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Maureen Finnerty, Superintendent
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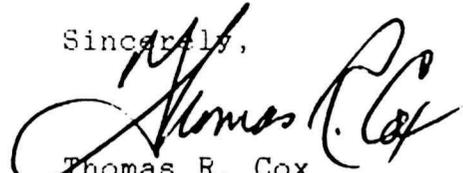
Dear Superintendent Finnerty:

Enclosed is my review of the four items regarding mountain goats in the Olympic Peninsula that were sent to me by Mark Nesvig. I hope that my review meets your needs.

If there is anything further that I can or should do, please do not hesitate to contact me. My office telephone number is (619) 594-5455; my home phone (619) 460-1503. As I believe Harold Steen of the Forest History Society told Mr. Nesvig, I will be in France from June 29 to July 15, so any contact would have to be either before or after those dates.

I must confess that I found reviewing these documents more pleasurable than I had anticipated. I was especially impressed by the quality of work done for you by Drs. Schalk and Schultz.

Sincerely,



Thomas R. Cox
Professor

A REVIEW OF THE HISTORIC AND PREHISTORIC STATUS OF MOUNTAIN GOATS
IN THE OLYMPIC MOUNTAINS, WASHINGTON

by

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This review is based upon analysis of the following documents: Review of the pre-1925 wildlife observations in the Olympic Mountains with special reference to mountain goats by Dr. Susan Schultz, A review of the ethnographic and archeological evidence relating to mountain goats in the Olympic Mountains by Dr. Randall Schalk, Biogeography of the Olympic Peninsula by Drs. Douglas B. Houston and Edward G. Schreiner, and Significance for wildlife management of the Quaternary biogeography of mountain goats (*Oreamnus americanus*) in the Pacific Northwest, U.S.A. by Dr. R. Lee Lyman. I will discuss each of these documents in turn and then provide an overall assessment of the evidence bearing on whether mountain goats were present in the Olympic Mountains prior to their introduction by humans during the 1920s.

A review of the historical evidence relating to mountain goats in the Olympic mountains prior to 1920 by Dr. Susan Schultz:

Dr. Schultz reviews the historical sources dealing with the natural history, and especially wildlife, of the Olympic Peninsula. She begins with the accounts of the first Spanish explorers and brings her survey into the twentieth century. Her analysis of the sources is even-handed and judicious.

Dr. Schultz's survey is quite thorough. The only thing that I can think of that she might have consulted but apparently did not would be the Asahel Curtis Papers, located in the Henry M. Suzzalo Library of the University of Washington. I have done considerable research in those papers myself and, although I was looking for other types of material, I can remember nothing in the collection dealing with mountain goats in the Olympics. If a check of the collection were to support my memory, it would be further evidence in support of Dr. Schultz's general conclusions, for Curtis was an experienced alpinist and outdoorsman who was a keen observer of nature.

In spite of the general thoroughness of Dr. Schultz's analysis, some further digging might have been done on two early reports of mountain goats in the Olympics: Quimper's (on p. 5) and Bancroft's (p. 17).

In Quimper's case, Dr. Schultz relies on Wagner's edition of an English translation from the original Spanish, noting that Wagner states the word "cibolos", translated as "buffalo", was a word the Spanish also used for elk but that Wagner does not tell

what word had been translated as "wild goats." This seems worth trying to run down. Dr. Iris Engstrand, Professor of History at the University of San Diego, is the leading American authority on early Spanish scientists on the Pacific Coast and could probably provide an answer.

In the case of the information from Bancroft, we are dealing with a third-hand report. There is insufficient evidence on which to assess the credibility of the original source. Bancroft himself was generally fairly reliable in his use of sources, however in checking the San Francisco Daily Alta California for February 9, 1861, the issue in which the report supposedly first appeared, I not only find no mention of mountain goats, but also no mention of the Olympics. I also checked the issues for February 8 and 10, 1861, with the same results. I do not have available to me copies of California Farmer for July 25, 1862, the paper in which the Alta's report was supposedly reprinted. Perhaps the original report was from the "steamer edition" of the Alta California which is mentioned in the Daily Alta California's issues of February 9 and 10, but which is not in the microfilmed run of the newspaper in the San Diego State University library. People at the Bancroft Library, University of California, Berkeley, could perhaps help clear up this matter through the materials in their extensive holdings.

Dr. Schultz's restrained handling of the evidence seems at times to keep her from making reasonable points that would, in fact, strengthen her overall conclusions. On page 12, for example, she quotes Archibald Menzies statement that he saw "A white animal . . . which we supposed to be a Dog about the size of a large Fox but it made off so quick into the woods that those who saw it were not certain what it was." Even with just a brief glimpse at some distance, it seems highly unlikely that an experienced naturalist such as Menzies would mistake a dog-like animal and a goat. Evidence elsewhere in her review and that by Dr. Schalk suggests that wool dogs were often white, about the size of a Pomeranian, and sometimes escaped into the wild. The most reasonable conclusion is that Menzies saw a feral wool dog, not a goat--a conclusion which Dr. Schultz implies by immediately shifting to a discussion of wool dogs, but could well make explicit.

Similarly, in discussing Charles Pickering's report that the Chinook Indians weave blankets from mountain goat wool (p. 17), Dr. Schultz fails to point out that the people he calls Chinooks were the preeminent Indian traders of the Pacific Northwest and that the area where they lived was a great hub of Indian commerce. That they had mountain goat wool when little, if any, seems to have been available from goats living in the immediate vicinity reinforces the picture of a far-reaching commerce in mountain goat wool in the Northwest that is presented elsewhere.

When discussing Quimper's description of what seems clearly to have been a ruffed grouse (p. 8) and Vancouver's description of what were surely sandhill cranes (p. 11), Dr. Schultz fails to make the point that it is hardly likely that explorers able to describe birds so accurately would not have done their best to describe mountain goats with equal care if they had seen any. The absence of such descriptions suggests the absence of such

animals.

Also, when W. P. Taylor and W. T. Shaw reported that mountain goats had once been found in the Blue Mountains of southeastern Washington, Dr. Schultz simply comments that Walter Dalquest said this was probably based on misidentification. She could have said much more, for Dalquest was most likely correct. The spur of the Blue Mountains that extends into Washington is low and rolling, hardly the sort of terrain in which one would expect to find mountain goats. Indeed, except around Anthony Lakes, very little of the main portion of the Blue Mountain Range, which is in Oregon, seems likely mountain goat habitat. All of these points could legitimately be made explicit.

Dr. Schultz's general conclusions hold up in spite of the minor caveats expressed above. A central challenge for historians is assessing the reliability and relative credibility of conflicting sources. Dr. Schultz does this well. She notes that those sources suggesting that mountain goats might have been present in the Olympics are all suspect in one way or another, while the major ones suggesting that mountain goats were absent were quite credible. The testimony of James Hanmore (aka Harry Fisher), Will and Grant Humes, Chris Morgenroth, Edward B. Webster, C. Hart Merriam, and W. P. Taylor provides, in combination with other sources, evidence too strong to allow a responsible historian to come to any other conclusion than that mountain goats were not present in the Olympics in the historical period until introduced by man during the 1920s. That is precisely the conclusion that Dr. Schultz reaches.

A review of the ethnographic and archeological evidence relating to mountain goats in the Olympic Mountains by Dr. Randall F. Schalk:

Dr. Schalk provides a comprehensive survey of the available ethnographic and archeological data bearing either directly or indirectly on the question of the prehistoric presence or absence of mountain goats on the Olympic Peninsula. The cumulative effect of this survey strongly supports the conclusions that Dr. Schalk reaches.

Some of the ethnographic evidence presented is especially persuasive. While many of the societies of the peninsula, especially that of the Makah, were oriented to the sea, some had important inland connections. There were upriver groups of Quinaults, for example, and one of Ronald Olson's Quinault informants, Bob Pope, had often hunted in the mountains. Therefore, when Olson concludes, on the basis of his ethnographic investigations, that "mountain goat and mountain sheep were unknown" in the area (p. 9), the statement seems well supported. Erna Gunther's work on the Klallam, the upper Elwha division of which had members who frequently hunted in the mountainous interior (pp. 12-14), points in the same direction.

Even more important is William Elmendorf's material on the Twana. One of Elmendorf's informants related a folktale that told how the Transformer, creator of much of the Indian world, "put no goats in our mountains here [the Olympics] but he gave the Skagits [who lived to the east of Puget Sound] goats in their

mountains..." (p. 15). The reliability of folktales as a source for information of this sort has been established time and time again. This positive evidence is alone nearly strong enough to settle the issue. When corroborated by other ethnographic information, such as that from Olson, it is all-persuasive.

Dr. Schalk's review of the ethnographic literature effectively demonstrates two other things that bear on the question at hand in important, if less direct, ways. First, the widespread use of wool dogs by groups on the Olympic Peninsula suggests an absence of mountain goats as a source of wool. [Dr. Schultz's survey of the historical record provides additional evidence on the use of wool dogs on the peninsula.] Indians on the Olympic Peninsula certainly had the technology and access to take mountain goats had they been present, and the great value of their wool and horn was such that they would certainly have done so if the opportunity had been available to them. As Dr. Schalk legitimately observes, "If mountain goats were present but unexploited historically because of 'cultural differences,' this would be the first known instance in which a large ungulate was purposefully ignored by any Northwest Coast tribe" (p. 17).

Second, the extensive trade networks of the area are convincingly demonstrated. The presence of these networks makes it clear that mountain goats did not need to be found in the Olympics for woven goat wool materials to be present among the peninsula's peoples. Still, one would not buy expensive trade goods from afar if there were sources for the taking near to hand.

The survey of the archeological data is less persuasive, but valuable nonetheless. Of all the sites on the peninsula the Manis, Seal Rock, South Hoh Rockshelter, and Seven Lakes Hearth sites seem the most likely to have yielded evidence of mountain goats if they had been present. Neither these nor any of the others, including Ozette with its extensive collection of materials, have done so. Dr. Schalk's complementary survey of archeological sites located near where mountain goats were known to be present provides a useful comparison, for it shows that some evidence of the presence of mountain goats would probably have shown up in one or more Olympic Peninsula sites if the animals had in fact been present there. Taken altogether, the archeological data provides useful, if negative, evidence that serves to corroborate the more strongly established picture provided by the ethnographic sources.

Dr. Schalk weighs the ethnographic and archeological data carefully and reaches judicious conclusions. This reviewer is persuaded both that Dr. Schalk's work is thorough and that his conclusions are the logical ones to reach through study of the data presented.

Biogeography of the Olympic Peninsula by Douglas B. Houston and Edward G. Schreiner:

Drs. Houston and Schreiner review the biogeography of the Olympic Peninsula and the major shaping factors behind the creation of its ecosystem. By tracing the patterns of species

diversity and distribution, they provide evidence that establishes the context in which to consider the question of whether or not mountain goats were present in the peninsula prior to the 1920s should be viewed. Their central thesis, that the Olympic Mountains constituted a "habitat island" for at least 10 millenia, is developed by analyzing the species of both plants and animals (especially mammals) found on the peninsula.

Drs. Houston and Schreiner reinforce the picture thus provided by comparing the ecofauna of the Olympics with those of "landbridge islands" to the north--the Alexander and Queen Charlotte archipelagos, and Vancouver Island. They argue that, like the Olympics, these areas served as ice-free refugia which, cut off from the Cascade Range, developed a distinctive ecoflora and ecofauna. Through their gradual build up of evidence, they demonstrate convincingly that the ecosystems of these landbridge islands provide more useful comparisons to the Olympic Mountains than do the Cascades. Their argument for the distinctiveness of these areas' ecofaunas strikes at the heart of R. Lee Lyman's assessment (discussed below), which rests on the assumption that the forces of dispersion, not those of isolation, dominated so that it is probable mountain goats were endemic in the Olympics.

In the analysis of Drs. Houston and Schreiner the isolating effect of the Puget Trough and the Chehalis glacial outwash are thus especially important. They build a strong case, but it might have been made even stronger if they had done more than just mention the Olympic Mudminnow (Novumbra hubbsi), the peninsula's lone endemic species of fish (pp. 3, 17). The literature on N. hubbsi makes clear the important role of the isolating effects of the Chehalis outwash on the survival of this relict species.

Drs. Houston and Schreiner might also have developed the idea of the nature of habitat islands more fully by drawing upon works dealing with the Siskiyou-Trinity complex near the Oregon-California border and on studies such as Frederick Gehlbach's Mountain Islands and Desert Seas (and various sources cited therein). The Siskiyou-Trinity area, in particular, seems relevant, for although early on there seems to have been a population of mountain goats in the vicinity of Mt. Shasta, there is no evidence that they dispersed westward into the Siskiyou-Trinity mountains in spite of the fact that the habitat there seems relatively well suited to them and there were relatively easy dispersal routes into it from the area around Mt. Shasta.

These are minor points. Indeed, one could argue that by eschewing discussion of N. hubbsi so as to keep the focus on mammalian forms and plants (the ecodynamics of which are relatively well understood because of extensive botanical study) and discussing only the nearest and most similar geographic areas, Drs. Houston and Schreiner avoid the risk of being charged with drawing upon strained analogies and examples that have too many variables to be of any real value. Certainly, their restraint in the evidence they choose to present adds to their credibility.

There is no question but that the flora and fauna of the Olympics is relatively depauperate. This could be the result either of isolation, as Drs. Houston and Schreiner argue, or of

the extinction of many forms once found there, an argument that would better fit the dispersal model provided by Dr. Lyman. However, as Drs. Houston and Schreiner point out, "There are no obvious characteristics or relationships in common among species absent from the Peninsula and the landbridge islands that would similarly predispose [their] populations to extinction (e.g. pika, bog lemming, porcupine, red fox, mountain goat)" (p. 14). It is a compelling argument.

Drs. Houston and Schreiner have provided a sound, carefully focused survey. Their research is impressive. Aside from possible discussion of the Olympic mudminnow and the Shasta-Trinity ecosystems, mentioned above, the main thing that I can think of which they might have drawn upon but did not is the collection of papers left by the late Dr. Kenneth Gordon, a mammalogist who served for many years as a Professor of Zoology at Oregon State University. The Gordon collection is located in OSU's Horner Museum. In going through it recently, I found a good bit of unpublished material on Gordon's long-standing interest in the distribution of mammalian species in the Pacific Northwest and the role of geological forces and long-term change in shaping these. Unfortunately, the collection is uncataloged and something of a jumble; moreover, much of the material in it is fragmentary and key items seem to be missing.

Significance for wildlife management of the late Quaternary biogeography of mountain goats (*Oreamnus americanus*) in the Pacific Northwest, U.S.A. by R. Lee Lyman:

Dr. R. Lee Lyman, basing his argument in large part on evidence that *Oreamnus* species were widely dispersed in western North America, posits that the "most reasonable position is to hypothesize [that] mountain goats were present in the Olympic Mountains during the Quaternary" (p 15). He proceeds from there. His approach brings to mind Ashley Montague's comment that Richard Ardrey's *African Genesis* "proceeds from unwarranted assumptions to foregone conclusions" (comments made at National Science Foundation summer institute, Flagstaff, Arizona, 1963). Nonetheless, it is so laden with qualifiers--possibly, probably, perhaps, etc.--that it is a difficult work with which to come to grips.

Dr. Lyman suggests that the Puget Lowland was a dispersal route, a filter more than a barrier, between the Cascades and the Olympic Peninsula. He points out that bison and caribou remains have been found in the Manis site, although neither species was to be found there later (p. 15). Clearly, they would have arrived via dispersal. But the presence of these species has limited bearing on the question of mountain goats, for although they were also herbivores, these species did not share the range or major behavioral characteristics of mountain goats. While the Puget lowlands might serve as a dispersal route for lowland herbivores, they would be much less likely to do so for denizens of alpine and sub-alpine areas.

Dr. Lyman also notes that the yellow pine chipmunk (*Eutamias amoenus*) successfully dispersed into the Olympic Peninsula (p. 18) and argues that the Puget lowland and "Chehalis Valley" (he

page missing

have been considerably less challenging than those represented by the Puget lowlands and Chehalis outwash. The Columbia River could not only be crossed when frozen over in winter, but also on the land bridge that apparently spanned it until late prehistoric times. In addition, the precipitous cliffs along the Columbia River Gorge would have provided a habitat in which mountain goats could have been relatively comfortable before moving on to the higher alpine and sub-alpine areas just to the south around Mt. Hood. The Wallawas, on the other hand, are separated from Idaho's Seven Devils Mountains only by Hells Canyon, a deep but narrow declivity replete with steep rock cliffs on which mountain goats could feel quite at home. The barrier between the Wallawas and the nearby Blue Mountain high country around Anthony Lakes seems not to have been crossed, just as the barrier between Mt. Shasta and the Siskiyou-Trinity mountain complex seems not to have been crossed--and neither of these would have offered as much of a barrier as the Puget lowlands-Chehalis outwash. If one includes the Owyhee uplands as a mountain goat site, then the same point can be made in regard to it, for there is no evidence that mountain goats dispersed from there to Steens Mountain, even though for a considerable period that would have been an ideal habitat for them. Certainly the barriers between the Owyhees and Steens were no greater than those that would have been crossed to reach the Owyhee country in the first place.

It is possible that the hypothesis presented by Dr. Lyman is valid, but there is little evidence to support it. Moreover, much of the evidence presented by Dr. Lyman is flawed and the logic used to connect it to the question at hand open to serious question. At various points the arguments used border on the downright specious. All in all, it is not an impressive piece of scholarship.

Conclusion:

The central task of historians is to weigh the relative merits of conflicting pieces of evidence as they seek sort out the possibilities and probabilities surrounding past events. The challenge is no different for the environmental historian than for any other practitioner in the larger discipline, although the environmental historian frequently has to draw upon a wider range of disciplines and sources than does the traditional historian as he or she seeks to establish the most likely scenario of the past. The work of William Cronon, Richard White, Donald Worster, and others demonstrates the effectiveness with which interdisciplinary analysis can be carried out in spite of all the obstacles that inevitably arise in carrying out such analyses. In short, the problem being dealt with here--the question of whether or not mountain goats were present in the Olympic Mountains before the 1920s--is the sort of question with which environmental historians deal fairly frequently. Although the range of disciplines involved in the documents reviewed is great, sorting out the overall patterns and establishing the most probable conclusions is less difficult than it might appear to the casual observer or to someone narrowly specialized.

At base we have two arguments to weigh against one another:

that mountain goats probably were and probably were not present in the Olympics before being introduced by humans in the 1920s. R. Lee Lyman's essay argues the former position, the other authors argue for the latter. Taken by themselves, none of these documents can be said to be completely persuasive. Still, a firm conclusion is possible.

As I have indicated above, Dr. Lyman's essay seems to be flawed in a variety of ways. He demonstrates that it is possible that mountain goats were present in the Olympics before the 1920s, but that is all. Indeed, his evidence is so weak, his arguments so strained, that one cannot help but find his conclusions suspect even without reading the other documents.

In contrast, the other documents complement one another remarkably well, while countering argument after argument presented by Dr. Lyman. Exploration of the Olympics was much more extensive than Dr. Lyman says, there was positive as well as negative evidence regarding the absence of mountain goats from the peninsula, and totally independent sources corroborate one another time after time. Moreover, the few reports of a pre-1920s mountain goat presence in the Olympics are invariably shown to be unreliable.

When one applies the standard yardsticks used to evaluate historical accounts, one finds those who were best placed and most qualified to speak spoke with a unanimous voice: there were no mountain goats in the Olympics. When one looks at the ethnographic literature, a similar uniformity of the evidence emerges, only to be capped by the forthright statement from a Klallam folktale that the Transformer had put no mountain goats in "our mountains." The biogeographical evidence, while dealing only to a limited degree with mountain goats per se, shows clearly that there was a good bit of biological isolation of the Olympics through much of the Quaternary. In other words, each of these sources--all of which are solid pieces of scholarship even when viewed alone--provides evidence that adds to the credibility of each of the others.

In the end only one conclusion is possible: there were never mountain goats in the Olympics prior to the 1920s. Chances that mountain goats were present seem so remote as to be of negligible importance.