Review of the literature on Pastoral Economics and Marketing:

South America

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Transhumant pastoralism in South America

General features

Pastoralism, the use of extensive grazing in rangelands for livestock production, is one of the

The activity of pastoralists is also important in the Patagonian Andes, in the south of Argentina (north of the Province of Neuquén and south of the Province of Mendoza), in areas and landscapes that, according to their altitude and ecological features, can not be considered as 'puna'. The activities of these pastoralists present some peculiarities and will be further developed in point 2.2.2 of this paper.

All in all, pastoralists activities in South America are present in four countries (Argentina, Bolivia, Chile and Perú[1]). In Argentina and Chile it occupies marginal areas, and their economic relevance lies in their capacity to activate economic niches (goats in Northern Chile and Southern Argentina; camelids in Northern Argentina). Bolivia and Perú are, for historical, cultural and geographical reasons, in the heart of South American pastoralism and the importance of pastoralist activities is more relevant in both economies.

Incas and camelids

As it was mentioned above, nowadays pastoralism in the Central Andes Region is directed related to the eco of the indigenous culture (mostly, but not only, Incas) which, in terms, is tightly linked with the breeding of camelids. For these reasons, it is relevant to the purpose of this study to present a brief reference to the characteristics and uses of these animals.

However, it should be keep in mind that pastoralism in South America not only deal with camelids but mainly with goats and sheep, as it will be developed in point 2 of this paper.

The Camelidae family consists of a small family of mammalian animals. There are two members of Old World camels living in Africa and Asia (the Arabian and the Bactrian) and four members of the New World camels living in South America (llamas, vicuñas, alpacas and guanacos). The six of them are all very well adapted to their respective environments: the camels in harsh deserts of Africa and Asia; and their South American cousins inhabit the highlands and bush area of South America. Most of these species have been integrated into, and play very important roles in lives of the indigenous people. They have been traditionally used for transport of people and things, hides and fibres for clothing and other textile articles, and in many cases they supply meat and milk products, etc.

Camelids are in the taxonomic order Artiodactylvingcph thi6ky9m

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Incan culture. The meat would then be distributed to the crowds. Llamas were also an integral part of the Inca's workforce. As pack animals they contributed vastly to the building of their irrigation systems, roads, and temples. They were also used to carry loads in the Inca's mines.

Llamas are still used today by the indigenous peoples of South America for packing and transporting goods, fibers, and for meat. Mostly the males are used as pack animal. They usually carry up to fifty pound loads. Stallions can carry up to 35 kilograms for about 25 kilometers (a day's march for a llama). Male pack animals are not sheared. Their heavy wool coat acts as a saddle blanket by cushioning their loads. It has been suggested that the llamas were selectively bred as pack animals leading to a larger stronger animals than their wild parent. The females are sheared, but llama wool is inferior to the alpacas and is often used to make rope. Llamas only allow themselves to be loaded when they are part of a group. Llamas provide meat, wool, hides for sandals, and fat for candles. Their dung can be dried and used for fuel. South American herders use most parts of a llama's carcass.

Alpacas

Alpaca's roots also go back to the Inca civilization, where they were considered a "prize" Studies indicates that the vicuña was the ancestor of the alpaca, which was domesticated 6 or 7,000 years ago. Their coats make the finest quality wool. Alpaca fibre was woven into robes used by Inca royalty. They also provided food, fuel, clothing, and transportation for this culture in an otherwise extremely hostile environment. Alpacas still thrive in the harsh climates of the Peruvian, Bolivian, Chilean and Argentinean highlands where scorching temperatures in the day plummet to sub-freezing at night. They prefer low humidity and altitudes between 4,000 and 5,200 meters. At lower altitudes, especially bellow 3,400 meters, external parasites such as lice and mange make the wool short and uneven and reduce yields.

Alpacas are small compared to llamas, approximately 90 cm at the withers. Piebald colour patterns are much rarer than in llamas, and alpacas usually have a tuft of hair on their forehead. Their life span is 15 to 25 years. Their weight is in average 90 kilograms.

Annual wool production in adult animals averages 1.3 kilograms. The colours of wool include different tones of white, cream, fawn, tan, grey, brown and black. Some alpacas are of a uniform colour, usually white, but many have piebald coats with patches of different colours. It has a cellular structure similar to hair and is more resilient and much stronger than Merino sheep wool. It is highly sought after in Britain, Europe, and Japan. The ‘cria’ (young alpaca) fibre is extra fine and lustrous and commands a higher selling price. Their wool quality is only slightly lower than the vicuña. The black coats are usually the heaviest.

In South America, shearing is usually done before the rainy season in November and December. After seven years of age, alpacas are used primarily for meat. In 1972, there were about two million living in Peru and 50,000 in Bolivia.

Alpacas are inexpensive to feed. They have three stomachs which enable them to be very efficient at digesting what they eat. They are more fastidious feeders than llamas, being very earth-friendly by grazing meticulously throughout the pasture. They prefer free range pasture to confinement in a stall or barn. They have sensitive feet and prefer soft, moist ground with tender grasses. They also enjoy pools and puddles for wallowing. A lack of adequate ground moisture is thought to lead to a fatal foot disease and rainless years often lead to higher mortality rates. No special food is required for them except in winter or in late pregnancy when all they need is good quality hay and low protein pellets. Alpacas will spit on one another if sufficiently angered, but will rarely spit on people.

Guanacos

Guanacos are the larger of the two wild camelids species. They stand about four feet tall at the shoulder and about 1,5 meters to the top of the head. They have a body length of up to 1,8 meters with an approximately 25cm long tail. They can weigh up to 100 kilograms. Their woolly coat is tawny to brown and their head is usually grey.

Wild guanacos thrive in the plains of northern Peru to southern Patagonia. They often live in the mountains and altiplano areas above 4,000 meters. Usually herds of several females travel with one male; however, leaderless herds of males of up to 200 have been found. The

guanaco can run at speeds up to 25 kilometres per hour and they are also strong swimmers. Their mating season is during August and September. They have a ten to eleven month gestation period. The babies can run soon after birth and are weaned at six to twelve weeks.

Vicuñas

Vicuñas are smaller than guanacos and weigh only about 50 kilos. Vicuñas thrive in the mountainous regions of Northern Peru to Northern Chile at altitudes above 4,500 meters. They are up to 90 cm at the shoulder and usually have a light brown coat with a yellow-red bib. They are very social animals. There are male dominated family groups. Non-territorial males form groups of both young and disposed older males. Vicuñas are less easy to tame than the guanaco because they are extremely shy. These animals are less adaptable to different environments. The native people do harvest the wool of these animals. They drive them into an enclosure, shear them, and release them.

Current exploitation of camelids in the Central Andes

The wool of the vicuña is the most valuable commodity in the high Andean plains. So says Nicolás Maidana, a farmer in Cienaguillas, a 'puna' village of 200 people in Jujuy, the most north westerly province in Argentina, which borders both Chile and Bolivia. The local herd of some 900 vicuñas used to be a pest here, he says. They tore down fences, gnawed at the pastures and brought disease to local flocks of llamas. But now, he says, "they are an important resource for us. Once we started capturing and shearing them, we can see an economic return".

He is not alone. In 2003, Maidana and dozens of his fellow farmers in theses wild mountain lands joined in a roundup of vicuña in Argentina. Each animal yields around 250 grams of fine, golden wool. Once cleaned and woven, it fetched up to us$ 100 in European markets and some probably will end up in coats for sale in Milan and other cities.

The Inca banned the hunting of vicuñas, which had probably been going on in the Andes for at least 10,000 years before their empire was established. The wool was too precious to pass up, so they devised a harvesting technique called the 'chaku'. During this vast communal activity, tens of thousands of people would spill out across the hill sides, forming human chains to round up and corral thousand of vicuñas. Shepherded into enclosures, the vicuña would be sheared of their wool, then released into the wild. Everyone of the millions of vicuña living there could expected to be shorn every two or three years. It was an exquisite exercise in what is called today sustainable management.

With the arrival of the Spanish conquerors, the Inca world collapse and vicuñas began to be hunted with firearms. This lead to the abrupt decline in the numbers of vicuña population. In last three decades of the XX Century, and thanks to a protective legislation, the number of vicuñas began to recover.

There may be as many as 250,000 vicuña in the 'puna' today. More than half are in Perú. Conservation scientist and governments of the vicuña homelands decided that the best way to prevent a breakdown of the conservation strategy was to allow peasants to make money out of living vicuñas. "We decided to bring back the 'chaku' technique from the Incan empire. This gave a chance for local poor communities, which often earn less than us$ 500 a year, to benefit from the golden fleece", says Cristian Bonacic, an Oxford trained veterinarian.

'Chakus' has also became a tourist attraction. But it may be that economic success will have a negative impact, as the commercial positive results if this activity is encouraging methods of intensifying and privatizing the wool harvest. By degrees, the vicuña is being turned into a farm animal. In Chile they are breeding vicuña in captivity. And here and there in Argentina, these animals are being captured and domesticated on vicuña farms. There are big concern among conservationists about the result of this tendency.

But it is clear that pastoralist activities are strongly linked to wool market. Not only with vicuñas (as it was described in this point) but also with alpaca, sheep and goats (as it will be developed in point 2 of this paper).

Generally speaking, there is a tendency to promote pastoral products in the region. However, these policies present differences in their goals as well in their achievements, and they are not necessarily tailored to pastoral groups but consistent with the new trends in the general

coast, intermontane valleys and the agricultural areas of the ‘altiplano’. In many areas, herders set forth trips with llama caravans, often travelling for days or weeks at a time. They carry pastoral products (dried meat, wool, textiles) and purchased products (salt, candles, cooking pots) to agricultural areas, where they barter for grains, tubers, fruits and vegetables.

favoured social property enterprises) and never come to dominate wool-buying as it was originally expected.

Apart from the transhumance in the central and southern zones of Perú, there is also another type of transhumance in the north (Departments of Tumbes, Piura and Lambayeque), related to goat livestock.

livestock in Chile is located in the IV Region. Furthermore, 178 Comunidades Agricolas (which combine communitarian and individual ownership of the land) are located in the Region.

The management of the herds follows a transhumant vertical pattern, including 'campos de veranada' (summer fields) and 'campos de invernada' (winter fields).

In recent years, apart from the use of hair and meat, milk (and the production of cheese) was included

Argentina

Argentine occupies the 80% of its territory in activities related to agriculture, livestock and forestry. Cattle is concentrated in the Pampa Region (the richest of the country) with 50% of the 49 millions heads. The 85% of the production are consumed in the country. Sheep livestock is concentrated in the Patagonia, with 60% of the 14 millions heads. Sheep are mainly used for their wool, which are exported (50%). Goat livestock (3,5 millions heads) is characteristic of the arid and semiarid zone. They are bred for their meat, milk, leather and – more recently – for their hair[2].

In Argentina, livestock activities are mostly carried out according to sedentary patterns. However in the Puna Region (north west of the country) and in the Andean Patagonia (south west of the country) mobile pastoralism is widespread, following traditional habits. In both regions, pastoralists make their living mainly from camelids (only in the north), goat and sheep livestock (less importance have cattle, horses and mules).

Pastoralists live in difficult conditions, with high indicators of poverty and little or no access to social services (health, education, technical assistance). In general, only the family members manage the transhumant activities. However, some herders from the Andean Patagonia might occasionally hire other peasants to take care of the livestock.

Pastoralists adopt transhumant patterns; this is to say they move their cattle periodically, according to the seasons. There are 'campos de veranada' (summer fields) and 'campos de invernada' (winter fields), linked by 'huellas' (tracks). The "campos de veranada" are located in the upper valleys (1200 meters above sea level, in the case of Patagonia; 3000 to 4200 in the case of the Puna). The "campos de invernada" are located in the plateau and lower valleys (800 to 1200 meters above sea level), in the case of Patagonia; or in lowers gorges or valleys (2000 to 2800 meters above sea level), in the case of Puna. In some cases, there are transboundary movements, between Chile and Argentina, and vice versa.

There are no specific policies, institutions or legislations oriented to pastoralism, such as a "pastoral code". However, the are many rules that regulate the movement of livestock.

The lands managed through a pastoralist approach are severely degraded, both in the Puna and the Andean Patagonia. But pastoralist management is not the cause but the consequence of this degradation process.

Mobile patterns of livestock management have their origin in indigenous habits as well as in the ecological conditions of the "campos de invernada", unable to sustain a sedentary management.

The best lands have been assigned to medium and big size produces. As a result, the lands in which pastoral activities are carried out are fragile and very vulnerable to land degradation process. In fact, the implementation of transhumant patterns helps to avoid impairing the situation.

There are many barriers to pastoral land management. The most important is the perpetuation of the myth that nomadic pastoralism is an archaic form of production, aggressive to the environment.

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[2] Goats in the Provinces of Neuquén and Mendoza also produce 'cashemere'. Government technical staff and 'crianceros' organizations are developing activities to improve the shearing and commercialization of this fiber. It is estimated that a potential of ronme0 TD 0 0v6 144 0.48 re f B

The educational system, in which the people who provide technical assistance to pastoralists, are shaped, is prepared to deal with "traditional sedentary" management.

Another problem is that public policies tend to be shaped only to sedentary livestock management. Most of the policies targeted to pastoralist groups try to shift them into something different.

It is important to point out that almost the 20% of the heads of goats in Argentina (620,000 out of a total of 3,500,000) are located in the province of Neuquén and managed according to transhumance patterns.

The future

It is not easy to asses the future of pastoralism in South America. In fact, the situation varies from country to country, closely related to the importance of this practices in the different societies.

In Perú and Bolivia, where pastoralism has more relative importance, relevance and visibility, the future is more clear and the sector receives the benefits of protective and/or promoting policies. On the other hand, Chile and Argentina, pastoralism has a marginal and “survival” characteristic and if protective policies are not put into practice, a decline of the activity can be foreseen.

Identification of knowledge gaps

In comparison with similar types of mobile pastoralism in the rest of the world, publications on pastoralism in South America are few and scattered. They mostly follow a historical or anthropological approach. And geographically they are concentrated in the Central Andean region.

When the potential of livestock production within the countries is analyzed, the particularities and contributions of mobile pastoral systems is nor assessed, neither recognized. For example, the importance of wool exports from Perú not always take into consideration the essential roll played by herders of llamas, vicuñas and alpacas. Or, in Chile and Argentina, it is ignored the fact that a significant share of the national production of goats is produced by ‘crianceros’.

As a result, it is difficult to estimate the contribution of pastoralism to national economies in South American countries, for example, in terms of percentage of GDP.

In general terms, there is a lack of applied research in the field of pastoralist production systems. As a consequence of the misperception of pastoralists activities, most of the patterns of technical assistance and capacity building are tailored for sedentary systems of agricultural and livestock production.

Finally, there is a general lack of research and studies to asses the impact in pastoral communities and markets of the neo-liberal policies applied in the four countries during the last twenty years. These new policies implied a withdrawn of the intervention of governmental agencies in markets and (in some cases) a reduction in the quality and quantity of technical assistance.

Bibliography

Annotated bibliography

Bendini, M.; Tsakoumagkos, P.; Destéfano, B.. 1994. “El trabajo trashumante”. En Bendini, M. y Tsakoumagkos, P. (coordinadores) Campesinado y ganadería trashumantes en Neuquén. GESA-UNC. Editorial La Colmena. Buenos Aires.

This paper presents a thorough analysis of the pastoralists in the Province of Neuquén (in the south of Argentina). It describes the regional features and deals with the spatial organization, social structure and economic activities of the ‘crianceros’ (this is the name by which transhumant pastoralists of Neuquén are known).

Of particular relevance is the analysis of the different types of crianceros, according to the size of their herd.

Bendini, M.; Tsakoumagkos, P.; Destéfano, B.; Merli, R.. 1994. "Comercialización de lanas y estrategias autogestionarias". En Bendini, M. y Tsakoumagkos, P. (coordinadores) Campesinado y ganadería trashumantes en Neuquén. GESA-UNC. Editorial La Colmena. Buenos Aires.

This paper presents an analysis of the "Programa Provincial de Esquila y Comercialización de Lanas", a governmental initiative to promote marketing strategies to improve the trade of wool. The study covers the period between 1975 to 1985.

Bendini, M.; Tsakoumagkos, P.; Pescio, C.; Nogues, C.. 1994. "Los crianceros y las alternativas frente a la erosión del suelo". En Bendini, M. y Tsakoumagkos, P. (coordinadores) Campesinado y ganadería trashumantes en Neuquén. GESA-UNC. Editorial La Colmena. Buenos Aires.

This paper presents an analysis of the characteristics of the activities carried on by the 'crianceros', a description of the evolution of land degradation in the area of transhumant activity and a survey on the perception of land degradation from the point of view of the crianceros. Finally, the paper suggests a number of technical solutions, describing their social and economic impact.

Bendini, M.; Pescio, C.. 1994. "Orientaciones de las políticas agrarias". En Bendini, M. y Tsakoumagkos, P. (coordinadores) Campesinado y ganadería trashumantes en Neuquén. GESA-UNC. Editorial La Colmena. Buenos Aires.

This brief paper gives an outline of the issues that a consistent rural policy should take into consideration: alternative policies to include poor people from rural areas, resignification of natural resources, strengthening of 'crianceros' organizations, government commitment and civil society participation

Bendini, M.; Tsakoumagkos, P.; Nogues, C.. 2004. "Los crianceros trashumantes del Neuquén". En Bendini, M. y Alemany, C. (coordinadores) Crianceros y chacareros en la Patagonia. Cuaderno GESA 5. GESA-UNC-INTA-NCRCRD. Editorial La Colmena. Buenos Aires.

This paper is an updated version of "Bendini, M.; Tsakoumagkos, P.; Destéfano, B.. (1994)". In the conclusion, it states:

"Hemos caracterizado a los crianceros como campesinos ganaderos que producen y participan en la exportación de lana, chivitos y corderos, pelo caprino, cueros, en una modalidad trashumante. La participación de estos crianceros en la oferta total de productos caprinos ha sido tradicionalmente significativa, especialmente en el pelo. Sin embargo, la dinámica de los procesos de descentralización y privatización, las políticas sectoriales y fundiarias e inevitables de apropiación territorial selectiva, modifican y ponen en riesgo su sobrevivencia (...).

Los principales problemas a los que se enfrentan los crianceros son: limitaciones de suelos, pastizales y agua; limitaciones institucionales en materia de legalización del acceso a la tierra, dentro de los usos y costumbres propias de las comunidades locales; la pobreza rural y el escaso desarrollo de alternativas económicas para estos productores y sus familias (...).

El desempeño en el largo plazo de los crianceros trashumantes ha podido ser caracterizado como epopeya, ya que lograron persistir frente a enormes dificultades y sin políticas diferenciadoras acordes a estas dificultades."

Browman, D., 1981. "Agrarian reform impact on llama and alpaca pastoralism in the Andes". In Salzman, P. (editor) Contemporary nomadic and pastoral peoples: Africa and Latin America. Studies in Third World Societies # 17. Department of Anthropology, College of William and Mary. Williamsburg.

The article describes the effect that national policies in Bolivia and Perú had on pastoralists communities and production system.

In the conclusions, the author says that "both in Perú and Bolivia, agrarian reform have had little impact upon production, but have had marked impact upon the organization and structure of marketing (...) Impact of Agrarian Reform has been, in general, negative upon the indigenous pastoral sectors of the high grasslands of both countries".

Browman, D., 1987. "Pastoralism in Highland Perú and Bolivia". In Browman, D. (editor) Arid land use strategies and risk management in the Andes. A regional Anthropological Perspective. Westview Special Studies in Social, Political and Economic Development. Colorado.

The focus of this paper is upon several different approaches taken recently in the Andean high altitude grassland to attempt to increase livestock productivity, with observations relevant to the success and failures of these approaches. The summary of this paper states:

"In the arid lands of Peruvian puna and Bolivian altiplano, four different approaches have been attempted to improve productivity by national development planners: (a) improvement of arid land carrying capacity (by improving water supplies and improving pasturage); (b) improvement of herd animals (by disease control, selective breeding and introduction of new

Finally, he attracts the attention to the lack of literature related to Chilean 'crianceros' issues.

Cialdella, N.; Dubroeucq, D.. 2003. "La trashumancia de cabras en Chile: un modo de gestión adaptado a las zonas áridas". En Liveanis, P. y Aranda, X. (editores científicos) Dinámica de los sistemas agrarios en el Chile árido. Universidad de Chile – IRD – Universidad de La Serena. Santiago de Chile.

This article presents a detailed study of the transhumant management of goats in the community of Las Ramadas (Province of Limarí, IV Region, Chile). The aspects analyzed are: territorial structure, communitarian management, transboundary issues, summer and winter strategies, etc.

Cortes, H.. 2003. "Evolución de la propiedad agraria en el Norte Chico (Siglos XVI-XIX)". En Liveanis, P. y Aranda, X. (editores científico) Dinámica de los sistemas agrarios en el Chile árido. Universidad de Chile – IRD – Universidad de La Serena. Santiago de Chile.

An analysis of the origin and historical evolution (from XVI Century to XIX Century) of agricultural property in the Elqui valley (IV Region, Chile).

Of particular importance is the description of the appearance of two new subjects in the XIX Century (medium and small farmers and the "Comunidades Agrícolas") and its impact in agricultural production.

Del Rio, Walter. 2005. Memorias de expropiación. Sometimiento e incorporación del indígena en la Patagonia. Universidad Nacional de Quilmes Editorial. Buenos Aires.

A complete analysis, from a historical perspective, of the changes in land ownership, in favor of big farmers and against the interests of indigenous people. The study covers the period from the start of the occupation of the Patagonia by the Argentine government (in 1872) until 1943.

Gil Moreno, Raquel. 2004. Caravaneros y trashumantes en los Andes meridionales. Instituto de Estudios Peruanos. Lima.

A historical analysis of mobility and production systems in the Argentine Puna, relevant to asses continuity and changes against the present situation.

Guillet, David, 1987. "On the potential for intensification of agropastoralism in the arid zones of the Central Andes". In Browman, D. (editor) Arid land use strategies and risk management in the Andes. A regional Anthropological Perspective. Westview Special Studies in Social, Political and Economic Development. Colorado.

In the Central Andes one finds three main vertical production zones: a maize zone up to 3,500324s meros y trashumantes en los Andes 9rw (3cm Tj 1d0.0s A • 377 Tw (o73.d) T) Tj 0vea sct.

Madariaga, M.. 2004. "El trueque en los sistemas agrarios campesinos". En Bendini, M. y Alemany, C.

Pearce, F. 2006. "Going for gold in the Andes". In Masood, E. and Schaffer, D. (editors) Dry. Life without water. Harvard University Press. Cambridge, Massachusetts and London.

This article analyzes the revival of the chaku tradition in the Central Andes, the shearing of

Asociación para la Investigación y el Desarrollo Integral – Aider.

Proyecto piloto demostrativo Recuperación y Producción Sostenida de Bosques y Praderas, Un medio de lucha contra la desertificación y la pobreza.

Bandelier, A.

1904 «On then Relative Antiquity of Ancient Peruvian Burials». En Bulletin American Museum of Natural History 20: 217-26. New York

1905 «The aboriginal Ruins at Sillustani, Peru». En American Anthropologist 7: 48-69.

1907 The Indians and Aboriginal Ruins near Chachapoyas in Northern Peru. New York.

1910 The islands of Titicaca and Koati. The Hispanic Society of American, New York.

Bayona, Alfredo y Atto, José.

Estudio de palatabilidad de los pastos naturales en caprinos adultos criados al pastoreo en al zona del alto Piura. Anales VIII Asociación Peruana de Producción Animal. 12-16 noviembre, 1985. Huancayo, Perú.

Bianchi Ramos, Eduardo.

Aspectos diversos de la explotación y beneficio de los caprinos en al provincia de Chiclayo. Tesis Universidad Nacional Pedro Ruiz Gallo de Lambayeque - Programa Académico de Medicina Veterinaria.1975. Chiclayo, Perú.

Browman, D.L.

1989 Origins and development of Andean pastoralism: an overview of the past 6000 years. In: The walking larder: patterns of domestication, pastoralism and predation. J. Clutton-Brock ed. 256-268. London.

Brown, D. O.

1990 Administrative and Settlement Planning in the Provinces of the Inka Empire: A perspective From the Inka Provincial Capital Pumpu on the Junín Plain in the Central Highlands of Peru. Doctoral Dissertation, University of Texas, Austin. University Microfilms, Ann Arbor.

Brush, S.

1976 Man's Use of an Andean. ECOSISTEM. Human Ecology 4: 147 -66

1977 Mount 4 TD -0.09566 ProMuseum 0.0Ethn8aas: ECOSI326 Universid722 00.0428 Tc 0.1201uw

Correa Cayoso, Juan.

Evaluación de pasturas naturales de uso forrajero para caprinos en zona potencial: Salitral – Querecotillo, provincia de Sullana, Departamento de Piura. Tesis Ingeniero Agrónomo. Universidad Nacional de Piura. Facultad de Agronomía. 1985, Perú.

Custred, G.

1977 «Las punas de los Andes Centrales». En Pastores de Puna, J. Flores, cordinador, pp.

55-85. Lima, Instituto de Estudios Peruanos.

d'Altroy, P.

1992 Provincial Power in the Inka Empire. Washington DC, Smithsonian Institution Press.

Diaz, Roxana y Otros.

Reporte Técnico Nº 23. Programa Colaborativo de Apoyo de Investigación de Rumiantes Menores (Universidad de California Davis/ INIAA) 1985, Perú.

Duviols, P.

1971 «La lutte contra les Religions Autochtones dans le Pérou Colonial. L'Extirpation de L'Idolatrie entre 1532 et 1660». En Traveaux de L´Institut Fracais D´Etudes Andines 13. Lima.

1973 «Huari y Llacuaz: Agricultores y pastores, un dualismo prehispánico de oposición y complementaridad». En Revista del Museo Nacional 39: 153-91. Lima.

1976a «Une Petite Chronique retrouveés: errores, ritos, supersticiones y ceremonias de los Yndios de la provincia de Chinchaycocha y otras del Piru». En Jornal de la Société des Americanistes. 63: 275-97. París.

1976b «La Capacocha: Mecanismo y función del sacrificio humano, su proyección, su papel en la política integracionista y en la economía redistributiva del Tawantinsuyu». En Allpanchis 9: 11-17. Cusco.

1979 «La guerra entre Cuzco y los Chanca: ¿Historia o mito?». En Revista de la Universidad Complutense 28: 263- 371. Madrid.

1984 «Albornoz y el espacio ritual andino prehispánico». En Revista Andina 2: 169-222. Cusco.

Earle, T. y T. d'Altroy

1982 «Storage Facilities and State Finance in the Upper Mantaro Valley, Peru». En T. Earle, editor, Contexts for prehistoric Exchange, pp. 265-90. New York, Academic Press.

Earle, T., T. d'Altroy, C. Hastorf, C Scott, C. Costin, G. Rusell, and E. Sandefur

1987 Archeological Field Research in the Upper Mantaro Valley, Peru: 1982-1983: Investigations of Inka Expansion and Inka Exchange. Los Angeles, Monograph 28, Institute of Archeology, University of California at Los Angeles.

Espinoza, Cristina y Rojas, Hugo.

La ganadería de caprinos y la economía comunera de Salas. Reporte Nº 26. Programa Colaborativo de Apoyo de Investigación de Rumiantes Menores (Universidad de California Davis/ INIAA) 1985, Perú.

Flores Ochoa, J.

1975 «Pastores de alpacas». En Allpanchis 8: 5-24. Cusco.

1976 «Enqa Enqaychu, illa I khuya rumi: aspectos mágicos religiosos entre pastores». Journal of Latin American Lore 2: 115-86.

1977 «Pastores de alpacas en los Andes». En J. A FLORES (compilador), Pastores de Puna, pp. 15-52, Lima, Instituto de Estudios Peruanos.

1979 Pastoralists of the Andes. Philadelphia, Traslated by R. Bolton, Institute for the Study of Human Issues.

1980 «Causas que originaron la actual distribución de las alpacas y llamas». En Senri Ethnological Studies N° 10: El hombre y su ambiente en los Andes Centrales, pp. 63- 2. Osaka, National Museo of Ethnology Osaka, Japan.

1984 «El cultivo de Qocha en la Puna Sur Andina». En Contribuciones a los estudios de los Andes Centrales. Edited by S. MASUDA. pp 59-100. Tokyo, University of Tokyo Press.

1985 «Interaction and Complementary in the three zones in Cuzco». En Andean Ecology and Civilization, edited by S. MASUDA, I . SHIMADA y C. MORRIS, pp. 251-76. Tokyo,

University of Tokyo Press.

1986 «The Clasification and Naming of South American Camelids». En Anthropological History of Andean Polites, Edited by John MURRA, N. WATCHEL, J. REVEL, pp. 137-48. Cambridge, Cambridge University Press.

1988 «Clasificación y nombramiento de los camélidos americanos». En Llamichos y paqocheros: pastores de llamas y alpacas, J. FLORES, compilador, pp. 121-37. Cusco, Centro de Estudios Andinos.

Franco, Eduardo.

Ocupación del espacio, economía e historia en el despoblado de Piura. Memorias, I Congreso Nacional de Investigación en Antropología, Lima, 24-28 noviembre, 1985

Fujii, T. y H. Tomoeda

1981 «Chacra, Laime y Auquénidos: explotación ambiental de una comunidad andina». En Estudios Etnográficos del Perú Meridional, edited by S. MASUDA, pp. 33-63. Tokyo, University of Tokyo Press.

Garcia Torres, César Hugo y Otros.

Hábitos de pastoreo de ganado caprino en al pradera de Olmos. Reporte Nº 47. Programa Colaborativo de Apoyo de Investigación de Rumiantes Menores (Universidad de California Davis/ INIAA) 1984, Perú.

garcia, César y Cordero, Teófilo.

Hábitos de pastoreo de ganado caprino en al pradera de Olmos – II. Época de lluvias. Anales VII Asociación Peruana de Producción Animal. 18-21 noviembre, 1984. Lima, Perú

Göbel, B.

1997 «'You have to exploit luck': pastoral household economy and the cultural handling of risk and uncertainty in the Andean Highlands». Nomadic peoples, NS, 1,1:37-53.

Gow, D.

1978 «Verticality and Andean Cosmology: Quadripartition, Opposition, and Mediation». En Actes du XLII Congrés International des Americanistes, 1976, 4: 199-211. París.

Guillet, D

1981 «Land Tenure, Ecological Zone, and Agricultural Regime in the Central Andes». En American Ethnologist 8: 139-156.

Harris, O.

1985 «Ecological Duality and the Role of the Center: Northern Potosí». En Andean Ecology and Civilization, edited by S. MASUDA, I. SHIMADA y C. MORRIS, pp. 311-55. Tokyo, University of Tokyo Press.

Hastings, C.

1985 The Eastern Frontier: Settlement and Subsistence in the Andean Margins of Central Peru. Doctoral Dissertation, Department of Anthropology, University of Michigan, Ann Arbor.

Hastorf, C. (Editor)

1998 Early Settlement in Chiripa, Bolivia: Research of the Taraca Archeological Proyect. Contribution 57, Archeological Research Facility, University of Califronia, Berkeley.

Nachtigall, H.

1975 «Ofrendas de llamas en la vida ceremonial de los pastores». En Allpanchis 8: 133-44. Cusco.

Netherly, H.

1990 «Out of Many, One: The Organization of Rule in the North Coast Polities». En M. MOSELEY and A. CORDY-COLLINS, editors, The Northern Dynaties: Kingship and Statecraft in Chimor, pp. 461-87. Dumbarton Oaks, Washington, D.C.

Novoa, C.

1989 Endangered South American camelids. In: FAO animal production and health paper, 80. 255-265. Rome: FAO.

Orlove, B.

1977 Alpacas, Sheep, and Men: The world Expot Economy and Regional Society in Southern Perú. Academic Press, New York.

Orlove, B, y R. Godoy

1986 «Sectorial Fallowing Systems in the Central Andes». En Journal of Ethnobiology 6: 169-204.

Paerregaard, K.

1992 «Complementarity and Duality: Oposition between Agriculturalist and Herders in an Andean Village». Ethnology 31: 15-26.

Palacios, R.

1977 «Pastizales de regadío para alpacas». En J. Flores, compilador, Pastores de Puna, pp. 155-70. Lima, Instituto de Estudios Peruanos.

Palomares, Mario y Otros.

Unidades Piloto Demostrativas para el desarrollo Económico de las poblaciones campesinas del Bosque Seco. Asociación para la Investigación y el Desarrollo Integral – AIDER. 2004, Lima, Perú.

Palomino, S.

1971 «La dualidad en la organización sociocultural de algunos pueblos del área andina». Revista del Museo Nacional 37: 231-60. Lima.

Parsons, J.J., y Denevan, W.

1967 «Pre-columbian Ridged Fields». Scientific American 217: 92-100.

Parsons, J. R., y Hastings, C.

1977 Prehispanic Settlements Patterns in the Upper Mantaro, Perú: A Progress Report. Submitted to the Instituto Nacional de Cultura and the National Science Foundation. Ms. on file at the University of Michigan Museum of Anthropology, Ann Arbor.

1988 «The Late Intermediate Period». En R. Keatinge. Editor, Peruvian Prehistory, pp. 190-229. Cambridge, Cambridge University Press.

Perevolotski, Abraham.

1985 Los pobladores de los despoblados. Reporte Técnico Nº 33. Programa Colaborativo de Apoyo de Investigación de Rumiantes Menores (Universidad de California Davis/ INIAA), Perú.

1985 Impacto de El Niño de 1983 sobre la producción caprina en Piura. Estudio de Seguimiento. Reporte Técnico Nº 34. Programa Colaborativo de Apoyo de Investigación de Rumiantes Menores (Universidad de California Davis/ INIAA), Perú.

1985 La crianza caprina en Piura, Perú El contexto ambiental y el factor humano. Tesis PH. D. en Ecología, Universidad de California Davis. SR-CRSP. Edición impresa en español por el Centro de Investigación de Promoción del Campesino – CIPSA. Piura, Perú.

1982 La crianza caprina en Piura. Un conglomerado de sistemas de producción animal. Anales V Asociación Peruana de Producción Animal. Cajamarca, Perú

Platt, T.

1982 «The Role of the Andean Ayllu in the Reproduction of the Petty Commodity Regime in Northern Potosí (Bolivia)». En Ecology and Exchange in the Andes, Edited by D. Lehman, pp. 27-69. Cambridge, Cambridge University Press.

Reinhard, J.

1985 «Sacred Mountains: An Ethnoarcheological Study of High Andean Ruins». Mountains Research and Development 5: 299-317.

Rick, J.W.

1980 Pastoral hunters of the High Andes. New York: Academic Press.

Rostworowski, M.

1983 Estructuras andinas del poder. Ideología religiosa y política. Lima, Instituto de Estudios Peruanos.

Sallnow, M.

1987 Pilgrims of the Andes: Regional Cults in Cuzco. Washington D.C., Smithsonian Institution Press.

Salomon, F.

1995 «The Beautiful Grandparents: Andean Ancestor Shrines and Mortuary Ritual as seen through Colonial Records». En T. Dillehay, Editor, Tombs for the Living: Andean Mortuary Practices, pp. 315-53. Washington D.C., Dumbaton Oaks.

Skar, H.

1982 The Warm Valley People: Duality and Land Reform among the Quechua Indians of Highland Peru. New York, Columbia University Press.

Stanish, C.

1989 «An Archeological Evaluation of an Ethnohistorical Model in Moquegua». En D. Rice, C. Stanich, and P. Scarr, editores, Ecology Settlement and History in the Drainage, Peru, Pt ii, pp. 303-20. British Archeological Reports International Series Nº 545. Oxford, U.K.

1992 Ancient Andean Political Economy. Austin, University of Texas Press.

Thomas, R. B.

1976 «Energy Flow at High Altitude». En P. Baker y M. Little, editores, Man in the Andes, pp. 379-404. Dowden, Hutchinson, and Ross, Stroudsburg, PA. THOMPSON, D.

Tomoeda, H.

1985 «The Llama is my Chacra: Metaphors of Andean Pastoralists». En Andean Ecology and Civilization, edited by S. Masuda, I. Shimada, y C. Morris, pp. 277-99. Tokyo,

University of Tokyo Press.

Troll, C.

1958 «Las culturas superiores andinas y el medio geográfico». Instituto de Geografía, Serie 1, Monografías y Ensayos Geográficos, Nº 1, 48 pp. Lima, Universidad Nacional Mayor de San Marcos.

Urbano, H.

1988 «Thunupa, Taguapaca, Cachi: Introducción a un espacio simbólico andino». En Revista Andina 6: 201-24. Cusco.

Urton, S.

1986 «Calendrical Cycles and their Projections in Pacaiqtambo, Peru». Journal of Latin American Lore 12: 45-64.

Valle, L.

1970 «La ecología subjetiva como un elemento esencial de la verticalidad». En Revista del Museo Nacional 37: 167-75. Lima.

Watchel, N.

1973 Sociedad e Ideología: Ensayos de Historia y Antropología Andina. Lima, Instituto de Estudios Peruanos.

Webster, S.

1973 «Native Pastoralism in the South Andes». Ethnology 2: 115-33.

Winterhalder