

Scientific Review

**Historic and Prehistoric Status of
Mountain Goats in the Olympic
Mountains**

by

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This paper is intended to be a scientific review of the information provided on the historic and prehistoric status or occurrence of the mountain goats (Oreamnos sp.) in the Olympic Mountains. It has been prepared at the request of the National Park Service - Olympic National Park to aid them in establishing and facilitating a sound management policy for the resources under their jurisdiction. A sound management policy for mountain goats is of paramount concern to park service personnel since mountain goats, considered to be an exotic species by them, are a disruptive force in the current biotic communities Park Service personnel are trying to sustain in the park. According to park managers, preservation of these biotic communities would require rigorous management and population control of the mountain goats. Control would include techniques ranging from sterilization to removal. If goats are indeed exotic, not native, such stringent controls are allowable. If mountain goats are determined to be native then control measures are not allowed. Currently, the National Park Service manages the goat population as an introduced species, but challenges to this practice, exemplified by Lyman's manuscript, have necessitated a careful review of the status of mountain goats in the Olympic Mountains.

Albeit Lyman's reasoning throughout his paper is mainly supposition and conjectural and can be used against his hypothesis as well as for it, he does raise questions pertinent to this review:

1. Did mountain goats colonize and occupy the Olympic Mountains prehistorically?
2. Were mountain goats historically present in the Olympic Mountains?
3. If present, why did they go extinct?
4. Why did they flourish upon introduction or reintroduction?

Lyman also points out the importance of future studies in the Puget lowland to clarify the significance of this area during late pleistocene; however, to state that, "Only detailed study of the prehistoric faunal record will clarify the 'natural' status of mountain goats on Olympic National Park Lands," is questionable. It might, in fact, clarify nothing, and surely is not the only thing of pertinence. It is, however, information lacking in the papers by Shultz and Schalk provided for review, and would be meaningful to the biogeography manuscript by Houston and Schreiner.

The manuscripts of Schalk and Schultz are concerned with ethnographic, archaeological, and historic evidence relating to mountain goats in the Olympic Mountains. These manuscripts are thorough reviews of the available information and provide insight to historical events. Both manuscripts present limited, recorded information that by itself could be used to support the premise that mountain goats were once present in the Olympic Peninsula area, but when used in conjunction with multiple other records seem to require another explanation. It is difficult to believe that explorers on ships and visitors to nearby shores could document the presence of mountain goats, not a lowland species, when trained biologists and hunters failed to record the presence of goats when these biologists and hunters traversed the habitats preferred by mountain goats as we know them. Contrary to the opinion of some critics, Lyman included, who try to make the case that mountain goats were present but missed in the Olympic Mountains, my own experience observing and studying mountain goats in Utah shows that mountain goats are not secretive animals, but are often curious and frequently stand in open areas where their creamy white pelage makes them obvious.

It is equally difficult to believe that an animal that produced such prized and sought after pelage for clothing would not be actively hunted. If actively hunted, it is equally difficult to explain the absence of skeletal or clothing remains either in archaeological sites or in the area of traditional hunting grounds. It appears that the only access the primitive inhabitants of the Olympic Peninsula had to goat pelage or by-products such as tools or utensils was through trading with other human populations in proximity to known mountain goat populations not in the Olympic Mountains (Schalk and Schultz).

The fact that only one paleontological site has been studied is unfortunate, and Lyman's argument that such information is needed is valid. However, the fact that no fossil evidence has ever been found, even accidentally, hints that mountain goats were not present. The biogeographical data presented by Houston and Schreiner is excellent, but it documents that dispersal onto the Olympic Mountains and areas of concern was not uniform or all inclusive but selective. This selective filtering process could just as easily have excluded mountain goats as it could have facilitated them.

If goats were indeed present at some prehistorical or historical point, it is difficult to explain their demise. There are basic ecological principles that support this. Goats are what wildlife managers would consider a "resistant species." This means they are capable of occupying geographical areas within their range that render them very difficult to hunt to extinction. It is very unlikely that goats were hunted to the extirpation level within the Olympic Mountains. This is particularly unlikely, given that Schultz and Schalk found no record of man hunting them or encountering them while hunting in this area, whereas there are such hunting records in areas where they previously ranged, are known to currently range, and where they were indeed not extirpated.

The idea that natural predators may have caused their demise is also unlikely. The ecological premise that predators do not overeat their prey must be considered. In natural systems, when the energetic cost of searching, securing, and eating a particular prey item exceeds the energy benefit of such activity, the predator must switch prey items or the predator himself will go extinct. The natural predators of mountain goats, wolves, cougar, eagles, etc. did not go extinct in this area, and it is improbable that mountain goats, if ever present, did either; particularly without leaving a trace.

Another point along this line of reasoning is the fact that goats were extremely successful upon introduction into the Olympic Mountain area. This is perhaps due in part to control of predators and hunting, but given the habitat and conditions, they would in all probability have been successful anyway. They have been in other geographical areas of introduction, such as Utah, and also in areas where they naturally migrated into. Also, there is no competitively excluding species currently present that would have caused them to go extinct as postulated by competition theory. One would expect to find such species if mountain goats indeed occupied this area at one time.

This brings us back to the question of the status of mountain goats in the park. The majority of the evidence presented in the manuscripts reviewed highly supports the position that mountain goats, at least historically, were introduced and are indeed an exotic species. If the integrity of the ecosystems in this area are to be maintained in a pre-introduction state, populations of mountain goats should be

managed. If not, the ecosystem will indeed reach a dynamic equilibrium in time, but that dynamic equilibrium point may in fact be undesirable.

The question of prehistoric occupation and extinction is still valid, but even allowing Lyman's suppositions and conjectures to be true, and there is no evidence presented to allow such, one wonders if indeed mountain goats can or should be considered native. Suppose some mountain goats did invade the area in question. If the initial invasive mountain goats were unable to establish and maintain a viable population, should they actually be considered native? If they did temporarily establish themselves in low numbers, and there is no evidence presented they did, should they be considered native when they were obviously absent from the ecosystem for so long? To consider them native without evidence is precarious at best, but to consider them native and manage them as such is folly. The dynamic ecosystem has in all probability changed sufficiently in their absence that upon introduction or reintroduction into the system they are indeed functioning like an exotic species whose population is in a logarithmic growth phase and where limiting factors have yet to be identified and whose carrying capacity is yet to be determined.

The current ecosystem is obviously different from what would have existed when Lyman hypothesizes mountain goats would have been in the park (Houston and Schreiner) and, given the objectives of the National Park Service, should be managed to preserve the unique biotic communities the park was set aside to preserve. Even if these communities evolved in the absence of goats, as suggested by Lyman, there is no ecological theory that would support the idea that they would return to pristine conditions in the presence of goats if given enough time.

In summary, the reviews of Schalk and Schultz are very thorough. They fairly present the recorded evidence both supporting and refuting the presence of mountain goats in the Olympic Mountains. They both take the position that mountain goats were not historically present and adequately defend their position by presenting conflicting reports and discussing alternative explanations of the limited supportive

statements. Neither, however, attempts to address the possibility of prehistorical occupation and subsequent extinction.

Lyman's call for future studies and searches for paleontological evidence is valid and identifies a serious gap in our knowledge and understanding of the area. Lyman does, however, use reasoning to support his position that can just as easily refute his position. He also, of necessity, uses "suppose," "may have," and other such terms throughout his paper because he is trying to get attention paid to a heretofore neglected area of concern and interest where there is no data.

The Houston and Schreiner manuscript is well written and supports the position of the Park Service.

In conclusion, my review of these documents and previous experience with goats and other mammals leads me to support the position that mountain goats did not prehistorically nor historically occupy the Olympic Mountains prior to their introduction. Therefore, they should be treated as an exotic rather than a native species and be managed to protect and maintain the ecosystem in the condition perceived desirable by the National Park Service.