

Table S1. Key data selected from historical and contemporary sources used previously (Flueck and Smith-Flueck 2012, Flueck et al. 2022) [1,2]

Text considered relevant for huemul conservation

Pennant (1793)	Only remaining in highest and inaccessible parts of Andes, and therefore difficult to take [hunt] Byron saw ... a deer ... first animal seen in the Strait of Magellan, except at entrance where we found guanacos Huemul (<i>Equus bisulcus</i>) has been seen at Port Desire (pg. 15)
MacDouall (1833), pg. 157, 163, 167 Roulin (1835), pg. 10-11	Outside of dwellings hang several heads and shoulders of deer ; ...cooking portions of venison; Gregory Bay (= some 100 km from next forest) The name ' Anta ' is still used twice: once for a quadruped common around the port of Saint-Julien , and then for animals which are found on shores along the Strait of Magellan. There are also guanaco , but the other is probably a large, quadruped that was seen several times around the strait, perhaps the one that Molina designated by the name of huemul (<i>Equus bisulcus</i>). Very rare in Chile, only occur at high edges of mountains => this indicates that no more migration was occurring
Gay (1847), pg. 161 Cox (1863), pg. 69,73 Claraz (1864), pg. 242,245	Saw a deer [huemul] at "Deer Port", and found a dead guanaco nearby; this deer was at lowest elevation in summer, thus a resident deer Summer: Natives in valleys with plenty of guanacos and similarly numerous huemul: all-year residents ; Natives trade skins or use them for making tents; over 50 years of trading huemul products through Carmen de Patagones via Buenos Aires to Europa (i.e. since 1785) The valley Henno was at least 20 miles wide, lying about 50 feet below the eastern plains; I killed a deer ; next day we traversed a gradually-rising grassy plain towards the mountains Natives hunt huemul for skins and meat in areas also containing guanaco
Musters (1871)	He mentioned huemul fur trade via Valdivia, Chile Mules driven down from mountain pasturage to a corral, arrived with a huemul which was lassoed and killed The research team hunted several huemul in ecotonal Patagonian meseta ; he mentioned huemul parts being taken to Punta Arenas, Chile for trading , including heads with velvet
Burmeister (1873) Philippi (1873), pg. 721 Slater (1875), pg. 44 Behm (1880), pg. 53, 54	Published in London, UK: huemul figures in the manual of ready reference for all those species which are commercially important Where there are people, huemul remain only in high mountains His team shot huemul some 50 km east from forests Huemul by Morro Philippi, 120 km from continental divide ; Natives exchanged hides for sugar, alcohol, etc.; deer hides were traded via Punta Arenas in Chile; huemul occurring with guanaco Migrating down...; they were hunted by natives who take skins to Carmen and Bahia Blanca on the Atlantic for trading The range of guanaco crosses that of the huemul ; during the summer these deer leave the lower grounds and travel up to the snow-line; we could very easily shoot ten huemules in a day ; tracks of guanaco and huemul in steppe (pg. 133); saw huemul in steppe by River de Los Antiguos (pg. 145); I had just shot a guanaco, when a huemul buck dashed past me within twenty yards (steppe, pg. 240); huemul seen east of Lake Buenos Aires some 100 km from forests , the natives said that earlier they were more numerous in that region (pg. 249)
Lydekker (1898), pg. 297 Prichard (1902a)	Groups of huemul (6 and 12) some 220 east km from forests, they shot two Saw some 100 individuals in a group The Patagonian plains are the home of guanaco and huemul Saw huemul frequently in the meseta some 100 km from the next forest ; and regularly hunted them for meat as it was better than guanaco meat Huemul are in Patagonia plains, over 100 km from forest; very easy to hunt : once I was in grasslands, a gaucho went slowly to a female to kill her with a knife , but leaving me enough time to photograph all, and she was not afraid; huemul overlap with guanaco; huemul is close to extinction Photo of huemul hunted by the governor of Chubut in 1904, at 270 km east of the continental divide Huemul were easy to hunt and constantly provided meat for their crew; huemul occurred in unsettled valley bottoms, often abundant ; they were in steppe areas together with guanaco
Burmeister (1901), pg. 83 Prichard (1902b), pg. 249 Church (1903), pg. 321, 322 Hatcher (1903), pg. 185 Onelli (1905)	Populated central Chile: huemul only in high Andes ; unpopulated Magellan they were still abundant; ranchers by Lake Argentino fed huemul coming down in winter (pg. 233); seasonal migration Winter migration down to valleys ; they are hunted also to export their skins via Carmen and Bahia Blanca, Atlantic coast (pg. 31) Pigafetta: horseless hunters with skin clothes from a beast like a mule, body like camel and tail of horse (this was a common description for huemul) at Port San Julian ; Van Noort: found beasts like stagges (= cervid, thus huemul) at Port Desire ; by Atlantic coast Hunted huemul on a practically open hill side, 500 m from any cover , "and just beyond, on the side of a small gully, were five guanacos " Native women grilled fresh-killed huemul , while men were using horses in steppe area; if no huemul available, they would eat guanaco or ostrich Huemul in summer mainly up to snow line; guanaco also up to snow line in summer , but also occurs in steppe plains; saw guanaco and a little later two huemul in grasslands some 35 km east from the next forest ; several huemul were hunted and consumed, with help of natives on horseback, using boleadoras (similar to lasso)
Neveu-Lemaire and Grandidier (1911) Eastman (1915)	Seasonal migration and large herds in winter Huemul were seasonally migratory ; groups of 50 or more had been seen in the past; colonists hunted many huemul to feed dogs, chicken and pigs; skins were used to construct shelters for domestic animals In the past, huemul were frequently hunted to export skins via Carmen and Bahia Blanca That huemul only remain in high mountains is surprising (pg. 171); in quiet areas, huemul remain as residents in low areas all the time (pg. 173) Huemul are very easy to kill : he shot one of four, then "I walked toward the nearest one and he flicked his tail quickly but would not retreat. I was within 10 meters of him and picked up a pebble and threw or rather tossed it at him and even this would not put him to flight Guanacos and huemul grazed by the thousands on the plains and in the mountains (pg. 172) At Lake Viedma, we found only guanacos and deer, which quietly grazed in the solitude of these Andean valleys (pg. 360) All these quiet valleys were completely uninhabited and unknown, and endless herds of guanacos and deer could be seen everywhere (pg. 430) They are on the best way to extinction ; there used to be large herds in valleys and mountains of Chile ; colonists are getting into the last valleys, hunting deer for meat and for their dogs ; by Lago San Martin, many ranches had every window and door closed with huemul skins ; saw groups of up to 10 deer, got to 6 m and walked among them and photographed/filmed them (material is available)
Osgood (1923) Bürger (1924), pg. 54-55 von Colditz (1925), pg. 24,25,330,347	Between Andean Mountain foothills and Patagonian mesas, by Lake Sarmiento, reaching the Atlantic Coast huemul went down in winter; a man killed 13 in one winter (1927) => indicating seasonal migration behavior Huemul remains found in steppe some 100 km from forests Indians hunted huemul for meat and skins; normally huemul descend to protected valleys and precordillera in winter ; as huemul now need to remain in higher places, they will suffer during harsh years, from malnutrition , and with consequences to their offspring; animals weakened from malnutrition area more prone to disease and easier prey to natural predators, which contributes to reducing their numbers By Lago Argentino, ranchers could capture 15 huemul in corrals , resulting in huemul being taken to the Buenos Aires Zoo in 1932; in that region, some 2000 huemul were killed each year by ranchers to feed dogs and chicken besides their own consumption (pg. 27)
Gigoux (1929) Giai (1936), pg. 101	Until 1850s huemul still occurred in Patagonian flatlands ; they were first hunted heavily by natives and then also by colonists ; they were still numerous recently between Lago Buenos Aires and Argentino, and still thousands per year were shot for meat for ranch dogs (pg. 31); now they are practically extinct, and only left in high mountains where they are refuged Once humans arrived and hunted them, they only survived in mountains. For this reason, one can frequently find old antlers in the valleys The northern limit of huemul was 30°S in Chile; that huemul and guanaco were nearly extinct by the time of the first Spanish arrivals Huemul remains found at 110 km east from forests Huemul remains found at 190 km east from forests Huemul remains found at 85 km east from forests Huemul remains found at 35 km east from forests
Cabrera and Yepes (1940), pg. 271 Krieg (1940) Osgood (1943), pg. 227	To provide better protections, Chile proposed in 1902 to charge an export tax for huemul skin hides During the late Pleistocene huemul reached 31°S in Chile Past hunting was severe, and where guanacos were accessible, most were hunted out: the guanaco population has declined by more than 95% ; the amazingly approachable huemul, which formerly ranged over much of the steppe , is now found only in the southern Andean mountains Huemul occurrence at 60 km east from forests Huemul remains found at 30 km east from forests
De Agostini (1945)	Huemul ate more grasses than tree leaves (pg. 46); Ultima Esperanza: 1893-1900, colonist von Heinz had big collections of huemul heads and hunting was so strong, that in few years there was local extinctions (pg. 73)
Grosse (1949)	
Housse (1953), pg. 160, 161	
Reichlen (1959) Liebermann (1962)	
Iglesias (1965)	
Kolliker Frers (1969)	
Ibar Bruce (1973) Bahre (1979), pg. 32, 77 Silveira (1979) Cardich and Miotti (1983) Massone (1984) Serret (1990) Ramirez Morales (1991), pg. 176 Saavedra and Simonetti (1991), pg. 253 Conway (2005)	
Re et al. (2005) Carballo Marina et al. (2008) Guineo et al. (2008)	

Mansur and Piqué (2009), pg. 148	Tierra del Fuego: archaeozoological record of guanaco and deer , the huemul
Aschero (2010), pg. 3	Archaeological studies confirmed the hunting of both huemul and guanaco in winter
Cruz et al. (2010)	Huemul remains were found at 250 km east from forests
Paillan and Tello (2012)	Huemul usage found at 20 km east from forests
Ale (2014), pg. 78	Bone of Hippocamelus sp. at 30°S in Chile
Donoso et al. (2017)	In the past, huemul were common in Patagonian steppe
Flueck and Smith-Flueck (2018)	Six cases: once a huemul was spotted, a dart was prepared and shot from 10 to 23 m, after 32 to 73 minutes since first seen, as huemul simply ignored the people and remained on the spot; amazingly approachable
Teta and Rodríguez (2020)	Huemul remains found at 280 km east from forests

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- [1] Flueck, W.T., Smith-Flueck, J.M. Huemul heresies: beliefs in search of supporting data. 1. Historical and zooarcheological considerations. *Anim. Prod. Sci.* **2012**, 52, 685-693.
- [2] Flueck, W.T.; Smith-Flueck, J.M.; Escobar, M.E.; Zuliani, M.; Fuchs, B.; Geist, V.; Heffelfinger, J.R.; Black-Decima, P.; Gizejewski, Z.; Vidal, F.; Barrio, J.; Molinuevo, S.M.; Monjeau, A.J.; Hoby, S. Jiménez, J.E. Loss of migratory traditions makes the endangered Patagonian huemul deer a year-round refugee in its summer habitat. *Conserv.* **2022**, 2, 322-348.

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