

THE LAMOIDS OF SOUTH AMERICA:  
A SEARCH FOR TRUTH

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This paper examines literature concerning the llama, alpaca, vicuña, and guanaco (collectively known as lamoids) from two perspectives: a recent survey of text and other reference materials available to elementary school students and a search for current data about the range and in some cases numbers of individual species. As an outcome of the investigation it is possible to formulate teaching suggestions based upon what is known concerning the ecological, economic, and cultural niche of the animals. [Ed. Note: With the introduction of the "new" social studies many school districts now have only two social studies units with a geography focus. They are "California" and "Latin America" in the fourth and sixth grades respectively.]

Unfortunately, the text and reference materials survey revealed much misinformation about lamoids--the hornless, humpless, cloven-footed ruminants that are South American members of the camel family. As a result, misconceptions about the animals show up (often pictorially) in student reports. The writer became aware of a problem concerning available lamoid information when he made the following assignment in a sixth grade California classroom:

The committee report on lamoids should emphasize their physical characteristics, distribution or range, and usefulness to man. The committee is to prepare three large visuals and may rely entirely upon reference material found in the classroom.

Rather startling visuals resulted. Invariably prepared to emphasize the concept of usefulness to man, they included rural and

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urban scenes of llamas being ridden, milked, hitched to a plow, or arranged in teams pulling heavily laden wagons through town. In response to the query, "Did you find a picture of this in your sources?" the student is apt to reply, "No, but I read about it." Both written and audio-visual sources contain information that would amaze a biogeographer or anyone familiar with the altiplano and other areas where lamoids are found.

#### CORRECTING THE MYTHS

Table 1 enumerates some of the myths and misconceptions found in classroom references. A study by Daniel W. Gade dealt with lamoid myths found in the general literature. The myths commonly presented as fact in the cited classroom references and the actual facts are summarized in Table 1.

The domesticated llama (*Lama glama*) lives in the high Andes of Peru, Bolivia, Chile, and Argentina, and in the Ecuadorian Highlands, usually at elevations above 9,000 feet (2,743 meters). It is not found, as stated in one source, all along the Andes, which would include Colombian and Venezuelan regions in its range.<sup>1</sup> Quechua and Aymara women are skilled in making garments from the yarn of llama fleece, but the natural fleece is so coarse that it is best marketed--if at all--as a pelt.<sup>2</sup> The Indians make rope or rough cloth from the fleece, but it is not a quality wool as one source indicates.<sup>3</sup> It is true that the llama produces milk, but neither modern nor ancient people have had any specific use for it. The literature indicates that the llama is regularly milked like the Old World cow or goat.<sup>4</sup>

The male llama has traditionally been used as a pack animal on the altiplano (Fig. 1).<sup>5</sup> Its size and weight (4 ft., 250 lbs.--1.37 meters, 113.40 kg.) suggests its value as a mount or draft animal would be limited, and it is widely reported that the maximum burden a llama will carry is approximately 100 pounds (45.36 kg.). However, students would assume substantial use of the llama as a mount from accounts available to them.<sup>6</sup>

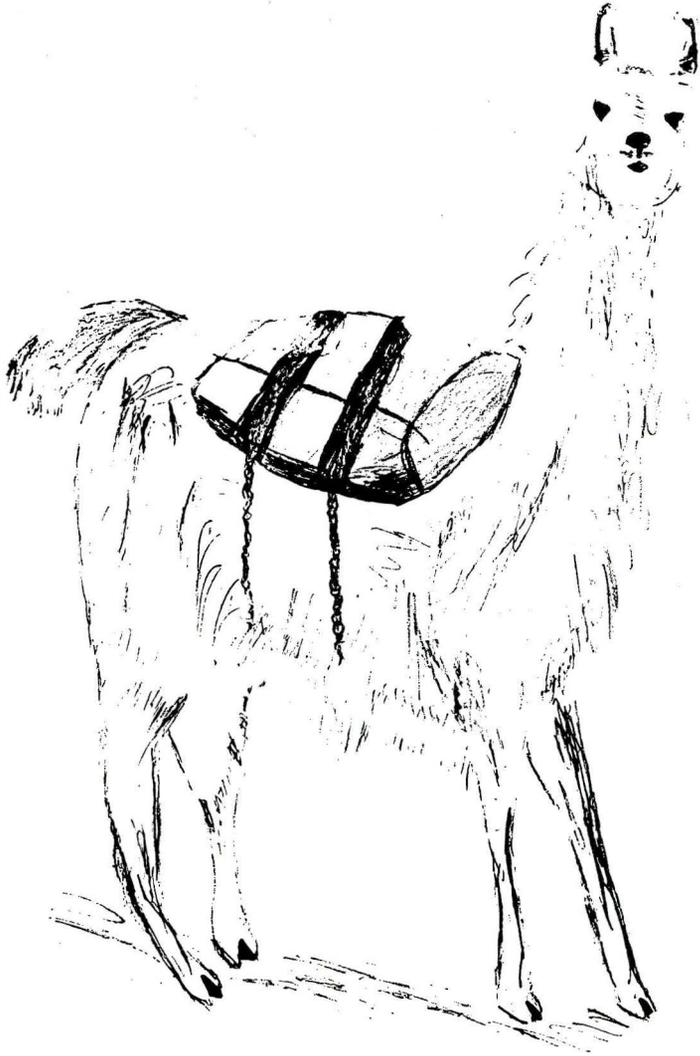


Figure 1. The male llama is utilized as a pack animal.

Table 1  
The Lamoids--Myth Resolved

Myth	Footnote Reference	Information Derived from a Research Article*
Use of the llama as a mount.	6	Gade states (p. 342) that the llama has never been systematically used as a mount.
Llama wool is of high quality.	3	Although useful, it is usually used as a pelt, for rope, or for rough textiles, because it is coarse (p. 342).
Llamas are milked; the milk is utilized as a native food.	4	No evidence exists that the llama has ever been used as a source of milk for human consumption.
Lamoids are found throughout the Andes range.	1	Their distribution does not include any of the extensive Andes range north-east of the Ecuadorian Highlands (p. 341).
Domesticated lamoids are found as far south as the tip of Argentina.	7	No domesticated lamoids are found south of 27 degrees South Latitude (p. 341).

\*Daniel W. Gade, "The Llama, Alpaca and Vicuña: Fact vs. Fiction," *Journal of Geography*, LXVIII-6 (September, 1969), pp. 339-343.

The range of the domesticated lamoids (llama and alpaca) includes portions of five countries (Fig. 2). Domesticated lamoids are not raised as far south as the tip of Argentina (as indicated in one source), although the wild guanaco (*Lama guanacoe*) is found well into Patagonia.<sup>7</sup>

Vicuñas (*Lama vicugna*) are experimentally kept on large estates and interbred with the domesticated alpaca (*Lama pacos*) to produce a hybrid paco-vicuña. The fleece of the hybrid is more abundant than that of the vicuña, yet retains the quality and value of the vicuña wool. Until recently the vicuña was hunted for its pelt, but not the alpaca, which is no longer found in the wild state as suggested by Ford.<sup>8</sup> A comparison of the characteristics

## Distribution of Lamoids

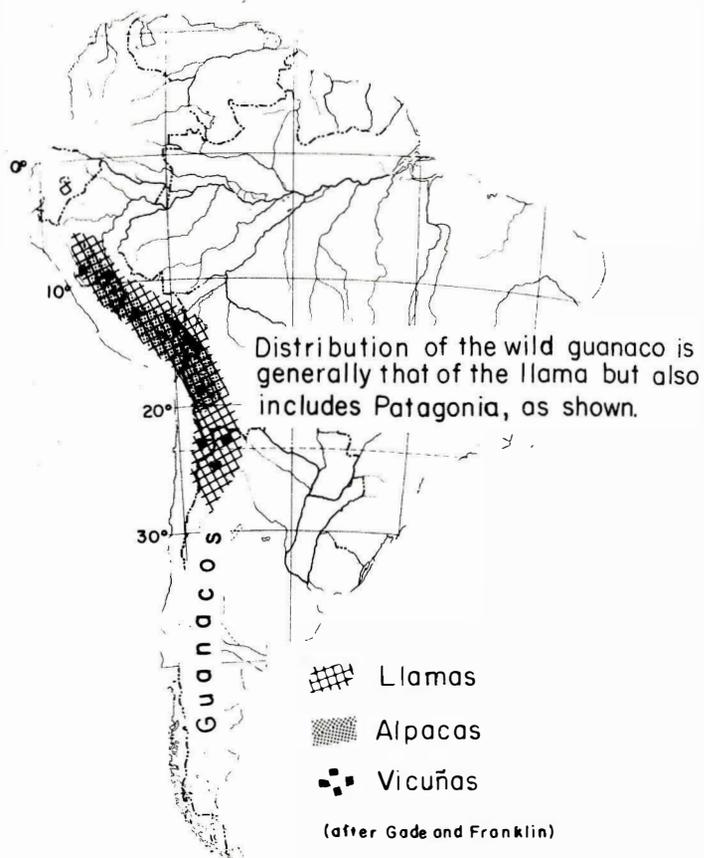


Figure 2. Range of the lamoids (New World Camels) in South America.



Figure 3. The alpaca, paco-vicuña, and vicuña,

of the parent stocks will indicate which traits the paco-vicuña inherited from each parent (Fig. 3).

#### *ECONOMIC AND CULTURAL SIGNIFICANCE*

The lamoids are useful to the Highland and Patagonian natives of South America in many ways. Although the Old World donkey is a better pack animal at moderate elevations (where it is in fact replacing the llama), the llama is still used to carry burdens at very high elevations where roads are poor. It does not have to be provided with fodder, even in the dry season, as it can make do by grazing wild grasses, sedges, and mosses.<sup>9</sup> The female is not used as a beast of burden, but does provide the natives

with a useful hide and occasional table meat which is sun dried (charqui). Llama dung (taquia) is used for fuel in areas above the timber line. Ritual slaughter of animals is practiced at various times during the agricultural cycle and to commemorate economic, religious, and cultural events.<sup>10</sup>

The alpaca is raised commercially at very high elevations (usually above 14,000 feet or 4,267.2 meters) and its fleece finds a ready market. Vicuña wool is even more valuable and has sold for as high as \$25 per pound (\$55 per kg.), although since the days of the Inca this fleece has served only a highly specialized market.<sup>11</sup> Because of its valuable fleece, cultural uses, and declining range, a population that once may have numbered 1,000,000 today probably does not exceed some 15,000.<sup>12</sup>

The guanaco runs in wild packs throughout much of llama territory, and far to the south into remote regions of Argentina's Patagonia. It may be taken legally as a game animal and is valued for its meat and its hide.

#### *ENDANGERED SPECIES?*

Whereas Gade points to decreased numbers and relative importance of llamas that could lead to its becoming extinct in its natural setting within the next 100 years, Stouse feels that it is "too well integrated into the economy and culture of the Bolivian altiplano" to become extinct.<sup>13</sup> Other sources treat of the wild vicuña and guanaco. Curry-Lindahl warns that the guanaco "is still in imminent danger of extinction due to hunting," while Fitter says that the vicuña "may soon have to be included" in the *Red Data Book*--a listing of animal species and subspecies in danger of extinction published by the International Union for Conservation of Nature and Natural Resources.<sup>14</sup>

### TEACHING SUGGESTIONS

Large visuals produced by students can effectively portray the lamoids in a natural setting. Figures 1 and 3 were created by sixth grade students. It is possible that raw llama and alpaca wool could be obtained for display, along with finished products made from the wool. The fact that the native Quechua and Aymara Indians of the Highlands use the pelts and hides of lamoids for clothing should be emphasized. It would be appropriate for vocabulary study to point out that "jerky" as a term used to refer to dried beef of the American West is in fact an alternant of charqui, the proper term for dried animal meat. Students also should be aware that the llama is "the most efficient converter of altiplano vegetation to live animal weight."<sup>15</sup> In this respect it might be compared to the new hybrid "beefalo," that cross between feeder cattle and the American bison that some agronomists believe may be a bonanza due to its ability to convert grass to live animal weight. The South American llama is purchased on the hoof and slaughtered for hides and fresh meat in rural areas of the altiplano.

The llama has long been used by the Indian. According to Zeuner, the animal was domesticated as early as 2550 to 1250 B.C.<sup>16</sup> It is probable that it was used at much lower elevations in the past, no doubt because it was the only available beast of burden.

Systematically organized, facts and ideas presented in this paper (including the distribution map, Fig. 2) may prove helpful in the preparation of student reports.

### CONCLUSION

Factual information about the lamoids is found in the professional literature, and much that is truly helpful is found in the classroom sources cited. Perhaps it is only fair to point out that travel accounts of the early Spanish period were embellished with fanciful impressions of the lamoids, so that Old World

readers would be suitably impressed with the merits of these exotic animals. Nevertheless, too much of our Latin American text material is romanticized. Today's elementary student is better off without source materials that emphasize romanticized anecdotes concerning the lamoids.

The ultimate survival of the animals in their natural habitat will depend upon factors that have been treated or suggested in this paper. Conveying accurate knowledge about these animals may help conservation efforts directed toward their survival. It is likely that guanacos may survive on a decreasing range, and recent laws of the United States and Britain prohibiting import of vicuña products at least recognize the current plight of these endangered animals.

#### NOTES

<sup>1</sup>Charles A. Ford (Ed.), *Compton's Dictionary of the Natural Sciences* (Chicago: F.E. Compton Co., 1966), p. 340.

<sup>2</sup>There is no means of determining the market value of llama wool. Cf. A.D. Stouse, Jr., "Regional Specialization in Developing Areas: The Altiplano of Bolivia," *Revista Geografica*, Vol. 74 (Junho de 1971), p. 65.

<sup>3</sup>National College of Education, *Young People's Science Encyclopedia*, Vol. 10 (Chicago: Children's Press, Inc., 1966), p. 975.

<sup>4</sup>Community Educational Resources Promotion Department, *Animals of South America, Part II* (San Diego: San Diego County Department of Education, n.d.), p. 47; Ford, *op. cit.*, p. 340; William H. Gray, *et al.*, *Exploring American Neighbors* (Chicago: Follett Publishing Co., 1956), p. 167.

<sup>5</sup>But it does not follow that llamas do farm work. Cf. Peter Greco and Phillip Bacon, *The Story of Latin America* (San Francisco: Field Educational Publications, Inc., 1970), p. 303.

<sup>6</sup>Community Educational Resources Production Department, *op. cit.*, p. 47; National College of Education, *op. cit.*, p. 975.

<sup>7</sup>Gray, *op. cit.*, p. 166.

<sup>8</sup>Ford, *op. cit.*, pp. 10-11.

<sup>9</sup>A.D. Stouse, Jr., "The Distribution of Llamas in Bolivia," *Proceedings of the Association of American Geographers*, II (1970), p. 138.

<sup>10</sup>*Ibid.*

<sup>11</sup>William H. Franklin, "High, Wild World of the Vicuña," *National Geographic*, CXLIII-1 (January, 1973), p. 85.

<sup>12</sup>*Ibid.*, p. 77.

<sup>13</sup>Gade, *op. cit.*, p. 343 (source cited for Table 1); Stouse, "The Distribution of Llamas in Bolivia," *op. cit.*, p. 139.

<sup>14</sup>Kai Curry-Lindahl, *Let Them Live: A Worldwide Survey of Animals Threatened with Extinction* (New York: Morrow, 1972), p. 236; Richard Fitter, *Vanishing Wild Animals of the World* (New York: Franklin Watts, 1968), p. 83.

<sup>15</sup>Stouse, "The Distribution of Llamas in Bolivia," *op. cit.*, p. 138.

<sup>16</sup>F.E. Zeuner, *A History of Domesticated Animals* (New York: Harper and Row Publishers, 1964), p. 438.