LAND MANAGEMENT UNIT 17 - PUEBLO

REPORT OF SOCIOLOGICAL SURVEY

Navajo Service
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POPULATION

Land Management Unit 17 has a total Navajo population of 3,587 grouped in 512 consumption units.[1] The inhabitants gain their livelihood from the raising of livestock, farming, and in recent years wage work. The eleven trading posts located within Unit 17 provide the people with goods which they do not produce and serve as collecting and distributing centers for the livestock and other products which are marketed.

There are several general areas of population concentration which are located in the vicinity of agricultural lands. These may be divided into an eastern section including Klagetoh, Wide Ruins, and Pine Springs; a western section composed of Steamboat; and a large central concentration extending from Kinlichee and Cross Canyon in the

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(1) The consumption groups range in size from 1 to 25 with the average number 7. Over half (55%) of these groups including nearly half of the total population vary between 4 and 8 persons per group.

north-east corner of the Unit through Ganado and Cornfields in the center to Sunrise and Greasewood in the south central portion.

Table I

Population by Farming Areas

	Number	Con. Group
Klagetoh, Wide Ruins, Pine Springs	1131	162
Steamboat,	478	68
Kinlichee, Cross Canyon, Mountains	939	134
Ganado, Cornfields,	619	88
Greasewood, Sunrise, Mesa,	420	60
TOTAL	3587	512

The seasonal migration of owners with their flocks is widespread. These shifts generally take place at the beginning of the summer and again late in the fall or early winter. The summer movement involves the utilization of range on the mesas and the mountains with a return to the lowlands for the colder season.

Around Klagetoh and Wide Ruins the people graze their sheep near Klagetoh and toward the west while during the summer season they occupy the woodland to the east and

in the direction of the forest. The Steamboat people graze their flocks on the mesa surrounding Steamboat during the summer, but return with their livestock for winter grazing in the immediate vicinity of their agricultural land.

The people of Kinlichee section in the north-east graze their sheep in the upper woodlands and pine woods to the south during the summer, but return with their flocks to Kinlichee and the low woodlands for the winter season. Around Ganado the people winter their flocks in that region and to the south and south-west while those living near Cornfields winter their livestock about 15 miles to the south-east on the upper mesas and north to the mesa country. During the summer the Ganado people move with their flocks to Cross Canyon toward the pine woods, while those at Cornfields usually winter in that vicinity.

In the region of the lower Wide Ruins Wash, the people remain in that region during the summer and move to the mesa country to the south onto Padre Mesa and north to mesa covered with sage and wood.

The people living in the southern part of the Unit, extending to and including Pine Springs, tend to remain in the same section during the entire year with little or no shift of

population and flocks.

In the south-west corner of the Unit are a small number of large owners. There is only one instance of an inter-Unit movement of flocks.

INCOME

The people of Unit 17 depend almost completely upon the income derived from wage work, livestock, and agriculture for their livelihood. The total income in 1935 exceeded half a million dollars ($525,900), of which two-thirds, ($353,400), represented a commercial or cash income. The other one-third, ($172,500), included the purchase value of livestock and agricultural products produced and consumed by the inhabitants. The division of the total income into its five principal categories indicated that wage work and livestock each contributed one-third respectively, of the total amount. Another one-fourth (24%), was derived from agriculture. The income from the sale of rugs was the fourth most important source of revenue.

Table II

Total Income - 1935

	Comm	Non-Comm	Total	%
Wages	$175,600		$175,600	33
Livestock	119,300	$53,700	173,000	33
Agriculture	6,700	118,800	125,500	24
Rugs	48,600		48,600	9
Miscellaneous	3,200		3,200	1
TOTAL	353,400	172,500	525,900	100

The analysis of non-commercial income demonstrates that agriculture was considerably more important than livestock. Nearly 70% ($118,800), of the non-commercial income was represented by agricultural crops produced and consumed. A considerable but unestimated portion was consumed by livestock, principally horses. The commercial income from agricultural products was negligible, and is of even less significance when it is realized that practically all of such products sold to the trader were later repurchased by the Navajos.

Other than wage work, livestock was the most important source of commercial income and also represnted a considerable portion (30%) of the total non-commercial income.

The braak-down of commercial income into separate items (Table III), emphasizes the importance of wage work as a source of revenue which includes half of the total amount.

The income from livestock accounts for another one-third and is particularly important in its relation to the negligible income derived from agriculture, (2%). It becomes evident that the production of livestock products is on a semi-commercial basis, while farming activity is definitely non-commercial. The figures from Tsailee and Monument Valley are corroborative.

Table III
Gross Commercial Income

Livestock Products		$119,286	34%
Sheep, Goats and Lambs	71,630		
Wool and Mohair	38,317		
Cattle	3,710		
Meat	3,302		
Pelts	2,327		
Agricultural Products		6,706	?
Corn	5,308		
Hay	730		
Beans	308		
Potatoes	254		
Melons	100		
Onions	6		
Rugs		48,629	13
Wage Work		175,683	50
Miscellaneous		3,154	1
Wood	1,624		
Jewelry	1,180		
Baskets	250		
Moccassins	100		
TOTAL		353,358	100

A particularly significant source of income in terms of Navajo culture, is that derived from rugs. Although it represents only one-eighth of the total, if we deduct wage work it amounts to one-fourth.

Gross non-commercial income (Table IV), lists the quantity and value of food products produced and consumed by the people of this district. Agricultural products account for two-thirds of the total, the balance arising from the consumption of sheep and goats.

Table IV

Gross Non-Commercial Income

Agricultural Products (1)			$118,752
	Pounds	$	
Corn	2,261,580	79,154	
Alfalfa	995,000	12,437	
Oats	183,600	5,875	
Melons	462,750	17,354	
Beans	180	7	
Potatoes	78,500	3,925	
Livestock Products (1)			53,682
	Head	$	
Sheep and Goats	17,894	53,682	
		TOTAL	$172,434

(1) Raised and consumed without sale. Valued at prices that would be paid if articles were purchased.

The agricultural income was derived from approximately 3800 acres in cultivation in 1935. This represented an average per acre income of $33.00, and represents the value expressed in money terms of the products which the Indians consumed.

The value per acre of any one crop, varies with the yield and selling price. The calculations of the value per acre of the various agricultural crops shows wide variation. According to available figures potatoes proved to be the most, and beans the least valuable in 1935.

Table V

Relative Value of Crops Per Acre

Potatoes	$200.00
Melons	150.00
Alfalfa	50.00
Corn	27.00
Oats	23.00
Beans	8.00

The total livestock grazed in the Unit exclusive of horses, totaled 56,777 sheep units. The total income from livestock was $173,000, or approximately $3.66 per sheep unit. This figure is probably high inasmuch as it is estimated that the stocking of the range is 20% higher than the stock dipping records indicate. This would reduce the per sheep income to

$2.40 per unit.

The total livestock income does not include the value of the wool used in rugs. It is estimated that 48,000 lbs. of wool were so used and if purchased from the trader at 25¢ a pound would add an additional $12,000 to the total. Since this amount is included in the value of rug sales, to include it here would be a duplication.

There are approximately 1000 head of cattle owned and grazed in the Unit. Since no trader reported buying cattle, it is impossible to guage the income from this class of stock.

One acre of agricultural land in the district during 1935, produced income equivalent to that produced by 13 sheep units, figuring $2.40 as income from one sheep unit and $33.00 as representing income per composite acre.

CONSUMPTION

The total value of goods consumed in Land Management Unit 17 during 1935 exclusive of products such as fuel, which were collected, was $443,000. Approximately 40%, ($172,000) represented non-commercial consumption of agricultural and livestock products produced and consumed by the Navajos and not distributed through the trader.

Table VI

Total Consumption

Commercial	$271,000	60%
Non-Commercial	172,000(1)	40
TOTAL	$443,000	100%

Sixty per cent, ($271,000), of the consumption in the Unit was represented by products purchased through the trader. The total commercial income, ($528,000), was some $82,000 greater than their money outlay. This discrapency between income and consumption was also observed in Monument Valley and, as there, may be accounted for through the large wage income ($175,000). Money income allows a freedom of movement as regards expenditures which is not the case in a purely barter system of trading. For that reason, either the money remains in the district, or else it has found outlet in larger trading centers such as Gallup, or to mail order houses. Another source of error may arise from the fact that some of the trading posts also serve other districts and the traders estimate of the percent of business derived from areas outside the unit may be subject to revision, although experience with traders leads us to believe their estimates are generally correct.

(1) Goods valued at cost to the Navajos if purchased at trading posts.

The element of cash income from wage work also deserves some consideration for it is not at all certain that money poured into any unit through work projects assures that needy people are benefitted. Although the system of sharing livestock and agricultural products appears to be widespread, it has not been demonstrated that individuals feel the same obligations to share their money wealth with others with whom they are in an ordinary relationship of consuming together. This would seem to apply particularly to the unmarried young men who may not be obligated to share their wages with their family.

The payment of old trading debts may account for a portion of this sum. It is also known that a number of individuals used their money to purchase new wagons, principally in Gallup, and to buy additional horses from white stockmen.

The classification of goods purchased from the trading posts can be classed in four broad categories. The situation in Unit 17 in almost identical with that characteristic of the two units previously studied and would tend to confirm a more or less constant distribution of income for consumption wants. The following table presents the relative distribution for this district.

Table VII

Gross Commercial Consumption - 1935

Food	$156,474	58%
Clothing	78,916	29
Household Equip.	9,892	4
Productive Equip.	25,549	9
TOTAL	$270,831	100%

By adding the $172,000 of products which were home produced and consumed we reach a total of $328,000, or 74% (75% in Monument Valley) of the total consumption going for food. It is estimated that slightly over half of this amount represents food fed to livestock.

Table VIII

Food Consumption - 1935

Home Produced and Consumed	$172,000	53%
Purchased from Trader	156,000	47
TOTAL	$328,000	100%

The dependence of the people of Pueblo on the trader for food products (47%) is slightly greater than was true of Monument Valley (40%). This difference may be explained by either the failure of the Pueblo people to produce as much relatively for home consumption, or their ability through income from other sources to secure an added food supply from

the trader

Small amounts of corn, hay, beans, potatoes, melons, and onions were purchased by the trader from the Navajos and then resold in the Unit. It amounts to only 5% of the total sales of food products by the traders.

Table IX

Food Purchased from Trader - 1935

Produced in district sold to and repurchased from trader	$7,850	5%
Imported into district	148,624	95
TOTAL	$156,474	100%

By dividing the food imports into those which are producible and those not producible, the former amounts to $69,000, or 46% of the total. Hay, corn, potatoes, melons, and oats are agricultural products which are immediately producible if additional arable land were made available. Flour, which represents the largest single item of food imports could be produced from wheat if methods of processing were developed.

Table X

Imports of Food Into Unit 17

Not Producible in District		$80,093	54%
Producible in District		68,531	46
Raw Agric. Products	28,505		
Flour	40,026		
TOTAL		$148.624	100%

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On the basis of present consumption of imported food commodities, their yield per acre, it has been calculated the acreage needed to produce a food supply to displace that which is now imported.(1) An additional 584 acres would be required for the raw agricultural products and some 1333 for sufficient wheat to supply an equal amount of flour now consumed. There would thus be required an additional 1917 acres of agricultural land.

Table XI

Acreage Required for Production of Producible Imports now Purchased

	Pounds	Dollars	Yield (Pounds)	Acres
Potatoes	145,259	$7,431	4000#	36
Melons	57,612	2,179	4000#	14
Onions	17,865	941	3000#	6
Corn	161,500	4,921	780#	207
Oats	59,900	1,926	720#	83
Hay	873,920	10,832	4000#	218
Beans	2,500	116	150#	17
Peaches	2,775	161	12000#	3
Total (Raw Agric. Products)		$28,507		584
Wheat	966,000	40,026	720#	1333
		$68,533		1917

(1) The estimates of yield per acre have been furnished by the Agronomist and are conservative, but do not take into account the additional cost to the Navajos to till such additional agricultural land.

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If this amount of land were developed and planted to the specific crops indicated, it would eliminate the need for some $68,500 of income which now leaves the district. This is equal to 57% of the commercial income from livestock, or 38% of that derived from wage work.

The introduction of wheat as an agricultural product involves certain difficulties. It is a product with which the Indians are not acquainted either in growing or harvesting. Expensive machinery is necessary and the conversion of wheat into flour is a complicated and difficult process. The efficient production of wheat demands rather large acreages which the present method of small holdings, individually operated does not allow.

In view of these practical difficulties, it may be advisable to consider the value of encouraging the planting and use of potatoes as a substitute for wheat and flour. Potatoes are an already established item of diet. Home consumption is greater than production and there are considerable imports.

According to the agronomist the soil is well adapted for the growing of potatoes, and the characteristic organization of Navajo labor in relation to agricultural efforts does not involve any radical changes in their methods of farming. Furthermore, an individual plot varying from one to ten acres

can be efficiently handled without the necessity of expensive machinery.

Another element which deserves consideration is that of food for livestock, particularly horses. A program of horse reduction for better range management will relieve some pressure on the range and the necessity of purchasing stock food for these animals. It is essential however, that horses in good condition be available at times of agricultural activity, for plowing and harvesting. It is reported in one instance that one farmer did not use all of his available agricultural land because his horses were in such poor condition at time of planting that they could not be used for work. If this situation is at all prevalent, and present practices in caring for horses by turning them loose to forage for themselves would seem to indicate the case, then proper provision must be made for an adequate supply of hay and grain for livestock, particularly horses. The development of additional agricultural land is definitely related to the ability of the Indians to utilize such land.

OWNERSHIP AND DISTRIBUTION OF LIVESTOCK

The estimated carrying capacity of the Pueblo District is approximately 75,000 sheep units year long.

According to available records there are at present a stocking of 73,000 sheep units, but this figure is considered low and the actual stocking is probably 20% greater.

The distribution of livestock ownership is available for the people living in the Steamboat area which includes 13% of the total population of the Unit.

Table XII

Distribution of Livestock Ownership(1)

Band Size	People	Total Owned Sheep Units Excluding Horses	Per Cap. Owned
0	5	0	0
1 to 50	138	745	5
51 to 100	108	1565	14
101 to 200	142	3458	24
201 to 300	31	1262	41
301 to 400	25	1074	43
401 to 500	22	910	42
501 to 600	7	562	80
601 to 700	0	0	0
701 to 800	0	0	0
801 to 900	0	0	0
901 to 1000	0	0	0
1000 ✓	11	1090	100
TOTAL	489	10,666	

Table XII shows that some 50% of the people in the ownership class 0 to 100 own 22% of the livestock. In the ownership class 0 to 300 there are 87% of the people owning

(1) 13.5% sample taken in Steamboat Canyon.

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66% of the livestock while some 13% of the inhabitants owning 300 or more sheep possess 34% of the total.

If this proportion is applied to the total stocking of the Unit there would be a total of 80,000 sheep units exclusive of horses. Horses would add another 15,000 sheep units bringing the total to 95,000 which is the estimate of the total stocking of this unit.

STOCK ADJUSTMENT IN RELATION TO INCOME

It is not immediately evident, but probable, that an adjustment of stock downward in this district will result in a restriction of the total income. If we accept 95,000 sheep units as representing the present stocking of the Unit with a necessary 20,000 sheep unit reduction for proper grazing, we can equate such adjustment with income on the following basis.

Assuming that the total number of horses are reduced to four per consumption group, there would be a total of approximately 2,000 horses, or 10,000 sheep units as a minimum requirement for the 512 consumption groups. Assuming that there must be a further reduction of 10,000 sheep units among sheep, cattle, and goats to secure the adjustment to a total of 75,000 sheep units year long, such reduction would result in a reduced income (figured on the basis of $2.40 per

unit) of $24,000. The actual loss in income arising from the necessary sheep adjustment would probably be less than $24,000 since the initial adjustment involves the elimination of the least productive portion of the flock.

If it is desired to maintain the present gross income of the inhabitants of this district, it would mean that a supplementary income of that amount must be provided. According to our figures 584 acres of additional agricultural land planted to potatoes, melons, onions, corn, oats, beans, peaches, and hay would provide the Indian with products to the value of $28,500. This figure represents the sum expended by the Indians during 1935 for these products. The agronomist estimates that a potential 1750 acres can be subjugated. This amount would easily care for the required 584 acres to provide additional income made necessary by stock reduction.

It was pointed out at the same time that an additional $40,000 expended for flour could be saved if 1333 acres of wheat were planted. This would require a total of 1917 additional acres of agricultural land.

The development for use of acreage beyond the immediate adjustment would depend upon a number of factors. The ability of the Navajo to farm additional land with his

present equipment and methods, the practicability of storing such products, the difficulties of processing such crops as wheat and their conversion to flour, and the dietary restrictions imposed by custom. All of these factors must be considered in any program.

The substitution of agricultural land for loss of income consequent on sheep reduction, is based on the assumption of a uniform reduction in the number of sheep, irrespective of size of herd. Actually, if the reduction were carried out on a differential basis, reducing the larger herd the most, half the total population of the area who have flocks of 100 or fewer sheep, would suffer no reduction. If there were a general 20% reduction of those owning from 100 to 300 sheep, it would amount to 7000 sheep units, and a 30% reduction of those having flocks of over 300 units, an additional reduction of 8100 sheep units, making a total of 15,100 sheep unit reduction which would be more than sufficient to equalize stocking and carrying capacity.(1)

With the development of additional agricultural land and its distribution according to the income needs there would probably result a general increase in the

(1) These figures are on the basis of the Steamboat Canyon sample of stock ownership.

income of those owning less than 100 sheep and little or no change among those owning less than 300 sheep, if the owners were given farm land.