

The Sociocultural Environment of Sheep Production: An Example

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Ecological principles are clearly an important basis for range science research and rangeland management. For some research purposes, ecological principles are also applicable to sociocultural systems. Through sociocultural means, man manipulates ecosystems of which he is often a dominant component (Rappaport 1973:243). Range management in terms of the sociocultural and natural environment is a means of manipulating particular aspects of ecosystems. Such management, to parallel and paraphrase Heady (1975:4-5), is the application of an organized body of knowledge to renewable natural resource systems,—for example, livestock raising,—within the context of a given set of sociocultural and biophysical conditions.

In this study, the breeding and lambing phase of sheep raising serves as an example for the discussion of the sociocultural environment on a particular Indian reservation. The sociocultural environment includes aspects of the human system such as patterns of behavior, while the biophysical environment encompasses aspects of the 'natural' environment. Successful range management plans must consider the whole environment analytically and practically since local sociocultural factors are important to successful and continued livestock raising. The application of range management on a livestock operation requires knowledge of these factors.

Environmental Setting

The Laguna Pueblo Indian Reservation is situated within the extensive livestock region of northwestern New Mexico, approximately 45 miles west of Albuquerque. Livestock raising for subsistence and market was very important for the first 50 years of the 20th century. (The Laguna landscape is now being transformed by uranium mining.) A government report in 1930 pointed out that forage to support livestock is "one of the principal assets" of the reservation (Zeh and Johnson 1930:25), and grazing still dominates land use on an acreage basis.

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The region occupied by the Reservation has a semiarid continental climate supporting juniper-woodlands, juniper-grasslands, and other localized plant communities. Elevation and topography have major influences on precipitation and temperature. Summer storms contribute the major portion of the annual precipitation. They are usually brief and torrential and commonly result in flash flooding, sheet-wash, and arroyo-cutting. Geologic formations of basalt and sandstone are important in erosional events. The watersheds of the major drainages of the Laguna Reservation consist of systems of canyons, arroyos, small tributaries, and dry washes. All drainages flow intermittently and river entrenchment is an active process. Natural springs, windmill-driven wells, and various man-made catchment dikes and tanks are important sources of water. Soils are alluvial, colluvial, and aeolian in origin. Most soils are moderately alkaline.

The Reservation is in practice divided into two areas, one designated for cattle grazing, the other for sheep. Preliminary work suggests that this division is not based on range-environment differences. In most cases, grazing lands for sheep are located closer to the seven Laguna villages than are the cattle areas. The area for sheep can be subdivided into two general grazing regions which are topographically distinct: (a) uplands of broken topography and (b) high rolling plains. Other land divisions of the sheep range are made around nearby villages and dry and irrigated farmlands. The general consequence of this finer subdivision of the environment is that the most productive but relatively small areas are excluded from sheep raising and herding.

This overall environmental pattern with the biophysical environment sectioned by sociocultural rules is the setting for Laguna sheep production. Of course, the availability and accessibility of water and forage for sheep are major factors involved in this man-made environment interrelationship. The focus of the present study is on sociocultural considerations for successful sheep production within this biophysical environment.

Research Methodology

Most of the information presented in this study was obtained during a 15-day period of anthropological field research on the Laguna Pueblo Indian Reservation. The field period was divided informally into three segments. An extensive questionnaire was developed prior to commencement of fieldwork to serve as an interview guideline. The questionnaire contained over 350 items of information on sheep production. An extensive effort was made to insure that reliable and valid data were obtained.

Participant observation was used in a limited manner due to the restricted time-frame of 15 days. Participant observation simply implies that the field anthropologist participates to varying degrees in the daily and special activities of the study population. Two activities which expedited the data-gathering process were:

(a) accompanying the range patrolmen of the Laguna Police Department on patrols of off-road livestock areas; and (b) attending a meeting of the Laguna Sheep Owners Association. Previously recorded data (records and publications of county, state, and federal agencies) were important secondary sources of information. However, the most valuable source of information about sheep raising and herding strategies was the knowledge of sheep owners and herders on the Reservation.

Breeding and Lambing

Late April is the desired lambing period. Since the gestation period for ewes is about 5 months, the intended breeding time falls between approximately November 20 and December 2. Variation in breeding period in a combined flock of rams and ewes may result in early lambing unless the flock is closely supervised. Consequences of early lambing are: (1) high lamb mortality due to extreme weather conditions; (2) disproportionate labor investment in special care; and (3) reduced marketability of early lambs.

Prevention of early lambing is accomplished by separating the rams from the ewes for at least a 4 to 5-month interval prior to the chosen breeding period. Historically, Laguna sheep owners often formed a reservation-wide "buck herd" of their rams. The herd was supervised by "volunteer" herders. The rams were collected in a central place in February and usually herded in the eastern section of the reservation. This herd was disbanded in October, although most sheep owners continued to keep rams separated from their ewes until mid-November. The pan-Pueblo "buck herd" numbered from 300 to 700 rams. The latter figure given by a former buck herder probably reflects the number of rams prior to the stock reductions of the 1930's.

Labor arrangements for supervision of the "buck herd" involved either a small group of several men (often young men) or a single man. Apparently this group was formed informally each season and any particular person could be included repeatedly over the seasons. An individual also might volunteer to manage the rams. The group or single herder notified the sheep owners and set the date and site to gather the rams. Collection and organization of the rams probably took a week or more.

Each owner who contributed rams to the "buck herd" paid for the services of the buck herder(s) in animals. Payment varied according to the total number of sheep in the owner's flock. For example, a person with over 200 sheep would pay with a ewe ready to be lambed, a 2-year-old ewe, or a combination of a 2-year-old and a 3-year-old. In addition, the volunteer herder(s) received all the wool from rams which were sheared while under their supervision.

"Buck herds" are no longer formed on the Laguna Pueblo Indian Reservation. Each owner now supervises his own rams. According to sheep owners, many of the young rams are castrated and are considered good meat producers. Considerable variation in practices occurs. Several small bands simply contain rams and ewes. A large-scale sheep owner reportedly trucks his rams to leased rangeland 150 miles away.

Lambing generally takes place at permanent lambing camps, which are owned by individuals and may be inherited. The basic physical structures include at least a small house and a corral, with outbuildings for sheep or equipment sometimes present. Buildings are commonly constructed of stone, adobe, or both, while corrals also may be of wooden post and pole construction.

Lambing is a very busy period. The core of the labor force consists of the immediate family of the sheep owner. However,

additional labor is usually necessary. (In the past, school-age children of sheep owners were released from school in April to help with lambing, with missed school days subsequently made up in July.) Women do the cooking for the people helping with lambing; their day often begins before dawn and ends about 10:00 p.m. Women may also work at the corrals, and some expressed a preference for such work. Lambing usually does not involve hired labor.

The sheep owner checks several times each day to see which ewes have dropped their lambs. These ewe-lamb pairs may be separated from the main flock and kept in corrals. Smaller pens are used to isolate a single such pair if the ewe is not taking proper care of the newborn lamb. Attention then is required to oversee this segregated pair so that the lamb is nursed. Good forage is especially critical during lambing season because ewes need grass to be able to nurse lambs adequately. Ewes may leave their lambs if forage is particularly poor.

Discussion

Special sociocultural features are related to the successful management of sheep on Laguna Pueblo. These features may be divided into labor, values, mechanisms for herd expansion, and grazing rights.

Labor

According to the criteria of sex and age, there is limited flexibility in the assignment of sheep-related tasks on the Laguna Reservation. As described above, females usually cook for lambing camps, may assist with lambing (corral work), and may help maneuver the bands in connection with breeding and lambing. Women may also own and manage livestock, especially if widowed. Otherwise, daily herd management usually is in the hands of a male (i.e., husband, father, etc). (Decision-making processes involving both sexes with regard to Laguna livestock management are unexplored subject). Different age groups participate in the seasonal activities of sheep raising. For example, children from age 9 or 12 and older help during lambing and are very important in other aspects of sheep production.

In addition to the division of labor, the availability of labor for specialized tasks must also be considered. A matri-kin network is an important pool of labor during the lambing period. Members of this network are maternal relatives, such as maternal grandparents, uncles, aunts, and cousins. The cooperation of kin, especially matri-kin, was sometimes expressed by the Laguna as "families being altogether, working for the good of one house." It was felt by some that this expression no longer applied to the Reservation system. The expression reflects the traditional values and patterns of kinship and family. The concept of "one house" embodies both the matri-kin network and the value of cooperation. This labor pool for lambing may be less available today than in the recent past because of increasing nucleation of families and involvement of kin in wage labor.

Values

The values of cooperation and fairness were influential in the labor arrangement for supervision of the "buck herd." It was a reservation-wide herd whose management involved the cooperation of owners and herders. Payment of these herders in animals varied according to what was considered a fair payment and what was offered additionally to make the recipient "feel good." This fairness basis also governed other exchanges connected with sheep raising. One other cultural value is evident from field research. This is the prestige given to livestock



An abandoned lambing camp on the Laguna Pueblo Indian Reservation in New Mexico. A lambing camp may stand abandoned for years before being rebuilt and re-utilized.

activities, which in turn suggests that livestock raising provides more than simply a monetary return.

Mechanisms of Expansion

There were two sociocultural mechanisms to start or expand a sheep band. The first was the practice of giving lambs away during lambing to children and/or grandchildren to help them establish their own individual bands. Other animals were added through the same mechanism at other stages in the annual round of activities. The second practice was the payment in sheep to the buck herders. For a season's work, this payment may have amounted to 150 animals. This mechanism could be utilized repeatedly over the years to restock a flock which had been depleted for any one of a number of reasons.

Grazing Rights

Lambing camps are permanent and may be inherited; they may stand abandoned for years before being rebuilt and re-utilized by a family member of the younger generation. All Reservation grazing areas with one exception are governed by usufruct rights. That is, rights of *use* "regulate" utilization of the sheep grazing units but all the grazing land is held in common by the Pueblo.

Summary and Conclusions

This discussion has focused on the sociocultural environment which contributes to successful and continued sheep raising on the Laguna Pueblo Indian Reservation. The discussion was limited to one set of activities, namely breeding and lambing. If the entire annual round of activities associated with sheep

production is considered, the interrelationships between socio-cultural and biophysical environmental factors are far more complicated and require more detailed research. However, with the orientation presented here, questions are generated concerning the nature of these relationships. Range management concepts ultimately are involved in understanding and prescribing alternative ways of manipulating renewable natural resource systems. A brief sociocultural definition of the human and natural systems to be considered in range prescriptions appropriate for the Laguna Pueblo was presented in this study. It is suggested that these sociocultural conditions be explicitly examined as part of the range ecosystem. Successful range management plans recognize such aspects of the biophysical and sociocultural environment.

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