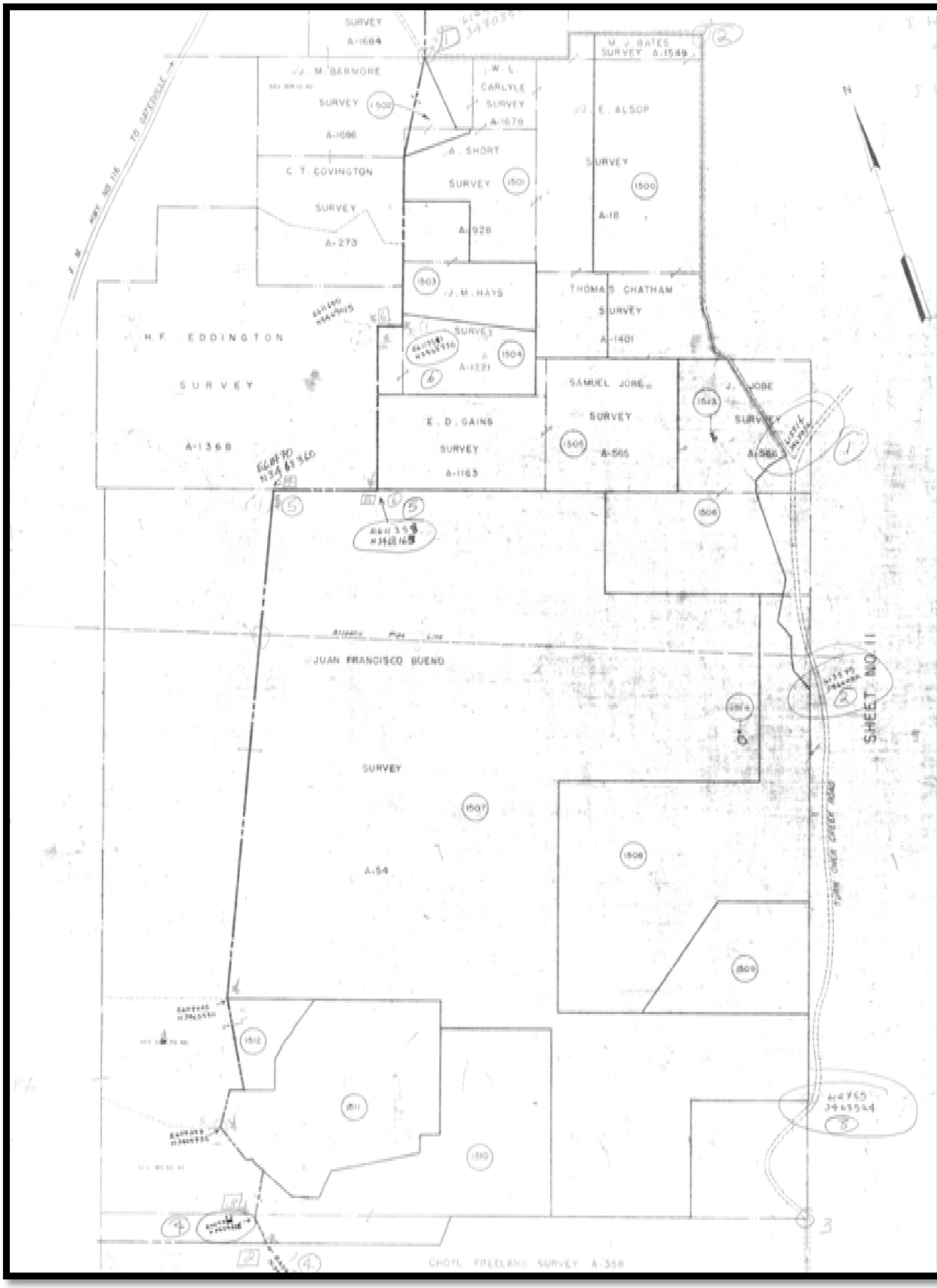

Figure 42: Section 23 Acquisition Map Fort Hood 1954.

J.B. Whigham Farm – Tract 1500

Tract 1500 consists of 292 acres located in the James Alsop, M.J. Bates, and Thomas Chatham Surveys (Figure 44), at the intersection of Old Georgetown and Royalty Ridge Roads; this tract borders the McClellan farm to the south and the McClesky farm to its east. J.B. Whigham acquired the 292-acre farm in 1932.

J.B. Whigham is indicated as a cooperating farmer on a 1936 map of the Gatesville CCC camp area and the work was begun after 1938 (Gatesville Camp Report 1936). Hulon P. and Iona Brookshire, who were relocated from a farm in the initial takings for Fort Hood, acquired the 292-acre Whigham farm in 1944. The Brookshires resided on the farm and likely continued to maintain the soil conservation measures implemented under Whigham's ownership. Tract 1500 was purchased by the United States government for the expansion of Fort Hood in 1954.

Terraces were built in areas where Topsey clay loam (BtC2) and Slidell silty clay soils were cultivated (Figure 45). The terracing system on Tract 1500 is tied into the terracing system on the adjoining tract to the west (Tract 1501) so that terraces do not stop abruptly at the property line, but continue across. Again, rectangular fields were rearranged into curvilinear fields and water was diverted off of the terraces through an outlet channel flowing into Shoal Creek.

The J.B. Whigham farmstead was identified as archaeological site 41CV1160 (Figure 44). The site consists of a farm and ranch complex containing a corral, the base of a concrete foundation, a stone and concrete foundation, another stone foundation next to a root cellar, and a cistern. The CCC likely assisted in the

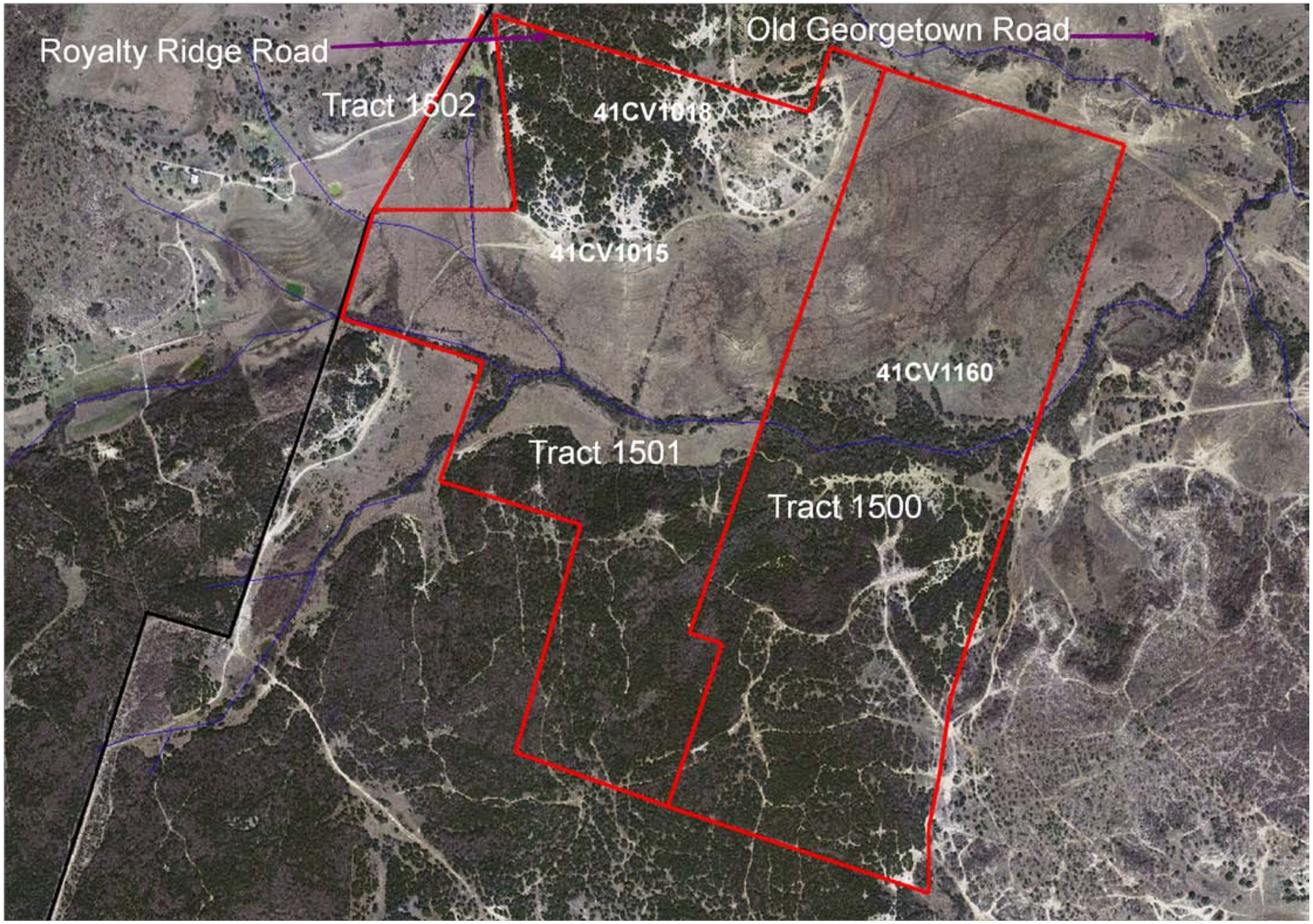

Figure 43: Tract 1500 - the J.B. Whigham farm, Tract 1501 – the Harry McClesky farm, and Tract 1502 – the Malchor Curry farm; 2004 aerial photograph.

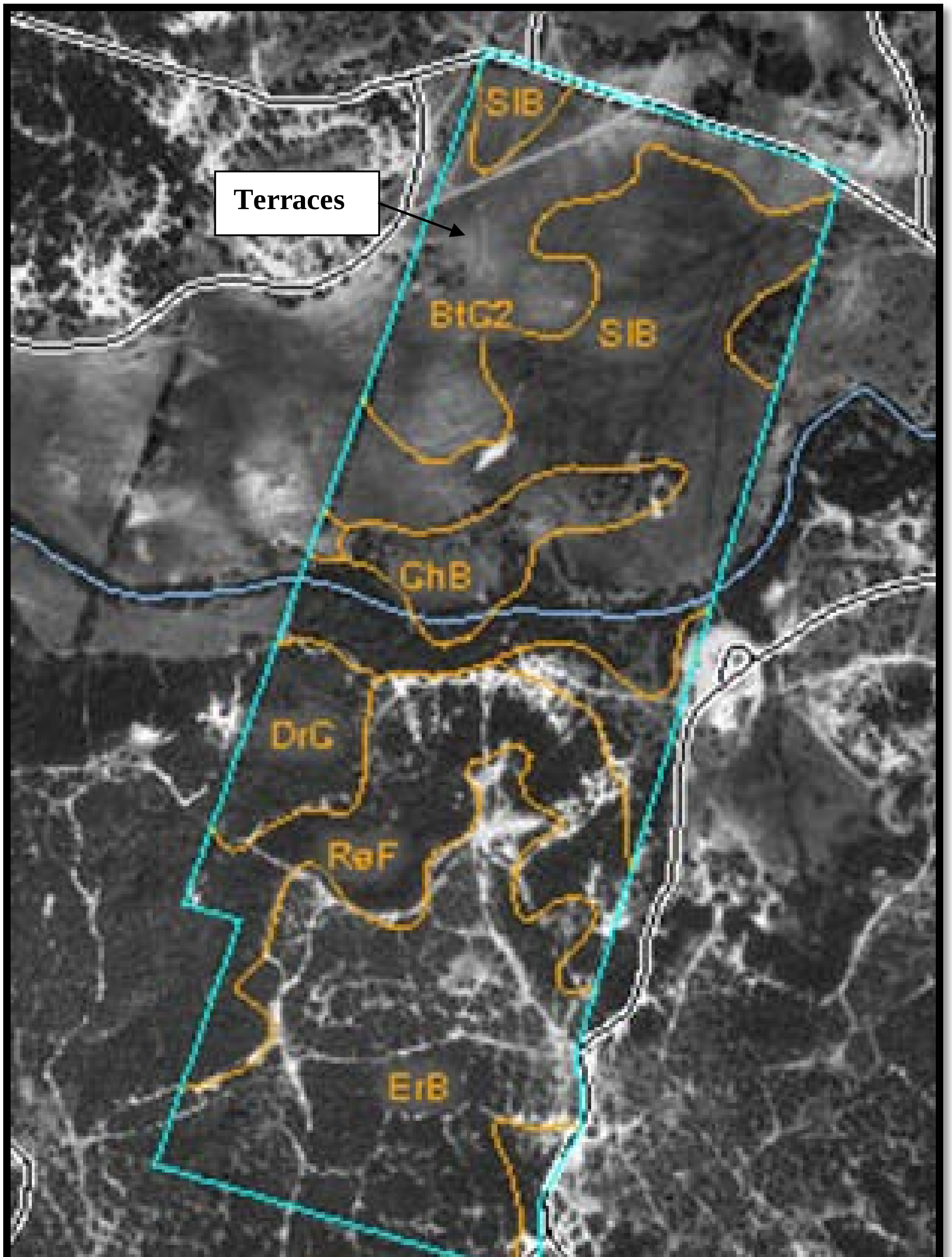

Figure 44: Soils map of the J.B. Whigham farm. Source: United States Department of Agriculture, Web Soil Survey - http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx viewed June 1, 2009.

construction of the cistern and possibly rearranged the corral. Site 41CV1160 was in good condition when it was first recorded in 1986 and is listed as potentially eligible to the National Register. This site was not evaluated for the historic context study because the land was part of the 1954 acquisition. Terraces are evident to the north and west of the house site, which is located just west of Old Georgetown Road. A traveler along either Royalty Ridge or Old Georgetown Road could easily observe the terraced fields on Tract 1500.

The terracing system and the remains of house site 41CV1160 are in good condition. Terracing is still visible on the ground and can be delineated in current aerial photographs. The area still retains its integrity of location, design, setting, materials, feeling, and association. Due to its association with CCC conservation measures present on the larger farm, site 41CV1160, along with its cultural landscape, should be considered eligible to the National Register. All of the conservation features built by the CCC should be included with site 41CV1160 as part of a cultural landscape approach, as they are contributing elements to the site's Depression era history. When archaeological sites are placed within the context of the cultural landscape, their significance becomes more apparent.

Harry McClesky Farm – Tract 1501

Adjoining Tract 1500 to the west is Tract 1501, a 340.9 acre farm acquired by James Henry and Irma McClesky in 1916 and 1933. James Harry McClesky died in 1950 and his family retained title to the 340.9 acre farm in the Spring Hill community until the land was purchased by the United States government for the expansion of

Fort Hood in 1954. James Harry and Irma McClesky were owner-operators of their farm and built the conservation features on the property with the assistance of the Gatesville CCC camp. Their farm is identified on a 1936 map in the Gatesville CCC camp report as a farm that had been mapped but whose owners had not yet signed a cooperative agreement (Gatesville Camp Report 1936). It is apparent that the McCleskys coordinated their soil conservation program with their neighbor, J.B. Whigham, as some of the terraces cross the property boundaries and were constructed at the same time. Soil conservation measures were implemented after 1938 as is evident from the 1938 aerial photograph, showing the fields still laid out in rectilinear patterns (Figure 46). When soil conservation features were built by the CCC, the fields were contoured to the shape of the land.

Terraces were placed on portions of the farm containing fields with Topsey clay loam (BtC2) and Slidell silty clay soils, as on other farms in the vicinity (Figure 47). These soils were the most commonly farmed on the Fort Hood lands and are those on which terracing is typically found. Terraces on the former McClesky farm can still be identified on the ground and from aerial photographs. Terraces were built in the cultivated fields on the gentle southern slope leading towards Shoal Creek. Several terrace outlet channels were placed at intervals to divert excess water off of the fields into Shoal Creek.

Two historic archaeological sites, 41CV1015 and 41CV1018, were identified on Tract 1501 (Figure 44). The McClesky farmstead was recorded as site 41CV1015 and consists of a stock pond, three cut limestone piles that may represent building foundations, and a stone wall along the northern edge of the site. Terraced fields

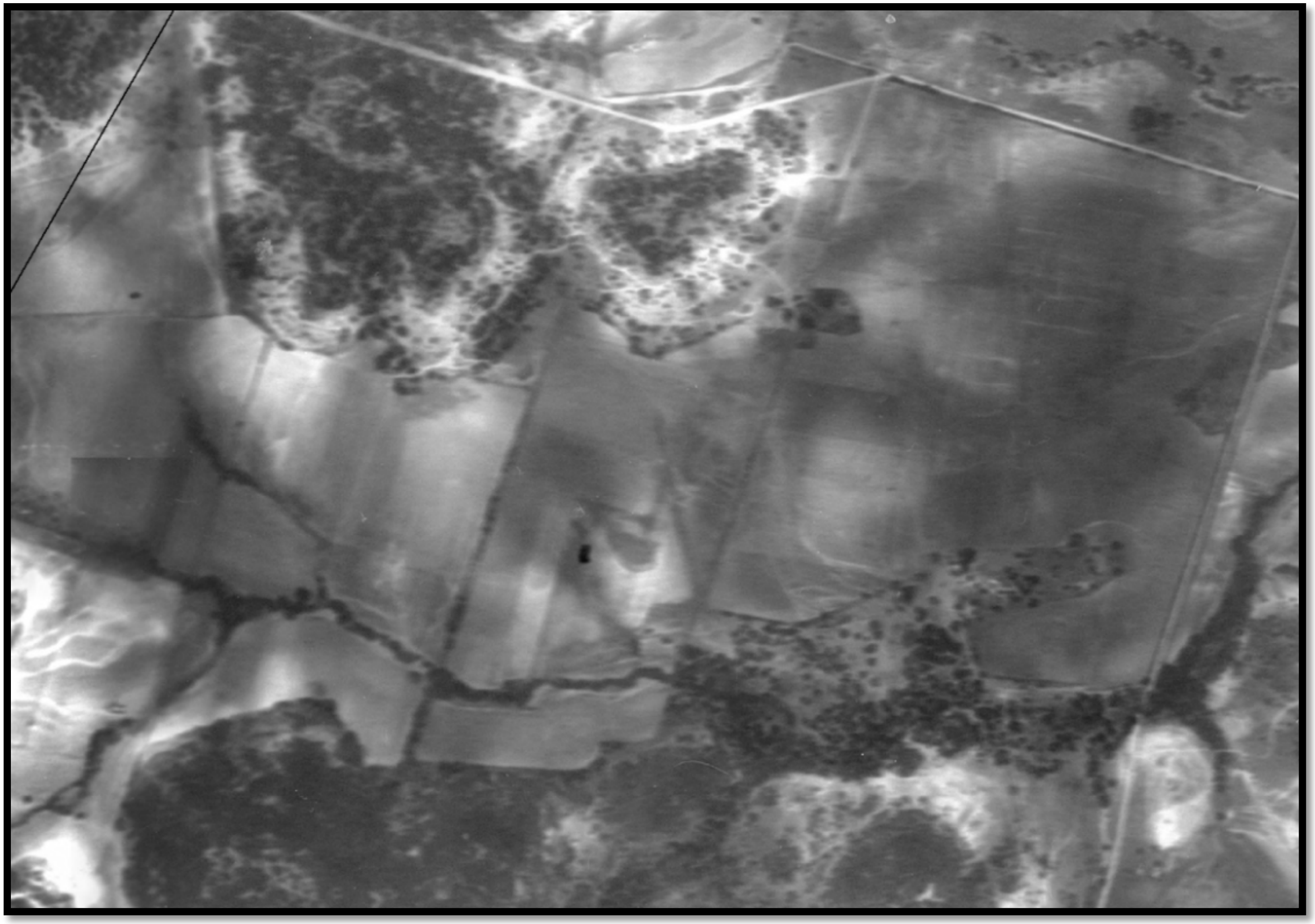

Figure 45: Whigham and McClesky Farms prior to implementation of conservation measures, 1938 aerial photograph.

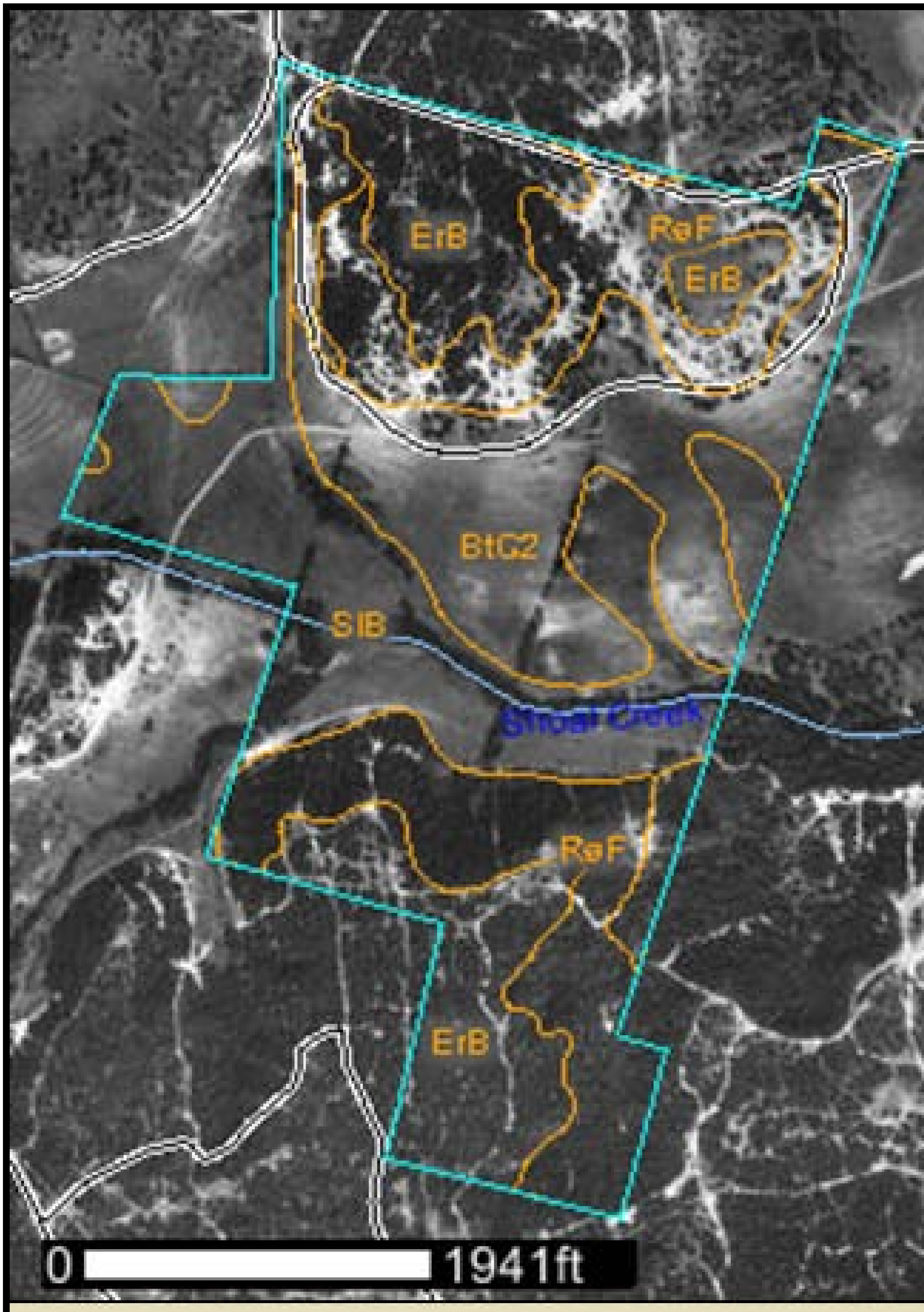

Figure 46: James Harry and Irma McClesky Farm soils map. Source: Source: United States Department of Agriculture, Web Soil Survey - http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx viewed June 1, 2009.

extend south and east of the house site (Figure 48). A terrace outlet channel runs south from a high point near the house site into Shoal Creek, draining the terraces on either side (Figure 49). Site 41CV1018 is a household dumping area near Royalty Ridge Road. Site 41CV1015 was listed as potentially eligible to the National Register, although it has been impacted by military training activities. Site 41CV1015 was not evaluated in the historic agricultural context.

Terraces are still visible on the former McClesky farm today, both on the ground and in aerial photographs. Although the two historic archeological sites, 41CV1015 and 41CV1018, have been impacted by military training activities, the soil conservation features, represented by terraces and a terrace outlet channel (i.e., the cultural landscape), retain their integrity of location, design, setting, materials, feeling, and association to convey the layout of the Depression-era McClesky farm.

J.M. Curry Farm – Tract 1502

To the west of Tract 1501 lies the J. Malchor and Viola Curry farm, Tract 1502 (Figure 44). A 23.9-acre tract off of the east side of the Curry farm was acquired by the United States government in 1954 (Tract 1502) for the expansion of Fort Hood. J. Malchor and Viola Curry obtained title to 139.1 acres in the J.M. Barmore Survey, 68.4 acres in the W.A. Tipton Survey, and 9.5 acres in the Alford Short Survey in 1923. The Currys' homestead was located west of the tract acquired for Fort Hood and does not lie within the Fort Hood boundaries. Aerial photographs show that the Currys had terraced the eastern portion of their farm prior to 1938. No historic archaeological sites were identified on Tract 1502.

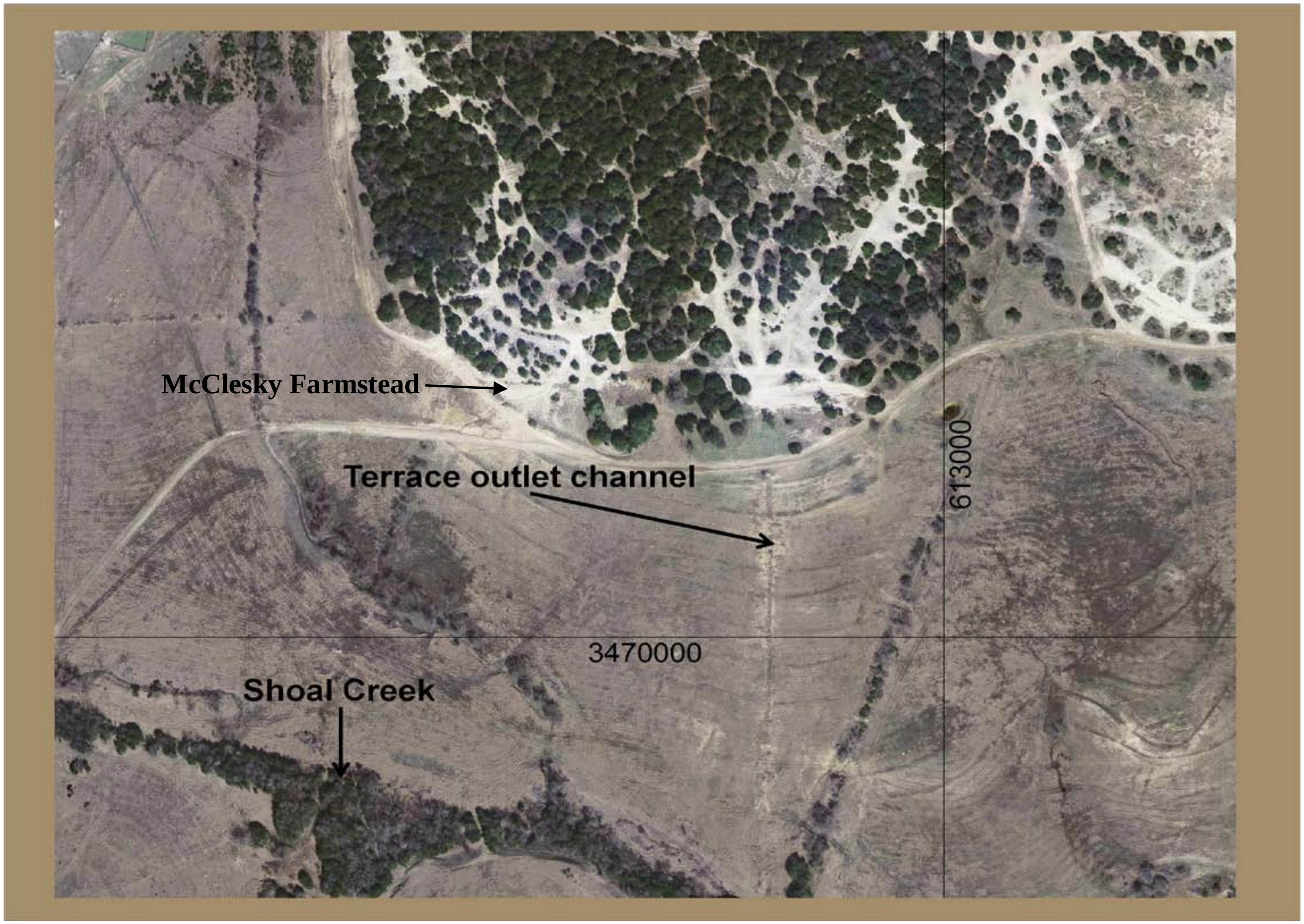

Figure 47: Terracing and terrace outlet channel on the McClesky Farm, Tract 1501; 2004 aerial photograph.

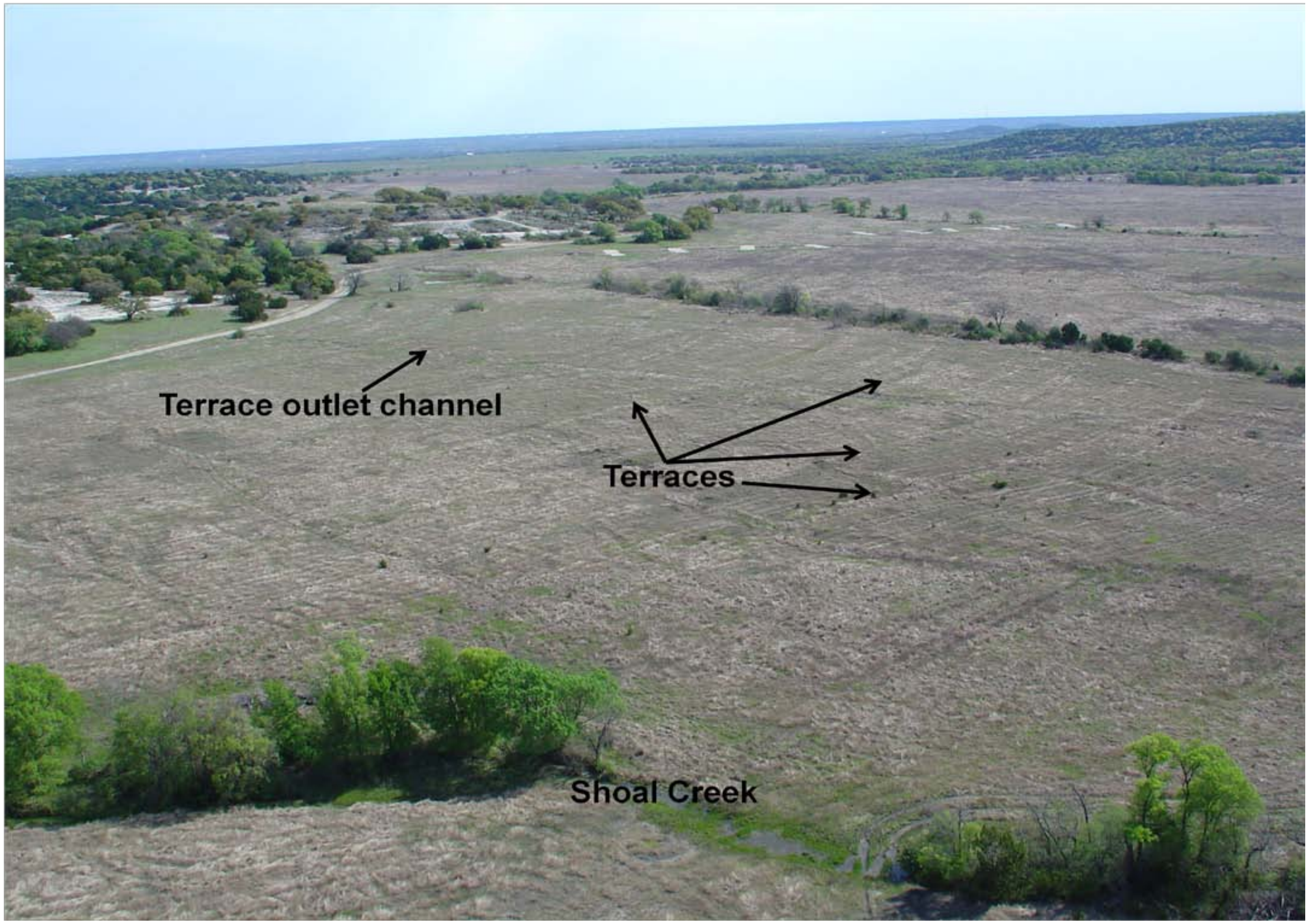

Figure 48: Terrace outlet channel and terraces on the McClesky Farm, looking northeast. Photo by Sunny Wood, Fort Hood Cultural Resources Branch, 2005.

Terracing was placed on the area of the Curry farm where Topsey-Pidcoke association soils (BtC2, two to eight percent slope) and Slidell silty clay soils (SlB, zero to two percent slope) were cultivated (Figure 50). The Currys were owner-occupants of their farm and likely built the terraces with the assistance of the CCC camp in Gatesville, although no specific records exist. The terracing on the Curry farm is in good condition, as the property lies on the edge of the fort. The boundary of the Curry farm extends to the west outside of the Fort Hood boundary and the remainder of what was a 217-acre farm in the 1920s and 1930s should be considered as part of the Curry farm conservation landscape.

Summary of Conservation Work in the Spring Hill and Schley Communities

Five adjacent farms in the Spring Hill community contain soil conservation features that were either built by or influenced by the CCC camp in Gatesville. Tract 502, the Dan R. McClellan farm, was terraced and reorganized with the assistance of the Gatesville CCC camp. McClellan noted in a February 1939 article in the *Gatesville Messenger* that he was one of the first farmers to sign a cooperative agreement with the CCC camp in Gatesville after it was established in August 1935. The work took three years to complete and McClellan felt that the long term benefits accrued from the conservation work would more than outweigh the costs (GM February 10, 1939).

Tracts 1500 (the J.B. Whigham and Hulon P. Brookshire farm) and 1501 (the Harry and Irma McClesky farm) were under agreement with the Gatesville CCC camp or had been mapped by 1936, but conservation work was not begun until 1938 or later. In this case SCS technicians implemented a complete soil conservation

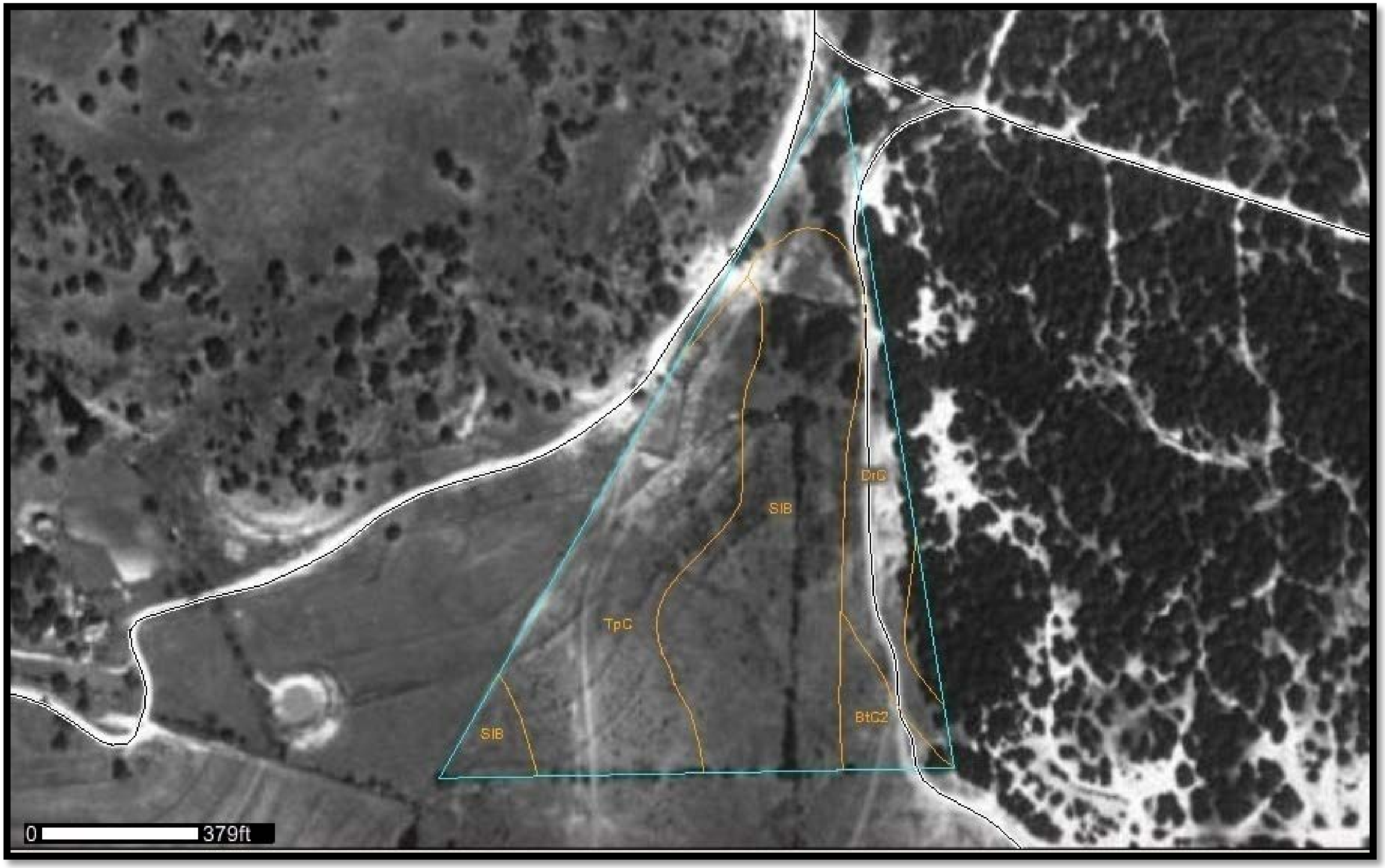

Figure 49: Soils map for the portion of the J.M. Curry farm on Fort Hood. Source: United States Department of Agriculture, Web Soil Survey - http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx viewed June 1, 2009.

program across property lines and along the Shoal Creek watershed. The terracing systems on Tracts 1500 and 1501 were built at the same time, indicating that farmers in the Spring Hill community were cooperating with one another and with the federal government in conserving their soil and water resources.

Soil conservation measures adopted on the Malchor and Viola Curry farm (Tract 1502) were likely influenced by the work on the adjoining farms. The Currys terraced one of their cultivated fields by 1938. This farm is not shown on the 1936 map of cooperating farmers, but the Currys may have signed a cooperative agreement after 1936. They certainly would have been aware of their neighbors' interaction with the SCS CCC camp in Gatesville.

Letha Milroy lived in Brenham in Washington County, Texas, and operated her farm (Tract 500) with tenant labor. Likewise, Dan R. McClellan (Tract 502) was a furniture retail merchant who lived in Gatesville and also operated his farm in the Spring Hill community with tenants. The J.B. Whigham (Tract 1500), Harry McClesky (Tract 1501), and Malchor Curry (Tract 1502) farms were owner-operated. This series of farms illustrates how conservation measures benefitted tenants as well as land owners. All five farms were located along a major thoroughfare, Old Georgetown Road, and the conservation features would have been easily visible to those passing by. As noted above, placing soil conservation features next to a major roadway was one method used by the SCS CCC camps to demonstrate to other farmers the need for and utility of a complete conservation program.

All of these conservation features were also placed along one small watershed, Shoal Creek, a tributary to the Leon River. This series of farms illustrates the SCS

CCC camp's method of treating all farms along one watershed to combat soil erosion. A complete soil and water conservation program was developed for all farms along a single watershed and was implemented with the cooperation of the farm owners and tenants. The Shoal Creek watershed, extending through the Schley and Spring Hill communities, is a good example of one small watershed whose farmers cooperated in implementing a complete conservation program.

Brookhaven Community

The Brookhaven community is located in the east central portion of Fort Hood at the western end of Lake Belton. Oral histories collected from former residents of Fort Hood show that the communities to the north of Killeen grew cotton as their major cash crop. Many of these cotton farms, located in the Brookhaven and Palo Alto communities, were terraced prior to 1938, as is evident in the 1938 aerial photographs. As in the Spring Hill community, a number of adjacent farms were terraced and were located along major thoroughfares. One farm, belonging to William V. and Faxie Robinson, will be detailed in this section.

In the Brookhaven Community, north of Killeen, a complete soil and water conservation program was implemented on the 515-acre farm (Tracts I-413 and 819) owned by William V. and Faxie Robinson. As part of the conservation program, cultivated fields with less than eight percent slope were terraced and terrace outlet channels with check dams were built to divert excess water to a drainage (Figure 51). This farm, located in the outer limits of the Gatesville CCC camp's work area, was deeded to the Robinsons by Faxie's mother, Maggie Walton in 1932. William V. Robinson is listed in the 1930 census as a railroad conductor, who resided in Temple,

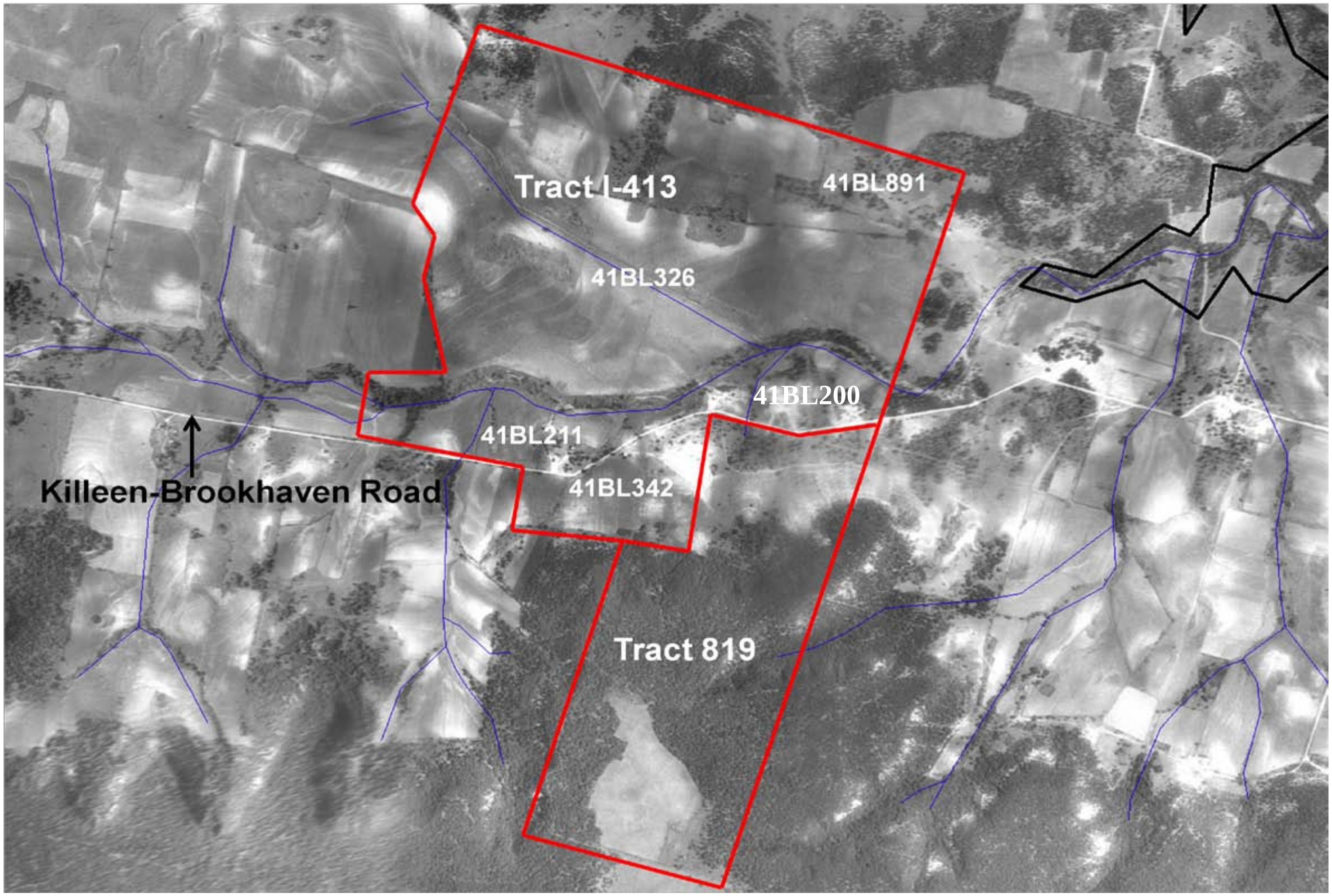

Figure 50: Tracts I-413 and 819 - William V. and Faxie Robinson Farm, 1938 aerial photograph.

a major center of soil conservation activities in Central Texas. The western 423.34 acres (Tract I-413) of the Robinson farm was taken by the Army in 1942 for the establishment of Fort Hood and the remaining 91.66-acre tract (Tract 819) was acquired in 1954 for its expansion.

The Robinsons were large landowners and operated their farm in the Brookhaven community with tenants. This farm was located on the north and south sides of the Killeen to Brookhaven road, a major thoroughfare from which the conservation features could be easily seen. To the south of the road, terraces were built on the slope and an outlet channel was placed through the center of the terraces (41BL342). A series of eight check dams built of concrete and local limestone slowed the rate of water runoff in the terrace outlet ditch (Figures 52, 53). A circular cistern constructed of limestone and cement, and that collected rain water, is located at the base of the slope to store water for livestock (Figure 54). These features were recorded as archaeological site 41BL342.

Soils on which the terraces at site 41BL342 were built include Seawillow clay loam (SeC - three to five percent slope) and severely eroded Topsey clay loam (BtC2 - three to eight percent slope) (Figure 55). Seawillow clay loam is best suited for pastures, but can be used for cropland if it is terraced or farmed on the contour (McCaleb 1985:27). It is uncertain whether these conservation features were built with CCC labor, but they do resemble other CCC work in the vicinity. Features on site 41BL342 are still well preserved and are in a section of the fort that could easily provide for public interpretation.

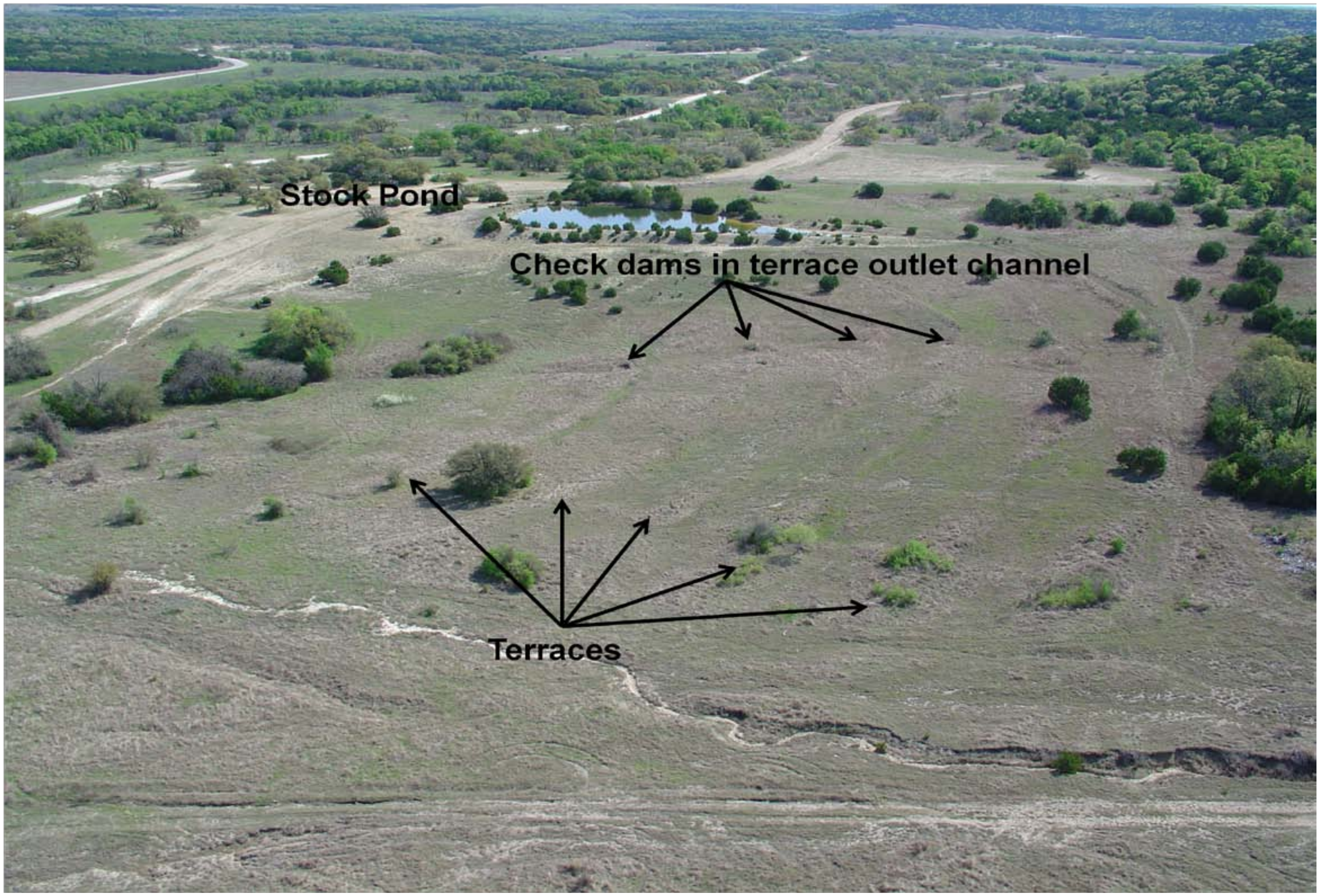

Figure 51: Terraces, terrace outlet channel, and check dams on Robinson Farm, site 41BL342, looking east. Photo by Sunny Wood, Fort Hood Cultural Resources Branch, 2005.

Figure 52: Limestone and concrete check dam in terrace outlet ditch, Robinson Farm, site 41BL342, looking southwest. Photo by Sunny Wood, Fort Hood Cultural Resources Branch, 2005.

Figure 53: Limestone and concrete cistern, Robinson Farm, site 41BL342, looking northwest. Photo by Sunny Wood, Fort Hood Cultural Resources Branch, 2005.

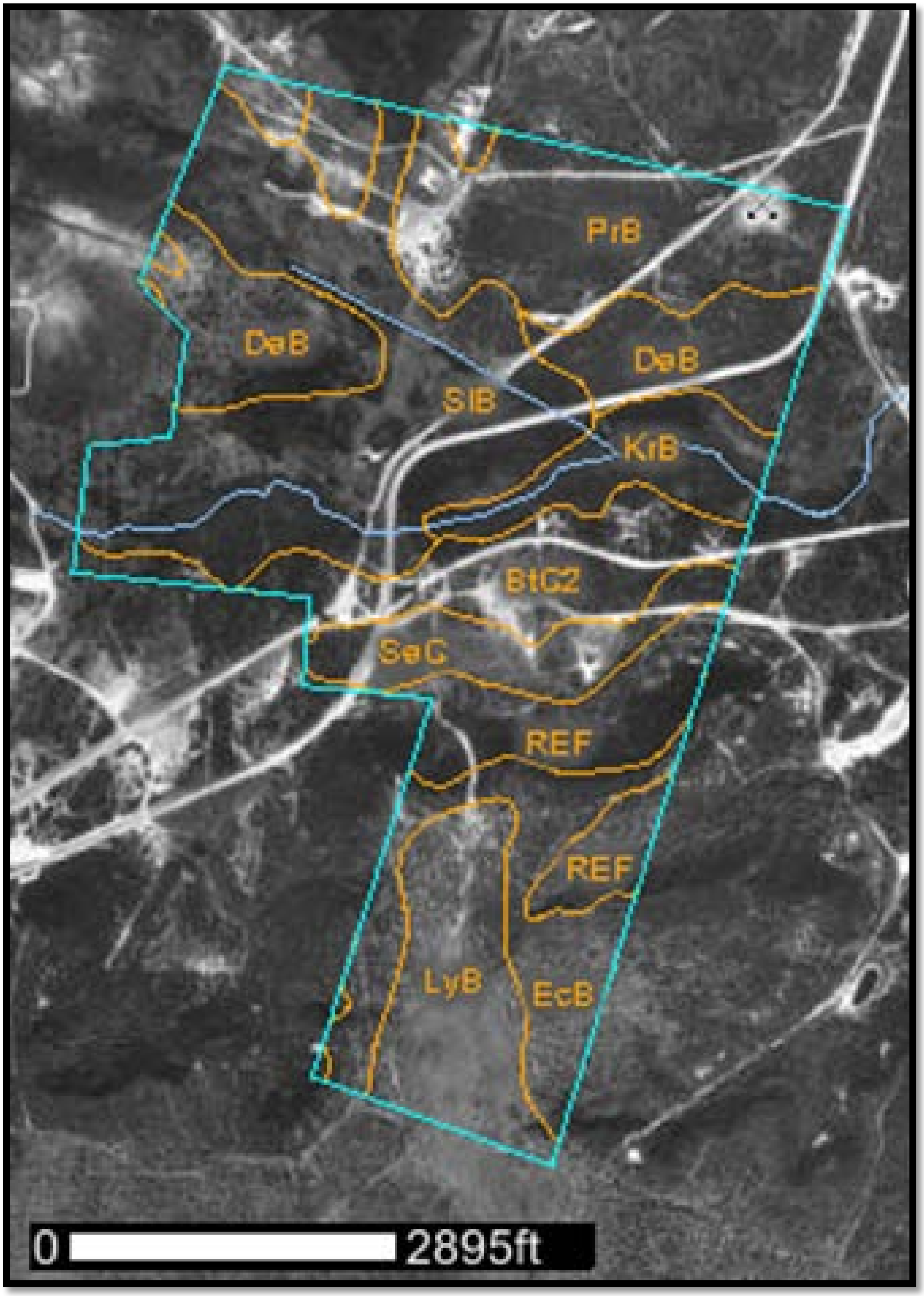

Figure 54: Soils map for William V. and Faxie Robinson farm. Source: United States Department of Agriculture, Web Soil Survey - http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx viewed June 1, 2009.

Site 41BL342 was assessed for its significance by the Fort Hood Cultural Resources Branch in 2003. A field visit at that time noted that the site was in excellent condition, but the area was frequented by military vehicles. Site 41BL342 was recommended as potentially eligible to the National Register under Criteria A and D as a nondomestic agricultural property under the agriculture context. Site 41BL342 also retains integrity of design, materials, and location. It was concluded that because of the significant information contained within the site, it should be protected from further impacts (Wentzel 2003:17).

To the north of the Killeen-Brookhaven road, similar terracing was placed in cultivated fields, along with a terrace outlet channel and check dams. Excess water from the terracing system was drained into Oak Branch, a tributary of Cowhouse Creek. One limestone and concrete check dam was recorded as archaeological site 41BL326. Several others were noted along the terrace outlet channel in the quadrat files but were not recorded as archaeological sites. Terraces in this area of the Robinson farm were placed in cultivated fields containing Denton silty clay (DeC, one to three percent slope) and Slidell silty clay (SlB, zero to three percent slope). Both Denton silty clay and Slidell silty clay are good soils for growing crops and erosion can be prevented by cultivating on the contour (McCaleb 1985:19).

A house site, 41BL891, is located in the northeast corner of the Robinson farm. Interpreted as a large livestock operation with a domestic residence (Figure 51) the site contains two foundations of brick and limestone, two compounds, an above-ground cistern, fence lines, stone walls, a livestock hardware dump, a household dump, and an old road bed. Site 41BL891 is in good condition and is listed as potentially eligible to the National Register under Criterion D as a farm and ranch complex under the agriculture context (Freeman et al. 2001:216, 238). Tenants residing at site 41BL891 were likely responsible for farming the terraced fields to the south and west of the house, and north of the Killeen-Brookhaven road, described above.

A second house site, 41BL211, was recorded on the north side of the Killeen-Brookhaven Road in the central part of the farm. Features identified on site 41BL211 include a root cellar and a concrete and limestone water tank, likely built by the CCC (Figure 51). Occupied by a tenant on the Robinson farm, site 41BL211 has been severely impacted by military vehicle traffic and is in poor condition. Due to this loss of integrity, site 41BL211 was determined not eligible to the National Register in the Fort Hood historic context (Freeman et al. 2001:215). However, the concrete and limestone water tank was probably built by the CCC and may still be able to convey its significance as a New Deal conservation measure.

A third house site, 41BL200, was recorded to the east of sites 41BL211 and 41BL342, along the east central portion of the Robinson farm on the north side of the Killeen-Brookhaven road (Figure 51). When identified in 1979, site 41BL200 contained two limestone foundations which were interpreted as a house and a shed. However, the site lies in a heavily trafficked area and has been largely destroyed. This house was occupied by another tenant of the Robinsons. Due to its loss of integrity, site 41BL200 was determined to be not eligible for the National Register in the Fort Hood historic context.

Sites 41BL891, 41BL326, and 41BL342 retain sufficient integrity to be listed in the National Register. Including cultural landscape features, such as terraced fields, along with the house sites provides a more complete context for the farm sites. Tenants farmed all of the fields on the Robinson farm in the Brookhaven community and they likely benefitted from the conservation measures employed on the property. The Robinson farm is a good example of a large tenant operated farm that implemented soil and water conservation measures under the influence of the CCC.

Ewing Community

Situated in the north part of Fort Hood and to the east of the Spring Hill and Schley communities, the Ewing community also adopted soil conservation measures at an early date (Figure 5). Documentary and archaeological evidence exists for the soil conservation measures that were built on the Rufus J. Brown farm by the Gatesville CCC camp. Tract 546 was a 454.46-acre farm located on the Joseph H. Brown, R.J. Brown, and Matthew W. Cartwright Surveys. Members of the Brown family owned the Joseph H. Brown, R.J. Brown, and Cartwright Surveys from the 1870s (Figure 56). Rufus J. Brown inherited the farm from his parents, Robert J. and Lula Brown, in 1934. Robert J. and Lula Brown lived in Gatesville, where Brown was a successful cotton ginner.

Rufus J. Brown was also a cotton ginner in Gatesville and did not live on the farm in the Ewing community, but operated it with tenants. However, he was certainly aware of the soil conservation work performed by the young men in the CCC camp in Gatesville. A 1937 article in the *Gatesville Messenger* reports that Rufus J. Brown had instituted a complete erosion control program on his 125-acre

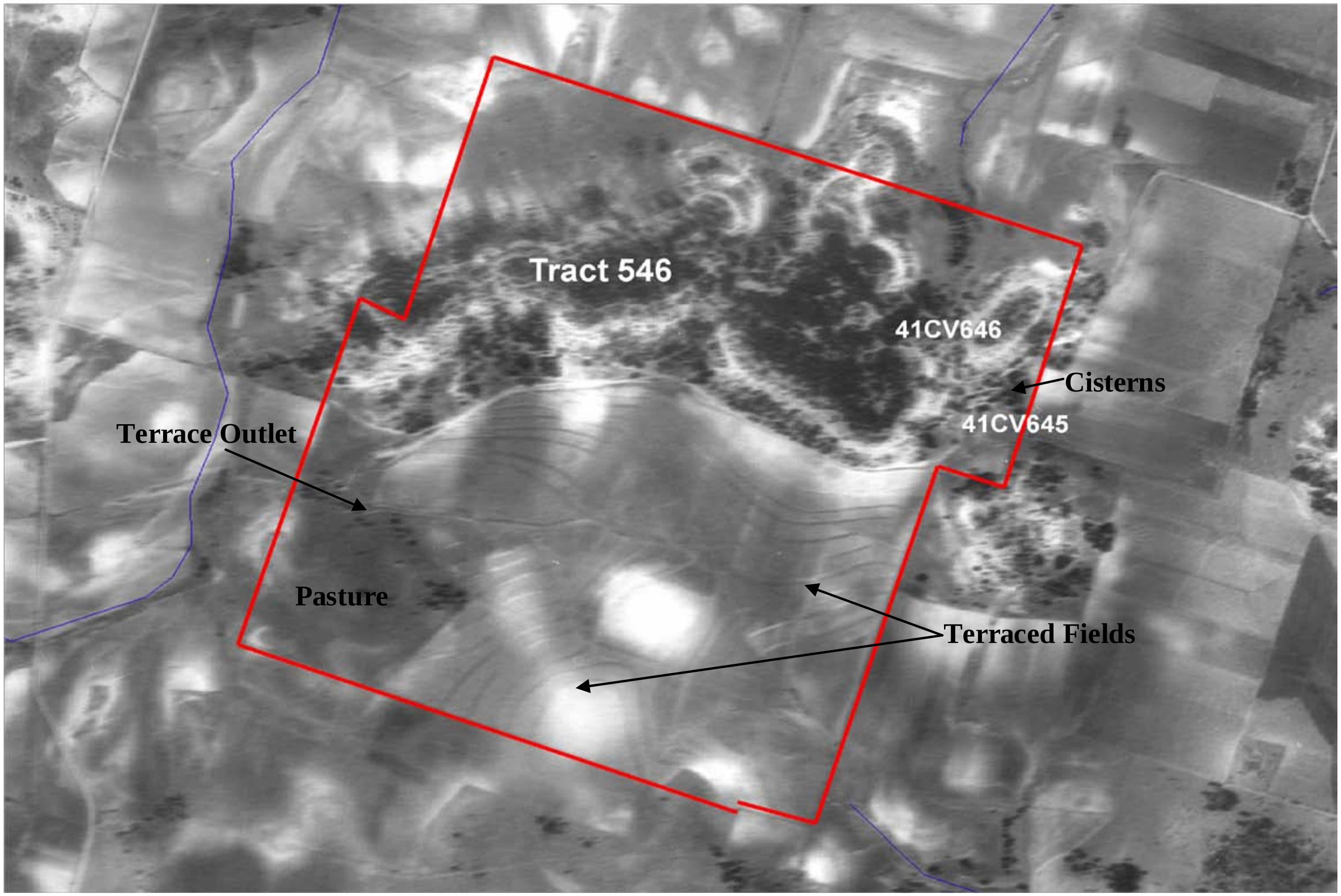

Figure 55: Tract 546 - Rufus J. Brown Farm, 1938 aerial photograph. Cultivated areas are terraced and pasture land is located in the southwestern and northern parts of the farm.

farm in the White Hall community. Erosion control measures on the White Hall farm proved so effective that Brown decided to place his 454.46-acre farm in the Ewing community (Tract 546) under cooperative agreement with the Gatesville CCC camp. Brown noted that from 1900 to 1917, he planted about 125 acres of his Ewing farm in cotton, which yielded from 42 to 56 bales per year. Yields dropped in subsequent years and the yield in 1937 was below the earlier average. The program on the 454.46-acre Brown farm included not only complete erosion control measures for every cultivated acre, but also a pasture program consisting of alternate and controlled grazing by the use of cross fencing, and even grazing by using sheep and goats with cattle. A three year rotation of cotton, corn, and oats or millet was also planned (GM December 10, 1937).

Terraces built with the assistance of CCC workers are visible in the 1938 aerial photographs and are still visible today, although a helicopter bombing range has impacted their southern extent. Soils in the areas of the farm that were terraced include severely eroded Topsey clay loam (BtC2 - three to eight percent slope) and Slidell silty clay (SlB - zero to two percent slope), similar to the other farms described in this section (Figure 57). Terraces were placed primarily in cultivated areas that contained Topsey clay loams (BtC2), a type of soil particularly susceptible to erosion if cultivated. A terrace outlet drained excess water to the west into a small tributary of Turnover Creek. While the Brown farm does not lie immediately adjacent to a major road, it is situated in between two north-south routes from southern Coryell County to Gatesville. Terraces were built after 1938 on the adjoining farm to the south (Tract 550) and that terracing system would have been visible from a major roadway.

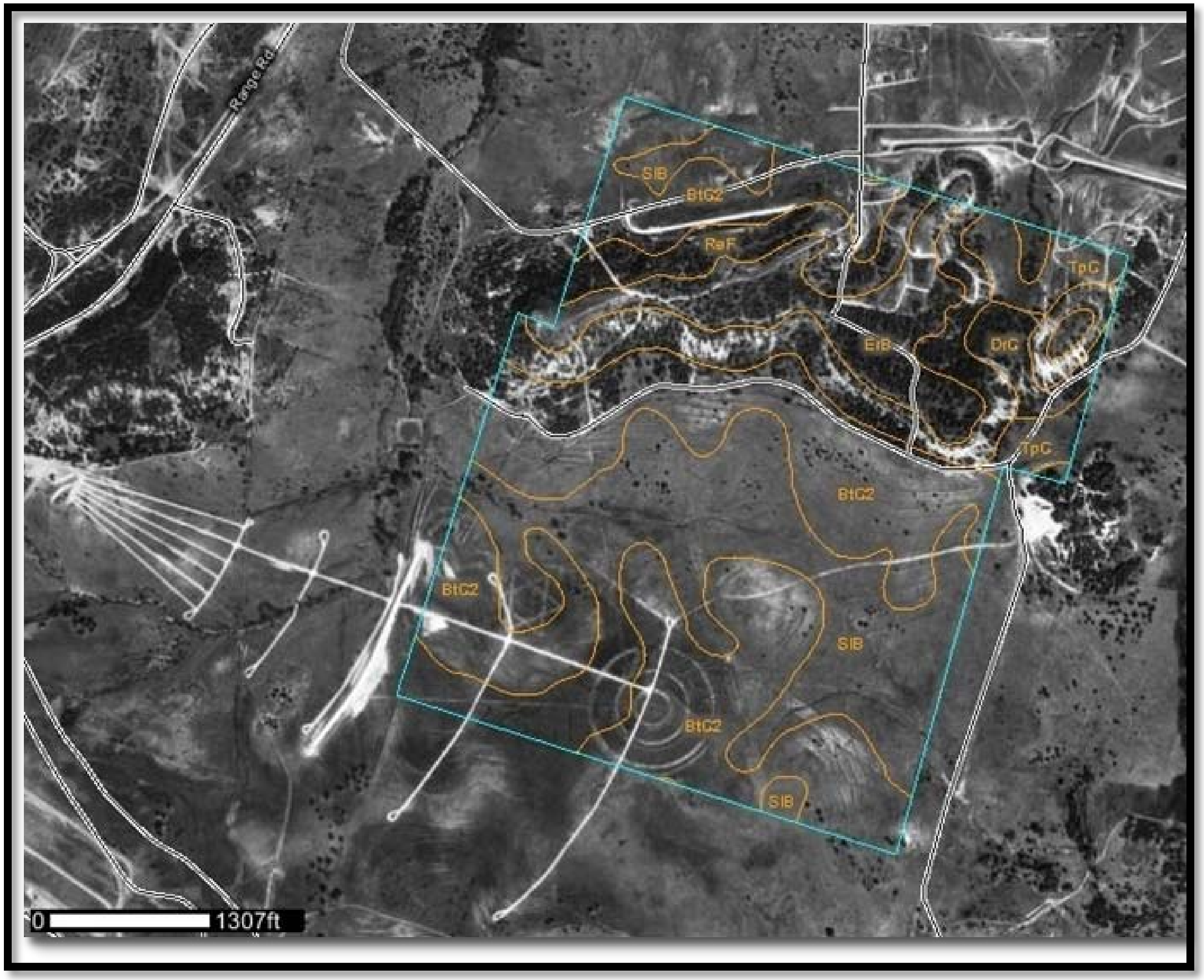

Figure 56: Soils map for the Rufus J. Brown Farm. Source: United States Department of Agriculture, Web Soil Survey - http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx viewed June 1, 2009.

When the 454.46-acre Rufus J. Brown farm was purchased by the United States government in 1943, the property contained a house, barn, stock pens and lots, and other small improvements. Two historic archaeology sites, 41CV645 and 41CV646, were recorded on Tract 546. Site 41CV646 was the location of the farm house occupied by the tenant who operated the Brown farm (Figure 56). This site contains a possible foundation, an underground cistern, and several trash dump areas. The house site sits on a flat area on top of the spur of a low rise in the northeastern part of the farm. Overall the site was assessed as containing moderate integrity and being potentially eligible to the National Register under Criterion D as a farm and ranch headquarters under the agriculture context (Freeman et al. 2001:225, 242).

Site 41CV645 is located to the east of 41CV646 at the base of the hill and consists of a series of cisterns and a well. This was a livestock watering and management area located in the northeast part of the farm, and the features were likely built with CCC assistance. Rufus Brown noted in the newspaper article that he instituted a pasture and grazing program on his farm (GM December 10, 1937). Site 41CV645 is in an area that receives a lot of military traffic and was listed in poor condition. Thus the site was determined not eligible to the National Register due to its low archaeological integrity (Freeman et al. 2001:225). Although the archaeological deposits at site 41CV645 do not retain their integrity, the cisterns were likely built by the CCC as part of the overall farm conservation program and may still retain their integrity of location, setting, materials, and workmanship. Features located at 41CV645 should be evaluated for significance with the other conservation features on the Brown farm from the perspective of the entire cultural landscape of the farm.

Copperas Cove Community

Copperas Cove is a small town that grew up around a railroad stop and is located in the southwestern corner of Coryell County (Figure 5). The northern portion of this community was acquired by the United States government in 1942 for the establishment of Fort Hood. The area is characterized by high grass-covered plains well suited to ranching. Most land owners in this area focused on ranching and farming cotton. Two adjoining properties in this community, Tracts B-68 and 628 will be examined to further detail the soil conservation features built on farms in the southern extent of the Gatesville CCC camp work area.

Jouett and Emma Allin Farm – Tract B-68

Tract B-68 is comprised of 1331.6 acres in the Alexander Wheeler, L. Perry, C.G. Lovelace, John Graham, Thomas G. Walters, Mrs. M.A. Lowe, and J.T. Tuley Surveys in Coryell County (Figure 58). Jouett Allin acquired 323.8 acres in the Alexander Wheeler Survey in 1904 and an additional tract in the Wheeler Survey and the 160-acre C.G. Lovelace Survey in 1906. Emma Allin's father, Hanan Barker, conveyed the remaining acreage to his daughter in 1906. Jouett Allin was elected the first mayor of Copperas Cove in 1913 and worked as a bank cashier in the town. Emma Allin was an attorney, school teacher, and social leader in Copperas Cove. The Allins' home, now located at 401 North Main Street in Copperas Cove, is a Texas Historic Landmark. The farm and ranch to the northeast of Copperas Cove, defined as Tract B-68, was operated by several tenants.

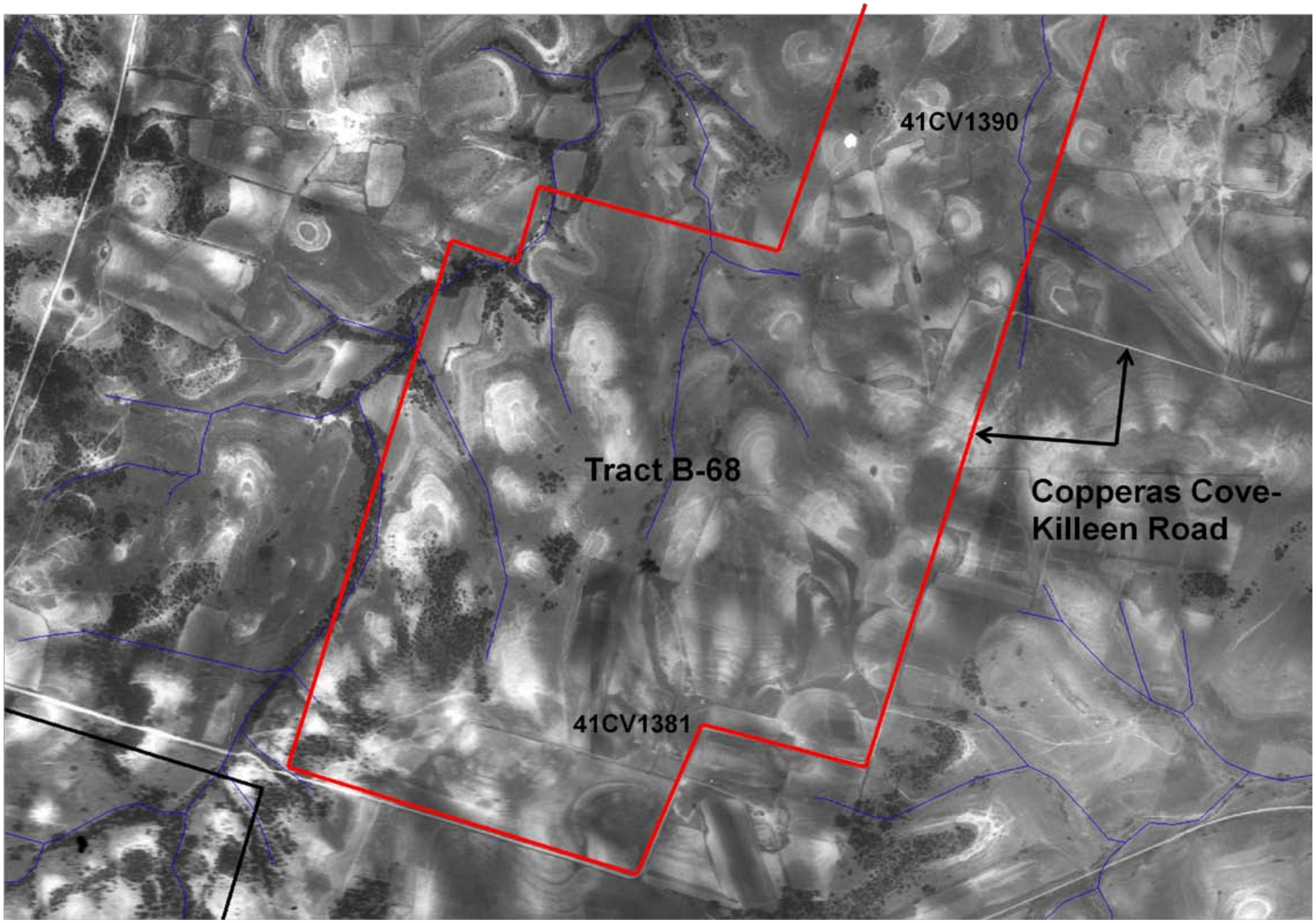

Figure 57: Tract B-68, the Jouett and Emma Allin farm, 1938 aerial photograph.

Terraces were placed in cultivated fields on the lower end of the Allin farm. A major road leading from Copperas Cove to Killeen runs along the southern and a portion of the east property boundary. A majority of the terracing systems were placed in fields close to the road. Most of the Allin farm lies in an area that has been heavily impacted by military construction and training activities. However, some of the terracing systems are still visible on the ground and in aerial photographs (Figure 59).

Two historic archaeological sites, 41CV1381 and 41CV1390, were identified on the Allin farm in the areas where the terracing was placed (Figure 58). Site 41CV1381 is located in the southeast corner of the Allin farm, west of the Copperas Cove to Killeen road. Only one stone wall and a low density artifact scatter were observed. Terraced fields are located to the south, west, and north of the house site. Some of the terraces are still visible today and are in good condition. This house site would have been occupied by a tenant of the Allins. Site 41CV1381 lies in an area that has been heavily impacted by road construction and military vehicle traffic, and thus is considered not eligible for the National Register due to its lack of integrity (Freeman et al. 2001:235).

Site 41CV1390 is located in the central portion of the Allin farm (Figure 58), with terraced fields to the south and visible from the Copperas Cove to Killeen road. Features observed at site 41CV1390 include a foundation, root cellar, rubble, and a stone wall, along with a low density artifact scatter. A stock pond is located to the east and some of the fields are bordered with stone walls. Site 41CV1390 would have been occupied by a tenant of the Allins who tended the fields to the south. Site

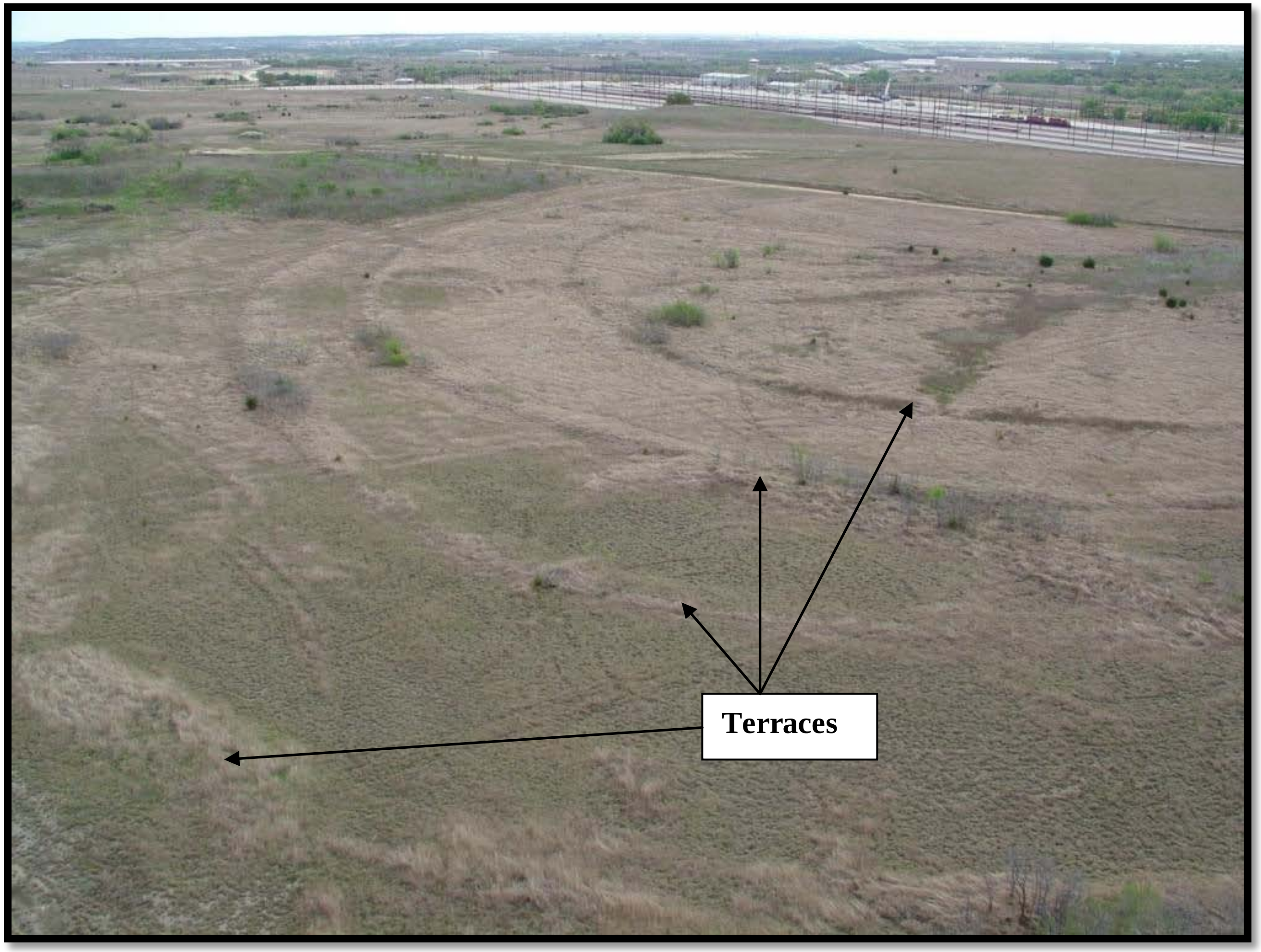

Figure 58: Terraces on the Allin farm, Tract B-68, looking southeast. Old Copperas Cove-Killeen Road visible at the end of the terracing. Photo by Sunny Wood, Fort Hood Cultural Resources Branch, 2005.

41CV1390 was evaluated with the Fort Hood context study, was assessed as containing moderate integrity, and determined to be eligible to the National Register under Criteria A, B, and D as a farm and ranch headquarters (Freeman et al. 2001:235, 246).

Although only one of the historic house sites retained any integrity, some of the terracing systems on the southern portion of the Allin farm adjacent to the Copperas Cove-Killeen road are still in good condition and are easily accessible. Terraces were constructed on cultivated fields containing Topsey clay loam soils (BtC2 - three to eight percent slope) (Figure 60). The terracing system on the southern end of the Allin property ties into the terracing system on the other side of the road on Tract 628. These terraces appear to have been constructed at the same time, as they are visible in the 1938 aerial photographs.

Julius L. and Robbie Smith Farm – Tract 628

Tract 628 adjoins Tract B-68 to the south and is separated from that farm by the Copperas Cove-Killeen road (Figure 61). Tract 628 is comprised of 293.75 acres out of the A.G. Matthews and William P. Hardeman Surveys and is located to the northeast of the town of Copperas Cove. Julius L. and Robbie Smith purchased the farm in 1917 and lived on the property until it was taken for the establishment of Fort Hood in 1942. Julius L. Smith is listed in several census records as a farmer operating a general farm.

Julius Smith was identified as a non-cooperating farmer in the 1936 Gatesville CCC camp report (Gatesville Annual Camp Report 1936:27). This document

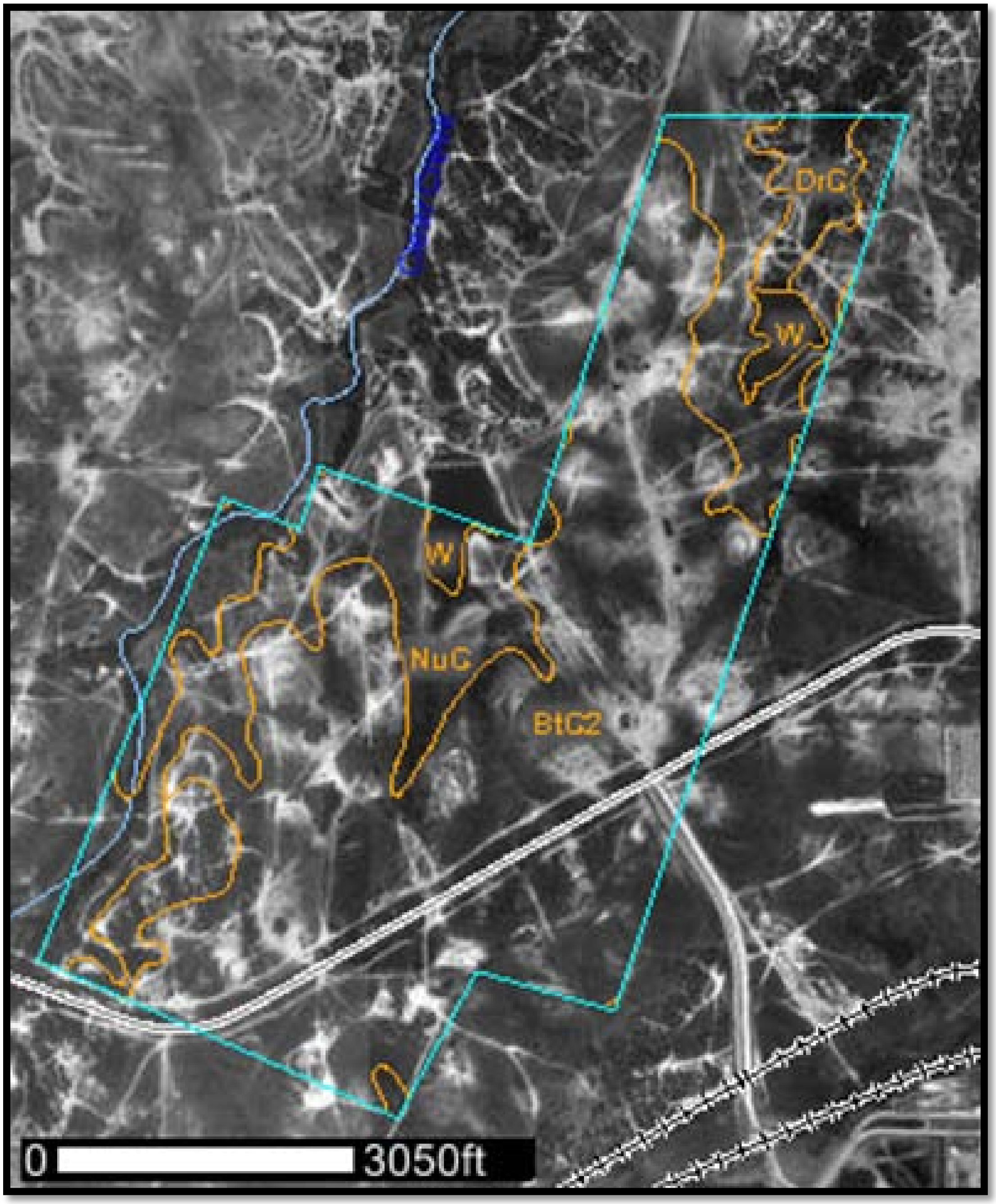

Figure 59: Soils map of Jouett and Emma Allin farm. Source: United States Department of Agriculture, Web Soil Survey - http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx viewed June 1, 2009.

Figure 60: Tract 628, the Julius and Robbie Smith farm; 1938 aerial photograph.

provides a list of farmers who had not signed a cooperative agreement with the camp, but were beginning to implement soil conservation measures on their farms. Smith terraced his farm and practiced contour cultivation beginning in 1935.

One historic archaeological site, 41CV966, was identified on the Smith farm. Site 41CV966 is located south of the Copperas Cove-Killeen road (Figure 61). No features were identified, but a low density artifact scatter was noted. Terraced fields extend to the south and east of the house site. Terracing was placed on cultivated fields that contained Topsey clay loam soils (BtC2 - three to eight percent slopes) (Figure 62). Site 41CV966 does not retain sufficient integrity to be eligible to the National Register according to the Fort Hood historic context (Freeman et al. 2001:229). However, the terracing system is still in good condition and in an area that is easily accessible.

The terracing system on the Smith farm appears to have been laid out and constructed at the same time as the terracing system on the adjoining land to the north, the Allin farm tract B-68. The terracing of these two adjoining farms is another example of farmers cooperating with one another on a coordinated soil conservation program that crossed property lines. These conservation measures would have been easily visible from the Copperas Cove to Killeen road (Figure 63). Several other adjoining tracts also contained fields that were terraced.

Julius Smith terraced his farm and practiced contour cultivation without the assistance of the CCC camp in Gatesville. Residents of the county were well aware of the soil conservation practices promoted by the SCS CCC camp and some, like Smith, decided to institute the measures themselves rather than cooperate with the

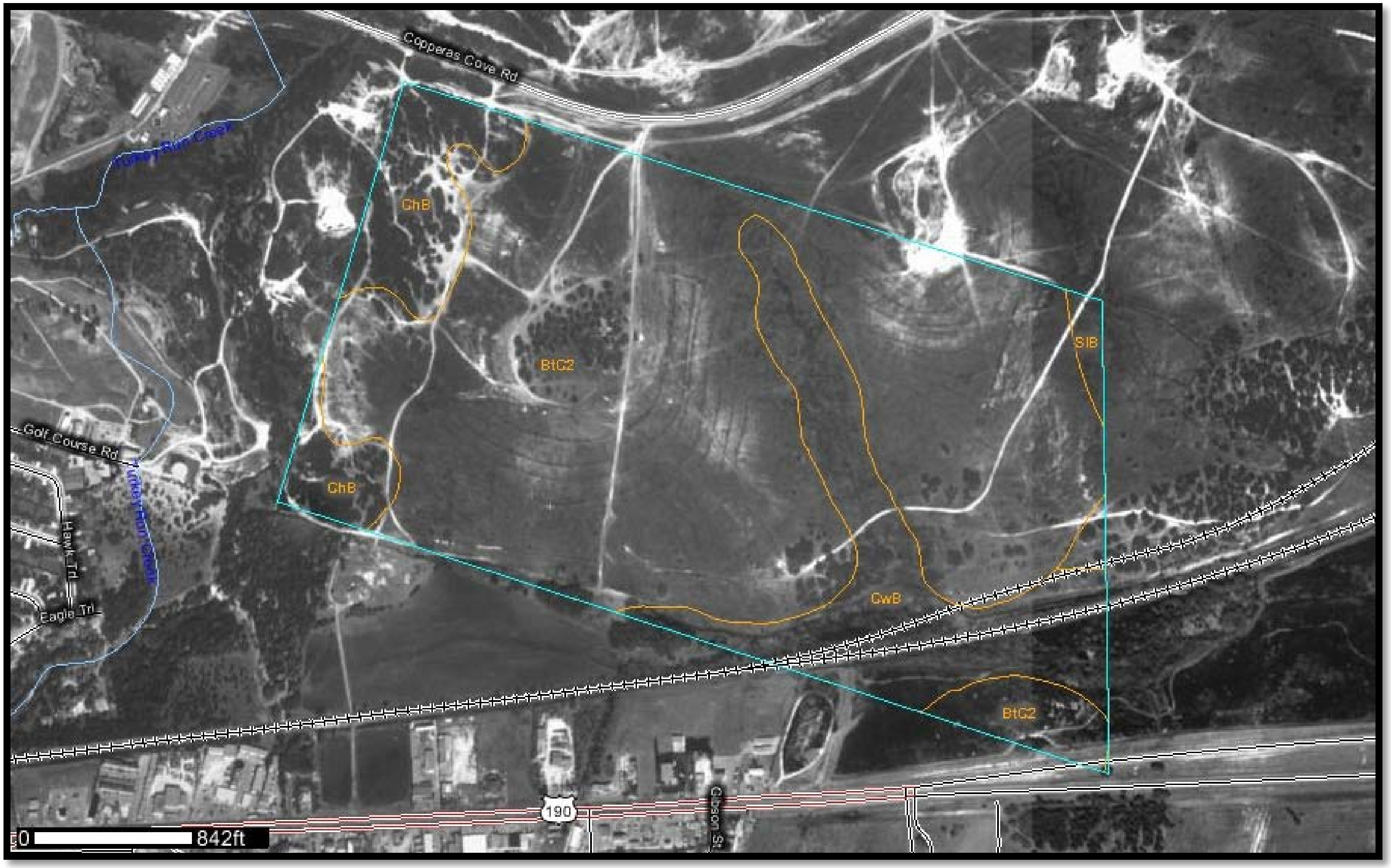

Figure 61: Soils map for Julius and Robbie Smith farm, Tract 628. Source: United States Department of Agriculture, Web Soil Survey - http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx viewed June 1, 2009.

Figure 62: View to west across the Julius Smith farm. Copperas Cove to left. Photo by Sunny Wood, Fort Hood Cultural Resources Branch, 2005.

federal government. Julius Smith appears to have cooperated with the Allins in building the terracing systems as some of the terraces cross the property boundary lines. The Smith farm is a good example of a farm owner who was likely influenced to build soil conservation features on his farm by work that was being performed by the federal government under the CCC (Appendix II).

Summary of Soil Conservation Features on Fort Hood

The farms discussed above were selected because there is evidence that the CCC assisted in establishing a soil and water conservation program on the farm, soil conservation measures were influenced by similar work being performed by the CCC, or because they show evidence of farmers cooperating with one another in these endeavors. The Julius Smith farm is an example of a farmer who built conservation features on his property without the assistance of the federal government, but was likely influenced by work being done by the CCC in the area. An attempt was made to select farms from various areas of the fort to show the extensive influence of the work performed by the Gatesville CCC camp. The Gatesville CCC camp's area of operation included all of the land within a 20 mile radius of the camp's location.

Soil conservation measures conducted on the farms discussed in the Spring Hill and Schley communities in the northwestern part of the fort were carried out under the auspices of the Gatesville CCC camp. The camp's annual report for 1936 indicates that four of the farms discussed (Tracts 500, 502, 1500, and 1501) cooperated with the CCC in instituting a complete soil and water conservation program on their farms. In 1936, the Dan R. McClellan and J.B. Whigham farms were under a signed agreement with the Gatesville CCC camp and the Letha Milroy and Harry McClesky farms had been mapped. It is likely that the terracing placed on the Whigham and McClesky farms was carried out at the same time, as the two systems connect across property lines.

These four farms in the Schley and Spring Hill communities are a good example of the strategies used by the SCS CCC camps to implement a complete soil and water conservation program on contiguous farms along a single watershed. They also clearly demonstrate placement of features in areas where they would be highly visible. In addition, the Spring Hill School was located to the east of the Whigham farm on Old Georgetown Road, and soil conservation courses were taught in some of the local schools. It is likely that the children who attended the Spring Hill School were able to observe construction of the terracing on the neighboring farms first-hand, and may have learned about the program in their school.

Conservation measures instituted on the Rufus J. Brown farm in the Ewing community are documented in a newspaper article. Brown's farm was operated by tenants and provides information on how the CCC's work on private farms benefitted tenant farmers. The tenant would likely have been responsible for maintaining the terraces and water cisterns that were built on the property and would have implemented the crop rotation program. Brown noted that the coordinated conservation program instituted on his farm increased its productivity, benefits that would accrue to Brown's tenant as well.

An extensive soil and water conservation system was put in place on the William V. and Faxie Robinson farm in the Brookhaven community. Many farms in the area grew cotton as a cash crop, and cotton cultivation exposes large areas of a field to erosion. As the types of soil cultivated in the Brookhaven and Palo Alto communities were highly erodible, it was necessary to build terraces and terrace outlet channels, and farm on the contour in order to preserve the topsoil. The Robinsons' farm is another good example of a tenant-occupied and operated farm that utilized conservation features. As with previous examples, the terraces and water conservation features were placed close to a major route from Killeen to Brookhaven and could have been easily seen from the road. The extensive check dam systems that were built in the terrace outlet channels suggest that these structures were built with the assistance of the SCS and the CCC camp in Gatesville.

The Allin and Smith farms to the northeast of Copperas Cove in the southwestern area of Fort Hood are good examples of farmer cooperation in establishing a complete soil and water conservation program. Terracing on both farms appears to have been planned at the same time. Tenants operated the large Allin farm to the north of the Copperas Cove-Killeen road, while the Smiths owned and occupied the farm south of the road.

All of these examples illustrate the importance of examining the larger farm landscape along with house sites. House remains or artifact scatters are usually recorded as archaeological sites while landscape features, such as conservation terraces and fence lines, are not. A cultural landscape approach examines farm layout and function in its entirety, and provides the kind of "wide-angle" lens needed to evaluate the impact of government programs like the CCC. In addition, examining archaeological sites as groups can also assist researchers in identifying connections and/or linkages between individuals and larger social, economic, and political events or trends.

Soil conservation features such as terraces, check dams, stock ponds, fence lines and cisterns that were built by the CCC could be eligible for listing in the National Register under Criteria A, B, or D. The CCC was a national program that transformed thousands of acres of the American landscape from 1933 to 1942. This program utilized the labor of unemployed young men from across the county, many of whose families were listed on the local relief rolls. Thousands of acres of unproductive farmland were restored with the largely unskilled labor of the CCC. Tenants on farms owned by absentee landlords most likely also benefitted from the conservation measures.

Farmers began to understand how their own farming practices affected neighboring farms and those along the same watershed as their own. Many farmers began to cooperate with their neighbors and the federal government to save and conserve the nation's natural resources. Conservation became a practice that was initiated by the farmers themselves rather than remaining a concern of academics. Many of the young men who worked on SCS CCC projects were able to acquire their own farms after leaving the corps and instituted the methods they learned on those farms.

The CCC is an excellent example of how the assistance of the federal government during the Depression era improved farmland across the country and prevented further deterioration of one of the country's most valuable assets. Judging from previous efforts under the Agricultural Extension Service, it is unlikely that farmers would have adopted soil conservation measures if they had not received extensive assistance from the federal government. In an era where conservative critics denounce the role of the federal government in solving the nation's social and economic problems, the CCC can provide a solid example of a federal relief program that was highly successful and benefitted some of the country's most vulnerable citizens.

Public Interpretation of Soil and Water Conservation Features on Fort Hood

Several of the soil and water conservation features on Fort Hood retain excellent integrity and are located in areas that are easily accessible to the public. Site 41BL342 on the William V. and Faxie Robinson farm contains conservation features, including terraces, a terrace outlet channel, check dams, and an above ground cistern, that can illustrate how all of these measures work together to prevent erosion. It is also located next to one of the major roads that traverses the eastern side of Fort Hood, and near Belton Lake, a major recreation area on the fort.

Interpretive signage, similar to that used by the National Park Service and the Chesapeake Bay Gateways network, could be developed for the Robinson Farm to discuss the significance of the CCC and soil and water conservation features they built on farms on Fort Hood prior to its acquisition by the federal government. Signage could also show a map of the conservation features and how they worked together to prevent erosion and conserve soil and water resources. Because the Robinson farm was operated by tenants, the benefits of conservation measures to tenants could also be discussed.

A second location where interpretive signage could be employed would be the Julius L. and Robbie Smith farm near Copperas Cove. This is a good example of an owner-operated farm that instituted soil and water conservation measures without the assistance of the federal government. Interpretive signage could discuss how the Smiths were influenced by the work the CCC was performing on farms in the area, and why they decided to build the features themselves rather than seek government assistance.

A web page could also be developed to provide more detailed information on the Depression and the Dust Bowl and the response of the federal government to these crises by the establishment of the CCC and the SCS. In addition, the web site could identify other areas on Fort Hood where soil and water conservation features can be found. A thorough discussion of the Gatesville CCC camp and the work it performed could be provided, and historic photographs and maps could be used to further illustrate what the Fort Hood farms looked like in the 20th century. Oral history data could also be employed to describe these farms in the occupants' own words.

Chapter 5: Conclusion

"The nation that destroys its soil destroys itself" (Franklin D. Roosevelt 1937).

Conclusion

This study examined New Deal archaeological resources on Fort Hood, an army post in Central Texas, associated with the Civilian Conservation Corps. While Fort Hood's landscapes exhibit many layers of occupation from the prehistoric period up to the present, this study focused on conservation measures built by or inspired by the CCC and New Deal conservation ideals during the period 1933 to 1942.

Cultural landscapes are the result of the interaction and interconnection of cultural and natural systems. The natural landscape of Fort Hood was ideal for growing cotton and sustaining livestock, such as cattle, goats, and sheep. It also limited what could be produced. Subsistence crops were grown when Anglo-American settlers first entered the area, but as transportation networks improved, it became more economical to transport cash crops to central markets. Many of the families migrating to Texas came from the Lower South and they brought with them a preference for growing cotton as a cash crop.

Foreign markets often dictated how much cotton was grown on Central Texas farms. As cotton prices soared following World War I, Central Texas farmers planted every available acre in the crop, including steeply-sloped and marginal land. Huge profits were realized through the early 1920s, when European countries began to recover from the war and concentrated on becoming more self-sufficient. These profits discouraged farmers from practicing a more diversified form of agriculture that included crop rotation. The 1920s cotton boom transformed the Fort Hood landscape into vast cotton fields that were quickly being depleted of their fertility by the constant cultivation of a single cash crop.

By the late 1920s agricultural extension agents noted the widespread erosion problems on many of the Fort Hood farms. This problem was compounded by the common practice of grazing livestock on the stubble left in the fields after they were harvested. Livestock had to be grazed on the fields because farmers were not producing enough feed for them, primarily because they were trying to grow more cotton. Farmers' capitalist perception of the natural landscape led them to produce as much as they could for the maximum profit.

Poor farming practices and exploitation of the land led to the Dust Bowl years in the early 1930s that resulted from dust storms picking up tons of soil off of the Great Plains and redepositing it all the way to the East Coast. During this time of crisis, the federal government realized it had to intervene to try to conserve the nation's natural resources. President Franklin D. Roosevelt, always a proponent of conservation, introduced legislation in Congress in 1933 to create an army of young men, eventually known as the Civilian Conservation Corps (CCC), who would assist in conserving the nation's natural resources. Through the transformation of the land by Roosevelt's "Tree Army," the federal government hoped to impress its conservation ideals on the general population.

During the New Deal era from the 1930s to the early 1940s, the federal government became more involved in rural and urban planning. Citizens who had never before come into contact with federal agencies were afforded relief and assistance from the federal government that was previously unprecedented. These programs typically relied upon local support for their implementation. The Civilian Conservation Corps was one New Deal program that was popular with a majority of Americans because the program provided jobs, tangible benefits in the form of farm and park improvements, and provided some cash income for poor rural residents. Although a majority of the New Deal farm programs benefitted large land owners, tenants did reap some benefits in the form of more stable lease agreements and higher crop yields from more productive fields.

CCC enrollees learned approved soil and water conservation methods which they were able to employ on their own farms after being discharged, spreading these methods to neighbors. Some CCC enrollees were also able to buy their own farms from the money saved while in the Corps. The CCC was one program that benefited everyday citizens and turned the conservation movement into a local concern rather than a purely academic endeavor.

The CCC was very active in Texas. While there were no national parks or forests in the state prior to 1933 because at the time Texas entered the Union in 1845, it was allowed to keep all of its unappropriated lands to pay off its debt, the CCC in Texas focused on soil and water conservation on the state's many private farms. The CCC transformed thousands of badly eroded acres in Texas into prosperous farm land.

Various aspects of Jeremy Korr's landscape model (2002) were used throughout this dissertation. Korr's first operation is to identify the people who lived on the farms that later became part of Fort Hood and those who had the ability to shape and change the cultural landscape. Many of the residents of the Fort Hood farms were descended from migrants who had come to the area from the Lower South in the late 19^{th} to early 20^{th} centuries. A group of German immigrants settled in the southwestern portion of the fort in the Antelope Community.

As discussed in Chapter 4, some of the farms under study were owned by absentee landlords who resided in the towns of Gatesville, Copperas Cove, and Temple. Other farms were owner-occupied and belonged to members of families who had lived in the area for decades. In the cases of the farms owned by absentee landlords, the tenants probably had little say over how the farm was organized and what crops were grown. However, tenants still received some benefits from the conservation measures.

In most cases the landlords or owner-occupants signed cooperative agreements with the CCC camps, while SCS technicians attached to the camps devised the farm plans. These technicians were responsible for deciding which fields should be terraced, which should be retired to pasture, how fields were organized, and devised crop rotation plans. In the case of rental farms, the landlords were responsible for furnishing some of the equipment and materials to institute the soil and water conservation measures. The CCC camps provided the labor and the expertise to lay out terraces and help to construct conservation features.

Tenants were likely responsible for maintaining conservation features and planting crops suggested in the farm plan. It was advantageous to tenants to maintain the conservation features and operate the rental farm as laid out in the farm plans because the conservation techniques often produced higher yields. There were several testimonials found in newspaper articles that indicate tenants benefitted from the soil conservation measures as well as the landlord.[18]

In the case of the owner-occupied farm of Julius and Robbie Smith, these landowners decided not to sign an agreement with the federal government to assist in building conservation features on their farm. The Smiths owned a radio in 1930, according to census records, and possibly became aware of how to build conservation features on their farm through radio broadcasts or by attending one of the many demonstrations offered by the Gatesville CCC camp. Smith would also have noticed conservation features built by the CCC in neighboring communities and farms.

Artifacts within the conservation cultural landscapes, including former house sites, fence lines, cisterns, stock ponds, terraces, terrace outlet ditches, roads, and other features, examined in this study were identified through archaeological survey records and aerial photographs. New Deal conservation methods not only were targeted to individual farms, but were applied to broader areas to stem erosion along entire watersheds. Therefore, all of these features should be considered together when examining conservation landscapes built by or influenced by the SCS CCC camps. All parts of a cooperating farm were considered under the farm management plans drawn up by SCS technicians attached to the CCC camps. This cultural landscape

[18] See, for example, GM December 10, 1937; GM February 11, 1938; GM July 1, 1938; GM February 10, 1939; and HD January 1939.

approach emphasizes the utility of examining New Deal conservation landscapes not only at the farm level, but at the broader watershed and CCC camp area level as well.

The natural environment, as detailed for Fort Hood in Chapter 2, often determines what types of crops can be grown and what types of livestock can be raised. Soils and the climate in the Fort Hood area were favorable for the cultivation of cotton, corn, and sorghum. Many of the early Anglo-American settlers who came to Texas in the late 19th and early 20th centuries brought a preference for cotton cultivation with them from the Lower South. High prices for cotton in the 1910s and 1920s encouraged Bell and Coryell county farmers to convert more and more of their pasture land into cultivated fields in search of larger profits.

Large profits from early 20th-century cotton crops allowed Bell and Coryell county farmers to purchase new farm machinery that was being developed in northern factories. Many farmers were able to purchase tractors and new types of plows that ground the soil into fine particles. This equipment exacerbated erosion and expanded farmers' ability to plow up more land. Central Texas' soils were unable to withstand the erosive effects of heavy spring rains and gullies began to form in fields. Thus, farm machinery utilized by Bell and Coryell county farmers can also be considered as important artifacts associated with the conservation landscapes on Fort Hood. Pieces of machinery are noted in some of the archaeological surveys.

Following Korr's model, step two involves identification and delineation of the boundaries of the cultural landscape under investigation. Cultural landscapes investigated in this study consist of farms within the confines of what is now the Fort Hood military reservation in Central Texas. These properties existed on the fort from

1933 to 1942, the span of the CCC and New Deal conservation programs. The boundaries of the cultural landscapes discussed are the actual boundaries of the farms, which were determined by the landowners. All of the farms discussed in Chapter 4 were purchased by the owners prior to 1933 and the boundaries remained consistent until 1942. Several of the landowners inherited their property from family members and their farms were once part of much larger land holdings.

Step three of Korr's model calls for the examination of perceptions of the cultural landscape by the human actors who shape and use it. In that land in the United States was generally considered a commodity. Bell and Coryell county farmers perceived their farms as money-making ventures. During the late 19th and early 20th centuries, when transportation routes improved, farmers shifted from growing subsistence crops to producing cash crops for a profit. Cotton prices were high in the early 20th century, so this crop became the cash crop of choice for Bell and Coryell county farmers. Events associated with World War I created a demand for American wheat and cotton in Europe, leading farmers in Bell and Coryell counties to plant cotton on every available acre they could plow.

The search for bigger profits caused farmers to engage in poor farming practices, such as attempting to grow cash crops on marginal or steeply sloped land. Farmers also continued to plant cotton in the same fields every year, thus decreasing the soil's fertility. Farmers rarely considered how their poor farming practices affected their neighbors downslope or downstream. Gullies started on one property could quickly spread to a neighboring farm.

Over half of Bell and Coryell county farms were operated by tenants in the 1930s and 1940s. As noted in the Fort Hood oral history interviews, tenant farmers moved often in order to find favorable rental conditions and decent land. Thus, tenants had little incentive to make substantial improvements to the farms they rented because they would rarely be reimbursed for those improvements. Tenant farmers also had little say in the types and amount of crops that were grown on their rental farm. However, tenants would have been responsible for maintaining soil and water conservation features placed on rental farms by absentee landlords, and tenants may have assisted in building conservation features as well.

As noted in CCC camp reports, Bell and Coryell county farmers preferred to plow their fields up and down a slope (Gatesville Camp Report 1936:12-13; Temple Camp Report 1934:1-2). This method of plowing often led to the development of deep gullies because there was no way to break the flow of water downhill. Farm equipment also affected how fields were plowed. Farmers resisted plowing on the contour because it was more difficult with horse-drawn farm equipment, as they would drift downhill.

Another problem noted in the camp reports was that fields were laid out improperly. There was no consistency in the way fences were located. Many farmers also raised a number of cattle, hogs, goats, and sheep. Fences were often constructed around the property boundaries and around field boundaries to keep animals within the property and out of cultivated fields. SCS technicians attached to the CCC camps often had to rearrange fence lines to keep farm animals from grazing on lands that were susceptible to erosion and to keep them out of farm fields.

In step four of Korr's model, he considers the dynamic relationship within a landscape between humans, artifacts, and nature. As seen in Chapter 4, human actors exerted agency on the Fort Hood landscapes by determining the boundaries of their farms, how much land to put into cultivation, what types of crops to grow, which land to place into pasture, and what animals to raise. Individual farmers and farm families also decided where to place their homes, outbuildings, and fences within the farm landscape and chose the materials to build those features.

The natural environment limited what farmers could grow. Certain types of soil were preferable for growing specific crops and the chemical composition of some soils prevented other crops from ever growing. Farming some types of soils on steep slopes caused severe erosion and loss of soil fertility. When some of the soil types in the Bell and Coryell county region were pulverized into fine power by new more efficient farm machinery, it was quickly washed away by heavy spring rains. The size of a farm and the types of soil within the boundaries of a farm often determined how productive it would be.

While the natural factors, like soil, clearly limited production choices, human decisions also determined productivity. If cotton was constantly grown in cultivated fields without a period of fallow or cultivation of soil building crops, the fertility of the field would decrease. The manner in which a field was plowed or the types and numbers of animals grazed in pastures also had an impact on productivity and in the quality of the natural environment.

SCS technicians tried to encourage several farmers along the same watershed to institute conservation measures on their farms so that the benefits would be realized by all and not just some. Technicians also sought to place conservation measures in areas where they could be easily seen from a major roadway. Those passing by on a roadway could readily see the benefits of conservation measures such as terracing, terrace outlets, and cisterns. These decisions about landscape interventions and changes affected the overall cultural landscape and often influenced other farmers to institute conservation measures on their own farms either with or without the assistance of the federal government.

Korr's final step involves a consideration of the aspects of the cultures that create and use a landscape. As Richard Schein noted, studying American landscapes is unique because "most U.S. landscapes are created piecemeal within a cultural milieu that idealizes liberal individualism, laissez-faire capitalism, and political democracy" (Schein 1997:663). During the early 20th century, most American farmers had very little contact with or exposure to the federal government, and were more protective of decisions about what and how much to grow on their farms. They were very suspicious of intervention by the federal government.

Farmers, as Schein notes, idealized liberal individualism and laissez-faire capitalism, sought to make as large a profit as they could off of growing cash crops. It was this aspect of rural American culture during the early 20th century that led farmers to search for ever-increasing profits that caused them to exploit their land. Land that was not fertile or too steeply sloped was placed into cultivation, causing severe erosion problems. After the severe dust storms in 1934 and 1935, the federal government began to take a larger role in rural planning. The federal government's efforts aimed to educate farmers on proper farming techniques and the importance of instituting soil and water conservation programs. Farmers began to realize how their farming practices affected not only their own farms, but those around them.

Soil and water conservation ideology was imparted through the federal government to rural farmers on a large scale during the New Deal era. The federal government not only tried to educate farmers on the proper ways to plow and plant their fields, but also provided technical assistance and labor to build conservation features. Through the use of newspapers, radio, films, and demonstration projects, the federal government was able to reach most farmers within the 20 mile radius of the SCS CCC camps.

The degree to which farmers accepted their new conservation ideology is evident from the present study of the Central Texas landscape. Features such as terraces, terrace outlet ditches, check dames, stock ponds, and reorganized fence lines are all evidence of the impact of the federal government's conservation ideology. The presence of these features on the landscape, including farmers that did not received CCC assistance, indicates that rural farmers in Central Texas were changing their attitude toward conserving the natural resources on their farms. Farmers were also accepting the federal government's efforts at rural planning, and beginning to appreciate how their poor farming practices were affecting the natural environment.

Farmers were also beginning to work more cooperatively to conserve natural resources over entire watersheds. In several of the cases noted in Chapter 4, there is evidence that farmers on adjoining properties and within entire communities were cooperating with one another and were building terraces at the same time. Terraces often continued across property lines instead of stopping abruptly. In the Elm Creek watershed in Bell County, farmers along the entire drainage were coordinating conservation measures.

Local governments were purchasing graders, terracers, and other machinery to assist farmers in constructing terraces, terrace outlet channels, and other conservation features. These tools were made available at a minimal cost to farmers who were placing conservation measures on their farms. CCC labor was also used to build conservation features on farms where the owners signed cooperative agreements with the federal government. Thousands of acres of previously unproductive land were transformed during the 1930s and early 1940s by young men who came from the country's poor families. Many of these young men grew up on farms themselves and built conservation features on their own farms when they returned home.

This study examined the contributions of the Civilian Conservation Corps, a national program in operation from 1933 to 1942, to the conservation of the American rural landscape. While many studies have investigated the contributions of CCC labor to the development of state and national parks and forests, very little attention has been directed towards the CCC's soil conservation work on private property. In response, this research has outlined a method to study New Deal era conservation features on rural lands and to conceptualize why these features are important to preserve and interpret.

When examining conservation landscapes built by the CCC, one must consider the entire farm property. Deed and tax records can assist in determining the boundaries of a farm, while census records help to establish ownership or tenancy. Aerial photographs can be used to identify features such as terraces, terrace outlet channels, fence lines, farm roads, and stock ponds, among others, and these features can also be recorded on the ground using surveys. Spatial relationships of both natural and cultural features and conditions on a farm are also important. For example, portions of the farm that contained certain types of highly erodible soils or were over ten percent slope were often planted in hardy grasses and converted to pasture land under CCC management plans. Cultivated fields that contained between about three and ten percent slopes were typically terraced to prevent erosion.

Conservation features were rarely placed on isolated farms, as the CCC preferred to coordinate conservation measures on adjoining farms and across property boundaries. The SCS CCC camps attempted to institute conservation measures along entire watersheds so the farms at the head would not adversely affect those further downstream. Conservation features were also placed close to roadways so that passersby could see the benefits of the soil saving practices. Therefore, these farms cannot be studied in isolation, but must be examined in relation to surrounding farms and the broader regional farming landscape.

The New Deal era marked a time of increasing intervention by the federal government into the lives of ordinary Americans. While many rural people were suspicious of the intentions of the federal government, the conservation work performed by the CCC was a popular program and was widely accepted by rural farmers. The Fort Hood landscape case study demonstrates the spread of conservation methods and the extent of acceptance of the government's new conservation ideals on rural farms.

During the New Deal era, America's everyday citizens transformed millions of acres of scarred and gullied farm land into productive land. The conservation movement shifted during this period from being a purely academic concern to being supported and promoted by ordinary farmers. Conservation became an everyday activity and regular topic of discussion in many farm families. Although some conservation measures have been improved upon, terracing, strip cropping, and other conservation measures that became commonplace during the New Deal era are still employed on American farms today.

In addition to the spread of a conservation ethic among the nation's rural population, the CCC and SCS were also instrumental in establishing soil conservation districts, which are still in place today. These districts are one of the lasting legacies of the New Deal's soil and water conservation program. The following section outlines the history of soil conservation districts in general and in Texas, and details two districts, the Hamilton-Coryell and Central Texas Soil Conservation Districts, that were active in the study area.

The Role of the CCC and SCS in the Establishment of Soil Conservation Districts

It is estimated that between 1918 and 1932 state agricultural extension services were responsible for terracing about 18 million acres on 600,000 farms across the United States. Erosion experiment stations were first established by the Department of Agriculture in 1929. The first was placed in Guthrie, Oklahoma and one was also established at Temple in Bell County, Texas. Hugh Bennett was influential in choosing the locations of these stations, which were to perform erosion experiments on different types of soil (Sampson 1985:2-4; Simms 1970:9).

The Soil Erosion Service was created in August 1933 under the Department of the Interior and was headed by Hugh Hammond Bennett, a pioneer in the soil conservation movement. Bennett set out to establish demonstration projects on soils in representative areas of the country, with labor provided by the CCC and WPA. Demonstration project areas were established along watersheds and typically encompassed between 25,000 and 30,000 acres. Demonstration projects aimed to showcase soil and water conservation measures that could be observed by farmers, who would then institute such measures on their own farms. Landowners could sign an agreement with the Soil Erosion Service, which would provide labor, materials, and the technical expertise to implement a complete conservation program. Farmers usually provided only the labor and materials that they were capable of supplying. After only one and a half years, the SES had established 41 soil and water conservation demonstration projects and supervised 50 CCC camps (Helms 1992; Sampson 1985:4-13; Simms 1970:11-17).

On March 25, 1935, the SES was transferred to the Department of Agriculture and with passage of the Soil Conservation Act in April 1935, the agency was renamed the Soil Conservation Service. By June 1936, the SCS directed 147 demonstration projects, 454 CCC camps, 48 nurseries, and 23 research stations. About 50,000 farmers applied conservation measures on five million acres of land. The CCC not only left permanent improvements on the rural American landscape, but imparted to thousands of young men across the country the importance of conserving the nation's natural resources. Many of these young men came from farming families and employed conservation methods they learned in the CCC on their own farms (Helms 1992; Sampson 1985:4-13; Simms 1970:11-17).

The SCS's demonstration projects using CCC labor made great strides in exhibiting to farmers the great value of soil and water conservation. However, several problems were noted early on. When farmers attempted to apply these measures on their own land, they were still in need of technical assistance. Conservation measures were also expensive to implement and during the Depression, there was little extra cash on hand to pay for such expenses. Demonstration areas covered only part of the land in need of conservation measures, leaving thousands of acres unprotected. Although farmers had to sign a five-year cooperative agreement, there was no way to enforce the stipulations in the agreement. State and local governments were often by-passed in conservation decisions, creating some friction on the local level (Sampson 1985:14-18; Simms 1970:18).

In response to these shortcomings, the idea of conservation districts was proposed in the mid-1930s. Previous demonstration work proved that soil and water conservation measures could successfully be applied to any farm as long as those who owned the land were provided with the necessary technical assistance and information. Local soil conservation districts were proposed to provide a bridge between the federal technical expertise and local landowners. Local conservation districts would give farmers a more active role in establishing projects, working out erosion control programs, and encouraging farmers to learn how to expand their knowledge of and implementation of conservation measures. It was also hoped that farmers would begin to assume more of the expenses for implementing erosion control measures. Prior to establishing a district, farmers had to demonstrate that there were a sufficient number of landowners willing to sign contracts and to continue the program (Helms 1992; Sampson 1985:18-25; Simms 1970:18-19, 75-77).

A Standard State Soil Conservation Districts Act was finalized by the federal government in May 1936 and stipulated that districts could be organized as local governmental subdivisions of the state by land owners. At least 25 land owners had to sign a petition to a state soil conservation committee that would then hold a public hearing, define the boundaries, and determine whether the district was feasible. Districts would have the power to conduct research and demonstration projects, make agreements with landowners and provide technical assistance, loan equipment, build conservation structures, propose land-use regulations, and accept contributions. The standard act also recommended that a state soil conservation committee be formed to encourage the formation of districts and should consist of the head of the state extension program, the state agriculture commissioner, and a third member to be appointed by the Secretary of Agriculture. In February 1937, President Roosevelt sent a copy of the standard act to the state governors asking them to formulate their own state legislation to encourage the formation of soil conservation districts. From this time, federal efforts at soil and water conservation shifted from mere demonstration by its technical experts to more involvement by the farmers themselves in the design and operation of the program (Helms 1992; Sampson 1985:18-25; Simms 1970:18-19, 75-77).

Arkansas was the first state to pass a state soil conservation district act in March 1937. Twenty-six states followed in 1937 and 1938, and ten more in 1939, but only twelve passed laws along the lines of the standard act. Texas passed its Soil Conservation Districts act in 1939. All 48 contiguous states passed district enabling acts by 1945. The Brown Creek Soil Conservation District in North Carolina was the first to be established and was chartered on August 4, 1937. Fourteen others were organized in 1937 and by 1940 there were over 300 districts across the country (Gottschalk, n.d.:7; Sampson 1985:26-33, 40, 114-115; Simms 1970:19, 77-79).

The CCC was terminated in 1942 after the outbreak of World War II and by 1944 the SCS had terminated all of its demonstration projects. At that time, jurisdiction over conservation efforts was turned over to local soil conservation districts, which provided technical assistance to farmers and landowners. By 1950 2,164 soil conservation districts were in operation, more than a million miles of terraces had been built, over 900,000 ponds were constructed, and soil conservation measures were being applied to millions of acres based on soil characteristics. The soil conservation district program shifted sole responsibility for soil and water conservation from the federal government to a more balanced system involving federal, state, and local agencies (Gottschalk, n.d.:7; Sampson 1985:26-33, 40, 114-115; Simms 1970:19, 77-79).

During the 1950s and early 1960s, emphasis in soil and water conservation and land use shifted to the role played by private and agricultural lands in flood prevention. New concepts emerged in water use for agriculture, domestic and industrial purposes, and for wildlife and recreation. In 1954, fifty-eight small pilot watershed projects were initiated to demonstrate the value of combining flood prevention and land conservation measures on a complete watershed. This effort concentrated on reducing erosion damage in upstream areas, preventing the silting of stream channels, and addressing erosion problems larger than the individual farm. These projects also sought the best ways to integrate federal, state, and local organizations for the protection and development of watersheds (Sampson 1985:131-136; Simms 1970:25).

Public Law 566, authorizing the Small Watershed Program, was passed on August 4, 1954. This law required local residents to initiate watershed projects, which were viewed as local, not federal, endeavors. Local organizations had to share the cost of conservation measures and were required to maintain and operate the project after completion, since all improvements were considered the property of the local people. Local organizations were also responsible for acquiring easements, rights-of-way, and land. The conservation plan was to be devised and approved by the local organization with federal assistance. Final approval was made by the state before a project could receive federal help (Sampson 1985:131-136; Simms 1970:25).

During the 1960s and 1970s, the powers of conservation districts were expanded so that urban lands would be included. The focus shifted from concentrating solely on soil and water conservation in rural areas to conserving all natural resources in urban and rural areas. States began to amend their soil conservation district laws to include not only farm land but urban and suburban settings as well, and to include other natural resources besides soil and water. Many states began to refer to these districts merely as conservation districts to demonstrate how the state laws had expanded their interest in the conservation of all natural resources (Sampson 1985:171-175; Simms 1970:26-27, 81).

Changes in legislation and outlook in the 1960s gave conservation districts greater ability to address all kinds of natural resource issues. Recreation and tourism were also coming to the forefront as major conservation issues. There were 3,017 conservation districts in operation in 1969, encompassing 99 percent of all farm land and 97 percent of agricultural land in the United States. Cooperators numbered 2,193,012 and they owned over 749 million acres (Sampson 1985:171-175; Simms 1970:26-27, 81).

Land use came to the forefront as a major issue during the 1970s. Questions revolved around who had a say on how land was used, what standards should be adopted and who would enforce them, how to protect an individual's property rights, and what land should be affected. Dangers from pesticides, oil spills, and industrial waste were of great concern, and lead to the passage of the National Environmental Policy Act of 1969. Many in this new conservation movement sought to involve the federal government more in solving environmental problems and setting standards (Sampson 1985:200-201).

By the 1990s, there were about 3,000 conservation districts covering 98 percent of privately owned land in the fifty states and American territories. More than two million cooperative agreements have been signed by landowners and tenants for the protection of natural resources (Garner 1990:1-2).

Douglas Helms, historian for the Natural Resources Conservation Service, notes that by involving land owners and local communities in conservation decisions, soil conservation districts were more readily accepted. Soil conservation districts have been instrumental in procuring funding from Congress for the Soil Conservation

Service, now the Natural Resources Conservation Service. Many SCS employees came from farm families and had backgrounds similar to the farmers with whom they worked. Because of this, SCS employees were able to more easily persuade farmers to adopt conservation measures (Helms 1992).

Texas Soil Conservation Districts

As soon as the standard Soil Conservation District Act was presented to Texas, along with every other state in the summer of 1936, debate ensued over how to organize such an establishment in Texas. Numerous bills drafted by various groups were introduced in the Texas Legislature at the beginning of the 1937 session. John Gorman of Waco, Tom Hefner of Breckinridge, and V.C. Marshall of Temple were consulted to formulate a reasonable state law. V.C. Marshall and a collection of influential Texas farm and ranch leaders, called the "Committee of One Hundred," worked to formulate a bill that would be acceptable. They felt an important element would be stipulating that local farmers and ranchers could determine if a soil conservation district was needed in their locale. The committee believed the program should be controlled by landowners and the districts should not have powers to tax or to take land by eminent domain. Many were also concerned about government agencies performing work without the consent and approval of landowners (Gottschalk n.d.; Texas Center for Policy Studies 1995).

A proposed bill was presented at a conference in Temple on September 12, 1937. Most of the state's prominent farmers and agricultural organizations, as well as federal agencies, endorsed the bill. It was not until April 1939 that the Texas Soil Conservation Districts Act was passed by the Texas House and Senate and finally signed into law by Governor W. L. O'Daniel on April 20, 1939. On May 29, 1939 the five-member Texas State Soil Conservation Board (TSSWCB) was organized and established their state headquarters in Temple. Three months after passage of the district legislation, the Board had received 124 petitions for the creation of soil conservation districts. By July 20, 1939, the Board approved 114 districts and 105 elections for district supervisors were held. Certificates of organization for the first 16 soil conservation districts were issued on April 30, 1940. The original Texas Soil Conservation Districts law has been amended many times, but the basic outline of the bill remains in effect today. As of January 2009, there are 217 soil and water conservation districts in Texas encompassing over 99 percent of the state (Gottschalk n.d.; Texas Center for Policy Studies 1995; Texas State Soil and Water Conservation Board 2009:5).

To create a soil conservation district in Texas, at least 50 local farm owners had to petition the TSSWCB to request the formation of a new district. A meeting would then be held by the TSSWCB to determine the necessity and feasibility of creating the proposed district. If the Board voted in favor of the district, an election of local landowners was held within the proposed district. Two-thirds of the landowners had to vote in favor of the district for it to be created. After its establishment, a district was divided into five subdivisions. One member from each subdivision was elected to the board of directors for the district. Each director had to be an active farmer or rancher, live in the district, and had to own land in the subdivision he or she represented. It is the responsibility of the board of directors to formulate a work plan and coordinate the program. Creation of soil conservation districts allowed farmers to make decisions on how to conserve soil and water within their district. This plan of action was much more desirable than having the federal government dictate to farmers how to operate their farms and ranches (Texas Soil and Water Conservation Board 2005).

Soil Conservation Districts spread the responsibility of soil and water conservation between federal, state, and local authorities. In Texas, the major players in the creation and management of soil and water conservation districts include the Consolidated Farm Service Agency, the United States Department of Agriculture's Natural Resources Conservation Service, the Texas State Soil and Water Conservation Board, the Soil and Water Conservation Districts, and the Cooperative State Research, Education, and Extension Service. The Consolidated Farm Service Agency is a state-level body that distributes federal dollars to Texas farmers to establish good farming practices, such as terracing, ponds, and irrigation. The Natural Resources Conservation Service assists farmers who request their help in designing conservation programs for individual farms. The TSSWCB is the state-wide governing board tasked with developing a state-wide conservation plan, coordinating the activities of all of the Soil and Water Conservation Districts in the state, and controlling pollution. Individual Soil and Water Conservation Districts coordinate technical assistance provided by federal and state agencies and prepare long-range plans for their local area. The Cooperative State Research, Education, and Extension Service provides educational programs and information through county offices on new agricultural techniques and conservation practices, and proper use of agricultural chemicals (Texas Center for Policy Studies 1995).

Hamilton-Coryell and Central Texas Soil Conservation Districts

Hamilton-Coryell Soil Conservation District No. 506 was organized on April 30, 1940, encompassing all of Hamilton and Coryell Counties in Central Texas. District Supervisors of the Hamilton-Coryell Soil Conservation District adopted and approved a program of operation for the district on December 14, 1940. Local representatives of the Texas Extension Service, Vocational Agricultural Teachers, Soil Conservation Service, County Land Use Planning Committee, Farm Security Administration, State Game, Fish, and Oyster Commission, Agricultural Adjustment Administration, Production Credit Association, Federal Land Bank, State Highway Department, State Soil Conservation Board, and County Judges and Commissioners Courts of the District assisted in preparing the district plan (District Program for Hamilton-Coryell Soil Conservation District, Texas 1940:1-3, 44-45).

The Hamilton-Coryell Soil Conservation District covers approximately 1,228,000 acres, being all of the land in both counties. Physical, social, and economic conditions within the district were detailed to identify conservation problems. District Supervisors planned to cooperate with local newspapers and public school officials to disseminate information on the policies and procedures of the district, instituting conservation measures on farm land, and general problems that may be encountered in the district. Schools were enlisted to teach children at a young age the necessity of soil and water conservation, how erosion problems affect individual farmers and the community as a whole, and how the soil conservation district can solve these problems. Local boys and girls 4-H clubs were also instrumental in disseminating information on soil conservation by including conservation measures in their projects, by holding meetings where the district program was explained, and by talking with their parents and neighbors about conservation (District Program for Hamilton-Coryell Soil Conservation District, Texas 1940:1-3, 44-45).

At the time the Hamilton-Coryell Soil Conservation District was established, about fifty percent of farms in the district were operated by tenants. Supervisors encouraged tenants to become land owners by providing them with information on sources of credit for loans to purchase land. In that many of the leases in the district were verbal and were renewed on a yearly basis, supervisors also encouraged the development of long-term written leases (District Work Plan for Hamilton-Coryell Soil Conservation District, Texas 1940).

After the CCC camp in Gatesville was abandoned in 1942, the Hamilton-Coryell Soil Conservation District continued to assist farmers in carrying on conservation work. It was stressed that with the start of the war, the supply of farm products for the war effort was vital, which meant that soil conservation efforts were still important. Farms needed to produce the maximum possible and to ensure that the soil remained productive over an extended period of time. To accomplish these goals, it was necessary to employ soil and water conservation methods on farms. New soil conservation districts provided technicians to assist in developing and laying out plans for soil and water conservation on farms in their district (GM July 3, 1942).

A second district, Central Texas Soil and Water Conservation District No. 509, was organized on June 29, 1940, and includes parts of Bell, Milam, and Falls Counties. This district contains about 953,000 acres and encompasses all of Bell County east and west of the Leon River and north of the Lampasas and Little Rivers, the part of Falls County west of the Brazos River, and the part of Milam County north of the Little River. The program for the Central Texas district was approved on April 1, 1941 (District Program for Central Texas Soil Conservation District, Texas 1941).

State and federal agencies cooperating with the district included the Texas State Soil Conservation Board headquartered in Temple; the Extension Service with County and Home Demonstration Agents in Belton, Cameron, and Marlin; the Blackland Experiment Station in Temple; the Farm Security Administration with Farm and Home Supervisors at Belton, Cameron, and Marlin; the Rural Electrification Administration headquartered in Rosebud; the CCC camp at Temple; the Agricultural Adjustment Administration headquartered at Belton, Cameron, and Marlin; the Soil Conservation Service in Temple; the Texas State Highway Department; Texas Game, Fish, and Oyster Commission; Federal Land Bank; Production Credit Association; and Texas State Health Department (District Program for Central Texas Soil Conservation District, Texas 1941).

Many soil conservation districts were established in Texas and across the country as the various states passed laws for the creation of such districts. These districts largely took over the responsibility of soil and water conservation on private land from the late 1930s to today. Soil conservation now became a more democratic process in which local landowners made the decisions about what conservation methods were necessary for their individual circumstances. Soil and water conservation work performed by the CCC earlier in the 1930s brought the conservation ethic to the countryside and influenced farmers to begin taking the responsibility on themselves for conserving the natural resources on their farms and ranches.

Legacy of New Deal Programs

Although conservatives have criticized New Deal programs as being ineffective and inefficient, the archaeological and historical evidence from Fort Hood suggests otherwise. The CCC was one of the most popular of FDR's New Deal programs. Improvements made by everyday Americans during the New Deal era are in some cases still in use today and still benefit the nation's citizens. Many new state and national parks and forests were established and improved by the CCC from 1933 to 1942. Many of the roads, trails, cabins, lakes, and buildings built by the CCC are still in use today.

Soil conservation features built by the CCC on private property have largely been altered as erosion control methods were improved. However, Fort Hood is one case where the some of the soil conservation features built by the CCC are still present and in some cases are still intact. Although the function of the land has changed since 1942 from private property to a military training facility, some of the soil conservation features are still visible and were recorded in the archaeological surveys that have been conducted to fulfill federal obligations.

Some of these soil conservation features built by or inspired by the Soil Conservation Service CCC camps should be preserved and interpreted to the public. These soil conservation features help tell the story of how the nation responded to one of the most severe agricultural crises in the country's history. The New Deal marked a period when the federal government expanded into the lives of ordinary citizens more than ever before. Soil erosion features built by the CCC had a beneficial effect on the rural countryside and transformed thousands of acres of exhausted and unproductive land into productive farms. Benefits of federal programs were extended to everyone. Money sent home to families of CCC members allowed them to provide for the basic necessities. Money spent by CCC members in the local communities in which they worked also provided a boost to those areas of the country. The CCC left a lasting legacy written on the nation’s landscape; a legacy that still benefits Americans today.

Appendix I

Texas, Bell County, and Coryell County Farm Statistics, 1890-1950. Compiled from Bureau of Census statistics.
***=no data**

	1890	1900	1910	1920	1930	1935	1940	1945	1950
Number of Farms									
Texas	352,190	417,770	436,033	465,646	495,489	501,017	418,002	384,977	331,567
Bell County	4,249	5,059	4,915	4,355	5,430	4,981	4,004	3,769	3,213
Coryell County	2,391	3,102	3,290	3,069	3,101	3,320	2,703	1,841	2,025
Total Land in Farms (Acres)									
Texas	101,406,937	125,807,017	112,435,067	114,020,621	124,707,130	137,597,389	137,683,372	141,337,744	145,389,014
Bell County	529,527	563,120	568,303	534,247	613,138	622,049	610,109	578,654	561,234
Coryell County	505,656	550,280	606,516	559,051	583,085	595,883	621,571	447,639	494,000
Percentage of Land in Farms (Acres)									
Texas	29.9	73.1	65.4	67.9	74.3	81.9	81.6	83.8	86.2
Bell County	76.7	81.5	82.3	77.3	88.7	90.1	88.3	83.8	81.3
Coryell County	75.8	82.4	90.9	83.8	87.4	89.3	93.1	67.1	74.0
Average Size of Farms (Acres)									
Texas	357.2	269.1	261.5	235.5	251.7	274.6	329.4	367.1	438.5
Bell County	124.6	111.3	115.6	117.3	112.9	124.9	152.4	153.5	174.7
Coryell County	211.4	177.4	184.3	182.2	188.0	179.5	230.0	221.1	268.3
Total Improved Land in Farms (Acres)									
Texas	20,746,215	19,576,076	27,360,666	31,227,503	34,766,166	*	*	*	*
Bell County	378,355	323,864	348,511	372,040	375,865	353,274	*	*	*
Coryell County	267,076	206,555	236,335	246,011	243,861	228,939	*	*	*

	1890	1900	1910	1920	1930	1935	1940	1945	1950
Total Unimproved Land in Farms (Acres)									
Texas	80,660,722	106,230,941	85,074,401	82,793,178	89,940,964	*	*	*	*
Bell County	151,272	239,256	219,792	162,207	262,729	268,775	*	*	*
Coryell County	238,580	343,725	370,181	313,040	339,224	366,944	*	*	*
Woodland, Total (No. Farms)									
Texas	*	*	*	*	*	*	133,890	113,731	143,864
Bell County	*	*	*	*	*	*	949	1,434	589
Coryell County	*	*	*	*	*	*	1,051	593	976
Woodland, Total (Acres)									
Texas	*	*	27,658,413	14,532,913	15,689,483	25,135,727	14,073,922	16,868,856	32,867,704
Bell County	*	*	*	102,113	115,157	170,167	107,145	158,099	37,285
Coryell County	*	*	*	158,975	164,158	185,256	158,557	84,578	176,142
Cropland, Total (No. Farms)									
Texas	*	*	*	*	*	*	403,334	336,013	290,287
Bell County	*	*	*	*	*	*	3,859	3,446	2,922
Coryell County	*	*	*	*	*	*	2,585	1,671	1,618
Cropland, Total (Acres)									
Texas	*	*	*	*	45,922,521	43,295,508	46,261,857	34,859,935	37,970,210
Bell County	*	*	*	*	370,501	326,980	281,457	323,713	295,369
Coryell County	*	*	*	*	240,073	220,685	181,241	166,119	177,826

	1890	1900	1910	1920	1930	1935	1940	1945	1950
Cropland Harvested (No. Farms)									
Texas	*	*	*	*	461,036	448,286	373,661	312,440	260,331
Bell County	*	*	*	*	5,225	4,729	3,859	3,247	2,797
Coryell County	*	*	*	*	2,992	3,090	2,584	1,557	1,557
Cropland Harvested (Acres)									
Texas	*	*	*	25,030,834	30,634,370	25,429,158	26,044,008	27,469,089	28,107,865
Bell County	*	*	*	*	364,002	295,644	279,716	241,662	253,960
Coryell County	*	*	*	*	236,962	196,789	179,512	135,981	155,788
Cropland Used Only for Pasture (No. Farms)									
Texas	*	*	*	*	115,771	147,317	210,252	98,084	112,528
Bell County	*	*	*	*	*	*	*	1,225	977
Coryell County	*	*	*	*	*	*	*	306	427
Cropland Used Only for Pasture (Acres)									
Texas	*	*	*	*	11,156,355	7,786,697	13,242,974	4,618,707	6,642,546
Bell County	*	*	*	*	*	*	*	45,486	26,809
Coryell County	*	*	*	*	*	*	*	10,867	11,819
Cropland not Harvested and not Pastured (Acres)									
Texas	*	*	*	*	4,131,796	10,079,653	6,974,875	2,772,139	3,219,799
Bell County	*	*	*	*	*	*	*	36,565	14,600
Coryell County	*	*	*	*	*	*	*	19,271	10,219

	1890	1900	1910	1920	1930	1935	1940	1945	1950
Land Pastured, Total (No. Farms)									
Texas	*	*	*	*	*	*	*	315,259	264,706
Bell County	*	*	*	*	*	*	*	3,086	2,772
Coryell County	*	*	*	*	*	*	*	1,737	1,615
Land Pastured, Total (Acres)									
Texas	*	*	*	*	86,942,437	98,496,272	*	108,524,480	109,549,740
Bell County	*	*	*	*	219,493	*	*	281,461	275,418
Coryell County	*	*	*	*	326,235	*	*	280,799	313,383
Plowable Pasture (Acres)									
Texas	*	*	*	*	11,156,355	*	*	*	*
Bell County	*	*	*	*	9,049	19,900	43,859	*	*
Coryell County	*	*	*	*	9,792	14,709	15,499	*	*
Woodland Pastured (No. Farms)									
Texas	*	*	*	*	144,780	175,328	*	99,262	126,077
Bell County	*	*	*	*	*	*	*	1,302	520
Coryell County	*	*	*	*	*	*	*	550	912
Woodland Pastured (Acres)									
Texas	*	*	*	*	14,449,011	23,648,606	*	16,051,293	30,589,750
Bell County	*	*	*	*	110,693	*	*	152,760	34,694
Coryell County	*	*	*	*	157,730	*	*	80,222	167,348
Woodland not Pastured (No. Farms)									
Texas	*	*	*	*	29,299	38,007	*	29,272	28,552

	1890	1900	1910	1920	1930	1935	1940	1945	1950
Bell County	*	*	*	*	*	*	*	142	88
Coryell County	*	*	*	*	*	*	*	64	90
Woodland not Pastured (Acres)									
Texas	*	*	*	*	1,240,472	1,487,121	*	817,563	2,277,954
Bell County	*	*	*	*	5,511	*	*	5,339	2,591
Coryell County	*	*	*	*	6,428	*	*	4,356	8,794
Other Pasture (not Cropland, not Woodland) (No. Farms)									
Texas	*	*	*	*	129,682	158,302	*	223,848	138,284
Bell County	*	*	*	*	*	*	*	875	2,164
Coryell County	*	*	*	*	*	*	*	1,192	875
Other Pasture (not Cropland, not Woodland) (Acres)									
Texas	*	*	*	*	61,337,071	67,060,969	*	87,834,480	72,317,444
Bell County	*	*	*	*	99,811	*	*	83,215	213,915
Coryell County	*	*	*	*	158,713	*	*	189,710	134,216
Other Land (House Lots, Roads, Wasteland, etc.) (No. Farms)									
Texas	*	*	*	*	312,238	429,476	*	351,989	274,900
Bell County	*	*	*	*	*	*	*	3,578	2,752
Coryell County	*	*	*	*	*	*	*	1,910	1,507

	1890	1900	1910	1920	1930	1935	1940	1945	1950
Other Land (House Lots, Roads, Wasteland, etc.) (Acres)									
Texas	*	*	*	*	1,758,055	2,105,185	*	1,754,473	2,233,656
Bell County	*	*	*	*	13,254	*	*	13,627	14,665
Coryell County	*	*	*	*	6,561	*	*	7,232	5,816
Other (No. Farms)									
Texas	*	*	*	*	*	*	*	*	*
Bell County	*	*	*	*	*	*	3,742	*	372
Coryell County	*	*	*	*	*	*	2,282	*	333
Other (Acres)									
Texas	*	*	57,415,988	68,260,205	1,758,055	*	*	*	*
Bell County	*	*	*	*	113,065	78,708	149,423	*	9,101
Coryell County	*	*	*	*	165,274	166,979	230,102	*	7,996
Total Acres Harvested									
Texas	*	*	*	*	30,634,730	*	*	*	*
Bell County	*	*	*	*	364,002	295,644	*	*	*
Coryell County	*	*	*	*	236,969	196,789	*	*	*
Land in Crop Failure and Fallow Land (Acres)									
Texas	*	*	*	*	1,803,574	*	*	*	*
Bell County	*	*	*	*	11,863	57,630	29,966	*	*
Coryell County	*	*	*	*	6,892	32,180	37,901	*	*

	1890	1900	1910	1920	1930	1935	1940	1945	1950
Increase in Farm Land Over Previous Census Year									
Texas		24,400,080	-13,371,950	1,585,554	10,686,509	12,890,259	85,983	3,654,372	4,051,270
Bell County		33,493	5,183	34,056	78,889	8,913	-11,940	-31,455	-17,420
Coryell County		44,624	56,236	47,465	24,034	12,798	25,688	-173,932	46,361
Land Tenure									
Full Owners (No.)									
Texas	132,616	153,634	167,515	171,427	152,852	172,709	166,659	197,994	165,139
Bell County	1,995	1,737	1,935	1,815	1,358	1,552	1,463	1,828	1,604
Coryell County	1,465	1,475	1,581	1,418	1,034	1,128	1,095	1,170	969
Full Owners (Acres)									
Texas	*	*	69,201,014	68,244,146	41,692,409	*	42,441,570	*	44,438,245
Bell County	*	*	99,737 (improved)	270,288	192,367	229,570	222,247	*	232,906
Coryell County	*	*	125,186 (improved)	329,601	245,554	247,195	257,957	*	228,287
Part Owner (No.)									
Texas	*	21,005	28,348	29,783	37,663	38,731	43,523	36,613	63,233
Bell County	*	231	*	*	353	343	276	339	491
Coryell County	*	125	*	*	257	269	224	180	341
Part Owner (Acres)									
Texas	*	*	*	*	21,245,322	*	17,503,860	*	54,332,209
Bell County	*	*	*	*	61,223	75,306	82,169	*	131,596
Coryell County	*	*	*	*	71,937	84,420	87,154	*	137,408

	1890	1900	1910	1920	1930	1935	1940	1945	1950
Managers (No.)									
Texas	*	2,500	2,332	2,514	3,314	3,474	3,358	2,578	2,368
Bell County	*	16	7	8	24	17	18	20	13
Coryell County	*	10	11	7	5	6	8	11	6
Managers (Acres)									
Texas	*	*	17,954,949	14,332,860	20,369,672	*	19,489,697	*	18,061,743
Bell County	*	*	2,883	2,807	7,017	6,127	9,288	*	18,405
Coryell County	*	*	6,739	7,075	2,986	10,244	13,728	*	11,770
All Tenants (No.)									
Texas	95,510	174,991	219,575	232,309	301,660	286,103	204,462	144,792	100,827
Bell County	2,254	3,049	2,973	2,732	3,695	3,069	2,247	1,582	1,105
Coryell County	926	1,479	1,698	1,644	1,810	1,917	1,376	664	525
All Tenants (Acres)									
Texas	*	*	25,279,104	31,443,015	41,399,727	*	40,252,244	*	28,556,817
Bell County	*	*	257,660	261,152	352,529	311,046	296,405	*	178,327
Coryell County	*	*	206,119	222,375	265,608	254,024	262,732	*	116,535
Proportion of Tenancy									
Texas	41.87	49.7	56.4	53.3	60.9	57.1	48.9	37.6	30.4
Bell County	53.05	60.6	60.5	60.0	68.0	61.6	56.1	42.0	34.4
Coryell County	38.73	42.1	51.6	53.6	58.4	57.7	50.9	32.8	28.5
Cash Tenants (No.)									
Texas	20,081	25,810	17,549	11,363	16,874	*	30,905	33,011	17,666
Bell County	147	127	61	40	51	*	148	169	89
Coryell County	89	99	45	50	74	*	143	109	70

	1890	1900	1910	1920	1930	1935	1940	1945	1950
Cash Tenants (Acres)									
Texas	*	*	*	8,022,747	11,810,292	*	15,715,490	*	11,893,382
Bell County	*	*	*	*	8,848	*	23,719	*	21,591
Coryell County	*	*	*	*	17,052	*	33,504	*	21,713
Share Tenants (No.)									
Texas	75,429	149,181	184,753	142,641	*	*	112,965	67,795	47,558
Bell County	2,107	2,922	2,622	1,953	*	*	*	1,022	672
Coryell County	837	1,380	1,499	1,328	*	*	*	455	288
Share Tenants (Acres)									
Texas	*	*	*	16,813,089	*	*	*	*	9,673,068
Bell County	*	*	*	*	*	*	*	*	99,227
Coryell County	*	*	*	*	*	*	*	*	62,120
Croppers (No.)									
Texas	*	*	*	68,381	105,122	76,468	39,821	24,507	14,863
Bell County	*	*	*	619	*	*	*	262	144
Coryell County	*	*	*	237	*	*	*	54	47
Croppers (Acres)									
Texas	*	*	*	4,867,528	*	*	*	*	1,646,811
Bell County	*	*	*	*	*	*	*	*	18,801
Coryell County	*	*	*	*	*	*	*	*	7,004
Other & Unspecified Tenants (No.)									
Texas	*	149,181	202,026	4,956	*	*	12,303	15,364	12,915
Bell County	*	*	*	*	3,644	*	66	49	124
Coryell County	*	*	*	*	1,736	*	73	33	77

	1890	1900	1910	1920	1930	1935	1940	1945	1950
Other & Unspecified Tenants (Acres)									
Texas	*	*	*	*	*	*	*	*	3,018,322
Bell County	*	*	*	*	343,681	*	12,786	*	26,022
Coryell County	*	*	*	*	248,556	*	17,918	*	11,318
Other Tenants (No.)									
Texas	*	*	*	*	*	*	12,303	*	3,839
Bell County	*	*	*	*	*	*	*	*	21
Coryell County	*	*	*	*	*	*	*	*	15
Unspecified Tenants (No.)									
Texas	*	*	*	3,906	*	*	*	*	*
Bell County	*	*	*	44	*	*	*	*	103
Coryell County	*	*	*	14	*	*	*	*	62
Share-cash Tenants (No.)									
Texas	*	*	*	4,968	*	*	8,468	4,115	7,825
Bell County	*	*	*	76	*	*	101	80	76
Coryell County	*	*	*	15	*	*	40	13	43
Share-cash Tenants (Acres)									
Texas	*	*	*	679,309	*	*	1,887,076	*	2,325,234
Bell County	*	*	*	*	*	*	11,422	*	12,686
Coryell County	*	*	*	*	*	*	14,768	*	14,380
Share Tenants and Croppers (No.)									
Texas	*	*	*	211,022	*	*	152,786	*	*
Bell County	*	*	*	2,572	*	*	1,932	*	*

	1890	**1900**	**1910**	**1920**	**1930**	**1935**	**1940**	**1945**	**1950**
Coryell County	*	*	*	1,565	*	*	1,120	*	*
Share Tenants and Croppers (Acres)									
Texas	*	*	*	21,580,617	*	*	20,309,389	*	*
Bell County	*	*	*	*	*	*	248,478	*	*
Coryell County	*	*	*	*	*	*	196,542	*	*

Appendix II

Work Accomplishments, CCC Camp SCS-26-T, Gatesville, Texas

1935-1936[19]

- Erosion surveys completed on 72 farms; 13,731.7 acres surveyed: 746.2 acres of rough stony or rough broken land on which no erosion classification is mapped; 568 (4.4%) acres not affected by erosion; 12,417.5 (95.6%) acres affected by erosion; 8,564.5 (66%) acres affected by sheet erosion only; 3,853 (29.6%) acres affected by both sheet erosion and gully erosion
- Gatesville Soil Conservation Association organized August 12, 1935 with 244 members
- 23 educational meetings held
- 38 farms under agreement covering 7,039.04 acres
- 224.47 acres to be retired from cultivation; 220.47 retired acres to be returned to pasture; 4 retired acres to be returned to forest
- 3,977.85 acres to remain in cultivation
- 2,684.2 acres to be contour-farmed, strip-cropped, and terraced
- 804.4 acres to be contour-farmed and strip-cropped
- 399.05 acres to be contour-farmed only
- 3,887.85 acres on which at least a 2-year rotation is to be practiced
- 2,088.24 acres to be in pasture
- 309.27 acres to be contour-ridged or furrowed and sodded to Bermuda grass or other perennial grasses
- 48.75 acres to be in meadow
- 916.75 acres to be in timber (brush and cedar brakes except 4 acres)
- 1,644 acres to receive gully control
- 545 fields under old farm plan
- Cooperators constructed 15,940 feet of diversion ditches of which 12,000 met specifications; 85 miles of terraces protecting 1,200 acres; excavated 3½ miles of terrace outlet channel; assisted in establishing 3 pasture strips for terrace outlet protection; established strip crop protection on 1,469 acres, contour cultivation on 1,385.2 acres and approved rotation on 1,501.3 acres; 5 farms cooperating to a limited extent in wildlife conservation
- 17,295 man hours of CCC labor used in the planning and execution of agreements
- 93 farm maps made for 18,000 acres
- 72 erosion surveys for 13,731.7 acres

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[19] Data compiled from National Archives RG114 Records of the Soil Conservation Service, Annual Report SCS-T-26, Gatesville, Texas, July 1, 1935-June 30, 1936.

- 150 miles of lines run and 100 miles checked
- 6,000 feet of diversion ditches constructed and stabilized
- 15,395 feet of terrace outlet channel constructed and stabilized
- 800 square yards of terrace outlets constructed and stabilized
- 3 meadow or pasture strips sodded
- 300 acres sodded or resodded to pasture or meadow
- 10,673 square yards gully banks sloped and sodded
- 20,000 square yards of sod gathered and used
- 8,900 trees planted
- 3,500 rods of fence built
- 14 masonry dams and 40 masonry spreaders constructed in terrace outlet channels
- 180 temporary dams constructed in gully control work
- 1,000 cubic yards of sand and gravel and 400 cubic yards of rock gathered and prepared for use in construction
- 3 field tours and 3 field days held with total attendance of 84
- 350 visitors to CCC camp
- 41 press releases sent to local newspapers and 3 to the Regional Office
- 116 pictures pertaining to soil conservation were taken

<u>List of Non-Cooperating Farmers and Conservation Work Performed</u>

- J.O. Winster – Terracing and contour cultivation during winter and early spring 1936 – Purmela.
- W.T. Perryman – Terracing and contour cultivation, early spring 1936 – Arnett.
- Fred Schloeman – Terracing and contour cultivation, winter and spring 1936 – White Hall.
- Royalty Farm – Diversion terrace, terracing, and contour cultivation, spring 1936 – Mound.
- Arthur Schloeman – Terracing and contour cultivation, spring 1936 – Gatesville.
- Ed Forest – Terracing and contour cultivation, spring 1936 – Gatesville.
- J.C. Bunnel – Terracing and contour cultivation, spring 1936 – Gatesville.
- Luther Hays – Terracing and contour cultivation, spring 1936 – Gatesville.
- Price Graves – Diversion ditching, spring 1936 – Gatesville.
- Ab Williamson – Terracing and contour cultivation, spring 1936 – Gatesville.
- Bob Alford – Terracing and contour cultivation, spring 1936 – Gatesville.
- Augustus Hurst – Terracing and contour cultivation, spring 1936 – Gatesville.
- H.R. Marwell – Terracing and contour cultivation, spring 1936 – Arnett.
- Harmon White – Pasture sodding, spring 1936 – Arnett.
- Herman Lockhart – Contour cultivation, strip cropping and terracing combined, spring 1936 – Harmon.
- Sam Comer – Terracing and contour cultivation, spring 1936 – Purmela.
- Wood Myer – Terracing and contour cultivation, spring 1936 – Purmela.

- Oliver Necessary – Terracing, strip cropping, and contour cultivation, winter 1936 – Gatesville.
- Gus Basch – Terracing and contour cultivation, later winter and spring 1936 – Gatesville.
- Charles Westerfield – Pasture sodding, spring 1936 – Coryell City.
- W.W. Blankenship – Added strip cropping to terraced and contour cultivated fields on three farms – Mosheim.
- Earnest Gohlke – Excavated flat bottom channel, spring 1936 – Coryell City.
- A. Whisenhunt – Terrace outlet protection, winter and spring 1936 – Gatesville.
- Charles Dansby – Terracing, strip cropping, and contour cultivation, spring and early summer 1936 – Mosheim.
- Fletcher Colvin – Terracing and contour cultivation, spring 1936 – Tama Route, Gatesville.
- Tom Yows – Terracing, strip cropping, and contour cultivation, 1936 – Mosheim.
- C.G. Travis – Strip cropping, spring 1936 – Mosheim.
- A.L. Freeman – Terracing, strip cropping, and contour cultivation, spring 1936 – Ireland.
- H.O. Bagaineer Ranch – Terracing and contour cultivation, winter 1936 – Pearl.
- C.E. Freeman – Terracing and contour cultivation, spring 1936 – Pearl.
- J.B. Doyle – Terracing and contour cultivation, spring 1936 – Pearl.
- Gus Thedford – Terracing and contour cultivation, spring 1936; plans to strip crop and to retire some land to pasture – Purmela.
- H.E. Mayberry – Terracing and contour cultivation, spring 1936 – Ireland.
- Sam Henson – Practicing terracing, strip cropping, and contour cultivation – 16 miles southwest of Gatesville.
- Julius Smith – Terracing and contour cultivation, 1935 – Copperas Cove.
- J. Benley – Terracing, summer 1936 – Copperas Cove.
- Sam Strickland – Terracing and contour cultivation, 1935 – Copperas Cove.
- Alf Lockhart – Terracing, strip cropping, and contour cultivation, spring 1936 – Pidcoke.
- Henry Schwethman – Strip crops added to terraced and contour cultivated field – McGregor.
- P.E. Jones – Strip cropping and contour cultivation, spring 1936 – Oglesby.
- Mrs. Minnie Hodel – Terracing, strip cropping, and contour cultivation, spring 1936 – Coryell City.
- Ernest Neimyer – Terracing, strip cropping, and contour cultivation, winter and spring 1936 – Coryell City.

1938-1939[20]

- 142 cooperators; 32,559 acres under agreement
- 32,260 acres under treatment; 23,476 acres treatment completed
- 6 farmer meetings sponsored cooperatively
- 269 farm visitors
- 6 tours of camp area, attendance of 182
- 60 news releases issued
- 351 members of the Gatesville Soil Conservation Association
- 5,266 acres protected by R.S.T.C.
- 7,357 acres protected by R.S.C.
- 259 acres protected by R.C.
- 12,882 acres farmed under complete rotation
- 6,000 acres small grain planted in strip for strip crop protection and as feed and cash crop
- 184 pasture strip waterway planned, 104 completed, used as disposal of water and grazed with livestock
- 50% of acres under agreement are crop land
- 1,365 acres retired to pasture and sodded or seeded to grass
- 271 acres contour ridged or furrowed
- 12,200 acres of controlled grazing
- 650 acres mowed for week control
- 4,996 acres protected by gully treatment
- 154,932 square yards of individual terrace outlets sodded
- 174,438 square yards of gully banks sloped and soded
- 13,149 rods old fence removed
- 654 temporary dams built

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[20] Data compiled from National Archives RG114 Records of the Soil Conservation Service, Annual Report 1938-1939, CCC Camp SCS-T-26, Gatesville, Texas, Region IV and Special Report on Camp Work Program, January 28, 1939, E.W. White, Acting Camp Superintendent, SCS-CCC Camp Tex-26, Gatesville, Texas.

Gatesville CCC Camp SCS-T-26, Company 2895 Work Accomplishments, October 1935 to April 1941 (Source: National Archives RG35 Records of the Civilian Conservation Corps, Monthly Progress Reports, 1933-1942).
*=no data

Work Performed	1935 (Oct.-Dec.)	1936	1937	1938	1939	1940	1941	Total
Vehicle Bridges (No.)	0	0	0	0	1	1	1	3
Fences (Rods)	690	5,701	21,388	16,505	30,373	17,167	9,790	101,614
Tool Boxes (No.)	7	0	0	0	0	0	0	7
Truck Trails (Miles)	50	10.1	15.1	35.2	20.3	0	0	130.7
Area Treated (Acres)	11	1,118.5	73	0	0	0	0	1,202.5
Gully Bank Sloping (Sq. Yds.)	2,600	32,579	23,947	12,594	7,820	0	0	79,540
Permanent Check Dams (No.)	0	0	0	0	3	0	0	3
Temporary Check Dams (No.)	55	154	106	116	10	0	0	441
Gully Seeding and Sodding (Sq. Yds.)	2,765	41,698	216,651	37,285	53,805	100	35	352,339
Gully Tree Planting (Sq. Yds.)	0	6,292	0	0	0	0	0	6,292
Gully Diversion Ditches (Lin. Ft.)	685	6,758	23,400	22,568	17,957	48,784	16,500	136,652
Terrace Outlet Channel Construction (Lin. Ft.)	3,070	25,061	1,276	3,810	0	0	1,650	34,867
Permanent Terrace Outlet Structures (No.)	3	56	9	10	4	0	30 (all)	112
Temporary Terrace Outlet Structures (No.)	0	25	26	0	42	218	*	311
Terrace Outlet Planting, Seed, of Sod (Sq. Yds.)	1,660	37,808	163,867	131,930	156,168	32,134	39,218	562,785
Sheet Erosion Planting (Acres)	62	233	517	0	0	0	0	812
Contour Furrows & Ridges (Miles)	0	0	5.3	0	0	0	0	5.3
Preparation for Strip Cropping (Acres)	*	*	*	*	*	*	27	27
Road Erosion Demonstration (Miles)	0	0	0.1	0.4	1.5	0.9	0	2.9
Misc Erosion Control Work (Man Days)	178	149	0	0	0	0	0	327
Field Planting or Seeding, Trees (Acres)	0	6	0	0	0	0	0	6
Nurseries (Man Days)	0	543	1,363	0	0	0	0	1,906

Work Performed	1935 (Oct.-Dec.)	1936	1937	1938	1939	1940	1941	Total
Seed Collection (Pounds)	0	0	31,106	8,681	108,343	59,951	80	0
Topographic Maps (Man Days)	0	173	77	0	0	0	0	250
Soil Preparation (Acres)	0	0	6	235.5	5,104	329	270.5	5,945
Pasture Sodding (Acres)	0	0	157	274	762.5	420.7	68.5	1,682.7
Emergency Work (Man Days)	0	0	15	0	0	0	0	15
Maps and Models (Man Days)	0	0	178	203	276	230	23	910
Preparation and Transportation of Materials (Man Days)	926	2,353	0	0	0	0	0	3,279
Grade Line Surveys (Miles)	52	257	61.4	0	0	*	*	370.4
Lineal Surveys (Miles)	29	266	26.3	0	0	*	*	321.3
Topographic Surveys (Acres)	6,800	10,369	8,125	0	0	*	*	25,294
Type Surveys (Acres)	5,500	7,859	6,807	0	0	*	*	20,166
Other Surveys (Man Days)	0	495	1,082	2,184	3,123	2,266 (all)	1,550 (all)	10,700
Hydraulic Research (Man Days)	0	0	11	0	0	0	0	11
Roadside Cooperative Agreements	0	0	0	0	0	8	0	8
Roadside Cooperative Agreements Completed	0	0	0	0	0	6	0	6
Cooperative Agreements	0	0	101	116	168	239	241	947
Contracted Acres Under Agreement	0	0	20,734	25,164	39,270.7	58,617.5	88,042	231,828.2
Contracted Acres Completed	0	0	13,705	18,417	23,868	26,707	32,456	115,153
Tilled Crops Before Contract (Acres)	0	0	7,051	7,243	9,036.6	*	*	23,330.6
Tilled Crops Present (Acres)	0	0	6,021	6,406	7,804.1	*	*	20,231.1
Semi-erosion Resistant Crops Before Contract (Acres)	0	0	5,678	6,961	8,328.2	*	*	20,967.2
Semi-erosion Resistant Crops Present (Acres)	0	0	1,852	916	916	*	*	3,684
Erosion Resistant Crops Before Contract (Acres)	0	0	27	34	34	*	*	34

Work Performed	1935 (Oct.-Dec.)	1936	1937	1938	1939	1940	1941	Total
Erosion Resistant Crops Present (Acres)	0	0	4,856	4,856	7,681.5	*	*	7,681.5
Crop Land Converted to Permanent Vegetation (Acres)	0	0	978	880	2,026.7	3,553.4	3,771.2	3771.2
Pasture Range from Uncontrolled to Controlled Grazing (Acres)	0	0	0	12,892	19,220.5	*	*	19,220.5
Benefited by Terraces (Acres)	0	0	3,574	4,211	8,762	*	*	8,762
Number of Farms Completed	0	0	0	0	0	110	126	126

Appendix III

Belton CCC Camp PE-76-T Work Accomplishments, 1934-1935 (Source: National Archives RG35 Records of the Civilian Conservation Corps, Monthly Progress Reports, 1933-1942).

Type of Work	1934	1935	Total
Erosion Control Dams Completed (No.)	730	185	915
Erosion Control Dams Partially Complete (No.)	289	47	336
Land Benefited Completed (Acres)	4,147	2,105	6,252
Land Benefited Partially Complete (Acres)	398	0	398
Terracing (Miles)	0	5	5
Terracing Partially Complete (Miles)	0	5	5
Temporary Terrace Outlets (No.)	0	5	5
Permanent Terrace Outlets (No.)	0	346	346
Permanent Terrace Outlet Partially Complete (No.)	0	50	50

Appendix IV

Central Texas Project No. 4 - Elm Creek Project Accomplishments

1933-1934[21]

- Elm Creek Watershed extends into 4 counties: Bell, McLennan, Falls, and Milam; total area in watershed approximately 200,000 acres; 90 percent or 180,000 acres in cultivation; more than 65 percent of farms operated by tenants
- 2 CCC camps connected with Elm Creek project at Temple and Troy in Bell County; build terrace outlets and spillways, reclaim gullies, revegetate steep, erosive slopes
- Newsletter published for farmers in the watershed
- SES gives talks on erosion control and related subjects; show lantern slides of work being done in area
- Articles written for local and state newspapers and magazines
- Area surveyed and mapped: 14,828 acres
- Area planned: 17,870 acres
- Area controlled: 2,124 acres
- Area retired from cultivation: 226 acres
- Area strip-cropped: 340 acres
- Area terraced: 1,137 acres
- Terrace lines run: 2,477,349 feet
- Area contour furrowed: 298 acres
- Land treated: 141 farms
- Rain gauges installed: 31
- Water wells being gauged: 28
- Permanent and temporary structures built: 396 dams and spillways
- Types of vegetation used in erosion control: 25 varieties
- Area revegetated: 508 acres
- Large gullies controlled by plowing-in and building temporary structures: 10,000 square feet
- Soil Erosion Clubs organized: 3
- Area mapped in soil and erosion survey: 11,520 acres
- Exhibits at fairs: 1
- SES members gave large number of talks

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[21] Data compiled from National Archives RG114 Records of the Soil Conservation Service, Annual Report Fiscal Year Ending June 30, 1934, Soil Erosion Service, US Department of the Interior, Central Texas Project No. 4, Temple, Texas.

1934-1935[22]

- Area of watershed: 200,000 acres
- Area of project (South Elm out): 160,000 acres
- Number of farms: 1,401
- 526 farms in Elm Creek Watershed cooperating with SCS
- 67,143 acres under agreement
- 631 farms for which application for agreement has been made
- 79,743 acres included under applications for agreement
- 166,053 acres surveyed and mapped
- 67,143 acres planned
- 29,219 acres controlled
- 935 acres retired from cultivation
- 10,838 acres strip-cropped
- 28,432 acres terraced
- Pasture contour furrows constructed on 845 acres
- 526 farms treated
- 63 gully control structures built
- 1,455 acres planted to grass
- 3,465 mechanical structures built for protection of terrace outlets
- 2,884 outlets protected with vegetation
- 60 educational meetings held
- 12 erosion clubs organized
- 11 educational exhibit displays
- 2 CCC camps (Temple and Troy) built spillways or check dams for protection of terrace outlets and outlet ditches, some sodding work and planting of grasses in the nursery
- Built 3,165 concrete check dams
- SCS furnished fresnoes and small graders for building terraces
- 185 small graders and 90 fresnoes in use on the project
- 1,324.4 miles of terraces built
- 458 cooperators representing 68,170 acres using a cropping system recommended by SCS
- Most check dams and terrace outlet structures designed with a rectangular weir notch
- *Elm Creek News* – monthly newsletter of the SCS, mailed to all cooperators, vocational agriculture teachers and all county extension agents in the state

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[22] Data compiled from National Archives RG114 Records of the Soil Conservation Service, Annual Report Fiscal Year Ending June 30, 1935, Soil Conservation Service, US Department of Agriculture, Central Texas Project No. 4, Temple, Texas.

1935-1936[23]

- Constructed 546 permanent concrete terrace outlet structures of various types
- 143 concrete spreaders built
- 122 man days used by local SCS nursery and 108 man days used in gathering 301 pounds of Side-Oat-Gramma seed for shipment by SCS
- 1,520 man days labor applied on terrace outlet channels; sloping channels and leveling up in preparation for seeding and sodding; 11,552 lineal feet of outlet ditch prepared
- 732 man days used on harvesting 12, 417 square yards of wire, joint, buffalo, and Bermuda grass roots and sod for vegetation of terrace outlets; 24,140 square yards seeded and sodded

1936-1937[24]

- Work program: construction of mechanical and vegetative control structures and outlets
- 527 total farms under agreement; 5 agreements canceled; 239 farms completed
- 67,788 total acres under agreement
- 157 agreements, covering 22,392 acres, reworked to provide complete erosion control
- 54,628 total acres under treatment and finished; 39,448 acres treatment finished
- 12,671 acres agreed to be strip-cropped under 1-year agreement; 11,740 acres actually strip-cropped
- 10,869 acres agreed to be strip-cropped under 3-year agreement; 9,729 acres actually strip-cropped
- 1,633 miles of terraces constructed
- 4,354 total permanent terrace outlets structures
- 248,931 total square yards of terrace outlets seeded or sodded
- 32,443 total square yards of terrace outlets reseeded or resodded
- 94 farms on which meadow grasses were seeded
- 478 Soil Conservation Association members
- 215 farms keeping records on crop yields on terraced and unterraced land (in cooperation with State Experiment Station)
- 495 total press releases; 175 press releases this year in local and state newspapers and magazines
- 190 total talks and lectures to farm groups

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[23] Data compiled from National Archives RG114 Records of the Soil Conservation Service, Annual Report for Period July 1, 1935 – June 30, 1936, E.C.W. Camp No. SCS-1-T.

[24] Data compiled from National Archives RG114 Records of the Soil Conservation Service, Annual Report 1936-1937, Elm Creek Project, Tex-1, Temple, Texas, Region 4.

- 750 total talks and lectures to other groups
- 6 radio talks on local radio station
- 53,580 newsletter circulation
- 36 total exhibits at county and community fairs
- Complete program of soil and water conservation put into operation on 112 farms
- Conservation practices adopted to much greater degree than previous years outside the demonstrational area
- Many more requests than previous years for technical information and advice on various phases of work from land owners and operators outside area than previous years
- Better attendance on scheduled tours
- Voluntary Soil Conservation Association assisted with educational and informational work

1937-1938[25]

- 599 total farms under agreement; 62 agreements canceled
- 77,431 total acres under agreement
- 207 agreements, covering 31,593 acres, reworked to provide complete erosion control
- 324 total farms completed; 51,728 acres treatment finished
- 12,671 acres agreed to be strip-cropped under 1-year agreement; 11,740 acres actually strip-cropped
- 21,100 acres agreed to be strip-cropped under 3-year agreement; 26,104 acres actually strip-cropped
- 1,706 total miles of terrace constructed
- 4,355 total permanent terrace outlets structures
- 316,573 total square yards of terrace outlets seeded or sodded
- 37,880 total square yards of terrace outlets reseeded or resodded
- 140 total farms on which meadow grasses were seeded
- 13 roadside agreements
- 578 Soil Conservation Association members
- 265 total farms keeping records on crop yields on terraced and unterraced land (in cooperation with State Experiment Station)
- 685 total press releases; 190 news stories published in local newspapers
- 209 total talks and lectures to farm groups
- 769 total talks and lectures to other groups
- 60,780 newsletter circulation; 6 issues of newsletter
- 41 total exhibits at county and community fairs

[25] Data compiled from National Archives RG114 Records of the Soil Conservation Service, Annual Report 1937-1938, Elm Creek Project, Tex-1, Temple, Texas, Region 4.

- Farmers living outside demonstrational area came into office almost every day asking for technical assistance in laying out lines for terraces and strip crops, to design outlet channels, and to get technical information on establishing pastures and meadows
- Solid block of 165 farms with a total of 29,179 acres under agreement; in some cases, erosion control system includes terraces, outlet channels, and other phases of the program crossing property lines
- Cooperative drainage agreements signed and filed with property deeds

1938-1939[26]

- 483 total cooperators; 63,955 acres under agreement
- 25 farmer meetings; 2,364 estimated attendance
- 42 farmer tours; 816 attendance
- 22 student tours; 471 attendance
- 20 business and professional group tours; 155 attendance
- 1,852 non-official visitors to project
- 36 movies shown; 6 exhibit booths shown
- 166 news releases issued; 2 radio programs
- Farmers outside the demonstrational area adopted, more this year than ever before, erosion control practices on their farms
- 3 small interior watersheds in the North Elm Creek Watershed were completed; 71 farms with 8,000 acres completely controlled; farms planned on a watershed basis and erosion control measures crossed farm boundaries; 19 cooperative terrace and terrace outlet systems serving 39 farms in the 3 interior watersheds
- Local radio station announced field days and other activities
- 166 stories published in local newspapers; *Temple Daily Telegram* published a special Soil Conservation Edition
- Increase in use of flexible Farm-Livestock lease; several absentee owners have a complete erosion control program on their farms since they have been able to work out a Farm-Livestock lease with their tenants; increase in feed crops, pasture and meadows

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[26] Data compiled from National Archives RG114 Records of the Soil Conservation Service, Annual Report 1938-1939, Elm Creek Project, Tex-1, Temple, Texas, Region 4.

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