

**NAVAJO USE OF LANDS
IN ARIZONA IN 1934
WITH SPECIAL REFERENCE
TO
LAND MANAGEMENT UNIT NO. 3**

Volume I

Scott C. Russell, Ph.D.

July, 1988

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Table of Contents

	<u>Page</u>
VOLUME I	
List of Tables	ix
Chapter 1: Introduction	1
1.1.0 Report Coverage	1
1.2.0 Philosophy Guiding Research and Analysis	2
1.3.0 Rationale for Selection of Study Area	3
1.4.0 Geographic Coverage of Report	5
1.4.1 Initial Boundary Changes to Land Management Unit No. 3	6
1.4.2 Later Boundary Changes to Land Management Unit No. 3	8
Chapter 2: Research Methods	10
2.1.0 Introduction	10
2.1.1 Previous Experience	10
2.2.0 Informant Data	11
2.2.1 Fieldwork Stages	15
2.2.2 First Fieldwork Stage	15
2.2.3 Location of Informants	16
2.2.4 Second Fieldwork Stage	17
2.2.5 Location of Interview	18
2.2.6 Persons Present at Interviews	18
2.3.0 Interview Format	18
2.3.1 Family Cards	19
2.3.2 Initial Document Search	21
2.3.3 Genealogy	22

	<u>Page</u>
2.3.4 Focus on 1934	23
2.3.5 The Livestock Reduction Period	25
2.3.6 Reinforcement of Focus on 1934	26
2.3.7 Camp Composition	27
2.3.8 Land Use Information	31
2.3.9 Verification of Location Identifications	33
2.4.0 Interpreters	36
2.4.1 Accuracy of Translations	36
2.5.0 Field Notes	37
2.6.0 Informant Reliability	41
2.7.0 Historic Documents	42
2.7.1 Document Goals	42
2.7.2 Time Frame for Use of Documents	43
2.7.3 Primary Documents Utilized	43
2.8.0 Conclusions	46
Chapter 3: The Navajo Population of Land Management	
Unit No. 3	47
3.1.0 Introduction	47
3.2.0 Navajo Census Information	47
3.2.1 Census Updates and Later Censuses	50
3.2.2 Census Numbers	51
3.2.3 Census Numbers and Locational Information	52
3.3.0 Agency Census Information	56
3.3.1 The Accuracy of the 1934 Western Navajo Agency Census	56

	<u>Page</u>
3.3.2 Navajo Population Counts Indicated in the Western Navajo Agency Census of 1934	59
3.3.3 The 1934 Hopi Indian Agency Census: Navajo Section	61
3.3.4 Navajo Population Counts Indicated in the Hopi Indian Agency Census of 1934	63
3.3.5 The 1934 Leupp Agency Census	64
3.3.6 Population Counts Indicated in the Leupp Agency Census of 1934	64
3.4.0 Soil Conservation Service Population Information for Land Management Unit No. 3	65
3.5.0 The 1934 Navajo Population of Land Management Unit No. 3	71
3.5.1 Population of Camps	72
3.5.2 Populations of Camps in June 1934	73
3.6.0 Navajo-Hopi Marriages and Their Navajo Offspring	74
3.7.0 Conclusion	81
Chapter 4: The Navajo Economy of Land Management Unit No. 3 in 1934	82
4.1.0 Introduction	82
4.1.1 Economic Data Available	82
4.2.0 Soil Conservation Service Income Data for Land Management Unit No. 3	83
4.3.0 The Importance of Specific Economic Sources to the Navajo of Land Management Unit No. 3 in 1934	91
4.3.1 Animal Husbandry	93
4.3.2 Agriculture	98
4.3.3 Wage Work	104
4.3.4 Arts and Crafts	107

	<u>Page</u>
4.3.5 Government Rations and Supplies	107
4.3.6 Gathering of Plants	108
4.3.7 Hunting	111
4.3.8 Singing	113
4.3.9 Other Internal Navajo Economy Income Sources	114
4.4.0: Conclusions	114
Chapter 5: Navajo Social Organization and Land Rights ...	116
5.1.0 Introduction	116
5.2.0 Basic Elements of Navajo Social Organization ...	116
5.2.1 Clans	116
5.2.2 The Clan Group	117
5.2.3 Coresidential Kin Group	118
5.2.4 The Camp	120
5.2.5 Marriage and Post-Marital Residence Rules	121
5.3.0 Basic Navajo Land Ownership and Inheritance Principles	122
5.3.1 Range Lands	122
5.3.2 Agricultural Fields	124
5.3.3 Other Land Use Rights	125
5.4.0 Some Implications of Navajo Social Organization for This Study	126
5.5.0 Some Implications of Land Use Rights for This Study	126
5.6.0 Summary	128
Chapter 6: Navajo Settlement Patterns in Land Management Unit No. 3 in 1934	129
6.1.0 Introduction	129

	<u>Page</u>
6.2.0 Basic Factors Influencing Navajo Seasonal Movements	130
6.2.1 Water Availability	130
6.2.2 Forage Availability	132
6.2.3 Agricultural Land	133
6.2.4 Wage work	134
6.2.5 Fuel wood	136
6.2.6 Localized Temperature Conditions	137
6.2.7 Herd Size	137
6.2.8 Children in School	138
6.2.9 Trading Posts	138
6.3.0 Settlement Patterns Identified for the Residents of Land Management Unit No. 3 in the Soil Conservation Service Reports	139
6.3.1 Population and Livestock Concentrations	142
6.3.2 East-West Differences	144
6.3.3 Intra-unit Seasonal Moves	145
6.3.4 Inter-unit Seasonal Movements	147
6.4.0 Camp Residence Site Locations in 1934	150
6.5.0 Additional Seasonal Movements	152
6.6.0 Summary	153
Chapter 7: Navajo Agricultural Field Locations in 1934 ..	154
7.1.0 Introduction	154
7.2.0 Total Acreage of Navajo Agricultural Fields Inside Land Management Unit No. 3	154
7.3.0 Specific Navajo Farming Areas in Land Management Unit No. 3 in 1934	155

	<u>Page</u>
7.3.1 Navajo Farming at Helen Kelly, Vanzee, Moenave, Tissi El, Littlefields and Willow Springs in 1934	156
7.3.2 Pasture Canyon	158
7.3.3 Kerley Valley	158
7.3.4 Coal Mine Mesa and the Northern Moenkopi Plateau	160
7.3.5 Other Primary Navajo Farming Areas in Land Management Unit No. 3	161
7.4.0 Allotments Issued to Navajos in the Moenkopi Wash and Tuba City Vicinity	163
7.5.0 Allotments Issued to Navajos Elsewhere in Land Management Unit No. 3	164
7.6.0 Summary	165
Chapter 8: Navajo Livestock Numbers and Areas Navajo Livestock Grazed in 1934	166
8.1.0 Introduction	166
8.2.0 1937 Livestock Ownership Information for Land Management Unit No. 3	167
8.3.0 Estimate of Navajo Livestock Owned by Members of Land Management Unit Camps in 1934 Based on Documentary Materials	169
8.4.0 Informant Camp Livestock Ownership Information for 1934	173
8.5.0 Locational Information Contained in "Livestock Census, Maximum Limit, and Permit Compilation District 3" Document	175
8.5.1 Verification of Informant Locational Information Provided by District 3 Permittee List	176
8.6.0 Documentary Evidence for Overlapping Navajo- Hopi Grazing Locations	177

	<u>Page</u>
8.7.0 Areas Navajo Owned Livestock Utilized for Grazing in 1934 in Land Management Unit No. 3	179
8.8.0 Summary	180
Chapter 9: Summary	181
9.1.0 Introduction	181
9.2.0 Population	181
9.3.0 Navajo Residence Locations	181
9.4.0 Animal Husbandry	182
9.5.0 Agriculture	182
9.6.0 Validity of Historic Documents	183
References	184
VOLUME II	
Appendix I Camp Membership in 1934	198
Appendix II Primary Navajo Structures and Site Types	293
Appendix III Locations Where Members of Camps Farmed or Controlled Agricultural Land in 1934 in Land Management Unit No. 3 According to Informants And Selected Documentary Sources	319
Appendix IV Land Management Unit No. 3 Permittees Who Received Livestock Permits in 1940 But Were Outside of Land Management Unit No. 3 in 1934	327
Appendix V Land Management Unit No. 3 Permittees Who Received Livestock Permits in 1940 But Who Were Probably Outside of Land Management Unit No. 3 in 1934 or Whose Status is Undetermined	329

	<u>Page</u>	
Appendix VI	Estimates of Sheep and Goats Reduced from Navajo and Hopi Herds in Land Management Unit No. 3 During the Livestock Reductions of 1934 and 1935	333
Appendix VII	Mature Livestock Owned by the Members of Camps Utilizing Land Management Unit No. 3 for Grazing in 1934 as Reported by Informants	339
Pocket Maps:		
Map 1	Navajo Residence Site Locations in 1934	
Map 2	Navajo Farming Locations Utilizing Water from Upper Moenkopi Diversion Dam and Navajo Allotments in the Moenkopi Wash in 1934	

List of Tables

	<u>Page</u>
Table 2-1 Initial Interviews with Informants by Year	12
Table 2-2 Census Year of Birth for Informants	13
Table 4-1 Total Income for Land Management Unit No. 3 in 1936	85
Table 4-2 Commercial Income for Land Management Unit No. 3 in 1936	86
Table 4-3 Per Capita Income by Navajo Land Management Units for 1936	92
Table 4-4 Non-Commercial Livestock Income for Land Management Unit No. 3 in 1936	94
Table 4-5 Non-Commercial Agricultural Income for Land Management Unit No. 3 in 1936	100

Chapter 1: Introduction

1.1.0 Report Coverage

This report details the Navajo use and occupancy of the area designated as Land Management Unit No. 3 during the calendar year 1934. The primary focus is to identify the Navajos present within this area and indicate locations where they resided, grazed livestock, and cultivated crops in 1934. My conclusions on these topics were derived from interviews with 635 Navajos who resided in or near the study area and from the review and analysis of historic documents. Supplemental analysis I have undertaken summarizes Navajo use and occupation of the land management units in Arizona outside Land Management Unit No. 3 (Russell 1988).

This introductory chapter describes the purposes of this report, provides a summary of the philosophy that guided research and analysis, and delineates the boundaries of the study area. Summarized in the next chapter is the methodology utilized during research and analysis. Chapter 3 provides data on the Navajo population of Land Management Unit No. 3 in 1934. Basic economic data and income sources for this population in 1934 are included in Chapter 4. The following two chapters (5 and 6) present material on Navajo social organization and settlement patterns. Included in Chapter 7 are the locations of Navajo agricultural fields in 1934. Enumerated in the next chapter (8) are the livestock grazed in Land Management Unit

No. 3 by Navajos in 1934 and the locations where grazing occurred. The concluding chapter summarizes Navajo use and occupancy of the study area in 1934. Several appendices are included that provide supporting documentation.

1.2.0 Philosophy Guiding Research and Analysis

My research philosophy stressed a conservative approach, emphasizing the need for the highest level of accuracy obtainable. This philosophy guided both the form of my research and the conclusions reached.

An important guiding principle was to obtain the most accurate, reliable, and complete information possible on Navajo use of the study area in 1934. I attempted to pursue any reliable evidence that would assist me in more accurately locating each and every individual who lived in the study area in 1934. Numerous cross-checks were conducted to provide the most accurate historic reconstruction possible.

In addition, I tried to use all available materials on which to base my conclusions. Informants and relevant historic documents were used in combination rather than separately. For the most part documents did not provide the degree of accuracy (i.e., specific locational information for each Navajo family in 1934) required. Documents did, however, provide extremely important information that was used over and over again to verify informant statements.

Another aspect of my approach was to deal primarily with three uses Navajos made of lands in 1934--residence, grazing, and farming. By concentrating on these uses I also mirrored traditional Navajo concepts of family and individual land rights and control. Other activities, as they impacted land use, such as the gathering of wild plants for food or hunting locations, are discussed in less specific terms. Religious use of lands is only very minimally considered here since it was beyond the scope of my study. These other activities were conducted by Navajos in 1934, and they were conducted primarily on the lands that Navajos were using for residence, farming, and livestock grazing, as well as other lands.

In reviewing pertinent documents I attempted to ascertain how accurately they reflected 1934. Some documents produced in or around 1934 do not necessarily provide accurate data on 1934, either because conditions changed between 1934 and the time the documents were written or because the documents were based on inadequate information when they were prepared.

My approach was also conservative in that I attempted to gather and analyze all available relevant material and I hesitated from reaching conclusions that were unverified or were in conflict with other information I obtained. This report and the conclusions I have reached reflect these guiding principles.

1.3.0 Rationale for Selection of Study Area

Land Management Unit No. 3 was selected as the focus of this study, rather than a smaller or larger geographic area, due

principally to the availability of comparative historical information. This area is also well defined geographically and its boundaries are easily recognized by local inhabitants. The tie between geographic area and historic documents facilitated research and provided an important basis for comparison.

Comparative historical material is available since the Soil Conservation Service in 1936 designated this geographic area as one of the eighteen land management units it developed on the Navajo and Hopi reservations (Parman 1976:112). Reports are available for this unit that detail environment, agriculture, economics, population, animal husbandry, and several other topical areas. These reports provide comparative information that I utilized both to aid in my reconstruction of locations and to verify and substantiate my findings. In addition to Soil Conservation Service materials, grazing documents from the late 1930s, which provide basic information on livestock population and ownership, utilized Land Management Unit No. 3 as their geographic focus.

Throughout this report reference to the "study area" refers to the area contained in Land Management Unit No. 3 and surrounding areas. The boundaries of this unit are described in the next section of this chapter. It should be remembered that this area was not designated until after 1934. While this is the case, the availability of comparative documentary materials make it the appropriate study area.

1.4.0 Geographic Coverage of Report

The primary geographic coverage of this report is Land Management Unit No. 3. The boundaries of this Land Management Unit that were utilized in this report and during research are as follows:

Beginning in the extreme northwest corner of the unit at Lee's Ferry, Echo Cliffs form a natural barrier between Land Management Unit No. 3 and Land Management Unit No. 1, extending north and east from the ferry to Gap trading post, where the boundary departs from the Echo Cliff escarpment and continues along Crooked Ridge in a slight northwest direction to a prominent point about three miles north of Red Mesa (sometimes referred to as Preston Mesa). From Red Mesa the line continues in a general southeast direction to Little White Mesa. Cutting the east side of Little White Mesa, the boundary continues south along Cow Springs Wash to the intersection of it with Blue Canyon. The line then follows Blue Canyon east to the Navajo-Coconino County line where it swings approximately due south following the east rim of Dusty Valley to a point where the Dinnebito Wash enters the valley. It leaves the wash above the Dinnebito trading post and follows the south rim of Coal Mine Mesa and Ward Terrace to Black Falls on the Little Colorado River. The river forms the boundary for ten miles north to the beginning of the fenced portion of the reservation boundary. The boundary of the unit then follows the fenced reservation boundary west and south for approximately twenty-five miles. The fenced reservation boundary separating the Tusayan Forest and the Navajo Indian Reservation on the west is the boundary for the unit north to the Little Colorado River. It follows the Little Colorado River to the junction of the Colorado River. The Colorado River then forms the northwest boundary of the unit to the point of origin, Lee's Ferry (Herion 1937:1-2).

The area included within these boundaries contains 1,760,378 surface acres (Anderson 1938:4). A portion of Land Management Unit No. 3 lies within the boundaries of the Executive Order Reservation that was established in 1882.

1.4.1 Initial Boundary Changes to Land Management Unit No. 3

The boundaries of Land Management Unit No. 3, as described in the last section, were not the original unit boundaries. In 1936, when tentative land management units were established, Land Management Unit No. 3 consisted of 1,374,180 acres (Soil Conservation Service 1936a:Table 1). Probably after a more detailed investigation of the initial unit area, it was found to contain 1,422,000 acres (Anderson 1938:4).

Before January 1938 (Anderson 1938:4-9), five boundary changes to the unit were proposed and implemented. These changes, which included both additions and subtractions to the unit, resulted in a different set of unit boundaries than originally proposed. The refining of land management unit boundaries, particularly during study group investigations, was a common component of each unit's Soil Conservation Service investigations. The main Soil Conservation Service materials were prepared after these five changes were made.

Four of the five initial changes to Unit No. 3 were additions. The largest of these, the Cedar Ridge and Bodaway areas (485,000 acres), was initially within Land Management Unit No. 1. The rationale for this change included: 1) usage of the area; 2) ease of administration from Tuba City instead of Kaibeto; 3) seasonal movement patterns; 4) population movement for farming; and 5) the presence of natural boundaries (Anderson 1938:5-6).

The Howell Mesa area, formally part of Land Management Unit No. 4, was the second addition to the unit. This addition, which consisted of 176,031 acres, was made since "the usage is primarily from Tuba City rather than Unit No. 4, the area is more accessible to Tuba City than Pinon, and the proposed boundaries fall on natural topographic boundaries" (Anderson 1938:8). The remaining additions to Land Management Unit No. 3 were significantly smaller. The first of these (15,380 acres), the Dinnebito Wash change, added the area west of the Dinnebito Wash and north of the Sand Springs Trading Post "for the same reasons of usage and administration as the Howell Mesa change" (Anderson 1938:8). The final addition, the Black Falls change (34,575 acres) in the southwest corner of the unit, added a section of Land Management Unit No. 5. This change was made because "it was felt that this boundary change would more correctly split Leupp and Tuba City usage" (Anderson 1938:8).

The one initial unit subtraction was the Red Lake and Black Mesa area. This area, which totaled 385,000 acres, was shifted to Land Management Unit Nos. 1 and 2 (Anderson 1938:6). The reasons for this shift were as follows:

The development of permanent water in the vicinity of Red Lake has caused Red Lake usage to extend farther west than the original chapter boundary line. The Indians residing within this area would prefer to be handled administratively from Kaibito rather than Tuba City primarily because of a seasonal shift of livestock from this area to winter range around Antelope Reservoir and the Coppermine in Unit No. 1. There is also a counter shift of people during the summer months from Kaibito to the farming area around Red Lake and Cow Springs. Red Lake

is located much nearer to Kaibito than Tuba City and the area could more easily be handled from Kaibito (Anderson 1938:7).

A portion of this subtraction, which included part of the unit on Black Mesa together with the Red Lake and Cow Springs areas, was added to Land Management Unit No. 1 (Anderson 1938:7). A larger area of Black Mesa was added to Land Management Unit No. 2 (Anderson 1938:7).

1.4.2 Later Boundary Changes to Land Management Unit No. 3

In the early 1940s several additional boundary changes were proposed for Land Management Unit No. 3. In 1940, an area on the Land Management Unit No. 3-Unit No. 5 boundary was suggested as an addition to Unit No. 5 (Day 1940a). This change (19,004 acres) was recommended since it was used by the Slim Wiskers outfit from Land Management Unit No. 5 "three to four months out of the year" (Day 1940a). The limited information currently available indicates this change was adopted.

A boundary change between Land Management Unit Nos. 3 and 1 was proposed in 1941. This change would have shifted the extreme northern tip of Land Management Unit No. 3, the Lee's Ferry and Bitter Seeps area, to Land Management Unit No. 1 (Fryer 1941). It was proposed by Navajos from Land Management Unit No. 1 who claimed to have "historically grazed there, and have built hogans and corrals there" (Fryer 1941). This proposed boundary change appears to have been disapproved.

In 1942, W. R. Centerwall was selected by Commissioner of Indian Affairs John Collier to investigate the boundaries of

Land Management Unit No. 6 and recommend boundary changes (Centerwall 1942). Based on his investigations, Centerwall recommended changes in the Land Management Unit No. 6 boundary. One of his proposals (Centerwall 1942:27) recommended transferring 21,651 acres from Land Management Unit No. 3 to Land Management Unit No. 6. This proposed change area was reportedly used by both the Navajo and Hopi (Centerwall 1942:28) and consisted of lands west of the Dinnebito Wash and basically parallel to "the north-south line of Howell Mesa" (Centerwall 1942:28).

This proposed change was modified by the Navajo and Hopi superintendents (Ladd and Stewart 1942) before it was officially approved on April 24, 1943 (Healing vs. Jones 1962:73). The superintendents, after again indicating the area was used by both Navajos and Hopis, reduced the proposed change by fifteen square miles (approximately 9,600 acres). This acreage was to remain as part of Land Management Unit No. 3 (Ladd and Stewart 1942:2-3).

Chapter 2: Research Methods

2.1.0 Introduction

This chapter describes the basic methods utilized during research and analysis to determine what lands Navajo Indians used and occupied in the study area during 1934. These sources included interviews with Navajo informants who resided in the study area in 1934 as well as historic documents from the time period in question.

Following this introductory section is a brief summary of my experience with the type of research required for this project. The remainder of this chapter provides information on the basic methods employed in conducting interviews with informants, verifying information derived from interviews, and utilizing historic documents as an information source.

2.1.1 Previous Experience

This research project is similar to other anthropological ethnohistorical projects I have conducted on the Navajo Reservation. Like this study, my previous work has required that I reconstruct the Navajo history and use of an area (e.g., Shonto, Forest Lake, Pinyon, Chilchinbito and Navajo Mountain) based on interviews with local residents, historic documents, and published materials. These reconstructions normally included information on early settlement of an area, social organization, demographic change, traditional economic activities (animal

husbandry, agriculture, gathering, and hunting), non-traditional economic activities (wage work, arts and crafts, etc.), historic settlement patterns, education, religion, resource use, and other aspects of Navajo culture and society.

2.2.0 Informant Data

A primary information source for this study was interviews with Navajos who resided in or around the study area in 1934. Interviews were conducted over a 55 month period beginning April, 1983 and ending in October, 1987. Forty interviewing trips, ranging from two to eleven days duration, were made to the areas investigated. I spent 258 days in the field, 49 of which concerned geographic areas of Navajo lands other than Land Management Unit No. 3.

During the 209 days spent in fieldwork concerned with Land Management Unit No. 3, I interviewed 635 Navajos and conducted 277 reinterviews with 200 persons (Table 2-1). Thus, a total of 912 interviews were conducted with Navajo informants to determine their use and occupancy of Land Management Unit No. 3 in 1934.

Table 2-2 presents information on the year of birth of informants, derived primarily from 1934 census information (see Note 1, Table 2-2). The 635 Navajos interviewed were born between 1888 and 1943 (see Note 2, Table 2-2). To provide reliable information for 1934, I discovered that informants generally had to be at least 12 years old in 1934, and preferably older. Interviewees born after 1922 were asked to provide, among other things, general background information or genealogical

Table 2-1

Initial Interviews with Informants For
Land Management Unit No. 3 by Year

<u>Year</u>	<u>Number of Initial Interviews</u>
1983	163
1984	341
1985	121
1986	6
1987	<u>4</u>
Total	635

Table 2-2

Census Year of Birth¹
for Land Management Unit No. 3 Informants²

<u>Year of Birth</u>	<u>Number of Informants</u>
1888	2
1889	1
1890	1
1891	3
1892	4
1893	2
1894	1
1895	2
1896	5
1897	8
1898	2
1899	8
1900	11
1901	11
1902	5
1903	12
1904	16
1905	16
1906	19
1907	16
1908	19
1909	25
1910	17
1911	19
1912	28
1913	25
1914	15
1915	28
1916	28
1917	19
1918	15
1919	27
1920	23
1921	27
1922	23
1923	21
1924	21
1925	10
1926	17
1927	11
1928	12
1929	12
1930	6

Table 2-2
Con't.

1931	4
1932	2
1933	8
1934	4
1935	3
1936	4
1937	3
1938	3
1939	0
1940	0
1941	2
1943	1
Unknown	<u>8</u>
Total	635

¹ Year of birth for informants is derived from 1934 census material when available. If census year of birth was unavailable, later census or family card information or other materials in the possession of the informant were used to determine birth year for the purposes of this table.

² Many informants indicated that the year listed on census records as their birth year was inaccurate. The vast majority of these informants indicated they were older than records indicated. I was able to check the age estimates of many informants against census records by comparing them to a traditional age reckoning event, the flu epidemic of 1918 (Reichard 1950:40). From this comparison I was normally able to validate that census birth year of informants was earlier, usually by several years, than the dates indicated in census records. Many informants, especially those born prior to 1920, were thus several years older than indicated in this table.

materials and occasionally background locational data. Except for a very few cases, the data provided by these young informants concerning 1934 were checked and verified with an older family member.

2.2.1 Fieldwork Stages

Interviewing of Navajos consisted of two simultaneous and interactive stages. In the first fieldwork stage a majority of the current elderly Navajo residents of each major section of Land Management Unit No. 3 and surrounding areas were interviewed. The second stage involved three activities: 1) reinterviewing informants to identify individuals or families that historic documents indicated may have been present in the study area in 1934 but for which only limited or no information was available from earlier interviews; 2) locating and interviewing any elderly Navajos in the study area that had been overlooked in the first stage; and 3) reinterviewing informants about additional information needed, any inconsistencies regarding their earlier information, or pertinent material contained in historic documents or information gathered from other informants.

2.2.2 First Fieldwork Stage

During the first stage of research certain geographical sections of Land Management Unit No. 3 and the surrounding area were treated separately in order to facilitate my understanding of the area and its inhabitants. Since geographic areas within Navajo Reservation lands were often settled by a limited number of families (often related), my comprehension of particular areas

was facilitated by linking families together through genealogies collected from each person interviewed. This linking provided me with additional insight into who was present in each area in 1934, their relationships to one another, and their land use patterns and also served as an important cross-check of actual presence in 1934 (see Chapter 5). Treating geographic areas separately also permitted me to better familiarize myself with local geographic features, landmarks, vegetation communities, roads, agricultural areas, and water sources.

2.2.3 Location of Informants

The methodology used to locate suitable informants during the first stage of fieldwork was straightforward. Each house or group of houses in each area was visited to determine if any elderly Navajos were resident or currently present. Members of households visited were asked to identify any elderly persons living near them. If no one was found at home, return visits were generally made until contact was made or neighbors or relatives indicated that no elderly persons resided at the location in question.

The previous methodology was somewhat impractical in Tuba City, where the density of population is great. Here, a list of senior citizens, which was acquired in the latter stages of fieldwork, was used to identify elderly residents that I had not already located and interviewed (Tuba City Senior Citizen Center 1984). Over 95 percent of the elderly Navajo residents of the study area were located and interviewed using the two procedures described above.

2.2.4 Second Fieldwork Stage

The second primary fieldwork stage consisted of three main activities. The first activity involved identifying and attempting to locate persons who 1930s census materials, grazing documents, Soil Conservation Service materials, and other documents had indicated were present in or around Land Management Unit No. 3 in 1934 but who had not been identified during the first fieldwork stage. The documents that I examined provided basic lists of these persons and families. From these and other sources I compiled data including age, Navajo name, census number, livestock permits received, possible relationships to other residents of the area, and information on where the person probably resided in 1934. Locational information was generally provided by census number sequence or by grazing document information. The manner in which these provide locational information is explained in a later chapter.

The second activity involved revisiting informants from each area and attempting to identify, locate and interview or otherwise account for the missing persons or families. Through this methodology I was able to identify many, but not all, of those persons who the documents indicated might have been living in the study area in 1934.

The third activity conducted during the second stage of fieldwork was the reinterviewing of persons interviewed during the first stage. Reinterviewing was conducted for several reasons: 1) to locate possible missing persons and families;

2) to cross-check previously collected materials or to verify information; 3) to clarify locational information or conflicting interview information usually about camp composition or location; or 4) to verify census entry data for individuals or families.

2.2.5 Location of Interview

At both fieldwork stages, interviews occurred primarily at the residence of the informant. Some interviews were conducted at religious ceremonies, at restaurants, at the homes of the informants' friends or relatives, alongside roads, at the workplace of the informant, in stores, and sometimes where the informant was herding sheep and goats or rounding up cattle or horses.

2.2.6 Persons Present at Interviews

Married couples, when encountered together, were normally interviewed in a single interview. In addition to the person or persons being interviewed, other family members or friends of the interviewee(s) were sometimes present. Usually, however, only the person or persons being interviewed were present.

2.3.0 Interview Format

Initial interviews with informants were relatively standardized. The primary purpose of each interview was to determine: 1) if the informant or his family resided or otherwise used lands in the study area in 1934; 2) the composition of the group utilizing these lands; 3) the identity of group members; 4) the locations of residence sites of group members in 1934; 5) what lands group members used for grazing

livestock, wood gathering, wild plant gathering, hunting, and other activities in 1934; 6) the primary economic and/or environmental reasons for the seasonal movement patterns of the group; 7) where group members farmed or controlled farm land in 1934 if they indicated they participated in this activity; and 8) the number and type of livestock owned by group members in 1934.

2.3.1 Family Cards

The first step in each initial interview was to obtain the informant's "Family Card" or "Census Card," which lists the names of family members together with their census numbers, dates of birth, family relationships and sometimes social security numbers. The importance of the family card to this study is that it provided basic information concerning the identification of the person being interviewed. This information was necessary due to the reliance placed on historical documents to verify presence in the study area in 1934. The name and especially the census number provided on the family card was often the key to entry into the documents, allowing me to identify the informant and his or her family on census, grazing and farming documents.

Family cards of elderly Navajo differ widely on how much information is present. For instance, an elderly Navajo widow might be the sole entry on her family card. In other cases she might be listed on the card with her deceased husband as well as all ten of her children, both living and deceased. If she raised

one of her grandchildren or a niece or nephew, this child or adult might also appear on her family card.

Family cards normally list the basic nuclear family -- a married couple together with their children. For the elderly Navajo interviewed in this project, their children were often listed even though they might be married and living elsewhere. If the family card did not list children, then it commonly listed only the elderly couple or the widow or widower. Approximately 75 percent of those persons interviewed possessed family cards and permitted me to see them.

Family cards serve several purposes in Navajo society. In a society where most of the population over age 40 speaks little or no English, these cards serve as a repository for basic family information. When a Navajo receives U. S. Government Surplus Food Commodities or talks to a representative of the Social Security Administration, the family card is used as identification. Census numbers on the family card are also important when one deals with Navajo tribal organizations.

Since most elderly informants did not speak or read English they could not recognize the Anglo name listed on the family card as their own. Moreover, in many cases, the Anglo name was not the name they used to identify themselves or the name (in the Navajo language) by which others identified them in Navajo society.

The census number on the family card might or might not be known to an elderly informant. If an elderly Navajo were to

recognize any number sequence, it would be his or her census number. Most informants were able to give their census number or verify that the number read to them from their family card was correct.

Family cards are issued by the Navajo Tribal census office. This tribal agency uses U. S. Government census materials and copies of old cards to update the family card of a family or individual when requested to do so. Some informants' family cards were twenty or more years old while a few were typed and given to the informant only months before the interview. For a married couple, the family card is almost always carried by the wife in her purse. When a married woman dies, her widower generally takes charge of this document.

2.3.2 Initial Document Search

After I received the family card from the informant, I immediately used the name and census number to determine entry location on the 1934 Western Navajo Agency Census (Bureau of Indian Affairs 1934-35: Roll No. M595-645) or another agency census. Access to the Western Navajo Agency Census was facilitated by a computer-generated listing of census numbers, names and entry numbers; the census was ordered numerically from the lowest to the highest numbers. By finding the appropriate census number and referring to the entry number for that census number, I was able to quickly locate the informant on the 1934 Western Navajo Census. Since many of the names on the census were no longer used or had never been used by the informants, I often had to

rely upon census numbers in order to locate informants' names on the census. This was especially necessary in those instances when women had married after 1934 and had taken the surname of their husbands.

2.3.3 Genealogy

After searching for the census entry, I next elicited a basic genealogy from the informant. In the genealogy I sought to obtain information on the Navajo and Anglo name or names of the person interviewed, his/her parents and grandparents. When known and applicable, the dates of parents' and grandparents' deaths were collected. In addition, basic information about siblings was collected.

The next step in genealogy preparation was to collect information about the interviewee's marriages and children. Marriage was defined to include marriage by Navajo custom, Anglo law, co-residence, or parentage of a child. Each spouse of the informant was listed on the genealogy by both Anglo and Navajo names as well as by clan. Death dates or separation/divorce dates were also listed.

Children from each marriage were listed along with birth order and/or birth date. Often birth date information was compared with information on the family card. When appropriate, the names and clans of spouses of the informant's children were also collected.

The informants were also asked to provide names and clan relationships of the parents, stepparents, and grandparents of

each spouse. This was requested especially if the spouse was a resident or grew up in or around the study area. Such information was also sometimes requested about each spouse's siblings and their spouses and children. Less frequently, I requested information on the uncles, aunts, great uncles, and great aunts of each spouse.

Information collected in each informant's genealogy was crucial to my understanding of the population present in and around Land Management Unit No. 3 in 1934. Genealogical information basically provided a "cast of characters," which oriented the direction of the remainder of the interview. It provided me with the list of persons whom the informant would best be able to provide information about location, camp composition, livestock, agricultural fields, etc., for 1934; it provided information necessary for validating and cross-checking other interviewees' data; and it often helped me to better understand the area and the population in question.

2.3.4 Focus on 1934

After completing the genealogy but prior to proceeding with the remainder of the interview, it was necessary to apprise the informant that the time period for which I would be collecting additional material was for the calendar year 1934. Since between 49 and 53 years separated the interview and the year 1934, it was extremely important that interviewees be focused on the year in question.

For each informant, a unique set of personal history items was utilized to focus the informant upon 1934. For example, an important point of reference might be when the informant married. A child born in 1934 or just prior to or immediately after that year was also an extremely good temporal reference point. Dates and other information derived from the genealogy allowed me to assess what dates or events might be of most importance to each informant.

Local, reservation, and national historical events were also used. To elicit this type of information the informant might be told that the year I was concerned with was the year of the goat reduction, 16 years after the influenza epidemic, the year prior to the circle and cross (O, X) election, or seven years prior to the American entry into World War II.

After I had initially focused the informant on 1934 I attempted to determine if the informant agreed with the linkage of the personal and historical events I had discussed and how clear the memory of that year was to the informant. For example, if a family card or census data indicated that a female informant had given birth to a child in 1934, I asked if she agreed that the child was born the same year as the goat reduction or at about the same time as or some other event the informant recognized. The above information would then assist me in determining the clarity of the informant's memory. Most informants were clear about the year in question; a few informants, particularly extremely old or extremely young informants, were not.

If I determined that an informant was unclear about 1934, I would determine who else might provide me with more accurate information. For the extremely old, a son or daughter in their 60's or 70's often proved to be a more reliable informant. For an informant who was a child in 1934, an older sibling or an aunt or uncle might be able to provide more accurate information. Informants sometimes suggested that relatives had more reliable information. The genealogy taken at the start of each interview also provided me with a list of possible alternative informants in addition to those mentioned by the interviewee.

2.3.5. The Livestock Reduction Period

The livestock reduction program carried out on the Navajo Reservation by the United States government between 1933 and the early 1940s is one of the most important events to affect the Navajo during the twentieth century. It is difficult to describe the importance of the reduction period to those that do not know the Navajo well. To the majority of elderly Navajos, it was the most upsetting period in their lives; its importance to them is comparable to the importance of World War II to many other similarly-aged Americans. The livestock reduction period was to the Navajo a period of economic hardship, changing values, and unrest.

Two primary events during the livestock reduction period -- the goat reduction and later horse reduction -- especially stand out in the minds of the Navajo. The goat reduction occurred in the fall of 1934, and by the time it was over, 147,789 goats and

49,138 sheep (Lenzie and others 1935) were removed from Navajo ownership. The removal of these productive livestock from Navajo lands as well as the manner in which they were sometimes disposed appalled the Navajo. Instead of being driven to a railroad line and shipped off-reservation for slaughter, hundreds or thousands of goats and sheep were slaughtered and their carcasses burned. Due to the value and importance of these livestock to the Navajo, they viewed these acts as being among the most dreadful and disgraceful that could be imagined. The livestock reduction period was strongly riveted in the minds of the majority of elderly people I interviewed. The events of this period were remembered as if they occurred yesterday rather than a half century ago. Many Navajo were able to name each event associated with livestock reduction that occurred during this period in its proper sequence. Informant after informant was able to recall the exact location where government employees seized their family's sheep and goats. The news of the burnings and poor treatment of livestock by government employees spread across the reservation like wildfire. Because of the intensity of the memories of the goat reduction, the focus of informants on 1934 was greatly enhanced.

2.3.6 Reinforcement of Focus on 1934

During the course of the interview the focus of the informant was continually fixed on 1934 by reference to the pertinent historical or personal events the informant recognized. When it was noticed that informants were providing information about time

periods before or after 1934, the informant was refocused on 1934 and questions were reasked to obtain the information requested for 1934.

The majority of informants did not understand why we were questioning them about one specific year almost fifty years ago. Informants often wanted to relate the early history of Navajo settlement in the area or other historical events or periods that they deemed to be important. When the additional information given by informants assisted me in understanding the period in question, the information was recorded and further questioning on this topic sometimes took place.

2.3.7 Camp Composition

The next segment of the interview involved determining "camp" composition in 1934. "Camp" information was obtained to provide a basic population subcomponent that could be utilized to depict Navajo land use and occupancy within the study area during the relevant period.

The concept of "camp" is one that has been used by social scientists and others to describe the basic economic, social, and residential unit of Navajo society. While "camp" is the most common technical term for this co-residential unit, it has also been called a family group (Kimball and Provinse 1942), an extended family or hogan group (Kluckhohn and Leighton 1946), a homestead group (Downs 1964), a residence group (Adams 1963), and a subsistence residential unit (Witherspoon 1970). The meaning ascribed to the word "camp" in English, which often includes a

temporary residence location, should not be attributed to the unit described in this report. The Navajo camp is a relatively stable population subgroup that used and occupied specific land areas for long periods of time.

Definitions of "camp" and its synonyms generally contain certain common features. These features include: 1) the composition of the group is a set of close consanguineal or affinal relatives; 2) the group cooperates or shares labor for animal husbandry activities, farming, wood and water hauling, and the organization of religious ceremonies as well as other activities; 3) members of the group control one or several land-use areas; 4) group members sometimes share food and other economic resources such as cash; and 5) households in the camp generally reside near one another. The basic features described above were the ones used to broadly define "camp" in the research described here.

Camps can include one or several households. A household consists of those persons that reside together within a single habitation structure. Generally households consist of a married couple together with their unmarried children. They can also include grandparents and grandchildren, two or more unmarried siblings, or a single person. The most common Navajo camp consists of a married couple and their unmarried children in one household and the married daughters of this couple, together with their spouse and children, in other households. One or two

households generally comprise a camp, but in a few cases some camps have as many as five or six households.

As noted above, households within a camp normally reside near one another. "Near" has often been interpreted as "within shouting distance," perhaps within several hundred meters. Because of the Navajo taboo that requires a son-in-law to avoid his mother-in-law, the occupation structures of the former were historically at the edge of "shouting distance" or perhaps even further. Sometimes the multiple wives of one man, especially when each had her own sheep herd, resided further apart than shouting distance. Because of the marriage and economic ties between these households, they were still included in a single camp in the analysis completed for this project.

Generally, the members/households of a camp resided together throughout the year and engaged in seasonal movements to several locations during the course of the year. For most camps, all households or members of the camp participated in these seasonal moves. In other cases, specific economic activities caused some camps to divide seasonally. Divisions of camps generally occurred during the summer months when some members or one or several households would conduct agricultural activities at one or several locations while other members or households would conduct herding activities at other locations. Due to the above, for the purposes of determining camp membership for this report, households were grouped according to their winter co-residence rather than their summer co-residence.

The membership of particular camps at particular times is affected by births, deaths, marriages, disagreements between camp members, changes in economic fortunes, and other factors. For purposes of determining camp composition, all persons who were members of a camp in 1934 are included within the list of camp members provided in Appendix I. Anyone who was born or died during 1934 is included within a camp without reference to the date in that year when birth, death, or both occurred. If a marriage occurred in 1934 between the members of two camps, the newly married couple is included in the camp they chose to reside in if the date of marriage was prior to June 14, 1934. If the date of marriage fell after this date, they are included within camps in which they resided prior to marriage. If a marriage occurred between a camp member and someone who was not a member of any of the study camps, and the marriage occurred after June 14, 1934, the non-camp member was excluded from a study camp. If the members of a single camp divided into two or more camps in 1934 and this division occurred before June 14, 1934, camp members would be divided into their respective camps. If the division occurred after June 14, 1934, they would be included with their former pre-division camp.

Obtaining information from informants on camp membership during 1934 was relatively straightforward. The basic characteristics of "camp" were described to the informant. They were then asked to list those persons in the camp. Camp membership was sometimes additive. That is, one informant would include as

members of her camp in 1934 herself, her parents, and her siblings. A later informant, the elder sister of the first informant, would include not only the people named by her younger sister but also herself, her husband, and the children who were living in 1934. Thus, secondary persons or persons less important in an informant's mind were sometimes excluded by informants from membership in a single camp. Normally, the addition of persons to a camp was confirmed in a second interview with the first informant.

2.3.8 Land Use Information

The third major segment of each interview was to determine the lands utilized by the members of each camp. I asked each informant to list each seasonal location where his/her camp resided in 1934. An informant would then list for me different seasonal occupation locations where some or all camp members resided in 1934. If possible, I would narrow the location of each occupation site to a more specific location that I recognized and could locate on a map. Thus, for example, a winter site by Red Mesa might be narrowed to an occupation site just below the southeast corner of Red Mesa in the tree covered area.

After obtaining locations of occupation sites for the informant's camp, I next collected information concerning whether the members of an informant's camp were engaged in farming in 1934 and if so, where. Again, I always tried to obtain the precise location of each farm. For example, a general

description of a field at Cedar Ridge might be located more specifically as being the second field to the north of the Cedar Ridge Trading Post.

After obtaining habitation site and farm location information, I sought information on mature livestock (sheep, goats, cattle, horses, mules, and donkeys) owned in 1934 by members of the informant's camp. I inquired about the number of each of the six primary types of livestock that were owned in the summer of 1934.

Additional information on other land use activities in 1934 was sometimes collected from an informant. Such information included water sources utilized by camp members for both domestic and livestock purposes, wood sources, hunting locations, wild food gathering areas, and locations where pottery, basketry, or dye materials for weaving were collected in 1934.

Most informants were asked only to describe the lands utilized by their camp in 1934. This was done in order to gather the most accurate data possible since the information known best by informants was obviously that concerned with their own camp. Some informants were, however, asked to provide information similar to that described above for other camps in 1934. Generally, this was for close relatives of the informant. For instance, a woman who was married in 1934 and lived in a separate camp with her husband and children, might be asked to provide information about the camp of her parents and her younger siblings. Informants were most frequently asked to provide information on other camps

to verify previously received information or to provide information on camps where all adult camp members are now deceased or where living camp members had been too young in 1934 to provide accurate information.

2.3.9 Verification of Location Identifications

Several other methods beyond oral descriptions were used to more precisely identify locations of occupancy or use by members of specific camps during 1934. One of the simplest of these was to have the informant physically point to where the members of a camp lived, farmed, gathered water, got stock water, etc. in 1934. Since most interviews were conducted at the home of the informant and since many informants were still living on lands they indicated they lived on in 1934, it was often possible for an informant to point in the direction of the specific place to which they were referring.

A second method of verifying locational information was to show an informant one or several maps. The most common map employed was the 1930s Soil Conservation Service Base Map for Land Management Unit No. 3 (Soil Conservation Service 1937). This map identifies the area's primary geographic features, major and minor roads existing in the 1930s, many of the then-existing water sources (which could be identified by type--well, dyke, spring etc.), trading posts, the boundaries for Land Management Unit No. 3, Navajo residence locations, communities, and agricultural field locations.

After first being told the location of major landmarks, informants were asked to identify on the map their residence or farming locations in 1934. They next were asked to point out specific winter, summer, spring, or fall occupied sites or field locations. Some informants were quite adept at this task. Others indicated their sight was inadequate to read the map or they lacked experience with maps. These persons were not asked to use the map to provide information beyond the oral descriptions they had already provided.

In addition to the map for Land Management Unit No. 3, informants were often asked to identify locations on other maps. Those informants who resided outside of Land Management Unit No. 3 were shown the appropriate 1930s base maps of the land management unit in which they resided. Other maps that were used included maps depicting specific farming areas. Maps for Kerley Valley, Willow Springs, Littlefields, Tissi El, Moenave, Vanzee, Helen Kelly, and Lower Moenkopi were shown to informants to aid them in identifying which fields were farmed by members of their camp and other camps in 1934.

The third method utilized to verify locational information was to accompany some informants to locations where they resided, farmed, obtained wood or water, or conducted other activities in 1934. For the most part, informants who were accompanied to 1934 sites were those that resided on the Moenkopi Plateau, Coal Mine Mesa, the Greasewood Lake area, Ward Terrace, Tuba City, Kerley Valley, the Moenkopi Wash area below and above the village of

Moenkopi, the various farming areas from Helen Kelly northwest to Willow Springs, the area north of Tuba City including Dog Springs, White Mesa, and Red Mesa, and Moenkopi Village. On these trips and at other times during fieldwork, photographs were sometimes taken of Navajo residences, occupation areas, agricultural fields and/or geographic areas linked with specific Navajo place names.

Informants who I accompanied on these trips were able to point out to me the remains of sites they had occupied in 1934, field areas, and other use areas. Since current roads often did not provide access to these locations, the informant would often accompany me on foot. Informants were able to locate for me all locations or abandoned sites that I had asked to be shown. Informants on all these trips displayed considerable familiarity with the areas in question.

To gather additional information on Navajo use in Unit No. 3 I also examined the historic archaeological sites described in Adams (1987). Prior to 1986 I visited several of these sites with Navajo informants either because they had resided at one of them or because they knew of other Navajos who had. Based on informant statements, documentary materials, information contained in the site descriptions, and my analysis of site remains, I have determined that many of the historic sites described in Adams (1987) did not exist in 1934 or were not used during that year. I also found that many of the sites that Adams described were used by Navajos in 1934 or at other times.

2.4.0 Interpreters

Approximately 95 percent of the informants spoke little or no English. An interpreter was therefore employed at nearly every interview. In total, five interpreters, fluent in both English and Navajo, were used to assist me in my fieldwork. These interpreters were all members of the Navajo Tribe and ranged in age from approximately thirty to seventy years. Both male and female interpreters were utilized.

Prior to the first interview with each interpreter, I told the the interpreter basic outline of my overall research goals. The interpreter was instructed to translate verbatim my questions and the interviewee's responses. I repeatedly stressed during my fieldwork the importance of accurate and complete translations. I instructed the interpreters not to translate the names of individual Navajos and Navajo place names into English because I wished to record these names in my field notes in the Navajo language.

The remaining 5 percent of the informants spoke sufficient English to be interviewed in English. However, even with these informants, it was necessary at times for the interpreter to assist the informants with certain Anglo concepts or with English names for individuals or places.

2.4.1 Accuracy of Translations

I employed a number of methods that operated to verify the accuracy of translations provided by the interpreters: 1) as discussed above, I frequently requested informants to point out

site locations, both physically and on maps; 2) I cross-checked statements by English-speaking informants with those of Navajo-speaking informants on the same topic (this occurred most commonly between siblings who discussed the activities of a single camp); 3) in those rare instances when a member of an informant's family served as translator, I used my interpreter to verify the translation; 4) since many of the informants were reinterviewed at different times during fieldwork, I was often able to compare translations provided by different interpreters; 5) I was sometimes able to use my own knowledge of the Navajo language (especially for place and personal names) to verify translations; and 6) I was frequently able to cross-check informants' statements with those I obtained from their relatives and other members of their camp.

Due to my efforts to cross-check the accuracy of the interpreters' translations, and interpreters' skill, I believe that I received an accurate understanding of responses to my questions.

2.5.0 Field Notes

During the course of each interview I kept field notes that record the questions I asked each informant and the responses I obtained to those questions. To date, I have collected over 8,200 pages of field notes in forty-two bound notebooks.

For each interview, my field notes can be divided into two segments. The first segment is the informant's genealogy. Questions asked to gain responses for preparation of the

genealogy are not recorded. So that it could be more usable during the course of the interview, each genealogy was recorded in the form of a chart.

The second segment represents the questions asked and responses given. As I asked each question, I would generally record it in the notebook, and then write the response as completely and accurately as possible. For those questions that had multiple answers, only the initial question and the answers would be recorded in my field notes. As an example, I would ask an informant to tell me all the places the members of his camp resided during the summer of 1934. The informant would give one or two responses to this question. Then I would ask if he/she had left out any residences. If the respondent replied, "Yes, I did leave out one," I would then list the additional response with the first question. The second question by me, a followup of my first question, would only sometimes be recorded.

I generally shortened certain questions in my field notes. For instance, with regard to livestock ownership in 1934, I would first ask, "How many mature sheep and goats did members of the camp own in 1934?" For the next question on horses owned, which was phrased as above but with the substitution of horses for sheep and goats, I generally simply wrote "horses" in my field notes together with the informant's response.

If two people were interviewed together, generally a married couple, I would take a combined genealogy and then direct questions to each of the informants separately concerning the camp

in which he or she resided in 1934. This was especially true if the informants were not married to one another in 1934.

In addition to questions and responses from informants, I also recorded short notes to myself. These notes might concern the frame number and the census volume in which the informant and his or her parents might be listed. Some notes are reminders to myself concerning the location that an informant was describing. Other notes linked informants to other documents, such as grazing or farm owner lists, that I reviewed during or after an interview. For example, some of my notes might remind me that the informant or his or her parents are listed as using a field in Kerley Valley. Some notes, particularly those related to documents reviewed after the interview, were added after the interview had been completed. These notes are generally separated from my other field notes by a square being drawn around them. Infrequently, at some point after an interview I corrected any errors I discovered in my field notes, clarified what I had written, or added information provided by an informant but not recorded at the time of the interview.

When an informant possessed documents, such as grazing permits or agricultural field permits, I frequently listed the information in my field notes. The type of information gathered in this manner varied tremendously. As discussed earlier, the most common document I examined during an interview was the family card of the informant or his or her spouse. Information derived from the family card was oftentimes recorded in the genealogy or in a separate list. Other information gathered and

entered into my field notes included birth and death certificates, drivers license information or birth date, grazing permits, written family history material, family genealogy charts, Navajo court documents on current or past grazing cases, court probate materials, maps of customary use areas, documents that contained reference to census numbers, dipping records from the 1980s, 1970s, 1960s, 1950s, or 1940s, and original census tags that were distributed by the United States government in the late 1920s.

During many interviews, informants simply handed me or my interpreter all historical records or letters they had in their possession. This usually occurred when the informant, who could not read English, could not tell which of his or her documents contained the information I was requesting. In these instances I was usually given no more than 15 or 20 documents; most were grazing documents, and letters from governmental agencies. The only items I reviewed that were created in or before 1934 were census tags. And I also reviewed one birth certificate that may have been prepared in 1934.

My field notes also contain several hand-drawn maps. I drew most of these maps to help myself identify the locations of occupation sites, water sources, etc. to which an informant referred. On several occasions, however, an informant drew a map or marked locations in my field notes to identify locations referenced in the interview.

2.6.0 Informant Reliability

Informant information proved to be highly consistent with historic documents and was internally consistent among informants. In evaluating this information, I compared the information with historic documents and with information supplied by other informants. I also took into consideration my perceptions of the accuracy of the informant's memory, the informant's age in 1934 and the informant's current and recent health.

As noted earlier, the informant's age in 1934 was an important factor influencing the reliability of the informant's statements. The most reliable informants were those who were age 12 or older in 1934. Those informants who were married before or during 1934 or who were parents during that year were found to be very reliable. The more elderly informants, due to illness or poor health, sometimes proved less reliable. Several informants who were over 90 years old did not give accurate and reliable information; a few of these very elderly and infirm informants could provide me with little or no information concerning 1934. Fortunately, most of the very elderly informants had living children who were old enough in 1934 to be reliable informants. Through them, I was able to obtain the information I required for this project.

Sometimes, several informants provided different information about one camp. When this occurred, I tried to choose the informant or informants who had the most accurate information concerning a camp. For example, if my choice was between a camp member and a non-camp member, I generally considered the camp

member's information as being the most reliable. If information on a camp was provided by two non-members, the information provided by the non-member who was the closest relative of the camp members was generally selected as the most reliable. Most of the choices I made in these situations were based on my knowledge of Navajo social interaction.

2.7.0 Historic Documents

Historic documents are the second primary source of information upon which my conclusions are based. Documents were compared and cross-verified with informant interview data to provide a firm information base. As Willson (1986:265) has indicated, "[B]y knowing the documentary material, the interviewer can use that knowledge to check the accuracy of the documents as well as the informant." Comparisons and cross-verification are necessary, since documents available for the time period and study area do not always provide the detailed information required for this project. Comparisons and cross-verification are still in progress. In particular, a compilation of some historical documentary information (e.g., grazing, census, and farming records) for the Navajos identified in the study area in 1934 (see Appendix I for a listing of these persons) is in the final stages of review and correction.

2.7.1 Document Goals

As I reviewed historic documents I had several specific goals in mind. First, I wanted to determine each document's usefulness, i.e. did the document provide relevant information that would aid me in determining Navajo use of the study area?

My second goal was to determine whether the document applied to 1934. This was important since the overwhelming majority of documents that I reviewed, although generated in the 1930s or 1940s, were not authored in 1934. Documents that were not generated in 1934 necessarily had to be "adjusted" to that year; information to do this was available in the historic record. Determining each document's historical accuracy was my third goal, i.e., was the document's information accurate or was it based on bad information when it was authored. My fourth and final goal was to evaluate each document to determine how the information in a document was gathered and whether a document provided information on other subjects beyond its stated purpose.

2.7.2 Time Frame for Use of Documents

Historic documents were utilized throughout my research. Documents were used prior to fieldwork to provide baseline information on the study area. This baseline information included Navajo settlement patterns, environmental descriptions, population centers, agricultural field locations, and general history of the region. Documents were continually consulted to verify the presence and approximate location of individuals, families, and camps in the study area.

2.7.3 Primary Documents Utilized

Documents that provide useful population and locational information from the year 1934 are rare. The majority of the documents I used were created in or pertain to the years 1936-1938. During the middle to late 1930s the United States government conducted the largest and most comprehensive land and

human resource studies ever undertaken on the Navajo people and their lands. These studies started about the time that livestock reduction began on the reservation, and continued until about 1941. These studies were undertaken by the Soil Conservation Service (SCS), in cooperation with the governmental agencies responsible for the Navajo and their reservation. SCS employees and others mapped the entire reservation area and conducted geological, soil, forestry, engineering, agricultural, range management, conservation, and human studies.

To better cope with the large reservation area and to better manage reservation resources, the SCS divided the Navajo reservation and the 1882 Executive Order Reservation into 18 land management units. For each of these units, SCS personnel completed maps and reports on the various topical areas previously mentioned.

The "Human Survey" reports are among the most important. SCS personnel attempted to interview members of every "consumption group" on Navajo occupied lands in the period from approximately 1936 to 1938. A five page "schedule" (i.e., questionnaire) was used to gather information on each "consumption group."

Information gathered on these included: 1) membership of each consumption group; 2) clan affiliation of the members; 3) age of members; 4) relationships between members; 5) sex of each member; 6) locations where members' livestock were grazed; 7) residence locations; 8) information on farming that included field locations and camps; 9) income data that included wagework, and livestock, wool, pelts, agricultural products, pinyon wood, and craft items sold; and 10) information on the type and number of

livestock owned by consumption group members. Data from those schedules, together with other information they gathered, were used by SCS employees to prepare reports and maps both on a reservation and land management unit level.

Unfortunately, only a very small percentage of the over 200 consumption group schedules completed for Land Management Unit No. 3 have been located. Unsuccessful searches have been conducted for these schedules, together with those missing for other units, for over 20 years. While the majority of schedules for Land Management Unit No. 3 are missing, almost all the reports and maps based on them are available and were used to assist in the formulation of my conclusions.

While the SCS reports represent an important body of information on Land Management Unit No. 3, it should be remembered that most were not authored in 1934 and that the time between 1934 and the completion of the SCS reports was an era of great change for the Navajo. But since many of the changes that occurred during these years are known, SCS materials can be utilized with a high degree of reliability. SCS materials are discussed in later chapters as they apply to the topical areas under consideration.

The second group of primary documents are those concerned with livestock grazing. This material contains important information on individuals who dipped livestock in specific years, where the livestock were dipped, who received permits for livestock, and where (in general terms) each permittee grazed his or her livestock. Since the government instituted livestock reduction before the date when individual grazing records were

started (1936), livestock populations listed in these records need to be adjusted to 1934 levels.

Census material is the third primary category of documentary material available. In contrast to the first two groups of documents reviewed, census data are available for 1934. This data source is discussed in the next chapter.

In addition to the three primary document sources previously described, many other documents were reviewed for pertinent information. These documents are discussed in future chapters when they bear on the subject under consideration.

2.8.0 Conclusions

Historic documents and interviews with elderly Navajos who resided in and around the study area in 1934 constituted the two information sources upon which I based my conclusions. Historic documents provide valuable information on Navajo use of the study area in 1934. They were also used to verify the interview data furnished by Navajo informants. Interview data were also used to verify the accuracy of documents and to adjust the time frame on documents to the year 1934. The cross-verification of data during research and analysis has produced a solid information base that has allowed me to describe in detail the lands Navajo Indians used and occupied in and around Land Management Unit No. 3 in 1934.

Chapter 3: The Navajo Population of Land Management Unit No. 3

3.1.0 Introduction

Excellent population data are available for the Navajo during the 1930 to 1940 time period. The three agency censuses that contain the persons residing in Land Management Unit No. 3 in 1934 are reviewed and evaluated in this chapter. The relationships between census numbers received by individual Navajos and reservation locations are also examined. In addition, population counts for Land Management Unit No. 3 are presented and contrasted with governmental census data. The final section of this chapter provides my estimates for the Navajo population of Land Management Unit No. 3 in 1934.

3.2.0 Navajo Census Information

The period of the late 1920s and 1930s was a period of intense census activity with the Navajo. Before this period governmental census data were either estimates by the agency superintendents or were based on counts sometimes years out of date. In the late 1920s, however, this all changed radically. At this time the Office of Indian Affairs requested specific information on population (population totals, births, deaths, omissions, errors in sex, etc.) be submitted yearly by each agency. In 1927, the Western Navajo Agency was unable to provide these statistics and noted in a reply to the request, "no census has ever been taken in the past, the report is

submitted without what might be considered the most important section" (Walker 1927).

While the Western Navajo Agency Census was not available in September 1927, agency personnel were in the process of preparing a census (Walker 1927), although it is doubtful that a census was completed for the Western Navajo Agency in 1927. In fact, the first census may not have been completed until 1929:

The delay in forwarding this section is due to not having our Navajo census completed, which had to be done before the data called for in the report could be obtained in so far as it relates to the population statistics (Walker 1929).

These first reservation censuses resulted from detailed surveys coordinated by each agency:

After 1928, the figures submitted by the several Navaho agencies were derived from extensive surveys and enumerations that were carried out in connection with the preparation of up-to-date tribal rolls for each agency. The first of these surveys was carried out in the years 1928 to 1929 (Johnston 1966:89).

A census of the Navajo population of the Western Navajo Agency (Bureau of Indian Affairs 1929: Roll No. M595-640) was completed in 1929. This roll, dated June 30, 1929, lists 3,966 persons, and since it lists census roll numbers (3,855 total persons) for a previous census, it may well be that a 1928 census was also completed.

As noted earlier, the Western Navajo Agency was not the only agency expending considerable effort to complete an accurate and updated census at this time. The Northern Navajo Agency indicated in its statistical report for 1928 that the "first

census [is] now in progress" (Bureau of Indian Affairs 1927-35: Roll No. M1011-3). The Northern Navajo Agency Annual Report for 1929 indicated that an additional clerk had been assisting in the census work (Bureau of Indian Affairs 1927-35: Roll No. M1011-3).

The 1929 Western Navajo Agency census is an accurate listing of the Navajo population of this agency at the time. Since censuses were updated each passing year, later censuses were even more accurate. Those persons missed during the initial enumeration in the 1927-1929 period were continually added to the basic census. The 1929 census (Bureau of Indian Affairs 1929: Roll No. M595-640) is unique among other censuses I have examined for this period because it lists both the Anglo name for each individual and, when known, the Navajo name. This dual listing was extremely helpful to me during my research, since it allowed me to identify persons on later censuses when informants did not know their Anglo names.

For most persons this initial Western Navajo Agency census was the first time that they received names in the English language. Generally, English names were rough translations of Navajo names. Thus, someone whose Navajo name meant tall man (Hosteen Nez) would be given the English name of "Tallman." In some instances, Navajo names were also simply written phonetically in English, and that became the English name a person received. A few individuals across the Western Navajo Agency were given names of 1920s movie stars, prize fighters, or

names of inventors or other historical figures. The reasons for these name assignments are unknown.

3.2.1 Census Updates and Later Censuses

After the initial Western Navajo Agency census of 1928 or 1929, updates were prepared on an annual basis for 1930, 1931, 1932, 1933, 1934, and then again in 1937 (Bureau of Indian Affairs 1929: Roll No. M595-640; 1930: Roll No. M595-641; 1931: Roll No. M595-642; 1932: Roll No. M595-643; 1933 (1925-1933): Roll No. M595-644; 1934-35: Roll No. M595-645; 1937: Roll No. M595-281). These updated rolls were not the result of a "complete recanvassing of the entire reservation area" (Johnston 1966:89). Instead, census rolls were updated through lists of births, deaths, marriages, additions, and subtractions that were collected during the course of a year. These lists are frequently contained at the end of each census roll.

The 1930 Navajo census may have been especially accurate. This census was the third special census of the United States Indian population and was conducted together with the 1930 decennial census (Johnston 1966:108). The burden of coordinating this census was shifted from the regular employees of the Bureau of Indian Affairs to a large staff of enumerators employed by the Bureau of the Census (Johnston 1966:108). Johnston's (1966:111) conclusions concerning the accuracy of the 1930 special census are as follows:

. . . it can be argued that the 1930 census produced more reliable statistics on the population of the Navaho than any enumeration conducted

before or since that time. Three observations can be made in support of this view. First, the use of a larger number of regular census enumerators appears to have produced a more thorough coverage, on the whole, than could be realized by the more experienced, but numerically inadequate staff of the Navajo Agency. Secondly, the totals that were returned bear a relatively close correspondence with the estimates of the Navajo Agency despite the discrepancies discussed above. Finally, it should be noted that the number of Navahos who were in residence away from the reservation area at the time of the 1930 census was far smaller than in 1950 or subsequently, so that a much higher proportion of the Navaho population was to be found on the reservation itself, where the chances of mistaken identification would be somewhat lessened.

It is unknown whether the population materials collected in the third special census were utilized to update the Western Navajo Agency records, but since the population counts were close to one another, this may indicate a high degree of accuracy in the Western Agency census.

3.2.2 Census Numbers

During the initial census work in 1928 to 1929, most Navajos were issued an identification or "census number" (Johnston 1966:89). These numbers were undoubtedly issued because of the difficulties each agency had previously encountered in keeping track of a large population, who occupied an extensive territory, had few English speakers, practiced seasonal transhumance, and had some individuals that were referred to by multiple names. Not only were most Navajos given a census number, but they also received a metal disk stamped with their number (Johnston 1966:89). Informants indicated that they were

told to keep this disk always about their person so they could be readily identified. Many informants indicated that for many years their census tag was pinned to their clothing or hung about their neck on a string. At the time of interviews, a few informants still had their original census tags, which had been given to them almost 60 years ago.

3.2.3 Census Numbers and Locational Information

Census numbers provide locational information for the jurisdiction and the geographic area in which persons were enumerated (Johnston 1966:89). Locational information for both jurisdiction (agency) and geographic area in the jurisdiction is provided by blocks of census numbers. Each agency received a block of consecutive census numbers, as follows (Hunter 1932):

Hopi	1 - 6500
Eastern Navajo	6501 - 14000
Leupp	14001 - 17000
Northern Navajo	17001 - 36000
Southern Navajo	36001 - 71000
Western Navajo	71001 - 92000
Zuni	92001 - 99000

During the initial census period each agency assigned census numbers from its block of census numbers to individual Navajos. Since each agency was given more census numbers than needed during this initial distribution period in 1928 and 1929, each agency continued to distribute numbers from its original block for several years.

The Western Navajo Agency distributed its block of numbers in series by geographic area, as follows:

Tuba City Vicinity	71,000s
Red Lake Vicinity	75,000s
Cameron Vicinity	77,000s
Kayenta Vicinity	73,000s
Gap, Cedar Ridge, Kabito	81,000s - 85,000
Coppermine Vicinity	
Shonto/Navajo Mt. Vicinity	79,000s

The census number of an individual, therefore, indicates his or her residence within the agency and the approximate geographic area within that agency.

The geographic areas in which census numbers were distributed for the Western Navajo Agency are not as specific as agency boundaries. For instance, the 71,000 series of census numbers was distributed at Tuba City, west of Tuba City to Shadow Mountain, south onto Coal Mine Mesa and the Moenkopi Plateau, north and northeast of Tuba City into what became Land Management Unit No. 1, towards Red Lake to the east, and to a large group of Navajo families that seasonally farmed around Tuba City but resided in the winter in the Cameron or Gap/Cedar Ridge areas. The cluster of 77,000 census numbers is tighter in the Cameron area than the 71,000 block around Tuba City. In the Gap/Cedar Ridge area Navajo were given census numbers in the 81,000 to 85,000 range. This series of numbers was also distributed to the east in what later became Land Management Unit No. 1.

Census numbers are also sometimes indicative of the time period of distribution. For instance, at the time of the initial Western Navajo Agency census, numbers 71,001 to approximately 71,800 were distributed in the Tuba City area. As births

occurred or additions were made to the census, numbers in sequence above 71,800 were added. By 1932/1933 the Tuba City area had exhausted its 71,000 numbers and 72,000 sequence numbers were being issued.

At times, a census number sequence can be used to locate families more specifically within the study area than the larger census number series (i.e., 71,000s or 77,000s). More specific locational information is available due to the two methods in which census numbers were distributed to Navajos. In the first method, individuals and families were given numbers as they came to trade, drop children at school, seek medical attention, or otherwise interact at the agency or other population centers. From a geographic perspective, there is no discernible order for individuals or families obtaining census numbers in this manner.

The second method utilized by Western Navajo Agency personnel to distribute census numbers was to travel to the homes of neighboring families and then take the initial census. They then assigned census numbers and gave census number disks to area residents. This method allowed me to identify a number of families who resided in the same general location as neighbors in 1928-1929. These families were often still neighbors in 1934. Those neighbor families received consecutive sequences of census numbers from the census enumerators. From the above, it was sometimes possible to discern the routes traveled by the census takers and the families residing within a small geographic area.

Knowing the census number of an individual thus provided me with locational information. It provided me with the agency in which the number was originally distributed and a general idea of the location in the Western Navajo Agency within which the census number was distributed. Sometimes, if the enumerators traveled to an area to distribute census numbers, my information on the specific location of a family or individual was much more exact. For example, instead of knowing simply that an informant received a census number near Tuba City, I would know that it was from the Red Mesa/White Point area to the north of Tuba City.

In addition to the above, census number sequence could also assist in family identifications. As noted, the common pattern was for the members of a family to receive a small block of consecutive census numbers. If a man and a woman were married in 1928, they would have been given consecutive numbers such as 71,001 and 71,002, with the adult male receiving the lowest number. If the couple had three children at the time of the initial census, the children would have been given the numbers 71,003, 71,004, and 71,005. If the mother of the married woman was living with her daughter and son-in-law, she would generally have received the number 71,000 or 71,006. From the above example, it can be seen that it was possible to identify couples married in 1928, date of marriage, number of children, divorce, death dates, etc. from the census materials. Important family information was thus provided in census materials.

3.3.0 Agency Census Information

Land Management Unit No. 3 includes lands that fell under the jurisdiction of agencies other than the Western Navajo Agency in 1934. One portion lies within the 1882 Executive Order Reservation. The Leupp Reservation Agency borders the southern edge of Land Management Unit No. 3 from the Little Colorado River to just west of Sand Springs.

Because of the above, it is necessary to review information concerning three censuses rather than only the Western Navajo Agency census. Of these censuses, the Western Navajo Agency is the most important, followed by the Hopi Indian Agency census, then the Leupp Agency census. The concern here is to review the accuracy of each of these censuses for 1934 and to determine differences between them.

3.3.1 The Accuracy of the 1934 Western Navajo Agency Census

From 1929, and possibly as early as 1928, the Western Navajo Agency census was updated yearly. Births were added, deaths were subtracted, and other corrections completed. The primary difference between the 1934 census and those of previous years lies in the division of this census between Arizona and Utah, with each having subsections. The 1934 Western Navajo Agency census (Bureau of Indian Affairs 1934-35: Roll No. M595-645) is thus even more specific than previous censuses.

I believe the 1934 Western Navajo Agency census is an extremely accurate document. In fact, it may be one of the most accurate censuses ever completed on the Navajo. While this

census is extremely accurate, it is not perfect. Errors are present and I uncovered some during my analysis.

Errors in the 1934 Western Navajo Agency census occur in several categories. Probably the area of highest discrepancy is unrecorded births. Agency personnel were unable to collect complete information each year on births since most occurred in the home. Between 1929 and 1934, births which had occurred before the census year (sometimes one, two, or more years) were recorded and updated each year on the census. While by 1934 this process was fairly complete, a number of births that occurred before 1934 were still unrecorded. Unrecorded births, however, appear to follow a pattern. In the area closest to agency headquarters at Tuba City, a higher percentage of births were recorded than in more distant areas.

The 1934 Western Navajo Agency census also contains several omissions. A few persons went unrecorded from 1928 to 1934. As noted earlier, additions were added to the census each year. By 1934, most of the omissions had been caught, with only a few unrecorded persons remaining in what later became Land Management Unit No. 3. Some of these unrecorded individuals were of mixed-blood.

A few deaths also went unrecorded. Like births, unrecorded deaths may have occurred at some distance from the agency headquarters at Tuba City. Recorded deaths seem to have been more complete than recorded births, at least in the study area.

Two types of double listings also occurred: 1) the same person is listed twice on a single census; and 2) the same person is listed on two different agency censuses. The first of these errors was relatively rare, as I only located a few examples on the 1934 Western Navajo Agency census.

The second error, basically agency overlap, was more frequent. This error generally occurred between the 1882 Executive Order Reservation and the area administered by the Western Navajo Agency. Several reasons may exist for these errors. First, the border between these areas may have been uncertain. In the late 1920s, the area around Red Lake was included in the area to be administered by the Western Navajo Agency rather than in the 1882 Executive Order Reservation area where it lay (Bureau of Indian Affairs 1930-35, Roll No. M1011-167:238). A second reason for census overlap was probably Navajo seasonal transhumance patterns. For part of the year, a number of families resided within the boundaries of the Western Navajo Agency. For the remainder of the year, they resided within the boundaries of the 1882 Executive Order Reservation. It appears that some of these families and individuals were enumerated twice due to their dual agency residence.

Even with the previously indicated errors, the 1934 Western Navajo Agency census is extremely accurate. It is obvious that agency personnel were expending a tremendous effort to update and correct the accuracy of this document. My analyses indicate that the 1934 Western Navajo Agency census enumerated at least 95 percent of the population with Navajo blood. The primary

errors are the omission of unreported births and the recording of persons on two different agency censuses. These errors caused the 1934 census to slightly understate the actual Navajo population of the Western Navajo Agency.

3.3.2 Navajo Population Counts Indicated In the Western Navajo Agency Census of 1934

The 1934 Western Navajo Agency census of Navajo population is divided into two sections, one each for the States of Utah and Arizona (Bureau of Indian Affairs 1934-35: Roll No. M595-645). A summary compilation of births, deaths, omissions, transfers to other agencies, etc., by state are included in the 1935 Annual Statistical Report for the Western Navajo Reservation (Bureau of Indian Affairs 1930-35, Roll No. M1011-167:336). The effective date for this census is April 1, 1934. Within the State of Arizona and the boundaries of the Western Navajo Agency, this census lists 4,122 Navajos, consisting of 2,072 males and 2,052 females. By January 1, 1935, this population grew to 4,292 Navajos. Between April 1, 1934 and January 1, 1935, 231 persons were added to the census roll. Additions included 61 births between April 1 and December 31, 1934, 34 persons who were previously omitted, 97 previously unreported persons who were born prior to April 1, 1934, four persons added because of an error in sex, and 35 persons who transferred from another agency. Reductions from the roll totaled 61 persons, including 30 deaths between April 1 and December 31, 1934, eight unreported deaths that occurred prior to April 1, 1934, four persons removed

because of an error in sex, one person because of a duplication, and 18 persons who transferred to another agency.

A portion of the Navajo population of the Western Navajo Agency was recorded as residing in Utah in 1934. Since a significant percentage of this population resided some portion of the year in Arizona, it is appropriate that they be considered here. Dual state residence occurred because of seasonal trans-humance patterns that crossed the border between the two states. This is exemplified by a portion of the Navajo population at Navajo Mountain who in the winter resided in Utah and then farmed and herded during the summer months in Arizona. The 1934 Western Navajo Agency census lists the Navajo and mixed Navajo population in Utah on April 1, 1934 as 307 individuals (Bureau of Indian Affairs 1934-35: Roll No. M595-645; Bureau of Indian Affairs 1930-35, Roll No. M1011-167:278). This population declined to 301 persons on December 31, 1934 (Bureau of Indian Affairs 1930-35, Roll No. M1011-167:358).

The total Navajo population of the Western Navajo Agency on April 1, 1934 is thus 4,429. By December 31, 1934, this population had grown to 4,593 persons. Since I believe some earlier births and deaths, with the births substantially outnumbering the deaths, had not been recorded by December 31, 1934, the Navajo population of the Western Navajo Agency was slightly higher in 1934 than indicated on the census. Perhaps the Navajo population was understated three to six percent.

3.3.3 The 1934 Hopi Indian Agency Census: Navajo Section

The Navajo section of the 1934 Hopi Indian Agency census (Bureau of Indian Affairs 1934-36: Roll No. 194) differs considerably from the Western Navajo Agency censuses of the same time period in several ways: 1) due to poor information on Navajo births and deaths, the census is not as accurate; 2) persons were frequently listed without census numbers; 3) the census exhibits extensive use of, and different spellings of, Navajo names; and 4) there is a lack of association between census number series and specific geographic areas of the Hopi Indian Agency.

Like the Western Navajo Agency, the Hopi Indian Agency underwent the same flurry of census activity in the late 1920s. While the Western Navajo Agency personnel expended considerable effort in updating their census each year, it appears that the personnel of the Hopi Indian Agency were not so vigilant. This is most apparent in the census by the small number of births recorded after 1930.

The result of this lack of updating is that the 1934 Navajo section of the Hopi Indian Agency census is not as accurate when compared to the Western Navajo Agency census of the same year. Since most of the problem lies with unrecorded births, the population information contained in this census is an underestimate of the Navajo population of the Hopi Indian Agency in 1934. Perhaps ten percent of the Navajo population of this reservation was not recorded.

Another difference in this census is the frequent lack of census numbers associated with many Navajos. Some of these

persons may never have been allocated census numbers during this period, while many others had to replace their original numbers due to the inability of record offices to trace individuals by census numbers or Navajo names. Many of my informants from the area of Land Management Unit No. 3 who were covered by this census have replaced, lost, or perhaps never been allocated census numbers. This affected my analysis since I could not locate a number of persons and families on this census.

Another reason individuals and families could not be located on this census was due to the common use of Navajo names together with the irregular spelling of these names. In the 1934 Hopi Indian Agency census, the same Navajo name sometimes has three or four different phonetic transcriptions. This problem was augmented by the fact that for many persons the Navajo name listed on the census was not a commonly used name or it was a childhood rather than an adult name.

On the Western Navajo Agency reservation strong correlations were present between large series of census numbers and geographic areas. While certain sequences of census numbers were more common in the area of the Hopi Indian Agency I examined, the match up was not as direct. Common census numbers include 2,400s, 2,800s, 2,900s, and 4,500s. These number sequences were distributed from Sand Springs northeast to Blue Canyon.

The problems just examined made it difficult to locate many families and individuals on the Navajo portion of the 1934 Hopi Indian Agency census. Even when a family was located, children born between 1930 and 1934 were generally not listed on the

census. Since names varied so much in this census, census numbers became the primary identification method.

3.3.4 Navajo Population Counts Indicated in the Hopi Indian Agency Census of 1934

The Hopi Indian Agency census lists the Navajo population of the agency on April 1, 1934 as 3,492 Navajos, with an additional 13 persons of Navajo-other tribal descent (Bureau of Indian Affairs 1934-36: Roll No. 194; Bureau of Indian Affairs 1932-1936: Roll No. M1011-66). This is the same count (3,492) as recorded in the 1933 Hopi Indian Agency census (Bureau of Indian Affairs 1933a: Roll No. 193). The 1930 Hopi Indian Agency census recorded 3,310 Navajos. This is an increase of only 182 persons in four years. Based on inadequate updating by agency personnel, my estimate for 1934 is that the Navajo population of the Hopi Indian Agency was at least ten percent higher than the census's information indicates.

In addition to the undercount in this jurisdiction's Navajo population caused by inadequate updating, a second problem also exists. The number of Navajos listed above (3,492) in 1934 is incorrect due to a typographical error in entry numbers. This error occurred when the entry number immediately after 5,969 was incorrectly typed as 5,670 (Bureau of Indian Affairs 1934-36, Roll No. 194:0438) rather than 5,970. This error was continued in all later entries and resulted in an undercount of 300 Navajos. The Navajo population listed above should therefore have been 3,792.

3.3.5 The 1934 Leupp Agency Census

The third relevant census is the census of the Leupp Agency (Bureau of Indian Affairs 1933-35: Roll No. M595-251), which covered an area bordering a portion of the southern boundary of Land Management Unit No. 3. This census combines characteristics of the other two censuses. Names in the Leupp census are often a phonetic transcription of the Navajo name, but there is much less variability in spelling. The Leupp census contains accurate and up to date birth and death information that make it more consistent with the Western Navajo Agency census. The overall accuracy of this census appears to be near or at the level of the Western Navajo Agency census of the same year.

One area in which the 1934 Leupp Agency census surpasses the Western Navajo Agency census is in the relationship between geographic area and series of census numbers. On the Leupp census the name of geographic subareas, except the first subarea, precedes the list of persons who reside in the subarea. Generally, the inhabitants in a subarea all share the same sequentially ordered block of census numbers. As an example, the Cedar Springs subarea census series begins with 14,601 and ends with 14,811. Other named subareas in this census are Castle Butte, Bird Springs, Red Lake, and Canyon Diablo.

3.3.6 Navajo Population Counts Indicated in the Leupp Agency Census of 1934

The Leupp Agency census of 1934 lists 1,953 Navajos as well as an additional seven persons of Navajo-other tribal descent (Bureau of Indian Affairs 1933-35: Roll No. M595-251). The

overall accuracy of this census appears to be high. In my investigation of families from the Leupp Agency area I found very few errors.

3.4.0 Soil Conservation Service Population Information for Land Management Unit No. 3

Population information during the 1930s was also provided by the Human Dependency Survey (Section of Conservation Economics), a branch of the Soil Conservation Service. The information provided by the HDS (Human Dependency Survey) is especially appropriate since it is provided in reports and tables for the study area of primary concern to this report.

Population data were gathered by the HDS on their "consumption group" schedules. Consumption groups cannot be directly equated with camps, the economic and population subgroup used in this report. Consumption groups were defined by the HDS in a manner which precluded my replicating their 1930s work:

The consumption group is defined as one which constantly and habitually funds and shares all forms of income, including products of agriculture, livestock and livestock products, and goods purchased from the traders., The consumption group is in the majority of instances identical with the biological family, but it consists frequently of two or more related biological families, and occasionally of unrelated biological families or individuals (Soil Conservation Service 1939:Introduction).

The difficulty with replicating this unit is due to the sharing of all forms of income and purchased goods. According to my analysis of schedules from portions of Navajo lands outside of Land Management Unit No. 3, this phrase was interpreted in such

a way as to exclude from the same consumption group two families residing together with a common livestock herd and farms, but who had separate trading post accounts. It would have been impossible for me to obtain the information needed to reconstruct consumption groups in 1934 based on this degree of detail.

My analysis of consumption groups from schedules also indicates that several of these units (usually households) frequently comprise a camp, under my definition. At other times, the camp and consumption group correspond. Henderson and Levy (1975:6-7) have stated that consumption groups represent a unit somewhere between households and camps, and does not correspond to either. Because of this problem, it is extremely difficult to compare consumption groups to camps or other units (Henderson and Levy 1975:7).

While consumption groups cannot be directly compared to camps, by my definitions, the population data the HDS gathered for Land Management Unit No. 3 can nonetheless be utilized and evaluated. In some areas of the reservation the HDS had difficulty, due to local resistance, in collecting schedule material. However, Land Management Unit No. 3 was not one of these areas:

An attempt was made to take a dependency schedule for each consumption group in each Land Management Unit in order to ascertain population, individual and group ownership of livestock, land operated and income data. Because of opposition in certain local areas the survey is not actually one hundred percent complete. The principal areas of non-coverage are the Dennehotso region

in Unit 8; about 75 percent of Unit 9, with considerable doubt as to accuracy in those schedules taken; about 70 percent of Unit 12; all of Unit 13; and the Mariano Lakes area in Unit 16 (Soil Conservation Service 1939:Introduction).

The schedule information in Land Management Unit No. 3 was collected during the following time periods and by the following persons:

The hogan-to-hogan survey of Unit 3 on the basis of the original boundaries was made in January, February, and March 1937. The survey was conducted by Messrs. Bia, Naswood, and Page for the Navajos, and by Messrs. Lomavitu and Page for the Hopis at Moencopi. Changes in the boundary line later brought in territory on Howell Mesa, which had been covered by Mr. Naswood in November 1936, and territory around Gap and Cedar Ridge, which Mr. Attson surveyed in April and May 1937 (Soil Conservation Service 1938:1).

The boundary changes were made basically to conform the boundaries of Land Management Unit No. 3 to Navajo settlement patterns, to utilize natural topographic features as boundaries, and to provide more efficient administration for the areas (Anderson 1938:5-9).

The information for the Navajo population of Land Management Unit No. 3 is contained in the Report of the Human Dependency Survey (Soil Conservation Service 1938:2). Human Dependency Survey information was "collected for the calendar year 1936 or 1937, or, as in the case of the family data, for a 12-month period during those two years" (Soil Conservation Service 1939:Introduction). Since the previously discussed fieldwork in Land Management Unit No. 3 occurred during late 1936 and the first half of 1937, information probably reflects that general time period.

The Human Dependency Survey identified 220 Navajo consumption groups in Land Management Unit No. 3 (Soil Conservation Service 1938:2). A total of 1,719 persons comprised these consumption groups, or an average of 7.8 persons per consumption group. This population information is based upon the "hogan-to-hogan" survey conducted by Human Dependency Survey fieldworkers (Johnston 1966:123).

Johnston (1966) has indicated that the 1936 Human Dependency population data underestimate Navajo population. His statements are based on a comparison of the 1936 data to a second Human Dependency Survey report prepared in 1941 that provides population information by Land Management Unit for 1940 (U.S. Department of the Interior 1941). Rather than conducting another hogan-to-hogan survey, the population data in this report were "derived from preliminary unpublished tabulations prepared by the Bureau of the Census for the Bureau of Indian Affairs from the results of the 1940 enumeration in the area" (Johnston 1966:123). Johnston's conclusions concerning the discrepancies between the 1936 and 1940 population data are based on a comparison of these two sources (Johnston 1966:123).

To Johnston (1966:123), the most important discrepancy was the underestimate of Navajo population contained in the 1936/1937 schedule derived data:

Perhaps the most significant discrepancy to be noted is that between the reported total reservation population in 1936 (based on the Human Dependency Survey) and that in 1940 (based upon the 1940 census). The latter figure is 24.5 percent greater than the former. Since there is

little reason to suspect a significant overcount of the Navaho population during the 1940 census, it is apparent that the totals obtained from the Human Dependency Survey are deficient.

In addition to indicating that the deficiency was present, Johnston (1966:123-124) calculated its magnitude:

The extent of this deficiency can be approximated with somewhat greater accuracy by means of the following calculation. The survey was carried out during a period of nearly 2 1/2 years, from early in 1936 to the late summer of 1938. The approximate midpoint of this interval is in April 1937. Thus the statistics collected in this survey pertain, on the average, to a date approximately 3 years prior to the date of the 1940 enumeration. If we assume an average rate of natural increase of 2 percent per year during this period, we can obtain an estimate of the April 1937 Navaho population by extrapolation from the 1940 census figure. The hypothetical estimate thus derived is 37,256, or 17 percent above the total on-reservation population reported in the Human Dependency Survey.

Johnston (1966:124) goes on to suggest that this deficiency was "probably" even greater than 17 percent.

In addition to the previously examined reservation-wide comparison, Johnston also discussed comparisons between individual Land Management Units. He indicated (1966:124) that comparisons might not always be appropriate due to boundary changes, migration, and natural population increases that may have affected particular Land Management Units differently. Johnston (1966:124-125) did indicate, however, that the largest increases were located in those units on the western and northern portions of the reservation. The reason he (1966:125) suggested this is "that the Human Dependency Survey, like many of the earlier surveys, was inadequate in its coverage of the

less populated and less accessible regions of the reservation." Johnston (1966:125) also indicated that the large differences between population in certain Land Management Units between 1936 and 1940 "are due to the omission, in the 1936 data, of the off-reservation population in districts 15 and 19, and to the enlargement, in 1940, of the boundaries of districts 11, 15, and 16."

The 1940 Human Dependency Survey Statistical Summary reported the Navajo population of Land Management Unit No. 3 to be 2,194 persons (U.S. Department of the Interior 1941:Table 1). This figure is 27.6% higher than the figure reported for 1936 (1,719 persons). Since the boundary changes for Land Management Unit No. 3 were finished prior to population estimates for 1936, boundary changes should not affect population data for this unit. If a two percent yearly natural population increase, suggested as the appropriate Navajo population increase during this time period by Johnston (1966:123), is subtracted from the 1940 population figure for Land Management Unit No. 3, we can obtain an estimate of the Navajo population of this unit in 1934. This estimate is 1,948 individuals, a number considerably higher than the 1,719 Navajos enumerated by the Human Dependency Survey in 1936/1937.

Is the 1936/1937 Human Dependency Survey Navajo population figure an underestimate? Based on my analysis of schedules from Land Management Unit No. 5, I believe it is. When the Human Dependency Survey was updated in 1939 and 1940 in Land Management Unit No. 5, several families were enumerated who were not

enumerated in 1936/1937. Since the terrain is more rugged in Land Management Unit No. 3 than in Land Management Unit No. 5, I agree with Johnston (1966:125) that the Human Dependency Survey fieldworkers did not locate every Navajo family present during their hogan-to-hogan survey.

3.5.0 The 1934 Navajo Population of Land Management Unit No. 3

Contained in Appendix I is a listing of the members of camps I have identified as present in 1934 within the boundaries of what later became Land Management Unit No. 3. The criteria used to include persons in camps, besides those discussed below, were based on their having some degree of Navajo blood. Listed with each individual's name are: 1) the number of the camp he/she was a member of in 1934; and 2) the census number or numbers of each person, if known.

Camps are divided into four categories: those with camp numbers in the ranges 1-400; 700-799; 800-899; and 900-999. These categories represent the confidence I have in placing the members of a camp in Land Management Unit No. 3 in 1934 as well as my ability to assign a family or individual to a particular camp. My camp categories are as follows:

Camp Numbers 1-400: In 1934, members of these camps either resided, grazed livestock, farmed, or conducted more than one of these activities, together with other activities, within the boundaries of what later was established by the Soil Conservation Service as Land Management Unit No. 3.

Camp Numbers 700-799: Members of these camps were present in Land Management Unit No. 3 in 1934 and they either resided, grazed livestock, farmed, or conducted more than one of these activities, together with other activities, within the boundaries of this unit. The persons included in camps numbered 700-799 were either members of one of the camps numbered 1-400 in 1934, or they formed a separate camp. The information to include these persons with a camp number of 1-400 or to create a new camp was not available.

Camp Numbers 800-899: Members of these camps were probably present in Land Management Unit No. 3 in 1934 and, if present, they either resided, grazed livestock, farmed, or conducted more than one of these activities, together with other activities, within the boundaries of this unit. Some of the persons included in these camps may have been members of camps with numbers 1-400.

Camp Numbers 900-999: Members of these camps were possibly present in Land Management Unit No. 3 in 1934, and if present, they either resided, grazed livestock, farmed, or conducted more than one of these activities, together with other activities, within the boundaries of this unit.

3.5.1 Population of Camps

The total population of the camps, numbered 1-799, contained in Appendix I, is 2,451 persons. Members of camps numbered 800 and higher have not been included in this total since I am not certain they resided in the study area in 1934. For comparative purposes, it is possible to divide the total presented above into two groups, those that the SCS (Soil Conservation Service)

probably would have considered to be District 3 Navajo camps, and those that they probably would not have. If this division is made, and the SCS standard is used, the population of Land Management Unit No. 3 camps is 1,825 persons. This figure is equal to 93.9% of the one I earlier estimated for the study area based on the 1940 population figure reported for Land Management Unit No. 3. Due to the death of area residents or the relocation of family members elsewhere, I was unable to reconstruct the total Navajo population of the area.

In addition to Land Management Unit No. 3 Navajo camps, also represented in my population total (2,451) are the members of camps from outside this district who utilized District 3 for residence, grazing, or farming in 1934. I believe that I only accounted for 60-70 percent of these Navajo camps and their members. The total population of Navajos that would have used Land Management Unit No. 3 for at least the three purposes stated above would have been approximately 2,600 persons.

3.5.2 Populations of Camps in June 1934

It is possible to adjust the total population of camps numbered below 800 to June 1934. The total figure of 2,451 must be reduced by the eight persons who died between January and June 1934. This results in a decrease to 2,443 persons. Births occurring in the period July-December 1934 and those of unknown birth month in 1934 must also be subtracted from this number. This results in subtracting 34 persons from the total, resulting in a population in June of 1934 of 2,409 persons.

3.6.0 Navajo-Hopi Marriages and Their Navajo Offspring

Included within my listing of camps are a portion of the Navajo off-spring of marriages between Navajos and Hopis. In 1934, three full-blooded Navajos were married to residents of Moenkopi village and living near or at this location. These three, Swet Bilagody, Agnes Burton, and Irene Tisi Shing, resided with their Hopi spouses and Navajo children, who are listed in the appendix. In addition to the above, Gloria Lewis is also the result of a Navajo-Hopi intermarriage. Her Navajo mother, Elsie Holiday, had died prior to 1934, and Gloria resided with her father at Moenkopi.

Among the largest groups of Navajos resident at Moenkopi in 1934 were the descendants of Bijooshi (Hosteen Bijooshi, Jooshitsohi, Hostiin Big Calves, or Ch'ozhi). This man, who died in 1928 (Bureau of Indian Affairs 1933, Roll No. M595-644:420), was also known as Accowsie (Akaosi, Ah-cow-er-Shee, Ah cow er shee, Ah-cou-eashee, Ah-cow-e-she, or Accowsi).

That Accowsie was a Navajo is without doubt. On July 28, 1898, Ah-cow-er-Shee gave a sworn statement to James McLaughlin, U.S. Indian Inspector, at Moenkopi (Ah-cow-er-Shee Statement 1898:6), which reads, in part, as follows:

Personally appeared before me Ah-cow-er-Shee, a Navajo Indian, about 50 years of age, who first duly sworn, deposes and says that he is married to a Moqui Indian woman and was living with the Moquis at Moen-copi when the first party of Mormons arrived at the Moqui settlement
(Ah-cow-er-Shee Statement 1898:1).

The statement goes on to say that at the time of Mormon arrival only five houses were occupied by Indians at Moenkopi

(Ah-cow-er-Shee Statement 1898:1). Since he was present at the time, he probably occupied one of these five. In a letter concerning allotments which has survived from the early part of this century, Ah-cow-e-she was identified as a Navajo (Murphy 1905). This letter indicates that government officials were aware that Ah-cow-e-she's allotment was being given to a Navajo and not to a Hopi Indian. In addition to the above, Accowsie is identified as a Navajo on a 1927 Western Navajo Agency Census roll (Bureau of Indian Affairs 1927, Roll M595-640:0177).

Other residents of Moenkopi were aware that Ah-cow-er-Shee was a Navajo. Nagata, who conducted an ethnographic research study at Moenkopi, indicates at least three times in his field notes that Accowsie was a Navajo. The first time is in references to the original allottees at Moenkopi, of which Akaosi was one (Nagata 1960s: field notes dated 3/26). The second time is in a genealogy recorded from his granddaughter (Nagata 1960s: field notes dated 9/18). The third time is in a discussion of the original settlers of the Tuba City area, which included Akaosi together with two of his brothers (Nagata 1960s: field notes dated 9/16/64). Guy Naseyouma (1983:327-328), during his deposition, was asked if Accowsie was a Navajo and his response was positive. Mr. Naseyouma would be in a position to know the truth of this matter since his wife's father's father (grandfather) was Accowsie. In addition, Elmer Accowsie, the son of Bijooshi, is listed as being Hopi-Navajo on the 1934 Western Navajo Agency census (Bureau of Indian Affairs 1934-35, Roll No. M595-645:328). In a genealogy, Nagata (1960s: field notes page

K44) confirms that Elmer Accowsie (listed by Nagata as Alma Akaosi) is one-half Navajo.

Additional information to indicate that Accowsie and his descendants were Navajos is available in a series of interviews conducted with residents of Moenkopi Village. These interviews, submitted with Plaintiff's Second Answers to Interrogatories, were conducted in 1981 with elderly village residents. In response to the question "Were any Navajo Indians living in Moenkopi in 1934?" (p. 14 of the questionnaire utilized) six persons (Robert Sekiestewa, Ruth Numkena Sekiestewa, Francis Tewa, Walter Sakweseoma Albert, Irvin Charley, and Waldo Phillips) all responded with the name "Accowsie" or a variant of it. In addition, two persons (James Humetewa and Lois Talashoma) indicated that Accowsie was present in 1934 and married to a Hopi woman named "Sadie." The person who was married to "Sadie" was not the Accowsie who died in 1928, but his son Elmer Accowsie. Earlier references just cited could also be to Elmer Accowsie, rather than to his father. The reference to Elmer Accowsie as a Navajo indicates that the descendants of Accowsie were considered to be Navajo Indians by Hopis.

Bijooshi, a member of the Navajo Bitterwater clan, was married at least three times. His first wife was a Navajo, and possibly one granddaughter resulting from this marriage is still alive in Tuba City together with many great grandchildren and great great grandchildren. The next two wives of Bijooshi were both Hopi. The second wife of Bijooshi was Talashainum (Nagata 1960s: field notes dated 9/18). By this wife, Bijooshi had six

children: Nahwahongshi, Pongyasamptewa, Masahongsi, Siwiyamtiwa, Pana Pongyonetewa, and Elmer Accowsie (Nagata 1960s: field notes dated 9/18 and page A43). So far I have only been able to identify some of the descendants of Bijooshi who lived at Moenkopi Village in 1934. Several of Bijooshi's children, together with their own children, comprise several of the Navajo camps at Moenkopi.

Bijooshi's second Hopi wife was Tsorshepnon (Choshhapinama) (Nagata 1960s: field notes page K55). By this wife he had one daughter, Mable Accowsie Jackson Jenkins. This Navajo woman, although alive and living in Moenkopi village in 1934, was childless.

Bijooshi was an extremely important person in the history of settlement at Moenkopi. According to my informants he requested permission to farm in the area from local Navajos, and that permission was granted. Bijooshi's brother, Na' al aahi Sani, also lived and farmed in Kerley Valley.

Under his Hopi name, and variants of it, Bijooshi in the late 1800s was listed as one of the four original farmers at Moenkopi. According to my informants, Bijooshi, after receiving permission at some point in the late nineteenth century to farm from the Navajos already present in the area, brought with him to Moenkopi several relatives of his wife. Nagata (1960s: field notes dated 2/23) lists the original allottees at Moenkopi and their relationship to Akaosi (Bijooshi). Bijooshi received plot 43 while his wife's mother's sister received plot 44. This woman's husband received plot 41, his wife's mother's brother

received plot 42, his wife's mother's sister's daughter's husband received plot 47, his wife's mother's sister's husband's mother's sister's daughter's husband received plot 45, and Bijooshi's third wife's brother received plot 46.

Several informants indicated that another early Moenkopi resident was a Navajo. This man, Lok'aa' Hosteen (who was also known as Hosteen Lok'aa', Hostiin Lu Kah, Lok'aa, Lok'aa Hostiin, Se wil tah mah, or Se-wil-tah-na), was a member of the Navajo Reed clan. He died in 1919 (Bureau of Indian Affairs 1919 and 1920, Roll M595-640:0081 and 0098). Like Bijooshi, he married a Hopi woman. According to Nagata (1960s: field notes dated 6/19 and page A45) and another source (U. S. Department of the Interior 1962: Hopi Production Nos. H16049-H16052, H16058), he had at least six children from this marriage: Big Phillip (or Big Phillip Polingyowma), Somi Tewa (or Somi Tewagoitewa or Sammy Tewa), Burton Kaye (or Big Burton or Big Burton Kayongyumptewa), Rebecca Gaseoma, Logan Loma, and Tom Holmes. Lok'aa' Hosteen, under the name Si wil tah mah, was granted Allotment No. 45 in the Moenkopi Wash (U.S. Department of the Interior 1962: Hopi Production Nos. H16049-H16052, H16058).

Several informants have indicated that Lok'aa' Hosteen, along with Bijooshi, was responsible for initiating settlement at Moenkopi in the late nineteenth century. Goldtooth (1969: Navajo Production Nos. 101113 and 101119; and Goldtooth interview in Brugge 1967: Navajo Production No. 101150) also suggests this was the case. In addition, Lee's diary (Cleland and Brooks 1955:270)

suggests, by referring to "NavaJoes," that there was more than one Navajo present at the Moenkopi settlement in 1873.

Some informants have indicated that the children of Lok'aa' Hosteen considered themselves to be Navajos and that they spoke Navajo. Nagata states in his field notes (1960s: field notes dated 11/10 and 1/6) that at least two of Lok'aa' Hosteen's children spoke Navajo. One informant has also stated that one of Lok'aa' Hosteen's sons dressed like a Navajo and was the patient at Navajo religious ceremonies which he also sponsored. Additional confirmation that the children or grandchildren of Lok'aa' Hosteen were Navajo is provided by Posey (Tabaha Yazhi or Navajo Posey interview in Brugge 1967: Navajo Production No. 101145) and H. Goldtooth (Brugge 1967: Navajo Production No. 101277).

Lok'aa' Hosteen and Bijooshi reportedly also built and used traditional Navajo dwellings. According to several informants, these men had a forked-pole hogan located near Moenkopi Village at one time (see Appendix II for a description of forked-pole hogans). This structure, the former location of which was described and/or pointed out to me by several informants, appears to have been located on Bijooshi's allotment in the Moenkopi Wash.

Informants have also indicated that Bijooshi and Lok'aa' Hosteen were responsible for beginning livestock operations at Moenkopi. According to Nagata (1970:158), Hopi livestock operations at Moenkopi were "virtually non-existent around the turn of the century." Nagata (1970:158) states that the only Moenkopi resident who was involved in this industry at this time

was a Navajo man. Goldtooth (1969: Navajo Production No. 101119) has indicated that Bijooshi and Lok'aa' Hosteen and others requested and were granted "temporary" grazing lands by the Navajos present in the area. According to one informant, the Navajos at Moenkopi acquired their livestock through their Navajo relatives and friends and were allocated grazing lands because they were Navajo.

According to several informants (as well as another source; Goldtooth 1969: Navajo Production Nos. 101113-101119) Bijooshi and Lok'aa' Hosteen, perhaps together with several other Navajos, began their association with the Hopi during the Fort Sumner period. Rather than face the uncertainty of removal to New Mexico, they may have sought refuge with the Hopi at Oraibi. In 1863, Colonel Christopher "Kit" Carson, due to an alliance between the Navajo and the inhabitants of Oraibi during this time period, made the chief of this village and another Oraibi leader his prisoners (Carson, letter to Cutler dated December 6, 1863, included in Kelly 1970:76). Bijooshi's and Lok'aa' Hosteen's association with the Hopi may have led the two men to marry Hopi women. A few years later, based on their ties into the area, they brought their families and their wives' relatives to live and farm at Moenkopi.

While I have included the descendents of Bijooshi in my list of camps with other Navajos (as well as their farms and livestock in other information contained in this report), I did not include the descendants of Lok'aa' Hosteen who were present at Moenkopi in 1934. Lok'aa' Hosteen's descendents were excluded because

information to identify them (or him) as Navajos is less substantial than for Bijooshi. I am still seeking additional information on the Navajos present at Moenkopi in 1934.

3.7.0 Conclusion

In my research I identified 2,451 Navajos who were members of camps that utilized Land Management Unit No. 3 for grazing livestock, farming, and/or residence, or a combination of these plus other activities in 1934. I believe I identified 95 percent of the Navajo people that would probably have been considered to be residents of Land Management Unit No. 3 by Soil Conservation Service personnel. For other Navajo camps that also utilized this district in 1934, I believe I only accounted for 60-70 percent during my study. In total, perhaps over 2,600 Navajos utilized Land Management Unit No. 3 for residence, grazing their livestock, or farming in 1934.

Chapter 4 The Navajo Economy of Land Management Unit No. 3
in 1934

4.1.0 Introduction

The economy of Land Management Unit No. 3 in 1934 was dependent on three primary income sources: animal husbandry, agriculture, and wage labor. Of these, the first two were the most important in the minds of the Navajo. The movements and locations of Navajo families across the landscape of the study area in 1934 were a direct response to the requirements of their livestock and the location of agricultural fields. In some cases, wage labor sources also affected Navajo land use patterns.

An understanding of the basic economy of the study area in 1934 is thus a prerequisite to a complete grasp of Navajo land use and settlement patterns. This chapter provides background information required to comprehend Navajo settlement patterns in light of the importance of specific income sources. In turn, settlement patterns provide information required to validate the location of specific Navajo camps in 1934.

4.1.1 Economic Data Available

Only a limited amount of documentary information is available on Navajo income and income sources during the 1930s. The primary sources are the Human Dependency Surveys, which report income information for 1936 and 1940. The 1936 income data contained in the Human Dependency Survey are based on the

schedule information collected in 1936 from Navajo families and local traders; the 1940 information represents an update of 1936 information but involved no, or only limited, reinterviewing of Navajos.

Additional income information is available in the 1934 and 1935 reports of the Western Navajo Agency. I have also used my interview data to provide supplementary background information on income sources and their importance to the Navajo in 1934.

Like other Soil Conservation Service materials, the economic data for Land Management Unit No. 3 postdates 1934. Between 1934 and the time when these materials were collected, a number of changes affected the Navajo, and particularly the Navajo economy. Such changes primarily included a decrease in live-stock numbers, a slight increase in available agricultural land, and an increase in employment opportunities. Consequently, the economic data derived from these sources must be adjusted to 1934 in each of these primary income areas.

4.2.0 Soil Conservation Service Income Data for Land Management Unit No. 3

Both the report of the Human Dependency Survey for Land Management Unit No. 3, prepared in October 1938 (Soil Conservation Service 1938), and the Statistical Summary, Human Dependency Survey, which covers the whole Navajo and 1882 Executive Order reservations and was prepared in May 1939 (Soil Conservation Service 1939), provide basic economic data for Land Management Unit No. 3. However, the information contained in these two sources does not correspond completely because the

1939 Statistical Summary data is an updated and altered version of the 1938 report. Several income sources were adjusted or otherwise altered between the preparation of the report for Land Management Unit No. 3 and the compilation of the reservation-wide report. The largest difference was in the income amounts reported and, in particular, in the unit value (price per pound) of orchard crops. In the 1939 Statistical Summary, the total value of home consumed, native small peaches was reduced to reflect a lower unit value (Soil Conservation Service 1939:Introduction).

The information in both the Statistical Summary and Human Dependency Survey reports obtained in 1936 was not broken down by tribe; instead the Indian population of Land Management Unit No. 3 was considered as a single group. Since the information in the Statistical Summary was updated to represent a more accurate picture of the economy in 1936, it will be used here rather than the Human Dependency Report.

Contained in tables 4-1 and 4-2 are the primary income sources in Land Management Unit No. 3 in 1936 together with dollar amounts and their percentage of total income. Income in Table 4-1 is divided into two categories, commercial and non-commercial. Commercial income includes the dollar amounts received for wagework or goods sold while non-commercial income represents the value of goods produced that were home consumed. Non-commercial income is listed for two categories, livestock and agriculture. Non-Commercial livestock income represents animals that were slaughtered and then consumed while

Table 4-1

Total Income for Land Management
Unit No. 3 in 1936¹

<u>Source</u>	<u>Commercial</u>	<u>Non-Commercial</u>	<u>Total</u>	<u>Percent</u>
Wages	\$123,370		\$123,370	39.5
Livestock	60,270	\$ 29,450	89,720	28.7
Agriculture	1,270	74,870	76,140	24.4
Rugs	10,880		10,880	3.5
Miscellaneous	<u>12,120</u>	<u> </u>	<u>12,120</u>	<u>3.9</u>
Total	\$207,910	\$104,320	\$312,230	100.0

¹ Adapted from tables in the Statistical Summary, Human Dependency Survey, Navajo and Hopi Reservations, Soil Conservation Service (1939).

Table 4-2
 Commercial Income for Land Management
 Unit No. 3 in 1936¹

<u>Income Source</u>	<u>Amount</u>	<u>Percent of Total</u>
Wages:		
S.C.S. Irregular	\$ 36,800	
Navajo Agency Regular	19,870	
Voucher Payments	18,060	
E.C.W.	15,760	
Construction	10,990	
Navajo Agency Irregular	6,980	
Irrigation	5,480	
Roads	5,180	
Traders	3,120	
Hopi Agency	1,130	
Subtotal	\$123,370	59.3
Livestock:		
Wool	35,410	
Lambs	10,390	
Sheep	2,120	
Mohair	80	
Goats	0	
Cattle	6,870	
Meat	4,550	
Pelts	820	
Horses & Burros	30	
Subtotal	\$ 60,270	29.0
Agriculture:		
Corn	1,230	
Hay	0	
Beans	0	
Potatoes	20	
Melons	10	
Orchard	10	
Vegetables	0	
Wheat	0	
Subtotal	\$ 1,270	.6

Table 4-2
Cont.

Miscellaneous:		
Pinyon Nuts	\$ 5,950	
Wood	1,930	
Coal	1,830	
Jewelry	2,220	
Baskets & Plaques	180	
Other (gravel)	<u>10</u>	
Subtotal	\$ 12,120	5.8
Rugs:	\$ 10,880	
	<u>\$ 10,880</u>	5.2
Total	\$207,910	99.9 ²

¹ Adapted from tables in the Statistical Summary, Human Dependency Survey, Navajo and Hopi Reservations, Soil Conservation Service (1939).

² Does not equal 100.0 due to rounding.

non-commercial agricultural income represents crops that were grown and then consumed.

For 1936, three income sources predominate. Wages accounted for 39.5 percent of income, livestock 28.7 percent, and agriculture 24.4 percent. As noted earlier, changes that occurred in the reservation economy during 1934 and in the two years that followed make these data a less than accurate representation of income and income sources. It is difficult to determine from available sources exactly how 1934 income differed from that in 1936. It is possible, for instance, that wage income was lower in 1934. This would have been due to lessened income from the Soil Conservation Service, which was at lower employment levels in 1934. On the other hand, reduced SCS employment levels in 1934 could have been offset by higher income from other government programs available at that time.

It is also difficult to accurately estimate the change in commercial livestock income from 1936 to 1934. The goat reduction, which occurred in the fall of 1934, removed 20,000 goats and 8,000 sheep from Indian ownership in the Western Navajo Agency (Bureau of Indian Affairs 1930-1935, Roll No. M1011-167:310). This reduction undoubtedly lowered both sheep and goat income from the sales of these animals in 1936 together with the sales of wool, mohair, and pelts. While this is the case, since governmental employees continued to pressure the Navajo to sell sheep and goats, meat sales were possibly higher in 1936 than in 1934. These two factors may have offset one another. In addition, the money received for goats and

sheep sold during the 1934 reduction could have offset the later lower income due to decreased livestock numbers.

While commercial income from sheep and goats may not have varied greatly between 1934 and 1936, income from the sale of cattle was lower in 1934 than the \$6,870 reported in 1936. The Annual Report of Extension Workers, Western Navajo Agency, for the period from December 1, 1933 to December 31, 1934, reports that "we were unable to sell any cattle so did not reduce the number of cattle on the range" (Bureau of Indian Affairs 1930-1935, Roll No. M1011-167:328).

The only other commercial income source for 1936 that varied significantly from 1934 is the sale of pinyon nuts. Sales of pinyons by Western Navajo Agency residents amounted to \$5,950 in 1936. Pinyon harvests are extremely variable from one year to another and from one location to another. As an example, the Shonto Trading Post, located on the eastern half of the Western Navajo Agency in Land Management Unit No. 2, purchased 107,000 pounds of pinyon nuts during the winter of 1954-1955 but only 200 pounds in the winter of 1955-1956 (Adams 1963:144). As discussed later in this chapter, pinyon nuts contributed less income in 1934 than in 1936 due to reduced availability.

Overall, commercial income for the Indians of Land Management Unit No. 3 was probably lower in 1934 than 1936. The primary documented factors influencing this were reduced cattle and pinyon nut sales. Commercial income from agriculture, arts and crafts, and hauling probably did not vary significantly from 1934 to 1936.

Slightly less than three-fourths (71.8%) of non-commercial income in 1936 was derived from agriculture. Corn was by far the most dominant crop, followed by various types of fruit, melons, squash and assorted vegetables. Potatoes, hay and beans were other minor crops grown.

Livestock slaughtered for meat represented 28.2% of the non-commercial income in 1936. Sheep and goats were the primary animals slaughtered for food; cattle was a secondary source of meat.

Both non-commercial income sources, livestock and agriculture, may have differed slightly between 1936 and 1934. Home consumption of sheep and goats probably was slightly higher in 1934 due to larger herd sizes prior to the reduction programs during the fall of 1934. However, if additional wage labor income were available, it may have allowed many Navajo families to substitute purchased food for the home consumption of livestock. Various reports available for 1934 also indicate that agriculture was not as successful as in normal years. Production in 1934 was considered to be "below normal" for the Western Navajo Agency (1934:8). Agricultural production especially declined on dry farm plots while irrigated lands produced near normal crops (Bureau of Indian Affairs 1930-1935, Roll No. M1011-167:324-325).

Except for the differences already noted, the 1936 Human Dependency Survey information on income and income sources is roughly comparable to information for 1934. Total income is probably underrepresented due to fieldworkers not locating all

families in the area. Since primary income information, such as wage labor, was oftentimes derived from employment records rather than interviews, the overall per capita income (\$160.20) in Table 4-3 is probably higher than it actually was in 1936.

Since the tabular data presented the 1939 Statistical Summary were for all groups of Indians present in Land Management Unit No. 3 in 1936, it slightly misrepresents Navajo income and income sources. On a percentage basis, both commercial and non-commercial livestock income would have been higher than reported. Agricultural income, on the other hand, would have represented a slightly lower percentage of income. If the Navajos are considered separately, production of rugs would have also been a higher percentage.

4.3.0 The Importance of Specific Economic Sources to the Navajo of Land Management Unit No. 3 in 1934

While the Statistical Summary presents a basic overall picture of 1936 income and income sources, it fails to discuss several key areas important to an understanding of the Navajo economy in 1934. For instance, it does not discuss how reliance on those different income sources varied by family or location in Land Management Unit No. 3. Nor does it discuss several additional income sources utilized during this time period. In addition, it fails to place income sources in the importance in which Navajos viewed them and which population subcomponents participated in each available activity.

Table 4-3

Per Capita Income By Navajo Land
Management Units¹ For 1936²

<u>Unit Number</u>	<u>Per Capita Income</u>
1	\$ 81.88
2	108.09
3	160.20
4	70.28
5	130.65
7	134.41
8	132.72
9	99.71
10	122.20
11	113.78
12	149.94
13	187.43
14	149.53
15	72.64
16	--
17	135.50
18	246.09

¹ Excludes Land Management Unit No. 6.

² From Table II, Statistical Summary, Human Dependency Survey, Navajo and Hopi Reservations, Soil Conservation Service (1939).

In order to more fully document the Navajo economy of Land Management Unit No. 3 in 1934, the following sections provide a more in depth examination of the various income sources available. This discussion is based on interviews as well as on the general published sources on the Navajo. Each income source is discussed individually then placed in relationship to other sources. Emphasis is also placed on who conducted each economic activity in 1934.

4.3.1 Animal Husbandry

Animal husbandry was the most important economic activity conducted by the Navajo in Land Management Unit No. 3 in 1934 (Table 4-1). This activity provided as much or more income than any other activity, and more persons participated in the care of livestock than any other activity. The needs of their livestock was the primary factor influencing the seasonal movements of Navajo families throughout this area. Livestock was considered to be the primary access to wealth and prestige.

Sheep, goats, cattle, horses, mules, and donkeys were all owned by the Navajo in 1934. Of these, the sheep and goat herd was the most important. This herd provided cash income from the sale of wool, mohair, meat, adult animals, lambs, and pelts. These animals also provided the primary meat source used by nearly every Navajo family (Table 4-4).

Table 4-4

Non-Commercial Livestock Income For
Land Management Unit No. 3 in 1936¹

<u>Income Source</u>	<u>Number Consumed</u>	<u>Value</u>
Sheep and Goats	8584	\$25,750
Cattle	185	<u>3,700</u>
Total		\$29,450

¹ Adapted from tables in the Statistical Summary, Human Dependency Survey, Navajo and Hopi Reservations, Soil Conservation Service (1939) and from Table V, Report of the Human Dependency Survey, Land Management Unit No. 3 (Soil Conservation Service 1938:12).

Any or every member of a camp could own some of the animals in the camp's sheep and goat herd. Due to Navajo social organization and land control traditions the women of a camp were commonly the major owners of this herd. Each child would traditionally own at least a few animals in the herd. The women of a camp would normally also hold the prime responsibility for the care of the herd. Either they or their children would herd the animals daily. Adult males would herd less frequently.

Since the herd frequently represented the most important income and food source, it would be carefully watched. It would be counted each night on its return to the camp residence site to make sure that not one of the precious animals had been lost. In the winter and spring, during lambing season, the herd was especially attended. A member of the family would often be awake all night to watch for the birth of a lamb or kid since an unattended birth in the middle of a cold winter night could mean the death of the new-born animal from exposure. After the birth of an animal, it would be taken into the hogan or house to be warmed by the fire.

In order to provide the best grazing for their herd, Navajo camps moved several times during the course of a year. In the summer, grassland areas were preferred. In the winter, areas with either sagebrush or saltbrush were the preferred grazing locations, since they allowed the stock to graze even when snow was a foot or more deep.

Generally, herds were taken to water daily or every other day during the warmer months of the year. Since reliable water sources were scarce in 1934, trips to them might consume the entire day for the herder and the herd. At one water source in Land Management Unit No. 3, Crevice Well, herds and herder waited in line, sometimes for several hours, for their turn. If a water source dried up during a crucial time of the year, a Navajo camp would have to be ready to move near another source. During the winter, snow was melted to provide livestock water, or the herd would just eat snow for its required water.

Camp herd size varied tremendously in 1934. Some camps had herds of over 2,000 animals while others had 50 animals or less. Because of these differences, the members of some camps relied almost exclusively on income derived from their herds while others depended almost entirely on other income sources.

While sheep and goats were primarily part of the female domain in 1934, horses and cattle were part of the male domain. Men were the primary owners of these livestock types and took the primary responsibility for their care. Horses, along with mules, were a major part of the transportation system in 1934. Horses and mules were ridden and used to pull wagons and plows. Therefore, nearly every camp had members that owned a wagon and a team of horses or mules. Ownership of large herds of horses was very prestigious in Navajo society and men strove to have a large herd with quality animals.

The ownership of cattle was also male dominated. While nearly every camp had several horses, mules, or donkeys, not every camp had members that owned cattle. In 1934, only a few camps had members with herds of over 100 cattle. Many camps had only a small herd, which generally provided little or no actual income. Cattle were sold to provide a source of cash income and were sometimes slaughtered to provide meat.

Cattle and horses were ranged together with sheep and goats. The care of these animals, however, required much less effort. Each camp in 1934 kept several horses close at hand for riding, to herd sheep and goats, or to pull wagons. Whenever possible, these animals were not kept corraled; instead they were hobbled, which restrained them from ranging too far from the residence location of the camp. Each morning the animals required for the day would be located, brought back to the residence location, and either saddled for riding or harnessed for use with the wagon or a plow. The cattle and horses on the range would be checked periodically. Since these animals tended to cluster around water sources, the members of each camp knew roughly where their animals could be found. Navajo men checked on their horses and cattle to insure that they did not need assistance, were well and had not wandered too far.

Some informants have indicated that during seasonal moves, for instance from Bodaway to the Red Mesa-White Point area, the cattle and horses owned by the members of a camp were rounded up and moved along with the camp sheep and goat herd. Like the

sheep and goats, the cattle and horses required access to a dependable water source. In addition, the camp wanted to ensure the continuation of proper care.

The importance of livestock of all types to the Navajo occupants of Land Management Unit No. 3 in 1934 cannot be overemphasized. Livestock were a primary income source, and as such, were the focus of many of the activities of the Navajo. The Navajo expended both time and effort to maintain the welfare of their herds since their own welfare was so closely tied to that of their livestock.

4.3.2 Agriculture

For many years a controversy among researchers has existed over whether animal husbandry or agriculture is the most fundamentally important activity to the Navajo. A number of researchers including Hill (1938), Goldfrank (1945), Kluckhohn and Leighton (1946), and Adams (1963, 1971) have stressed the importance of agriculture, while others, Downs (1964), Reichard (1936), and Witherspoon (1975) have stressed the importance of animal husbandry. As Goldfrank (1945:265) indicates, the importance of agriculture to the Navajo lies not only in the economic sphere, but also in religion:

Navaho myth and ritual are so replete with agricultural concepts and detail that the assumption of a long-standing and intimate knowledge of husbandry seems more than justified. There is no need here to give examples of the endless use of pollen, corn and cornmeal that fill the pages of recorded Navaho myth and ceremonial, but it is most significant that the tribe's First Man was created from white corn, their First Woman from yellow corn.

Economically, between 1868 and the 1950s, agriculture and animal husbandry provided the dual foundations of the Navajo economy. Different sections of the Navajo occupied lands varied in their reliance on these two income sources. Lack of environmentally suitable field areas or low rainfall forced some Navajo populations to rely more on animal husbandry. Others, however, placed a heavier reliance on agriculture.

The Navajo population of Land Management Unit No. 3 in 1934 placed their economic reliance on both agriculture (Table 4-5) and animal husbandry. Land Management Unit No. 3 was not the best area for agriculture, nor was it the worst. Several good agricultural areas were present in this area in 1934, and they were exploited for the maximum benefit.

As with animal husbandry, the range of dependence on agriculture varied significantly between Navajo families in 1934. Some informants indicated that the agricultural products they produced were their prime source of food. This was probably especially true for many families that had only small amounts of livestock.

Unlike animal husbandry, agriculture provided very little cash income. The products produced were used almost solely for home consumption. The primary crop grown in 1934 was corn; secondary plantings included squash, melons, beans, and assorted vegetables. In particular, corn and squash were staple foods.

In Land Management Unit No. 3 in 1934 several field types and agricultural techniques were utilized by the Navajo to grow

Table 4-5

Non-Commercial Agricultural Income For
Land Management Unit No. 3 in 1936¹

<u>Income Source</u>	<u>Total Pounds Home Consumed</u>	<u>Value</u>
Corn	1,131,900	\$34,410
Hay	35,900	600
Melons & Squash	259,900	8,940
Beans	1,300	100
Orchard	407,900 ²	18,680
Potatoes	65,500	2,530
Vegetables	215,900 ³	9,610
Wheat	0	0
Totals	2,118,300 ⁴	\$74,870

¹ Adapted from tables in the Statistical Summary, Human Dependency Survey, Navajo and Hopi Reservations, Soil Conservation Service (1939).

² Includes only peaches and apples.

³ Unrevised figure from Table V, Report of the Human Dependency Survey, Land Management Unit No. 3 (Soil Conservation Service 1938:12).

⁴ Amount shown for total pounds home consumed, is probably less than actual amount home consumed, since orchard crops other than peaches and apples are not included.

crops. Irrigated fields were located in Kerley Valley, at a number of locations between Vanzee and Willow Springs, and at several sites along the Little Colorado River. Irrigation was derived from both intermittent streams and springs. Irrigated fields were desired because they were generally more reliable and produced higher yields than other field types.

Floodwater fields were also common. Topographically, floodwater fields were situated in locations that collected maximum run-off during the summer or early fall from thunderstorms. For example, some fields of this type were located on an alluvial fans at the base of an entrenched arroyo. When rainfall from thunderstorms would fall on the drainage area of the arroyo above the field area in greater quantities than could be absorbed in and around the drainage, the rain would gather in the tributaries of the wash and then proceed down the wash toward the alluvial fan. When the water reached the end of the wash at the top of the alluvial fan, it would spread out over the fan's surface area, sometimes to a depth of over 20 centimeters and provide moisture for the crops. Several other variations of floodwater fields were also present in the study area in 1934.

The third primary field type present in 1934 was the dry field. Dry fields were topographically situated to receive only precipitation that falls on the field during the year. Normally, such fields were located on flat terrain in a deep, usually sandy, soil area. Dry fields were the least reliable of

the types discussed. In 1934, dry farms located on the Western Navajo Agency experienced "Almost a total failure . . ." (Bureau of Indian Affairs 1930-1935, Roll No. M1011-167:319).

Fields were cleared in the late spring or early summer. During the summer months, insect control, replanting, and hoeing took place. Around September or October harvesting occurred. For those who owned fields in Kerley Valley, irrigation water was applied during the winter or spring when it was available in the Moenkopi Wash. While agricultural activity after planting and before harvest was not intense, some members of a camp normally watched the field throughout the summer:

It is believed that, if possible, agricultural fields should be watched throughout the entire field season. This is not only to protect the fields from sheep, goats, cattle, horses, mules and donkeys, but also from wild animals. Hill (1938:38) states that the wild animals most destructive to fields are rabbits, porcupines, coyotes, foxes, prairie dogs, blue jays and crows. If left to themselves these animals can destroy a crop very quickly, especially near harvest time or when the plants are young. Fences have proved somewhat effective over the last 50 years in protecting the crops from domestic animals, but they help very little against wild animals (Russell 1978:38).

Some of the crops were eaten fresh in the fall, but the majority was stored for use during the winter and the next spring. Prior to storage, corn was roasted in underground pits which assisted in preserving it. Storage was frequently in underground storage pits located near field areas. Since families relocated to their winter occupation areas, often many miles from their fields, it was necessary after harvest for one or more family members to return to the storage pit several

times prior to the next field season to collect agricultural products for consumption. A wagon or pack animals were frequently used for this purpose. Trips to collect agricultural products usually occurred monthly and may have coincided with trips to the trading post for other supplies such as flour, sugar and coffee.

Agricultural labor was performed by Navajos of both sexes and all ages, except the very youngest. Labor was often shared between the members of a camp. Because of the importance of agricultural products to the Navajo and the limited access to farmland, field areas were often utilized by the members of separate camps. For example, the son of the owner of a field, though he was living with his wife's parents, might return to work on his father's field. This would allow him to claim part of the return from the field and maintain an inheritance claim for all or part of the field area.

The distribution of agricultural fields over the landscape of Land Management Unit No. 3 was very uneven in 1934. Fields were packed very densely in some areas, while whole sections were completely devoid of fields. As we see in a later chapter, this had important implications for the settlement patterns of the Navajo in this area in 1934.

In summary, in 1934 agriculture was a very important activity to the Navajo of the study area. It represented an important source of food for many, and for some it was crucial

to their survival. The linkages between Navajo religion and agriculture contributed to the importance of this activity.

4.3.3 Wage work

Wage work provided the largest source of cash income to the Navajo in 1934. Cash was used to buy food, clothing, tools, wagons, automobiles, and all the other items of material culture that were available to the Navajo during this period. Because of the presence of the Western Navajo Agency headquarters, a school, and a hospital at Tuba City, Land Management Unit No. 3 had available in 1934 significantly more wage labor opportunities than in the surrounding land management units. For instance, while wage work contributed \$123,370 to the income of the Indians of Land Management Unit No. 3 in 1936, it only accounted for \$26,180 in Land Management Unit No. 2 and \$15,140 in Land Management Unit No. 1. Wage work availability at Tuba City was an important reason for the concentration of the Navajo population at that location.

In 1936, 97.5 percent of the wage labor income derived from various forms of government employment. This probably did not differ in 1934. Government employment was derived from both permanent and temporary positions. The temporary positions in 1936 were S.C.S. (Soil Conservation Service) irregular, E.C.W. (Emergency Conservation Work), Navajo Agency irregular, and perhaps some of the other employment areas listed in Table 4-2. One source of temporary wage labor that is missing from the 1936 data is C.C.C. (Civilian Conservation Corps). The C.C.C. became an important source of jobs beginning in 1933:

Crews of enrollees worked at a wide range of projects, both in 1933 and in later years. Some used teams of horses and small scoops commonly called "slips" to build dams across minor streams or arroyos to catch and store water for livestock during the infrequent rains. CCC enrollees additionally worked on digging out springs, drilling new wells, setting up windmills, and installing storage tanks. Others built truck trails into the heavily timbered Fort Defiance plateau to provide better access to the tribe's valuable timber resources and to fight fires. Indian crews, carrying bags of poisoned grain, crisscrossed Navajo ranges in a huge rodent eradication program (Parman 1976:34).

It may well be that C.C.C. wage work is listed under the S.C.S. or E.C.W. If not, it is possible that the C.C.C. was not active in this area.

The S.C.S., which was referred to as the Soil Erosion Service prior to 1935, along with the C.C.C. and E.C.W., was another important source of wage income at the time:

By mid-1935, the Navajo Project had eighty-five regular employees, mostly college-trained whites, who carried out technical, administrative, and clerical functions. In addition, the project hired 705 Navajos as stipulated by the cooperative agreements which established the demonstration areas (Parman 1976:86).

For the twelve months prior to June 30, 1935, 82,113 person-days of unskilled labor, nearly all of which was probably Indian labor, were utilized on the S.C.S. Navajo project (Soil Conservation Service 1935). One of the activities of the S.C.S., perhaps in cooperation with the P.W.P. (Public Works Projects), was the work conducted in 1933 and 1934 on the Moenave Demonstration Area. A large number of Navajo were employed on this project (Carter 1934). For their work, many of these persons later received farm land in the Demonstration Area.

A number of informants indicated they were employed in 1934 for the Navajo Agency, school, hospital or local trading posts. Most of their jobs were in support areas such as cook or janitor. The skilled positions were held primarily by Anglos.

Freighting was another area in which a number of Navajo were engaged in 1934. Freighting included bringing supplies to the agency, school, hospital, and to trading posts as well as supplying Tuba City with coal and wood. During the 1930s, freighting seems to have developed as an important Navajo income source. In 1928, for instance, the Navajo conducted only 7.8 percent of the freighting for the Western Navajo Agency, but by 1930, they were conducting 59.5 percent (Seltz 1930). This change seems to be a response to the fact that the vast majority of the Western Navajo Agency's population was Navajo. In addition to freighting food and dry goods, in 1932 a group of Navajo brothers also acquired the contract to haul coal from the coal mine on Coal Mine Mesa to Tuba City (Superintendent, Western Navajo Agency 1932). A number of informants indicated that they were involved in either freighting or mining coal in 1934.

In 1934, only a very small percentage of Navajo held full-time jobs within the study area. Most of these were with the Navajo Agency, school, or hospital in Tuba City. A significant number of Navajos were employed, however, for short-time periods on one or more of the projects associated with the E.C.W.,

S.C.S., P.W.P., and perhaps the C.C.C. Males held the vast majority of jobs at Tuba City government facilities, except for a few positions, such as cook. Jobs at this time were held primarily by the young, and often those who had achieved higher educational levels than the general population.

4.3.4 Arts and Crafts

In 1936, arts and crafts provided a small amount of income to the inhabitants of Land Management Unit No. 3. Together, these income sources provided 6.4 percent of total income in 1936 (Table 4-2). Rug weaving (\$10,880) was the most important of these sources, followed by jewelry (\$2,220), and basket and plaque manufacture (\$180).

Almost all adult Navajo women in 1934 wove rugs for sale. Rug weaving was an important source of cash income for women, who were almost completely excluded from wage labor opportunities. In 1934, the income for rugs for the Western Navajo Agency was \$18,329.50 (Western Navajo Agency 1934). Basketry and silverwork were much less important than rug weaving. For the entire Western Navajo Agency in 1934, only 20 persons produced 210 baskets valued at \$630.62 and 14 silversmiths produced items valued at \$1,708.64 (Western Navajo Agency 1934).

4.3.5 Government Rations and Supplies

In 1934, a very small portion of the population of the Western Navajo Agency was provided with government rations. In total, 41 families with mentally or physically disabled members,

consisting of 145 persons, were given \$1,027.80 worth of rations (Western Navajo Agency 1934).

Supplies were also issued in 1934 by the Western Navajo Agency to a number of persons who performed labor in order to receive these goods. In total, 36 persons worked for \$337.20 worth of supplies (Western Navajo Agency 1934).

Taken together, rations and supplies in 1934 were a minor source of income to the Navajo. Since Land Management Unit No. 3 is only a part of the larger Western Navajo Agency, the contribution of these sources to the persons who resided in the study area in 1934 was quite small. The meager amount of rations indicates that the Navajo population in 1934 was extremely self-sufficient.

4.3.6 Gathering of Plants

In 1934, Navajos gathered plants for three primary reasons: 1) pinyon nuts were gathered to be sold and thus provide a secondary income source; 2) pinyon nuts and numerous other plants and their products were gathered and consumed as a food source; and 3) a variety of plant species was gathered and used for religious purposes, healing qualities and for other specialized purposes such as making dyes and soaps. In 1934, members of most Navajo camps in the study area probably utilized plants and their products for one of the three purposes discussed above. While this was the case, the role of gathering as an income source was minor.

Pinyon nut sales provided \$5,950 worth of income to the residents of Land Management Unit No. 3 in 1936 (Table 4-2), which was an unusually large amount:

Pinons are not an important source of commercial income in about three years out of four. The year 1936 happened to be a year with a large pinon crop (Soil Conservation Service 1939:Introduction).

In contrast to 1936, 1934 was more the norm for pinyon nut availability. Between January 1, 1934 and December 31, 1934, the Kerley Trading Post only purchased 417.78 pounds of these nuts at \$.09 per pound for a total purchase of \$37.60 (Bell 1935). The Tuba Trading Post paid a slightly higher price per pound, \$.12, so more nuts were sold to them in 1934. In total, the Tuba Trading Post from January 1, 1934 to December 31, 1934, bought only 1,615 pounds of these nuts for a total of \$193.85 (Boyer 1935). The Gap Trading post paid an average of \$.15 per pound, but bought only 250 pounds worth for a total of \$27.50 (Brown 1935). All told, these three trading posts, which represented half of those present in the study area, purchased only \$258.84 worth of nuts in 1934. While the other trading posts within the boundaries of Land Management Unit No. 3 would have also purchased some nuts in 1934, the total purchased during this year was probably less than 10 percent of those purchased in 1936.

In poor harvest years, most Navajos do not spend the time and energy to pick pinyon nuts, and it appears that 1934 was such a year. The northwestern portion of the Navajo reservation

probably did not have any significant pinyon nut harvests in 1934. If the area had any, much higher sales of nuts would have occurred at the trading posts discussed since they were among the largest posts in the area at the time. Those Navajos that did gather pinyon nuts in 1934 were probably the ones that resided in areas of nut availability. Word spreads quickly through Navajo communities about the amount and location of available nuts. Low availability results in almost no one picking nuts. In 1934, perhaps only five percent of Navajo families engaged in the harvest of pinyon nuts due to the poor availability of nuts.

In 1934, many of the Navajo inhabitants of Land Management Unit No. 3 would have gathered plants, their seeds or roots as a source of food. While such gathering was common, it should be considered as a minor income source.

In Navajo society, women are the primary gatherers of wild plant foods, except for pinyon nuts. Often, gathering would occur during a woman's daily activities. While out herding the sheep and goat herd or locating a hobbled horse, a woman might see a sufficient quantity of plants of one or more species to collect. Around and in agricultural field areas a number of plants might be available. Rather than removing these plants by hoeing, they would be left for gathering later when mature. Since most plants gathered for food matured or were available only in the summer, most gathering of plant foods occurred during these months. Areas inhabited during the summer months

would have been those in which gathering of food plants primarily occurred.

Other plants, such as those that produced traditional Navajo wool dyes, were also gathered. A Navajo woman might gather a dye plant on several occasions during the course of a year if the plant were near at hand. If the woman had to travel several hours or more to obtain a plant, she would either coordinate her trip with another trip to the same area for another purpose, or limit her trips during the year to the source area.

4.3.7 Hunting

Hunting, primarily a male activity, was another secondary economic source and was less important than gathering. Within the boundaries of Land Management Unit No. 3 only a small number of animals were hunted by the Navajo. More species would have been hunted if they had been present in the area.

The two most important animals hunted were the rabbit and the prairie dog, and both were used as food sources by the Navajo (Monson 1936-1937:43). Rabbits were hunted wherever they were found. Prairie dogs, on the other hand, were not as widely distributed, since their den areas were clustered in specific areas.

Prairie dogs were an important food source to many Navajo families in 1934, especially to poor families. The biologist who conducted the Soil Conservation Service study of Land Management Unit No. 3 made this statement: "I talked to a man who has been on the Reservation for quite some time, and he says

that some Navajos subsist entirely on prairie dogs" (Monson 1937). While prairie dogs were important to the Navajo in 1934, they were probably not as important as this statement might indicate.

Because prairie dogs and livestock competed for the same food sources, the former were the target of an eradication program during the 1930s. In 1934, from 175,000 to 178,000 acres around Black Mountain (Black Mesa), Cow Springs, White Mesa, Red Lake, and Blue Canyon were treated with strychnine-poisoned grain to reduce prairie dog "infestation" (Bureau of Indian Affairs 1930-1935, Roll No. M1011-167:331-332; Western Navajo Agency 1934:13 and 11). These poisonings undoubtedly had an effect on Navajo hunting patterns in 1934 and later.

These early eradication attempts did not completely remove prairie dog colonies from Land Management Unit No. 3, since an area of 70,000 acres west of the Gap and Cedar Ridge was recommended for control measures several years later (Monson 1936-1937:7). Several other locations in the study area also had prairie dog colonies that the earlier eradication attempts had failed to eliminate completely (Monson 1936-1937:7-8). Seventeen areas within Land Management Unit No. 3 were listed as having 400,915 prairie dog dens in 1936-1937 (Monson 1936-1937:9). All of these were potential Navajo hunting areas for prairie dogs, with one of the most favored, according to informants, being located on the Moenkopi Plateau, south of Tuba City.

Big game, deer and perhaps antelope, were also hunted by the Navajo in 1934. Hunting of these animals, according to

informants, occurred off-reservation to the west or north. Informants have indicated that no deer were hunted within Land Management Unit No. 3. During the winter of 1936-1937, however, a herd of eight deer was sighted on top of Gray Mountain (Monson 1936-1937:37). This small number of animals was probably not enough to encourage hunters. Like deer, antelope were extremely uncommon. Only two bands of these were reported south of the reservation boundary during 1936-1937 (Monson 1936-1937:38). None were reported within the boundaries of Land Management Unit No. 3 at this time.

While hunting of larger game was pursued by small groups of Navajos in off-reservation areas in 1934, the extension service at Tuba City also sponsored hunts. Due undoubtedly to the lack of on-reservation game, the extension workers sought prey off-reservation in 1934:

During the first two weeks of November about 100 of our Indians went hunting on the Kaibab Forest. The hunting was supervised by Extension workers to familiarize the Indians with the rules and regulations and to outline the hunting zones for them (Bureau of Indian Affairs 1930-1935, Roll No. M1011-167:330).

4.3.8 Singing

Another income source was the performance of ceremonies by Navajo medicine men or singers. During the 1930s these practitioners were heavily relied on by the Navajo population to provide health care: "Most of the adult Indians depend on their 'Medicine Men' and will not consider coming to the hospital until the Medicine Men have given up hopes, which usually happens a

few days before the patient is about to die" (Bureau of Indian Affairs 1930-1935, Roll No. M1011-167:312). Singers were paid for their services generally in both cash and kind (sheep, baskets, jewelry, etc.).

In 1934, some men relied on singing as a primary source of income while others relied on it as a secondary source. Navajo singers, particularly those that were active and well respected, were continually traveling to treat patients. These active singers earned an income sufficient to meet their primary needs. Since singing was not included on the Human Dependency Survey forms (perhaps because it was a part of the internal Navajo economy), no income from this source is listed on Soil Conservation Service reports.

4.3.9 Other Internal Navajo Economy Income Sources

Other income sources that were part of the internal Navajo economy of Land Management Unit No. 3 in 1934 (i.e., the sale of Navajo produced and owned items to Navajos and others) would have been from the sale of firewood, agricultural products, livestock, as well as many other items.

4.4.0 Conclusions

Animal husbandry and agriculture were the cornerstones of the Navajo economy of Land Management Unit No. 3 in 1934. Some individuals and families were able to supplement their income from wages, while a few depended almost solely on this income source. The presence of the Western Navajo Agency headquarters in Tuba City differentiated the economy of Land Management Unit

No. 3 from surrounding areas. Families not only differed with respect to dependence on wage income, but also with respect to other income sources. Some depended almost exclusively on returns from their livestock, while others depended much more heavily on agriculture. The grazing and agricultural potential of specific areas of Land Management Unit No. 3 influenced the degree of dependence.

Chapter 5: Navajo Social Organization and Land Rights

5.1.0 Introduction

Since Navajos generally follow established customs with respect to social organization and land rights and since these customs have important implications for the presence of families in the study area and their specific locations in 1934, I was able to use certain information concerning social organization and land rights to verify informant-derived interview data. The basic methods utilized to perform these locational verifications are included in the subsections contained in this chapter.

5.2.0 Basic Elements of Navajo Social Organization

The basic elements of Navajo social organization include the: 1) clan; 2) clan group; 3) coresidential kin group; 4) camp; and 5) marriage and post-marital residence rules. Each of these are now described in order to examine their relationships to land use.

5.2.1 Clans

Approximately 50 named clans are recognized by the Navajo. Membership in a clan is based on matrilineal descent (a child becomes a member of his or her mother's clan at birth). The members of a clan consider themselves to be related. Descent from a common ancestor or group of ancestors, real or imagined, is stipulated rather than demonstrated (Aberle 1961:109).

The Navajo clan has no political functions (Reichard 1928:30). Instead, its main function is to regulate marriage.

Clans are exogamous, meaning it is forbidden to marry a member of the same clan. Sexual relations with members of the same clan are also not allowed (Aberle 1961:109). A Navajo clan has no single recognized leader, does not perform any functions as a unit, does not own common property, and is not clustered in one particular geographic area (Aberle 1961:109). Clan members, however, do provide hospitality and support to their "clan relatives," even though there may be no direct genealogical linkage between these individuals. When traveling a Navajo attempts to find members of his or her clan which are then "expected to feed him, give him shelter, and otherwise assist him" (Aberle 1961:109). Similar hospitality is also expected, although to a lesser degree, from the members of a person's father's clan (Aberle 1961:109).

5.2.2 The Clan Group

Clan groups, which are unnamed (Aberle 1961:110), are composed of two or more matrilineal clans that are said to be related or affiliated (Aberle 1961:108). The regulation of marriage is an important clan group function: "Ordinarily clans within a clan group cannot intermarry, but sometimes a clan is said to be 'distantly related' to another and marriage is permitted" (Aberle 1961:111). Relationships between clans within a clan group are commonly detailed in myth (Aberle 1961:111). Like clans, clan groups have no political or economic functions and are not concentrated in particular geographic areas. Another function of the clan group, like the clan, is to provide hospitality to members of the same clan group (Aberle 1961:112).

5.2.3 Coresidential Kin Group

Because of its associations with land use and occupancy, the coresidential kin group (CKG) is an important element in understanding of Navajo social organization. In basic terms, this unit is larger than the camp and has been referred to as a "supra-camp" (Henderson 1985:48). The CKG represents the largest unit of Navajo social organization concerned with land use and occupancy.

The CKG has also been called an "outfit" (Sasaki and Adair 1952; Kluckhohn and Leighton 1946), "local clan element" (Aberle 1961), "resident lineage" (Adams 1963), "localized matrilineage" (Shepardson and Hammond 1970), and "land use community" (Kimball and Provinse 1942). Of prime importance is the CKG's relationship to land holding. This relationship can be discerned through Aberle's (1981:1) definition of the CKG:

- 1) There is a level of residential aggregation above the camp, which I call the "coresidential kin group" or "CKG."
- 2) The core element in a CKG is a coresident portion of a matrilineage, consisting mostly of women, but often including some men.
- 3) This core, aided by the spouses of its members, especially the husbands of its female members, defends a territory against adjacent units of like order, whether the cores of those units are members of related matrilineages or of matrilineages of other clans.
- 4) The territory thus defended is held to some degree in common.
- 5) Over time the matrilineage segments and the land is divided.
- 6) The corporate character of the matrilineage appears in the defense of its territory and in the management of land.

The CKG thus consists of several camps whose members are related to one another through a common matrilineage and reside together

on a common territory. In addition, CKG lands are not stable over time; instead the land area can be divided over time among the various segments of a matrilineage.

To help illustrate the CKG's relationship to land use and occupancy, suppose a Navajo family consisting of a husband, wife and two daughters settled in an unoccupied region early in the nineteenth century in 1800. This family would have selected land near water sources for grazing its herds, and cleared several agricultural fields. Further suppose that after a few years the two daughters married. Due to the custom of matrilocal post-marital residence, the husbands of the two daughters would have come to live with their wives' family. Upon the parents' deaths, the daughters' families would have divided common grazing land, water sources, herd, and farm land. Both of these families would have defended their "common" but now divided territory from use and occupancy by others. Both families would have also continued to cooperate with respect to several economic and religious activities.

This process, as described above, would be repeated at the next generational level. Suppose each of the two daughters had two daughters, who at maturity separated with their own families after their parents' deaths. Four camps would then occupy the common territory of the CKG. The same territory would thus be held by members of the same matrilineage over a period of generations. To some extent, the members would continue to cooperate in one or more ways.

While the example described above is sometimes found, it is seldom this simple. For instance, lineage segmentation may produce new CKGs:

Conflicts sometimes occur within a matrilineage. As the generations pass, there may be pressure to divide the lineage land. A senior in-marrying man active in livestock management may want to defend a portion of the land for his descendants and from the descendants of, say, his wife's sisters, by defining borders within the heretofore undivided area. While the sisters live, they may resist this division and tell the man that it is not his affair. In time, however, there may be a division and often hard feelings as well. Such a division might give the observer the impression that there is no corporate land-holding unit above the camp level, whereas there is a cycle. That is, sometimes the land may be divided among camps, but if space is available and if the population increases, over time there will come to be a lineage dispersed in several camps. Thus new CKGs are reproduced with smaller territories by lineage segmentation (Aberle 1981:3).

Aberle also suggests (1981:3) that virimatrilocal post-marital residence can cause a core area of a CKG to be divided and occupied by two lineages over time. Division may also result from the movement of a family onto the fringe of a core lineage's area (Aberle 1981:3).

5.2.4 The Camp

The camp is recognized by all specialists as the primary unit of Navajo social organization (Aberle 1981:2). The camp is the basic land use and cooperating unit of Navajo society and, when combined with other camps, constitutes the basic component of the CKG.

5.2.5 Marriage and Post-Marital Residence Rules

Since Navajo marriage patterns and post-marital residence rules affect our understanding of land use, it is appropriate to summarize them. Aberle (1961:120) has provided one such summary of marriage rules:

A Navaho should not marry: members of his own clan; members of his clan group; members of his father's clan (according to most authorities); by the same token, members of his father's clan group, although this is probably the weakest prohibition; individuals whose fathers are members of his own father's clan. In this last case, the two are "born for" (children of) the same clan and are classified as siblings. Thus an individual may not marry any real or classificatory cross or parallel cousin of his generation. Some authorities report a preference for marriage into the father's father's or mother's father's clan.

Matrilocal residence, when the newly married couple live in the camp of the wife's mother, is the preferred post-marital residence pattern. While this pattern is preferred, it is not rigidly observed. Some newly married couples reside with the husband's family. This residence can be either patrilocal or virimatrilocal if the orientation is to a man's mother's lands. Other newly married couples may immediately form new camps, either at a location away from both spouses' parents (this usually involves residence in a reservation town) or on the lands controlled by one of the spouses' families (this usually involves residence on the wife's family's lands). Since post-marital residence is and was generally either matrilocal or neolocal with the residence on the wife's families lands, this commonly led to a group of matrilineally related families occupying lands adjacent to or near one another.

5.3.0 Basic Navajo Land Ownership And Inheritance Principles

Navajo land ownership and inheritance rights may be divided into three categories: 1) rights to range lands and inheritance of such rights; 2) rights to agricultural field areas and inheritance of these rights; and 3) other land use rights.

5.3.1 Range Lands

Range lands are controlled through use-rights:

Farm and range land "belongs" to a family. The dominant Navaho idea of ownership of such land has been well called "inherited use-ownership"; that is, the man who "owns" farm or range land can only control it for a limited period, and no "owner" can give away or otherwise alienate land from his family. Furthermore, in this matrilineal society, the real "owners" are the wife and children, and the husband is hardly more than a trustee for them (Kluckhohn and Leighton 1946:106).

The basic land using group in Navajo society is the camp. Members of a camp control one or several land areas, and these areas are the "known range" of the camp:

Camps may have two locations, the summer and winter camps, each relatively permanent, or a series of temporary camps either summer or winter depending upon the availability of water and the extent of the farming operations during the warm months. In general, one may say only that camps do not migrate at random. Instead, each camp has a known range area for summer and winter which is respected by neighboring camps. Moreover, the distances between winter and summer locations are not excessive and do not carry camps out of a known area at any time of the year (Levy 1962:786).

In addition to the term "use-ownership," the land area under a camp's control has been called a "customary use area,"

"traditional use area," or a "grazing area." Use-rights to an area derive from camp membership:

There is no formal transmission of rights to grazing land. Every person, as a member of his family, inherits the right to graze livestock within a fairly well-defined area. Unused lands, so long as there were any, belonged to the first comers (Kluckhohn and Leighton 1946:107).

Use-rights are also sometimes claimed by those persons marrying into a kin group (Thal 1982:181).

While the members of each camp control the specific area of land that they use for residence, grazing, or farming, the control over these areas is not always entirely rigid. Changing environmental conditions and other factors could force camp members to alter their land use patterns in some years:

"Fluctuations in rainfall and in the supply of water for stock would make pasture areas vary from year to year in their utility, so that control could not be very tight" (Aberle 1961:135).

Haile (1968:42) also mentions use-right flexibility in times of environmental stress: "In dry seasons when the rainfall has been more plentiful in one region than in another friends may exchange range courtesies."

In summary, the members of each camp have a recognized area (or areas) of range land that they use. Ordinarily, livestock are grazed only within the boundaries of this area and "[o]ne uses no other than his accustomed water hole" (Kluckhohn and Leighton 1946:105-106). Infrequently, however, due to dry conditions or other problems, the camp members use areas outside

their customary use area for grazing or stock watering. As a general rule, "[n]o one would deliberately drive his sheep on to land which is being grazed to its full capacity by another" (Reichard 1928:91).

5.3.2 Agricultural Fields

Agricultural rights are similar to range rights. Both rights are based on first use:

The first person to work a field set up a permanent claim on the land, transmitted to his heirs in perpetuity. Yet if he were clearly not using the land, another person might do so. The permanent right nevertheless resided with the first person and his heirs. If some one planted on a field and the "owner" came back to claim its use, he might dig up the unsprouted seeds or receive a share of the harvest . . . (Aberle 1961:133).

Haile (1968:18) also indicates that first use and improvements establish property rights to a field.

The inheritance rules for agricultural land are less predictable::

A woman who "owns" farm land gradually turns it over to her daughters and their husbands, and a son may receive a piece of the farm if there are no daughters, or only one or two. As indicated previously, the man who "owns" farm land is under conflicting pressures. His wife and daughters urge him to surrender his rights, while he is still living, to his daughters or sons-in-law acting as trustees for his grandchildren. At the same time his own mother or aunts or sisters remind him that his land belongs to their (and his) clan and that he should give it to one or more of his nieces and nephews (Kluckhohn and Leighton 1946:108).

Inheritance can thus be along matrilineal lines or from father to children. Field location and other circumstances often affect who inherits agricultural land.

5.3.3 Other Land Use Rights

Navajos have traditionally used lands for purposes other than residence, grazing, and farming. These other uses include:

1) wood procurement; 2) gathering wild plants for food, religious purposes, dyes, and other purposes; 3) the procurement of stone for houses and hogans, metates, and manos; 4) the collection of clay used in pottery manufacture; 5) use of water sources; and 6) gathering of items required by medicine men. Rights to collect or use these resources and foods were available to all Navajos. As an example, wood resources were considered to be for the use of all Navajos without restriction:

The timber of the mountains is likewise considered public property. The individual who would claim a timber tract as his "own trees" would not be taken seriously. Firewood may be gathered anywhere, and the mere fact of cutting down a tree and trimming the log is sufficient evidence of ownership (Haile 1968:3).

Pinyon nuts could also be collected by anyone:

Pinyonnuts may be gathered anywhere. The crop in that country is not uniformly distributed as a rule, but in some seasons appears only in limited areas. Indians living at a distance usually move to these areas making camp wherever they desire (Haile 1968:3).

Other land use rights were thus vested in all members of the tribe, and it was improper to exclude others from gathering materials on your customary use area. These patterns are consistent with the practices of the Navajo who resided in Land Management Unit No. 3 in 1934.

5.4.0 Some Implications of Navajo Social Organization for This Study

The basic principles of Navajo social organization allowed me to verify the presence of individuals, families, and camps in the study area in 1934. This was accomplished through the preparation of genealogies of the kin groups in each region. These genealogies frequently permitted me to reconstruct the early settlement of a region. By tracing matrilineages forward from these early settlers, I was able to then determine which families, by the basic principles of Navajo social organization, would normally have occupied a specific region in 1934.

In each of the study area's sections, I expected to find a group of families who were descended from a common ancestor or a set of related ancestors (e.g., siblings). These descendants were grouped into one or several CKG's that existed in 1934; they occupied one or several land areas they inherited from the early settlers. The presence of camps in a specific area with members who were related through a common matrilineage confirmed that these family groups were present in the study area in 1934.

5.5.0 Some Implications of Land Use Rights for This Study

Navajo customs regarding land use and inheritance rights also provided verification of approximate camp locations in 1934. The present day location of residences and customary use areas is an important indicator that the same lands were controlled in 1934. Nearly all the present day camps that are located away from population centers (i.e., Tuba City, Cameron, etc.) are residing

on lands on which they, their parents or grandparents resided in 1934.

Moreover, these present day camps are located on lands that were part or all of their family's "customary use area" in 1934. Informants and their families generally moved to the same locations each year, whether it was 1930, 1934, or 1950. For the most part, families had no other choice. By 1934 there were no unclaimed or unused lands in Land Management Unit No. 3, except those completely inaccessible to livestock and humans. For instance, a family which had a customary use area near Gray Mountain in 1934 would not be able to move to a new site at Howell Mesa unless it had a history of prior use or rights acquired by marriage or inheritance. The families already at Howell Mesa with land rights would have stopped them from establishing a winter residence, since it would have meant a loss of lands to them and their camp or CKG.

The seasonal moves made by a camp in 1934 were often those followed by the parents of a camp member before the turn of the century. The first settlers established a set of customary use areas, and the descendants of these settlers would have used the same areas because they had use-rights to no others. Thus, if an informant living near Gray Mountain indicated he lived near Gray Mountain in 1934, my confidence that this was a correct statement was reinforced by the principles of Navajo land control. The informant and his family had little alternative but to reside

near Gray Mountain in 1934. The family not only resided there in 1934, but probably also every year from 1920 to 1950.

Despite the general continuity in Navajo land-use patterns, some minor differences in land use exist between present day use and the situation in Land Management Unit No. 3 in 1934. The most important difference concerns summer grazing locations. Due to the limited availability of water sources in 1934, customary use areas were larger and they frequently overlapped with those of other camps to take advantage of available water sources. For instance, in the summer of 1934 many Navajo families shared the area around Crevice Well, which was the major water source in the Red Mesa-North Tuba City area. The extent and the often-overlapping character of these summer movement patterns often made it difficult for informants to specify the exact location or locations where they lived in the summer of 1934. They were, however, able to describe the general areas of residence.

5.6.0 Summary

This chapter considered several methods that were used to verify presence and location of individuals, families, and camps in the study area. Principles of Navajo social organization and land use rights were shown to provide important cross-checks of informant information. These cross-checks, together with the others conducted during this research, allowed me to further verify and refine the data and conclusions presented in this report.

Chapter 6: Navajo Settlement Patterns in Land Management Unit
No. 3 in 1934

6.1.0 Introduction

The presence of Navajo camps at specific locations in 1934 was highly connected to resource availability. For example, if no water were available during the summer months in a particular area in 1934, Navajo camps and their livestock could not and would not have been present. In contrast, areas with permanent water supplies and available farmland would be expected to have heavy Navajo settlement during the summer.

Historic documents and informant statements provided the information on which a series of basic settlement patterns were developed for the study area. Areas within or near Land Management Unit No. 3 were grouped by usage, according to available resources such as wood, water, wage work, and season of usage. The seasonal movement patterns of each camp were then compared to these basic settlement patterns.

Most camps did not deviate from normal patterns. When a camp's seasonal movements did not correspond, it indicated that the informant was in error or other factors were affecting movements. Through additional questioning the informant had to justify that the presence of his or her family in the area in question was possible in 1934 based on my understanding of the factors which influenced Navajo seasonal movements during this period and the local availability of resources.

6.2.0 Basic Factors Influencing Navajo Seasonal Movements

In 1934, the majority of Navajo camps in Land Management Unit No. 3 practiced seasonal transhumance. The basic human requirements of water, shelter, and warmth together with the requirements of the primary Navajo economic sources in 1934--livestock, agriculture and wage work--influenced these Navajo seasonal moves (Hoover 1931, Henderson 1983, Jett 1978).

The primary factors influencing Navajo land use in the study area in 1934 were: 1) human and livestock water sources; 2) forage availability; 3) farm land; 4) wage work locations; and 5) fuel wood availability. Secondary factors included: 1) localized temperature conditions; 2) herd size; 3) school attendance by children; and 4) location of trading posts. The influence of each of these factors varied from camp to camp. The members of some camps, who relied on wage work as the sole income source, would be primarily affected by wage work location. In contrast, the majority of camps, which relied primarily on livestock and agriculture, were heavily influenced by the location of water, forage, farmland, and fuel wood sources.

6.2.1 Water Availability

Water was a scarce resource in the study area in 1934. Due to a lack of permanent water sources, those that were available were often overutilized.

Since livestock can tolerate water that humans cannot, sources of human drinking water were more limited than livestock water. Informants have indicated that the task of obtaining

water for the camp often fell to male camp members. They would often travel to water sources in a wagon, fill a number of small barrels, and then return. This procedure, which could frequently take the better part of a day, depending on the distance to water, might have to be repeated as often as once a week.

In 1934, only a very small number of Navajos brought water to their livestock with trucks or wagons. Instead, sheep and goat herds were driven to water. During the early portion of the summer, prior to the summer rainy season, livestock water was particularly scarce. During this time of year, the herd required water every other day (Hoover 1937:289). Generally, Navajo camps were within a half day of a water source. Since the number of water sources available at this time of year was limited to certain areas of Land Management Unit No. 3, Navajos and their flocks had to be near one of these sources.

In 1934, some of these water sources were heavily utilized in the summer due to a lack of suitable alternatives. The reservoir at Pasture Canyon (near Tuba City) and Crevice Well (located to the west of Red Mesa and White Point) were two of the most important available sources. Dozens of Navajo herds utilized both of these sources. At Crevice Well, the herders and their herds sometimes had to wait many hours for their turn to use the water.

After the start of the rains in late summer, the herds were able to spread out farther. Numerous small dykes, potholes, and puddles provided temporary water sources. However, if summer

rains were infrequent or inadequate, the Navajo continued to rely upon permanent water sources.

During the winter, the herds required less water. When snow was on the ground, the animals used it as a source of water. Otherwise, the herd was taken to water every fourth day (Hoover 1937:289). Navajos also supplied their own domestic needs from snow, by melting it in a pan or coffee pot.

Cattle, horses, mules and donkeys also needed water throughout the year. While these stock foraged on their own, Navajo owners kept a close eye on the water sources they utilized. During settlement shifts, the cattle and horses were driven along with the sheep herd to the new water source.

Land Management Unit No. 3 is one of the most arid areas on the Navajo Reservation. Sufficient water, particularly for livestock, has been and continues to be a serious problem. Many of the seasonal moves made by Navajo camp members in 1934 was prompted by a need to be near a water source. Water sources must therefore be considered as a primary factor influencing Navajo settlement patterns in 1934.

6.2.2 Forage Availability

Navajo livestock grazed on a large variety of plants in 1934. The number of livestock in an area was normally positively correlated with forage availability. Areas with dense stands of palatable forage thus generally had higher livestock populations. However, if livestock water was limited or unavailable, this would not occur.

At times, Navajos purposely sought better forage for their livestock. This was limited in the 1930s, however, by previously established land use rights (See Chapter 5). Operating within this constraint, Navajos in 1934 sought the best possible forage in all areas where they had grazing rights.

The type of vegetation used for grazing differed from season to season. "Salting" was frequently performed on four-wing Saltbush. Livestock were purposely herded into Saltbush areas, especially during the winter months when other types of forage (or sources of salt) were unavailable. Other species of brush, such as sagebrush, were also a desired winter graze. During all but the heaviest snowfalls, sufficient portions of these plants would be above the snow level and thus usable as forage when grasses were buried deep in the snow.

During the summer months grasslands were the preferred grazing areas. These areas provided forage that was high in nutritional content, especially when seed heads had developed. Available forage amounts and type of forage plants available thus influenced Navajo seasonal movement.

6.2.3 Agricultural Land

Agricultural land was a limited resource in the study area. Almost all land with agricultural potential had already been claimed and was in use by 1934. In addition to being scarce, agricultural land was located in only a few primary areas of Land Management Unit No. 3. Since almost all Navajo camps had members that farmed in 1934, location of part or all of the camp

members and their livestock near the camp field or fields was an essential part of determining settlement patterns. Since arable land generally occurred near permanent water sources, as well as grassland areas, farming during the summers occurred in roughly the same areas as herding. However, since agricultural land was too clustered to allow the members of all camps to graze their livestock immediately adjacent to fields, herding could not generally take place in close proximity to agricultural areas. Given this constraint, some Navajo camps in 1934 divided economic responsibilities among camp members. Some camp members would tend the cornfield while others would herd the sheep at another location, often residing in tents or summer shades.

Movement to agricultural fields was a common seasonal adjustment for the members of most Navajo camps in the study area in 1934. Agricultural products, along with meat from slaughtered livestock, provided the majority of Navajo food in 1934. Fields were generally located in areas that suited the requirements of both herding and farming.

6.2.4 Wage Work

Permanent wage work positions were concentrated in 1934 in Tuba City, where the Western Navajo Agency headquarters, a boarding school, a hospital and two trading posts were located. Those employed at Tuba City were mostly younger and better educated than the general Navajo population. Not all Navajos employed at Tuba City were from within the boundaries of Land Management Unit No. 3. Wage work opportunities drew families

and individuals from across the reservation. Most of the government employees at Tuba City resided at this locale year long. Wage work provided nearly all if not all of their income. Many of these families possessed little or no livestock and rarely farmed.

Temporary wage work positions were also available in 1934 through the S.C.S. (Soil Conservation Service), E.C.W. (Emergency Conservation Work), W.P.A. (Works Progress Administration, later retitled the Work Projects Administration), and perhaps through the C.C.C (Civilian Conservation Corps). Much of the work sponsored by these agencies took place outside Tuba City. Projects pertaining to range improvement, water control, and agricultural development occurred across the entire study area. Men residing near a specific project location were often hired for projects, many of which lasted only a few weeks or a month. Men involved in this type of wage work either commuted from their homes each day or resided in tents or other temporary structures at the work site and then returned home on the weekends. Rarely did the worker's family reside at the work site.

Due to the availability of wage work at Tuba City, the majority of Navajos who had permanent employment lived in or near Tuba City. Temporary government workers were located at job-sites throughout the study area. The availability of agricultural land and wage work were the two primary factors that influenced the Navajo population concentration at Tuba City in 1934.

6.2.5 Fuel wood

The primary source of fuel for the Navajo in 1934 was wood. Wood was used to provide heat and to cook food, and its availability strongly influenced winter camp locations for the Navajo in 1934. The primary wood sources were the limited stands of pinyon and juniper found at several locations within the boundaries of Land Management Unit No. 3.

Because of the amount of fuel wood required and the time necessary to collect it, it was generally more efficient for the Navajo to move near a firewood source rather than haul it over long distances. In 1934, the majority of Navajo families preferred winter sites that were within five miles of a fuel wood source, if not in the midst of a tree-covered region.

A few Navajo families were able to use alternative sources of fuel in 1934. These included coal and brush:

Coal and browse plants, principally greasewood, chamise, and big sage, have replaced wood as a fuel in some cases. Along the northern part of the area south of Coal Canyon, twelve families are operating a coal mine, depending entirely upon its output for fuel needs. Greasewood is used as fuel by eight families located four miles south of Red Lake, and by four families along the Moencopi Wash (Herion 1937:12).

Informants have also indicated that driftwood found along the Moenkopi Wash and the Little Colorado River also provided an alternative fuel source for some families.

Navajo winter habitation in Land Management Unit No. 3 during 1934 was often near sources of pinyon and juniper. A more limited number of families were able to rely on alternative

fuel sources, which allowed them to reside in several other areas. Some families, for instance those at Tuba City, either purchased fuel wood or spent considerable effort and time collecting it from locations many miles distant.

6.2.6 Localized Temperature Conditions

Navajos are aware of which areas, due to environmental factors, are generally warmer during the winter. During the winter, Navajos attempted to live, whenever possible, at the warmest locations. These areas were sought not only for human comfort, but also to provide safer conditions during the lambing season. Additionally, specific microenvironments were sought for winter site location, preferably those that were protected from the northeastern winter winds. Winter sites were thus frequently located in small canyons or below hills to provide a slightly warmer environment. Areas around Shinumo Altar, around Gray Mountain, and near Black Butte particularly fit these required environmental characteristics.

6.2.7 Herd Size

Herd size affected to some extent seasonal movements in 1934. Camps with larger herds tended to move frequently and over long distances. Large herds also required water sources that provided abundant flows. In contrast, small herds could utilize springs with minimal flows as a primary water source. Small herds were thus able to graze in areas it would have been difficult, if not impossible, for large herds to utilize. Large herds tended to cluster around the more reliable permanent water sources.

6.2.8 Children In School

While only a small percentage of Navajo school-age children were students in 1934, informants from several families indicated that they resided in or near Tuba City in 1934 to be near children in school. While the Tuba City school was primarily a boarding school, some students returned home each night. Out of 344 enrolled students during fiscal year 1935 (Bureau of Indian Affairs 1930-35, Roll No. M1011-167:315), 44 were day students. While most of the day students (28) were transported to the school by bus each day, the rest walked to school from as far away as two miles (Bureau of Indian Affairs 1930-35, Roll No. M1011-167:315). Since several Navajo families lived at or near Tuba City in 1934 to be near children in school, this increased the concentration of Navajos at this location.

6.2.9 Trading Posts

All Navajo families in 1934 were at least partially dependent on goods, particularly food products, which they purchased at local trading posts. Trips to the trading posts occurred at least monthly for almost all families and probably more frequently for most. Since these trips were a regular occurrence, some Navajos located their residence near trading posts to reduce transportation time. In addition, since one or several Navajos might be employed at each store, families might move nearby these locales to take advantage of possible job opportunities. A slight clustering of several camps in the area of a trading post was thus not an unusual occurrence.

6.3.0 Settlement Patterns Identified for the Residents of Land Management Unit No. 3 in the Soil Conservation Service Reports

The reports of the Soil Conservation Service for Land Management Unit No. 3 document some of the major settlement patterns of the inhabitants of the area. These patterns were extremely important to SCS's employees' understanding of land use patterns, which influenced their land planning activities. Soil Conservation Service personnel also prepared a map (Soil Conservation Service 1937) depicting some of the movements of a portion of the Land Management Unit No. 3 Navajo consumption groups.

The Land Management Unit No. 3 consumption group map is divided into five primary areas (A, B, C, D, and E). Consumption Groups are depicted in each of these areas in a numerical ordering. For instance, in area "C," 52 consumption groups are shown. At present, no information is available to identify what Navajos were members of each of these groups. No index or key has been found to provide this information. While a few schedules for this Land Management Unit are available, the consumption group numbers on them do not correspond to the numbers on the consumption group map. Even in the late 1930s the sub-units in Land Management Unit No. 3 were confusing to government personnel:

At the time the survey was made, the principle of dividing the area into sub-units for ease of description, planning or other reasons, was practiced but such sub-divisions were made by the various branches for their own purpose and an attempt was not made to divide the area according to the consensus of opinion of the entire study group. It was therefore found that Range Management had twenty sub-units divided on

topographic and range usage. Agronomy and Human Survey Section each had five sub-units which coincided. Soils, Forestry, Biology and Engineering considered the Unit as a whole. In view of the above facts, it would seem unnecessary to attempt a correlation of the various basic data obtained by the various branches according to sub-units and in this report would [be] impossible (Anderson 1938:79).

Not all Land Management Units have these sub-unit problems. In Land Management Unit No. 5, the groups are listed on the Consumption Group map by schedule number (Page, no date). Schedule numbers are numerically ordered for the unit as a whole, rather than broken into sub-units. Thus, the information for Schedule 26 represents information on consumption group 26 depicted on the map.

The Land Management Unit No. 3 consumption group map is a useful comparative tool. I was able to verify much of the information on the map through my research. In some respects, however, the map is incomplete. It does not, for example, depict consumption group movement which occurred across Land Management Unit boundaries. It may be that many of these movement patterns were ignored to provide a stronger rationale for the government imposed unit boundaries that were not always well received by the Navajos. Another reason why many of these moves are not depicted may relate to the efforts by Soil Conservation Service personnel in the late 1930s to stop movement across these boundaries. Many of the informants who resided in more than one unit have indicated that they were told during this period to choose one unit and remain in it.

The consumption group map should also be treated cautiously because it was prepared just after the tremendous expansion of water sources during the 1930s. The Soil Conservation Service in the mid-1930s improved many water sources and created many new ones by drilling wells. These new water sources had a profound effect on the seasonal movement patterns of many Navajo camps within Land Management Unit No. 3. Water source development often allowed them to reduce their seasonal moves because water supplies were developed in areas that previously had little or no water. Livestock reductions also limited the need for seasonal movements. Like most 1930s Soil Conservation Service information, this map must be corrected from the late 1930s perspective to a 1934 perspective.

The consumption group map also does not provide adequate information on seasonal moves by Navajo camps. The map's legend does not explain whether the dots depicted on the map represent residence sites or general use areas. In addition, in some instances consumption groups are only depicted residing at a single location. Many of these consumption groups did in fact move to other locations on a seasonal basis.

Moreover, the movement information depicted on the map oversimplifies actual movement patterns. This conclusion is derived from my analysis of schedules from areas other than Land Management Unit No. 3. It generally represented no more than one winter and one summer location for a consumption group. In

the 1930s many Navajo camps were living at as many as five or six locations for which they had use-rights during the course of a year.

An ambiguous area of this map is the portion of Land Management Unit No. 3 labeled "Hopi Area." No explanation is given for this area in SCS reports. Although the map depicts very little movement by Navajos into this geographic area, I uncovered during my research a great deal of Navajo activity in this area.

6.3.1 Population and Livestock Concentrations

The primary population concentration in Land Management Unit No. 3 was located in Tuba City:

The population of Unit No. 3 is rather evenly distributed over the entire area with the exception of a concentration at Tuba City, due primarily to the presence of the boarding school, hospital, trading posts, permanent livestock water, and agricultural land (Anderson 1938:23).

As noted above, a number of factors influenced the population concentration at Tuba City. Those same factors also affected the range in this area; it and several other unit areas were "severely overstocked over a period of years with consequent over-utilization and range depletion" (Anderson 1937:26).

In addition to the Navajo population of Land Management Unit No. 3, Hopi Indians were also present: "Population is made up of Navajo Indians with a colony of Hopi Indians located at Moencopi Village" (Anderson 1937:10). The Hopi colony was "congregated in one locality at Moencopi Village" (Anderson 1938:25).

Several lesser Navajo concentrations also were present in Land Management Unit No. 3:

The population of the Unit is rather evenly distributed over the area with the exception of a concentration at Tuba City and to a lesser degree concentrations on Gray Mountain, Coal Mine Mesa, Gap, and Bodoway House (Anderson 1937:10).

This is reiterated in another Soil Conservation Service report:

Lesser concentrations, all of them of a seasonal nature, are to be found on Gray Mountain, on Coal Mine Mesa, and at the Gap, and the Bodoway House (Anderson 1938:23).

The existence of these secondary concentrations was linked to the availability of permanent water supplies (Anderson 1938:37). In addition to Gray Mountain, Coal Mine Mesa, Gap, and Bodoway House, population concentrations were also noted for Moenave and Cameron (Anderson 1938:21). Livestock concentrations, which, among the Navajo, are correlated with population concentrations, were noted for the areas around Tuba Butte (Anderson 1938:29), Cedar Ridge (Anderson 1938:37) and Willow Springs Wash (Anderson 1937:26).

In summary, Navajo population and livestock concentrations were noted by the Soil Conservation Service personnel for the following locations:

- 1) Tuba City
- 2) Moenave
- 3) Gray Mountain
- 4) Coal Mine Mesa
- 5) Gap

- 6) Bodaway House
- 7) Cameron
- 8) Tuba Butte
- 9) Willow Springs Wash
- 10) Cedar Ridge

Hopi population was reported to be congregated at Moenkopi Village.

6.3.2 East-West Differences

The western and eastern portions of Land Management Unit No. 3 differed in one important respect--water availability. The western portion of Land Management Unit No. 3 had few permanent water sources, which directly affected use of this area by both humans and livestock. East-West differences were summarized by Soil Conservation Service personnel in these terms:

The problem of livestock water on the Unit is a serious one. For discussion, the Unit may be divided into two general regions, the area east, and the area west of Highway No. 89. In the former area water is rather abundant and of permanent nature with relatively good distribution. The principal factor in this area is maintenance of existing supplies with the development of a few supplies.

The latter area the water problem is more difficult of solution. Nearly all the water in the area is of temporary nature (Anderson 1937:19).

The water problem in the western portion is detailed more explicitly in this statement:

The area lying west of Highway 89 is singular in that no permanent water exists at the present time. The area is cut by deep canyons on the south and on the west, allowing water that would otherwise be available in the form of drilled wells to be drained out of the

area. Earth reservoirs and a few shallow wells furnish the only livestock water available (Anderson 1938:29-30).

The lack of water in the west limited settlement to winter use (Anderson 1938:29). At the end of winter, Navajos using this area generally moved toward the eastern half of Land Management Unit No. 3, where water was available during the drier months of the year.

6.3.3 Intra-unit Seasonal Moves

Intra-unit seasonal movements were quite common for Navajo camps in 1934. Most of these movements fit the west to east summer pattern described. Probably the largest seasonal shift, in terms of both population and livestock, was to the vicinity of Tuba City during the summer months. This shift was made due to permanent water sources in the area and due to the several hundred acres of farm land controlled by the Navajo. The seasonal shift to Tuba City/Kerley Valley was from several western and southern areas of Land Management Unit No. 3.

The Soil Conservation Service described these shifts in these terms:

Navajos who farm in the Moencopi valley below Moencopi village during the summer shift out from the valley in three directions, going west towards Boadaway, south towards Cameron, and east towards Coal Mine Mesa (Soil Conservation Service 1938:2).

Fourth, cultivated land at Tuba City and Moenave tend to draw Indians from the Bodaway House, Cedar Ridge and the Gap during the farming season. Fifth, livestock water in the Bodaway House area is of a temporary nature and a seasonal shift to permanent supplies at the Gap in Tuba City results (Anderson 1938:6).

These summer shifts to and near Tuba City for farming and permanent water were the primary seasonal moves made by Navajos in Land Management Unit No. 3. Navajos came to this area from Bodaway, Cameron, Coal Mine Mesa, Cedar Ridge, and Gap.

In addition to these primary seasonal movements, Soil Conservation Service personnel also documented two other intra-unit moves. Both of these were in the Cameron/Gray Mountain region.

The first of these involved:

a minor population shift at Cameron, where some families move west for the winter to more protected locations in the lower basin of the Little Colorado (Soil Conservation Service 1938:2-3).

This movement was thus from Cameron in the summer to the area between the Lower Basin and the northwest of Cameron in the winter.

The second reported seasonal movement pattern for this area is one with which I disagree. This shift was described as:

In the extreme southern portion of the unit the direction of shift is reversed. The people's summer locations are on the top of Gray Mountain. In the winter they move down to the east of the mountain (Soil Conservation Service 1938:3).

I believe that this statement reverses the shift. According to informants, Gray Mountain was primarily used as a winter occupation area, with the areas to the south and east providing summer range. This position is supported by a statement that recommends both the Lower Basin and Gray Mountain as winter ranges (Anderson 1938:33).

In summary, several important intra-unit seasonal movements were documented in the 1930s in several Soil Conservation Service reports. The primary population shifts, from Bodaway, Cedar Ridge, Cameron and Coal Mine Mesa to Tuba City for farming and permanent water are well documented. While several less important movements were also described, many additional seasonal shifts were not described in Soil Conservation Service documents.

6.3.4 Inter-unit Seasonal Movements

Not only did Land Management Unit No. 3 families move seasonally within the boundaries of the unit in the late 1930s, some also moved to other units. This was even more common in 1934 than later because unit boundaries had not yet been established. After they were established, as noted earlier, movements were discouraged across unit boundaries.

The first of these inter-unit moves is located at the southeastern section of Land Management Unit No. 3:

An additional, minor inter-unit shift occurs in the population south and west of Howell Mesa, who winter in Unit 3, and in summer move across the Dinnebito to Unit 5 (Soil Conservation Service 1938:4).

Based on this description, this shift covered these regions:

1) the area south and west of Howell Mesa, 2) the southern Moenkopi Plateau, 3) the area across the Dinnebito Wash.

Informants have indicated that this movement was made to take advantage of farming opportunities around Sand Springs.

At the extreme northern end of Land Management Unit No. 3 another inter-unit shift commonly occurred. This shift primarily involved residents of Land Management Unit No. 1:

Livestock usage in the vicinity of Cedar Ridge extends as far north as Bitter Seeps. The area north of that within the proposed change is used by Kaibito people for the purpose of salting their sheep on salt bush. Large herds come from Kaibito Plateau to this area for short periods of time to salt their sheep (Anderson 1937:4).

Livestock were thus moved into Land Management Unit No. 3 for a specific forage species.

The next two inter-unit shifts are interrelated. They both involved using a water source to the west of Red Mesa (Preston Mesa) and White Point. This water source, 3A-194, was called "Crevice Well" by the Navajo. An adjacent water source, 3A-193, called Preston Well, was also utilized in the area. The first of these seasonal movements involved a north-south movement of Navajos:

There are at least thirty-one families who live in the vicinity of Copper Mine, who move to Crooked Ridge from about the middle of May to the middle of June for use of the Buckskin Spring in District 3.

A total of 8,101 sheep units water at this spring every summer, due to no permanent waters around Copper Mine (Anonymous, no date).

This movement is also verified by several Soil Conservation Service reports (Anderson 1938:5-6; 1937:4). Within the same document quoted above is a list of the family heads who moved into Land Management Unit No. 3 from Land Management Unit No. 1 to use Buckskin Springs, or Crevice Well as it was more correctly called. As noted in the quote, 8,101 sheep units of livestock were moved into Land Management Unit No. 3 during part of the summer.

A large number of families from the Bodaway and Cedar Ridge area of Land Management Unit No. 3 also utilized Crevice Well for water during the summer months. Some of these families also herded into Land Management Unit No. 1 during a portion of the summer:

The principal inter-unit shift is in the Gap-Cedar Ridge area. From November to April, the people of this area are in Unit 3 in the Boadaway area. For the spring and summer, most of them shift north and across Echo Cliffs into Unit 1, moving their stock from place to place as water is available, and occasionally returning to Boadaway if local rains make for more water south of the Cliffs (Soil Conservation Service 1938:3).

The above use of Land Management Unit No. 1 together with live-stock totals for the use of Crevice Well (Buckskin Springs) is also provided in the following statement:

The people from Cedar Ridge move into District 1 east of Cedar Ridge Stone on the east side of Echo Cliff and use Windmill No. 1-A-115 until it goes dry, and then move on over the Crooked Ridge and use Buckskin Springs until it rains in Cedar Ridge, Bodoway, and Copper Mine, and then all the people using water at Buckskin Springs move back.

A total of 6,120 sheep units move in to water at Buckskin Springs every summer from Cedar Ridge and Bodoway Country (Anonymous, no date).

Informants have indicated that not all of the families who used Crevice Well also moved to portions of Land Management Unit No. 1 for any length of time. As with the list of Navajos from Land Management Unit No. 1 who used Crevice Well, a list is also provided of the Bodaway-Cedar Ridge herds who utilized this well.

As with the intra-unit shifts, Soil Conservation Service personnel did not document in their reports all inter-unit seasonal movements. They did document, however, the largest livestock movement which was the one from the Coppermine vicinity to the area west of Red Mesa and White Point.

6.4.0 Camp Residence Site Locations in 1934

The Navajo camps that utilized Land Management Unit No. 3 in 1934 occupied hundreds of residence sites within and around the Unit. A description of the types and combinations of structures occupied by Navajos in 1934, along with a description of which season or seasons each type of structure was typically used, is contained in Appendix II. The approximate residence site locations for camps 1-326, together with season(s) of occupation in 1934, are depicted on Map 1. Some dots depict the location of residence sites within one mile of where they were located in 1934; others only depict the general areas where residence sites were located in that year.

Most camps in 1934 moved between summer and winter residences. The black lines on Map 1, which link residence sites, do not indicate the route taken between residence locations. Instead, they simply tie the residence sites of each camp together and generally suggest seasonal movement patterns. Movements to Tuba City, Cameron, or the Gap for summer livestock dipping are also not depicted on the map. Although these moves occurred, they were not included since they do not represent movement within what many camps would have considered their customary use areas.

Three circumstances limited my ability to depict the location of residence sites on Map 1. First, the map does not have sufficient topographic detail to permit me to accurately locate some topographic features that informants described or used as reference points.

Second, the size of the dots relative to the map sometimes inhibited accurate depiction. Where residence sites were close to one another, placing the dots in their proper location would have required placing dots on top of one another. Rather than do this, I positioned the dots next to one another. The area around Tuba City is the most visible example of this on the map.

Third, informants sometimes referred to their 1934 residence site location by using a place name that describes a broad area or indicated that they had several residence sites in 1934 in the same general area. For example, some informants indicated that they resided during the winter of 1934 just above the confluence of the Colorado River and Little Colorado River. On Map 1, I have located these camps in a relatively small area above the confluence. The actual residence locations of these camps, however, were probably spread out over a larger area to the north and east. In other areas, such as the area around Crevice Well, camps utilized a large geographic area and may have lived at a number of locations within that area in 1934. In these cases, I have generally placed only one indication of camp residence in the area. Areas similar to those given above include the Lower Basin, Gray Mountain, near the coal mine on

Coal Mine Mesa, the Black Butte area, Red Mountain and Drag the Water Out, Cedar Ridge, Smelly Water, Dog Springs or Dog Water, Tonali, Rough House, and the plains area below Gray Mountain.

Map 1 depicts where most camps had residence sites in 1934. Informants have also described still other residence sites which I am currently investigating.

6.5.0 Additional Seasonal Movements

In addition to the seasonal movements described earlier, several more should be mentioned. These patterns were identified from informants and are depicted on Map 1. Movements between these areas were prompted by the same factors which influenced the seasonal movements that were discussed earlier. These additional seasonal movements included movements between:

- Shadow Mountain and Tonali;
- Coppermine and Cedar Ridge;
- Red Mesa/White Point and Tuba City/Kerley Valley;
- Black Mesa/Blue Canyon/Rocky Ridge and
Tuba City/Kerley Valley;
- Howell Mesa and Coal Mine Mesa;
- Sand Springs and Breezy Water;
- Gray Mountain and Black Falls/Black Point;
- Coppermine and Willow Springs;
- Wildcat Peak and Red Mesa;
- Gray Mountain and Cottonwood Flats; and
- Willow Springs and Crevice Well.

6.6.0 Summary

This chapter has described the seasonal movement patterns of the Navajo in the study area in 1934. In 1934, the Navajo resided throughout Land Management Unit No. 3. Residence locations were influenced by the availability of water sources, forage availability, farm land, wage work locations, fuel wood availability, localized temperature conditions, herd size, school attendance by a camp's children and the location of trading posts.

Chapter 7: Navajo Agricultural Field Locations in 1934

7.1.0 Introduction

Farming was an extremely important activity to Navajos who were utilizing Land Management Unit No. 3 in 1934. Many informants indicated they relied upon the agricultural products they produced, particularly corn, as their main food source in 1934. To produce these products, the Navajo population of the study area farmed a variety of field types at a number of locations throughout the area.

This chapter summarizes where Navajos farmed in the study area in 1934. Appendix III lists some of the places where camp members farmed or controlled farm land in Land Management Unit No. 3 in 1934.

Since agricultural land was a scarce resource in 1934, adult children frequently continued to farm at their parents' fields. Thus, in some instances, plots that were recognized in 1930s government reports as one field area were in fact being farmed by a number of families.

7.2.0 Total Acreage of Navajo Agricultural Fields Inside Land Management Unit No. 3

The Soil Conservation Service Agronomy Report for Land Management Unit No. 3, prepared in the 1930s, states that 1,154 acres of land were then being farmed by Navajos. Based on informant statements, I believe this figure understates actual

Navajo agricultural land use. Informants have indicated that they were farming several areas in 1934 within the boundaries of the study area that are not shown on SCS maps of the period. Perhaps ten to fifteen percent, 115 to 173 acres, of Navajo farm land is not represented in the total of 1,154 acres.

7.3.0 Specific Navajo Farming Areas In Land Management Unit No. 3 in 1934

Navajos farmed many areas in Land Management Unit No. 3 in 1934. While Navajo farming occurred in many areas, most farming occurred at approximately a dozen locations. Since Navajo summer residences were near agricultural areas, the Navajo population of the study area was concentrated in these areas during the farming months.

Camps with members who farmed or had farm land in each of these areas are identified in Appendix III. Since I was unable to determine the exact location of everyone who lived in the study area in 1934, this listing is necessarily incomplete.

With the exceptions of the Moenave and Vanzee areas, the historical documents generally do not identify which Navajo families farmed specific field areas during the 1930s. In the District 3 Agronomy Report tables, the spaces reserved for the "owners" of fields were mostly left blank (Ivory, no date). These blank listings were probably Navajo owned or controlled fields. This can be partially substantiated by adding all acreage for blank listings with those where a Navajo owner was listed and then subtracting fields for which historic records or

other sources list non-Navajo owners. The resulting acreage figure is roughly that of the total Navajo acreage listed for Land Management Unit No. 3 in the SCS Agronomy Report.

While most 1930s materials do not link specific plots with named Navajo farmers, a list of Navajo farming locations in Kerley Valley is available from the 1940s. Material from this list and other sources were used to verify specific Navajo farming areas.

7.3.1 Navajo Farming at Helen Kelly, Vanzee, Moenave, Tissi El, Littlefields and Willow Springs in 1934

In 1934, several important Navajo farming areas were located to the north and west of Kerley Valley. The majority of the fields in these areas was supplied with irrigation water from springs and seeps, which added to their importance. The English names for these areas, from east to west, are Helen Kelly, Vanzee, Moenave, Tissi El, Littlefields and Willow Springs.

Several of these areas (Helen Kelly, Vanzee, and Moenave) were initially included in the Moenave Demonstration Area. Starting in 1933 and continuing thereafter for several years, the agricultural areas in this demonstration project were improved, and agricultural land was added. The Moenave Demonstration Area consisted of 10,171 acres and extended from just west of Kerley Valley to just east of Moenave (Soil Conservation Service 1935a:80). It became a demonstration area by agreement with the Navajo representatives of the Moenave Chapter (Calkins and others 1934) and was fenced on approximately May 3, 1935.

On May 8, 1935 the livestock belonging to eleven Navajos, a total of 2,402 sheep units, was removed from inside the fence (Hunter 1935).

Work was conducted at Moenave during the winter of 1933-1934 when agency personnel renovated the reservoir (Carter 1934:8). Between March 26, 1934 and May 19, 1934 additional work was performed (Burns 1935:1) on the irrigation system (Carter 1934:9-11). Available agricultural land at Vanzee was increased after work was performed at Moenave, and even later the demonstration area was extended west to include Littlefields and Willow Springs (Isaacson, no date). At Vanzee, newly developed agricultural land was given to Navajos in exchange for donated labor.

A 1937 list of persons farming at Moenave, Vanzee, and a portion of Littlefields is available (Turner 1937:2-4). According to informants, most of the Navajos listed as farming at Moenave and Littlefields were present in 1934, but many of those listed at Vanzee received their fields (in return for the work they contributed) shortly after 1934. All persons on this list are Navajos. In addition to the above, a 1934 letter includes the names of three Navajos who farmed west of Moenave between Moenave and Willow Springs (Quate 1934:1).

In summary, several agricultural areas to the north and west of Kerley Valley were farmed by Navajos in 1934. These field areas were increased in size during the 1930s, and more Navajos came to farm there. The lands between Helen Kelly and Willow Springs were farmed exclusively by Navajos in 1934.

7.3.2 Pasture Canyon

Pasture Canyon was utilized by the United States Indian Service as well as by Navajo and Hopi farmers. The Agronomy Report (Ivory, no date) states that 14 acres in this agricultural area were farmed by Navajos. The upper part of the canyon (Quad. 71, Field 17) contained the 25 acre government farm (Agronomy Report). Below the reservoir lay two fields (15, 16) for which no owner was identified on the Agronomy report. Above the government farm was another field area (17.1) for which no owner was listed (Ivory, no date). In total, these areas account for 20 acres of farm land; Navajos probably were farming these plots.

The water from the reservoir in Pasture Canyon was used to irrigate lower fields along with those at the mouth of the canyon and those located in the Moenkopi Wash proper. One field area on the wash that used the Pasture Canyon irrigation system was the allotment of a Navajo named Accowsie (Bijooshi). In 1934, this land was farmed by his sons.

7.3.3 Kerley Valley

Kerley Valley was another center of Navajo farming in the study area in 1934. Members of many camps in 1934 controlled fields there or farmed the Kerley valley plots of their relatives. The Land Management Unit No. 3 Agronomy Report states that 358 acres of the land in this valley were farmed by Navajos, 82 by Hopi, and 340 constituted government farm land (for the boarding school in Tuba City). Informants indicate that all

usable agricultural land in the valley had been claimed and was farmed by 1934.

As with other areas of Land Management Unit No. 3, the SCS Agronomy Report fails to identify many Navajo farmers. In 1937, however, a government employee prepared a list (Page 1939:37-41) that purports to identify the occupants of many of the Kerley Valley farm plots during 1936 and 1937. The list also refers (Page 1939:39) to a map linking plot numbers with specific farm plots. Unfortunately, that map cannot be located, so it is not possible to link with absolute certainty the list of farmers with specific farm plots. Other maps from the 1940s are available, however, that depict farm plots by plot number.

When used in conjunction with these maps, the list can be used to help identify the location of several Navajo farmers. The list identifies several plots as being farmed by Navajo, although it does not identify many of these individuals by name. Based on informants, I have been able to identify as Navajo fields several other plots which the list left blank. In addition, informants indicate that some other plots which were farmed by others in 1936 or 1937 were farmed or owned by Navajos in 1934.

A list of Kerley Valley farms and farmers is also available for the mid-1940s. This list provides information on the names of persons whose plots were supplied with irrigation water from the Upper Moenkopi diversion dam. I have used a revised copy of this map (Map 2) to depict the locations of Navajo farms in 1934

that were supplied with irrigation water from the diversion dam located in Moenkopi Wash. This map is based on informant statements concerning 1934 farming activity and detailed documentary information concerning farming activity in the 1940s.

7.3.4 Coal Mine Mesa and the Northern Moenkopi Plateau

Coal Mine Mesa and the Northern Moenkopi Plateau were two other Navajo dry and floodwater farming areas in 1934. The Agronomy Report (Ivory, no date) identifies two fields (1 and 2) on the Moenkopi Plateau in Quad. 70. The Agronomy Report indicates that one of these fields (Field 1) was owned by a Navajo named Goldtooth; the report does not disclose the name of the owner of the other Navajo field (Field 2). Informants indicated that the members of several camps farmed Field 1 in addition to Frank Goldtooth. These included his in-laws and their daughter and son-in-law. Informants also indicated that Field 2 was farmed by a Navajo in 1934.

Several Navajo fields were also located north and west of the coal mine on Coal Mine Mesa in 1934. According to the Agronomy Report, Field 24 (Quad. 71), located in the Hollow Place, was farmed by "Tohonnie." This Navajo man was a resident of the area in 1934.

Several informants have also indicated that Fields 3, 4 and 5, located on the northern end of Coal Mine Mesa, were Navajo field areas. These fields did not prove to be very successful, so it is possible that they were not farmed in 1934.

Several other fields in this area were probably farmed by Navajo in 1934. The Agronomy Report lists no "owner" for Field 31 (Quad. 71) at the edge of the Hollow Place, Field 10 (Quad. 71) on the Moenkopi Plateau south of Moenkopi Wash, and Field 22 (Quad 71) to the east and south of the previous field. As suggested in Section 7.3.0, the total acreage figures reported by the government suggest that those unrecorded fields were farmed by Navajos.

7.3.5 Other Primary Navajo Farming Areas In Land Management Unit No. 3

In addition to those described, the Navajo farmed in 1934 at many other locations in Land Management Unit No. 3. Some of these areas are described below; others are listed in Appendix III. Some of these areas contained a clustering of fields; others had only one or two fields present.

In the area north of Tuba City, a number of fields were located around White Point and Red Mesa. These fields were primarily of the floodwater type. Several fields were also located along Hamblin Wash, in the area of the Gap.

Navajos also farmed two areas north of the Gap, by the Cedar Ridge Trading Post and in an area to the north, which the Navajo call "Red Hill Into Water." Several fields were also located even further north in the areas of Bitter Seeps and Navajo Springs.

Navajos also farmed at several places in 1934 in the area south and west of Tuba City. One of the most important of these

was just below Shadow Mountain along the Moenkopi Wash. Several other Navajo fields were located nearby Cameron, in the wash that leads to Tappan Springs. Several other fields were located on top of Gray Mountain, despite the fact that this location was not a particularly favorable site for farming. Several other Navajo fields were located south of Gray Mountain in canyons that intrude into Additional Hill.

Several other important Navajo farming areas were present in 1934 upstream of Cameron, along the Little Colorado River. One of these areas was three or four miles from Cameron; one other important farming area was below Black Falls. The fields at both locations were irrigated with water from the Little Colorado.

The area around Howell Mesa, to the west, south and east, was also an area of numerous small floodwater fields farmed by Navajos in 1934. Many small floodwater fields were also present further north to the south of Rocky Ridge and in the area of Bat Springs. Many Navajo camps farmed in both of these areas.

The upper portion of Rough Canyon also held Navajo fields in 1934 as did the area below the coal mine in Coal Mine Canyon. Other fields located in these canyon systems included several in Bat Canyon.

Several Navajo fields were located in 1934 in the Moenkopi Wash to the east of Kerley Valley. Fields were located at "Standing Cottonwood Tree" and at Shonto (sometimes called "Billy Goat Springs").

Additional Navajo fields were located in 1934 along the rim above Tuba City and in Tuba City . Informants also indicated that they farmed just west of Kerley Valley near where the Lower Moenkopi agricultural project was established in the late 1930s.

7.4.0 Allotments Issued to Navajos in the Moenkopi Wash and Tuba City Vicinity

Early in this century, a number of Navajos received patent land allotments in the Moenkopi Wash and Tuba City vicinity. These land allotments, six in number, were deposited in the General Land Office on July 23, 1904, and signed by President Theodore Roosevelt on May 23, 1905. The six Navajos receiving allotments and the acreage they received are as follows (Ah cow er shee 1905; Ga maun bitse 1905; Charley Itz ze tee 1905; Hosteen Clitsoey 1905; Shoie Noel thi 1905; Ish cla clal pah dan ne 1905):

<u>Name of Navajo Allottee</u>	<u>Acreage</u>
Ah cow er shee	20
Ga maun bitse	20
Charley Itz ze tee	60
Hosteen Clitsoey	40
Shoie Noel thi	40
Ish cla clal pah dan ne	40
	—
Total	220 acres

Five of these allotments were adjacent to one another on lands that encompassed considerable farming areas in the Moenkopi Wash. These five contiguous allotments were slightly east of the school farm in Kerley Valley. The sixth allotment, that of Ah cow er shee, was located further up the Moenkopi Wash near the mouth of Pasture Canyon.

In 1934 these allotments were being farmed by the original allottees or their Navajo descendants. The five allotments that were located in the wash utilized water from springs and seeps to irrigate crops. The allotment further upstream used water from Pasture Canyon.

7.5.0 Allotments Issued to Navajos Elsewhere in Land Management Unit No. 3

In addition to the Moenkopi Wash and Tuba City vicinity allotments, others were also allocated to Navajos in the Cameron-Gray Mountain area. Some of these allotments, granted between 1921 and 1930, may not have been used for farming. Minimally, the Navajos receiving allotments and the acreage they received are as follows (Tsee-cudi Badoni 1924; Asthan B'l'chin Halcon 1926; Keeth pi e 1921; Sampson Hustoe 1923; Hostein-bath-chin-clun 1921; A sos pi 1921; Es son chee 1921; Yah nip pah 1921; Ath soon es pah 1921; De na Chee 1921; Hostein nez 1921; Do-hi-he 1921; Asthan-l-tsie 1930; Nocki-dena-l-tsoie 1930; Nah-des-pah 1929; Keet-so 1926):

<u>Name of Navajo Allotee</u>	<u>Acreage</u>
Tsee-cudi Badoni	160
Asthan B'l'chin Halcon	160
Keeth pi e	160
Sampson Hustoe	160
Hostein-bath-chin-clun	160
A sos pi	160
Es son chee	160
Yah nip pah	160
Ath soon es pah	160
De na Chee	160
Hostein nez	160
Do-hi-he	160
Asthan-l-tsie	160
Nocki-dena-l-tsoie	160

Nah-des-pah
Keet-so

160
103.1

Total

2503.1 acres

7.6.0 Summary

Farming was an extremely important activity to the Navajo inhabitants of the study area in 1934. Agricultural fields controlled or owned by Navajos were located in many areas of Land Management Unit No. 3. At least 1,269 acres of land in the study area were involved with Navajo farming activities in 1934.

Chapter 8: Navajo Livestock Numbers and Areas Navajo Livestock
Grazed In 1934

8.1.0 Introduction

One cornerstone of the Navajo economy in 1934 was livestock. Members of most camps I have identified as residing, grazing livestock, or farming within the boundaries of Land Management Unit No. 3 in 1934 owned livestock and used this area for grazing their animals. Presented here is information on the amount of livestock owned by members of these Navajo camps together with the locations where their sheep, goats, cattle, horses, mules and donkeys grazed in 1934.

Detailed documentary information on individual ownership of livestock is not available for the study area in 1934. It was therefore necessary to rely on documentary materials from a later date. Individual livestock ownership information is available for 1937 which is mostly but not totally complete. However, due to the government imposed livestock reduction programs that occurred in late 1934 and the following years, this information does not accurately reflect the amount of livestock owned by Navajos in 1934.

Reduction programs resulted in significant declines in Navajo livestock from 1934 to 1937. The impact of some of these reduction programs was partially recorded in documents of the period. It is thus possible to make a conservative estimate of

Navajo livestock holdings for 1934. My estimate is included in this chapter, along with a description of how this estimate was reached. This estimate includes only those persons who received livestock permits for Land Management Unit No. 3. Excluded are camp members who grazed livestock in the District 3 area in 1934, but who were later included in the grazing records of other districts. Because of this exclusion, my estimate understates actual Navajo livestock holdings in the study area for 1934. While the livestock of these camps were not included, they should not be overlooked. I will summarize their livestock ownership at a later point in this chapter.

In addition to making an estimate derived from documentary sources, this chapter also includes informants' counts of each camp's livestock in 1934. The final portions of this chapter specify the locations where Navajos grazed livestock in Land Management Unit No. 3 in 1934, along with a discussion of documentary evidence that specifies the location of livestock owned by Navajos.

8.2.0 1937 Livestock Ownership Information for Land Management Unit No. 3

In 1940 the Soil Conservation Service issued a document entitled "Livestock Census, Maximum Limit, and Permit Compilation District 3." For convenience, this document will be referred to here as the "District 3 Permit List." This document provides a wealth of information concerning mature stock that was owned in 1937. This document provided the foundation for

further government instituted livestock reduction programs (primarily horse reduction) and programs to control the location of these livestock. Individuals received livestock permits based on their ownership of stock in 1937 and the grazing capacity of Land Management Unit No. 3.

The District 3 Permit List (Soil Conservation Service 1940) based its livestock count primarily on livestock dipping records. Animals not dipped (i.e., horses, mules, donkeys, and cattle) were included on this list based on a unitwide range roundup completed for Land Management Unit No. 3 by the end of November 1937 (McPhee 1937a:1). These roundups were conducted "to get an accurate count of all horses and cattle on each district and to definitely establish ownership of all animals" (McPhee 1937:21). Since grazing permits were based upon ownership of mature stock, the government included only mature stock in its count. In total, the District 3 Permit List indicated that 56,514 total sheep units were owned by the persons included on the list in 1937. Sheep units were determined on the following basis: each sheep or goat equalled one sheep unit, cattle equalled four, and horses (including mules and donkeys) equalled five sheep units each.

Through careful analysis, I have concluded that 370 of the persons listed on the District 3 Permit List were in the study area in 1934. These persons are included in the camps listed in Appendix I. In 1937, these 370 persons owned 51,829 sheep units of livestock. This number does not include persons belonging to camps which have camp numbers above 800 (2 persons) since

I am not completely positive these persons were in the study area in 1934.

I have also not included among the 370 total the 25 persons listed in Appendices IV and V. These individuals are either persons whose status is to date undetermined or are persons who informants said were not grazing livestock in Land Management Unit No. 3 in 1934. It is possible that some of the individuals whom I excluded owned livestock that grazed in Land Management Unit No. 3 in 1934. For example, two of the men who were included on the 1937 permit list were from outside the study area and married women in the study area after 1934. The majority of their livestock, in accordance with Navajo custom, probably belonged to their wives or wives' families in 1934. In 1937 these two men owned 284 sheep units of livestock.

If the livestock of the 27 excluded persons were included, the previously given estimate increases to 53,068 sheep units.

8.3.0 Estimate of Navajo Livestock Owned by Members of Land Management Unit Camps in 1934 Based on Documentary Materials

Between 1934 and 1937 the government reduced the livestock herds owned by the Navajo. One of the most important of these actions was the "goat reduction" that occurred shortly after the conclusion of dipping in late September and early October 1934 (Lenzie and others 1935:2-3). This reduction was preceded by one in 1933 in which 86,500 sheep were removed from Navajo ownership. Reservation-wide, the 1934 reduction eliminated 147,789 goats and 49,138 sheep, for a total of 196,927 animals (Lenzie and others 1935:8). In the Western Navajo Agency alone,

20,000 goats and 8,000 sheep were reduced (Bureau of Indian Affairs 1930-1935, Roll No. M1011-167:310).

These reductions were followed by an additional sheep and goat reduction campaign in the fall of 1935 that removed 3,583 ewes and 4,884 goats from the area of the Western Navajo Agency (Anonymous 1935:18).

Estimates of the number of sheep and goats that were reduced can be computed using dipping records and 1937 stock ownership information. Calculations to obtain these estimates are shown in Appendix VI. They indicate that in 1934 and 1935, approximately 12,432.7 sheep and goats were removed from the herds of the permittees that were located in what later became Land Management Unit No. 3.

Once this number is added to the livestock population figures for 1937, it is possible to estimate the 1934 livestock population for Land Management Unit No. 3 and to apportion this population between Navajo and Hopi owners. Appendix VI contains my estimates of the number of sheep units that were owned respectively by the Navajo and Hopi in 1934. Two sets of estimates are made: one estimate assumes that the government reduced the Hopi sheep and goat population in 1934 and 1935 when they reduced Navajo livestock and the other estimate assumes that Hopi livestock were not reduced. If the government reduced Hopi sheep and goats in 1934-1935, I estimate that in 1934 the Hopi owned 3,728.41 sheep units of livestock (i.e., the 1937 Hopi livestock population adjusted to account for stock reduction).

Under the same assumption, I estimate that the Navajo owned 63,647.13 sheep units of livestock in 1934. Assuming that Hopi livestock were not reduced during 1934-1935, I estimate that in 1934 the Hopi owned 3,446 sheep units and the Navajos owned 63,929.69 sheep units. This estimate of Navajo livestock excludes the livestock of those persons listed in Appendix IV and Appendix V, whose status is either undetermined or whose presence in the study area in 1934 cannot be presently verified. If they were included, this estimate would probably increase.

While these estimations are close approximations, they nonetheless still understate the Navajos' actual 1934 livestock holdings in Land Management Unit No. 3. Missing are livestock owned by individuals who owned livestock in District 3 in 1934, but who were not included in the 1937 District 3 permit list. This occurred in three ways. First, several District 3 livestock owners died between 1934 and 1937 and their herds may not have been included in the 1937 permit list. After an owner's death, heirs often sold or removed the deceased's livestock to other areas. It is therefore possible that the livestock of some of the deceased District 3 owners were removed from the study area between 1934 and 1937.

Second, informants told me that several families who owned livestock between 1934 and 1937 did not receive grazing permits in 1937. This sometimes occurred because they did not dip their livestock in 1937, leaving their livestock entirely uncounted and therefore ineligible for a permit. Other families were

denied permits or were granted permits for only a nominal number of sheep units because they refused to cooperate with the government employees conducting stock reduction.

Third, the 1937 District 3 Permit List contains reporting errors. At least two District 3 livestock owners were omitted, despite the fact that they dipped their sheep: "It has been found also that two Indians dipped sheep and were never put on the large blue sheet which is supposed to have all the dipping records, on it" (Day 1940). Similarly, four camps in the northern section of District 3 seem to have been omitted from permittee lists of both District 3 and the nearby District 1: "At a meeting at Tuba City, we were advised by Mr. O'Neal that approximately four family groups, living in the north end of District 3, and owning approximately 1000 sheep units of livestock, were not included in either District 3 or District 1" (Powers 1940). An undercount of Navajo livestock thereby resulted.

To more closely approximate the actual livestock totals in 1934, my earlier estimates must be adjusted for those families who owned livestock in District 3 in 1934, but who were excluded from the 1937 District 3 permit list. Based on the above, I estimate that these families owned at least 1,500 sheep units in 1934. Adding this figure to my earlier estimate, I conclude that District 3 Navajo camps owned at least 65,000 sheep units in 1934.

Even with this adjustment, this estimate probably still understates 1934 Navajo livestock holdings in District 3. In addition to District 3 camps, a number of other Navajo camps from other land management units were grazing their livestock within the boundaries of Land Management Unit No. 3 in 1934. Generally, these camps later received permits in land management units other than the study area. If the stock of these camps is considered, perhaps another 20,000 Navajo owned sheep units utilized District 3 in 1934.

8.4.0 Informant Camp Livestock Ownership Information for 1934

For all but a few of the camps included in this study, informants were able to provide complete or partial counts for mature livestock owned by camp members in 1934. This information is contained in Appendix VII. Only camps with numbers below 800 are included since these represent those that I am confident were utilizing Land Management Unit No. 3 in 1934. The procedure used to determine total sheep units owned by the members of these camps in 1934 reflected my conservative approach to this study. The procedure, which is summarized in Appendix VII, employed the most conservative livestock estimate supplied by informants. For example, if two informants supplied information on livestock owned by the members of a camp in 1934, and one indicated it totaled 100 sheep units and another said the camp had 200 sheep units, I selected the lower of the two figures to include in the appendix.

I was unable to obtain informant information regarding the 1934 livestock holdings of 21 camps. Rather than ignore these

camps altogether, I included in Appendix VII these camps' livestock holdings that were recorded in the 1937 District No. 3 Permit List. Due to the livestock reduction programs that occurred between 1934 and 1937, using these 1937 figures probably understates those camps' 1934 livestock holdings.

Using this procedure, the 332 camps included in Appendix VII owned approximately 173,126 sheep units of livestock in 1934. To compare this estimate with that derived strictly from the 1937 District 3 Permit List, one needs to subtract from this figure: 1) livestock owned by camps that grazed in District 3 but that did not later receive livestock permits in Land Management Unit No. 3; and 2) livestock owned by those camps that SCS personnel would probably not have included in Land Management Unit No. 3. Seventy-nine camps fall into these two categories; informants indicate that these camps owned 57,437 sheep units in 1934.

This deduction leaves 253 camps. These camps either later received livestock permits in District 3 or would have been considered to be District 3 camps by SCS personnel. Several of these latter camps were no longer in existence in the late 1930s due to death or marriage of key family members. In total, informants indicate that these 253 camps owned 115,689 sheep units in 1934.

This informant provided amount is higher than the estimate derived, after adjustment, from the 1937 District 3 Permit List. This does not mean that the informants are wrong or that

they overstate 1934 livestock holdings. The figure I earlier presented was a very conservative estimate. Based on the informants' statements, I believe Navajo livestock in the study area was greater in 1934 than my earlier estimate indicates.

8.5.0 Locational Information Contained in "Livestock Census, Maximum Limit, and Permit Compilation District 3" Document

The District 3 Permit List also contains potentially important locational information (Soil Conservation Service 1940). It identifies, in the far right hand column, the subarea of Land Management Unit No. 3 in which each permittee grazed his or her livestock. These areas are designated by letter and number. Four large areas of Land Management Unit No. 3 are designated by the letters "A," "B," "C," and "D." These large areas are further divided by number into subareas. For example, area "A" consists of four subareas, which the document lists as "A-1," "A-2," "A-3," and "A-4." Similarly, area "B" has six subareas, area "C" four, and area "D" three. Altogether, 17 subareas are identified.

Unfortunately, I have been unable to discover a map that depicts the exact locations and boundaries of these large areas and their subareas. I have examined no map that exactly mirrors these areas and subareas, nor have I seen acreage information on those areas. Grazing subunits are included in several documents (Anderson 1937:32; Anonymous, no date a), but they divide the District 3 range into 20 "sub-units," not the 17 subareas listed above.

I have no doubt that the subareas listed on the District 3 permit list were at one time recognized geographic areas. It is possible that the 20 "sub-units" were combined into 17 "subareas" in the late 1930s. As noted earlier in this report, even government personnel during the 1930s were confused by the Land Management Unit No. 3 subdivisions made by the various survey groups (Agronomy, Human Surveys, Soils, Forestry, Biology, Range Management, and Engineering) (Anderson 1938:79).

Other land management units also utilized the subarea or subunit approach to further divide their areas. For instance, in Land Management Unit No. 5, the "Livestock Census, Maximum Limit and Permit Compilation District 5" divides the area into three "Sub-Dists" that are referred to on the list as "A," "B," and "C" (Soil Conservation Service 1940a). The location of these "Sub-Dists" are also noted on this document with "A" indicating Red Lake, "B" indicating Leupp, and "C" indicating Bird Springs. These "Sub-Dists" are also indicated on maps depicting this land management unit.

8.5.1 Verification of Informant Locational Information Provided By District 3 Permittee List

Despite the absence of a map accurately depicting the subareas of Land Management Unit No. 3, I was nonetheless able to use the subarea designations contained in the District 3 Permit List to verify locational information provided by informants. Although the subareas' exact boundaries could not be determined, it was fairly easy to determine these subareas'

general locations by examining the names of those who are identified in each subarea. From this examination, I determined that area "A" was the Cameron-Gray Mountain-Lower Basin region, "B" was the Moenkopi Plateau-Coal Mine Canyon-Coal Mine Mesa-Howell Mesa region, "C" was the area from Black Butte north to Lees Ferry, and "D" was the area from Tuba City north to White Point, Red Mesa and Crooked Ridge. During fieldwork I was also able to determine the approximate location of some of the subareas in each of the four primary subdivisions of this land management unit.

This information helped to verify the areas utilized by camps for grazing. I compared informant locational information with the subarea location listed on the District 3 Permit List. When the two information sources agreed, I had greater confidence that the camp in question was located in a particular area.

While this was a useful cross-check, its utility was limited. Many Navajo camps frequently resided and grazed livestock in more than one of the minor and major subdivisions of the study area. Unfortunately, the District 3 Permit List sets forth only one subarea for each permittee. The subarea designation contained on the list thus fails to take into account seasonal transhumance patterns.

8.6.0 Documentary Evidence for Overlapping Navajo-Hopi Grazing Locations

The locational information provided in the District 3 Permit List, as well as one other source (Page 1939), indicates that there were some locations where both the Navajo and the Hopi

grazed livestock. According to the District 3 Permit List, Hopi Indians had livestock in two subareas, "B-1" and "B-5," which also contained Navajo livestock. In 1937, subarea "B-1" contained 2,937 Hopi sheep units, or 85.2% of all Hopi sheep units listed on the District 3 Permit List. In this same geographic subdivision, according to the District 3 Permit List, Navajos grazed 1,679 sheep units of livestock. According to the same source, subarea "B-5" contained 264 sheep units of Hopi livestock as well as 145 units of Navajo livestock.

Due to the seasonal movements of Navajo camps into the areas just discussed, these figures probably understate the number of Navajo livestock in those subareas in 1934. Much of the Navajo livestock that utilized these areas on a seasonal basis are not included in the records for these subdivisions.

One other document describes a joint Navajo-Hopi range in the late 1930s. Page (1939:33) states that "Some six Navajo groups headed by Goldtooth, George Bancroft, Belone and Tohanih Begay live in and operate stock on the Hopi range year-long." Page (1939:33) also indicates that eight Navajo groups from around Gray Mountain were using this area due to drought conditions. Informants have also indicated that in 1934 a number of Navajo camps regularly utilized the "Hopi range" described by Page (map, "Proposed Moencopi-Hopi Range," dated 4/12/37) during the spring and summer months to take advantage of available water supplies in this area.

8.7.0 Areas Navajo Owned Livestock Utilized for Grazing in 1934 in Land Management Unit No. 3

In 1934, Navajo camps utilized all but a very small portion of the land within Land Management Unit No. 3 for livestock grazing. I asked many informants where they herded their livestock in 1934. From this source, as well as from documentary sources, I have concluded that, with certain exceptions, Navajo livestock grazed over the total surface area of Land Management Unit No. 3 in 1934. Even the upper Moenkopi Plateau area, just south of Moenkopi Village, was an area with active, albeit less intense, Navajo herding and residence. Informants indicated that several Navajo sheep and goat herds utilized this area in 1934. In addition, Navajo cattle and horses were also in this area according to informants.

There are areas which Navajo livestock probably did not graze. Some locations were inaccessible to livestock due to natural and man-made causes. Livestock could not reach some areas, such as the tops of certain geologic formations. Livestock could also not graze into man-made inaccessible areas such as fenced agricultural fields, other fenced areas, and areas with other non-natural restrictions.

In addition, no one I interviewed indicated that they intentionally grazed their sheep and goat herd within the confines of Moenkopi Village. Area residents probably did not herd their sheep and goats any closer than several hundred meters from the village. It is possible, however, that unherded Navajo livestock may have inadvertently entered this area.

Moreover, several Navajo who were Moenkopi residents may have had livestock in the village area during 1934.

8.8.0 Summary

Livestock was a key component of the Navajo economy in 1934. Navajos grazed their stock everywhere within the boundaries of Land Management Unit No. 3 except for man-made and naturally inaccessible areas.

Navajo livestock in 1934 was more numerous than in 1937. Overall, they represented at least 94.5 percent of the livestock grazed in Land Management Unit No. 3. The above percentage does not include the Navajo livestock from other land management units that also utilized this geographic area in 1934. Navajos were much more affected by the 1934 and 1935 reduction programs than the Hopi if the Hopi were affected at all. This was due to their having a higher percentage of their livestock in sheep and goats. When the numbers of Navajo and Hopi livestock reduced in 1934 and 1935 are added to other livestock held, it increases the proportion of all stock which was owned by the Navajo in 1934.

Chapter 9: Summary

9.1.0 Introduction

This report has primarily examined Navajo use and occupancy of lands in and around Land Management Unit No. 3 during the calendar year 1934. Contained here is a summary of some of my findings to date concerning these topics. Many more findings, equally as important as those included here, have been presented throughout the body of this report.

9.2.0 Population

If Land Management Unit No. 3 had been in existence in 1934, I believe its Navajo population would have been approximately 1,900 persons. If those persons from neighboring land management units who utilized District 3 for livestock grazing, residence, or farming were included, another 700 persons would need to be added to the previous total. In the community of Moenkopi in 1934, I have identified to date a significant Navajo and mixed-blood Navajo-Hopi population.

9.3.0 Navajo Residence Locations

Much of the Navajo population of Land Management Unit No. 3, as well as other units in Arizona, practiced seasonal transhumance in 1934. They usually lived at several locations during the course of a year in order to meet the needs of herding, farming, and other economic and social activities.

Navajo residence sites were located throughout the areas occupied in 1934. In farming communities or those with schools or other facilities, the population was dense. In outlying areas, usually a half mile or more separated residence sites. This afforded more efficient use of lands for the grazing of each camp's livestock.

9.4.0 Animal Husbandry

Animal husbandry was the most important economic activity conducted by the Navajo in 1934. It accounted for much of their cash income and was an important food source. Many types of livestock--sheep, goats, cattle, horses, mules and donkeys--were owned by the Navajo in 1934.

Documentary evidence along with informant statements indicate that Navajo livestock were grazing the total surface area of Land Management Unit No. 3 in 1934 except for those areas that were inaccessible because of man-made or natural barriers. No one I interviewed indicated they purposely grazed livestock within Moenkopi Village. It is possible, however, that several persons on my camp list, who lived in Moenkopi Village in 1934, kept livestock at this location.

9.5.0 Agriculture

Farming was an activity engaged in by nearly every Navajo family in 1934. Navajo farming areas were located throughout Land Management Unit No. 3 as well as throughout all Navajo occupied lands. Navajos in 1934 farmed irrigated, floodwater and dry fields. Navajo farming locations within Land Management

Unit No. 3 in 1934 included Kerley Valley, Pasture Canyon, Coal Mine Mesa, the Moenkopi Wash, Cedar Ridge, Howell Mesa, Rocky Ridge, Vanzee, Moenave, Littlefields and Willow Springs. In 1934, the majority of farm land within District 3 was used and controlled by Navajos.

9.6.0 Validity of Historic Documents

Through field research I was able to validate the accuracy of many historic documents that identified the Navajo populations and the lands used by this population. I determined that Navajo census materials during the period were for the most part extremely accurate. Materials produced by the Soil Conservation Service and others during middle and late 1930s accurately reflect Navajo land use. Documents concerned with individual livestock ownership, available for the late 1930s, due to earlier government imposed reduction programs, understate Navajo livestock holdings in 1934.

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