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Outdoor Facts

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Game Information Leaflet

GUIDELINES FOR EVALUATING BIGHORN SHEEP TRANSPLANTING SITES IN COLORADO

Game Information Leaflet No. 92 (Rutherford 1972), immediately preceding this number, records information on all original bighorn sheep (*Ovis canadensis canadensis*) transplants in Colorado and discusses the current (1972) status of herds in the various transplant areas.

From this information, it is clear that some transplants have been successful, some only marginally successful, and others unsuccessful. Furthermore, all of the transplant sites were judged to offer excellent possibilities at the time the releases were made. Using the experience gained from observing the results of these releases, and adding information since obtained from specific studies of bighorn sheep habitat requirements, general guidelines for evaluating potential bighorn transplant areas, apparently applicable to Colorado, have been developed.

In applying these guidelines, it must always be borne in mind that bighorn sheep have narrow tolerance limits on what is acceptable

as habitat, and in making a final positive recommendation the possibility that a transplant will be unsuccessful cannot be eliminated. The sheep themselves will make the final decision. Furthermore, subtle habitat changes which might occur while a transplanted herd is becoming established can reverse the initial success of a transplant. In fact, some of these subtle (and not so subtle) changes can alter the acceptability of habitat long after an established herd has existed in an area, and can thus be the initial contributor to the eventual demise of the herd.

Good quality bighorn sheep habitat must provide seasonal elevational ranges. Much of the decline of bighorn sheep in the past must be attributed to the loss of good winter range, and it is entirely unrealistic to expect either a supplemental or a new transplant to survive in habitat that is marginal in this respect. In any case where a supplemental transplant is proposed, the initial investigation should establish whether



Fig. 1 Good interspersion of grazing areas and rocky escape cover on alpine summer range, Sand Creek, Sangre de Cristo Mountains. This is a highly favored lambing ground for the resident bighorn sheep herd. (Photo by W. H. Rutherford)

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winter range is limiting the existing herd. There are some areas in Colorado, notably in the San Juan Mountains, where native bighorn herds still maintain themselves by wintering on wind-swept ridges above timberline, and have continued to exist in this fashion long after all low-elevation winter range has become unsuitable or unavailable. It is to the credit of these native herds that they are able to survive, but it would not be very realistic to attempt transplanting in such locations.

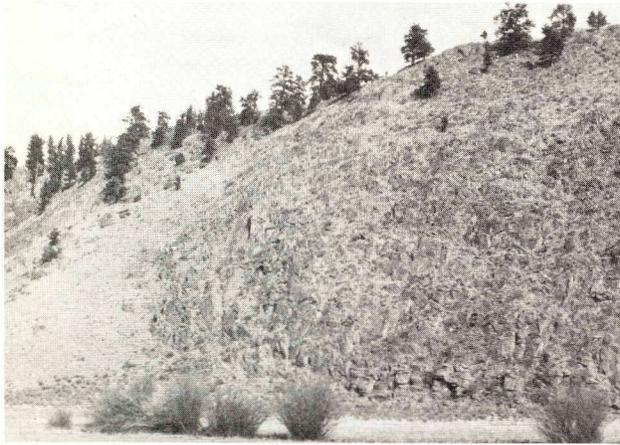


Fig. 2. Good interspersion of grazing area and rocky escape cover on bighorn sheep winter range, Saguache Creek. (Photo by W. H. Rutherford)

The first step in evaluation of a proposed transplant site should be an aerial reconnaissance, during late February or March, to assess winter snow depth, juxtaposition of potential summer and winter ranges, and the actual amount of snow-free winter range. General deep snow conditions with only small patches of bare ridge tops or south-facing slopes, or potential winter range far removed from alpine summer range, should be cause for rejection. This reconnaissance, as well as all subsequent field work, must be done in cooperation with the land management agency involved, either the Forest Service or the Bureau of Land Management.

Open grassy parks or hillsides below timberline and nearly any above-timberline alpine tundra will provide good to excellent summer range. As long as such sites exist on proposed transplant areas, plant species composition is not critical because, by their very nature, these sites are dominated by the grasses, grass-like plants, and forbs that bighorns prefer. Plant species composition is an important consideration in evaluating winter range, however, because of limitations on availability. It matters little that a south-facing slope may be free of snow most of the winter, if it is dominated by a shrub community having very little understory, or has been overgrazed to such a degree that only undesirable species are present.

The need for rock outcroppings, precipitous cliffs, and generally rough topographic features as a part of the physical habitat of bighorns is, of course, well known and hardly requires comment. Less well appreciated, perhaps, is the degree to which juxtaposition and interspersion of these features with grazing areas influence the potential value of the grazing areas. Many lush and productive alpine meadows never receive bighorn use because they are situated too far from escape cover. Over-utilization and range deterioration frequently occur in the vicinity of ridge tops, rocky promontories, and steep cliffs. Good interspersion provides a maximum amount of actually usable habitat expressed in terms of carrying capacity. This is especially important with respect to lambing grounds, as ewes exhibit almost a complete refusal to venture from the rocky locations chosen for rearing lambs until the lambs are at least two months old. In summary, rough terrain in itself is not necessarily a criterion of good sheep habitat; there must also be well-interspersion and usable grazing areas.

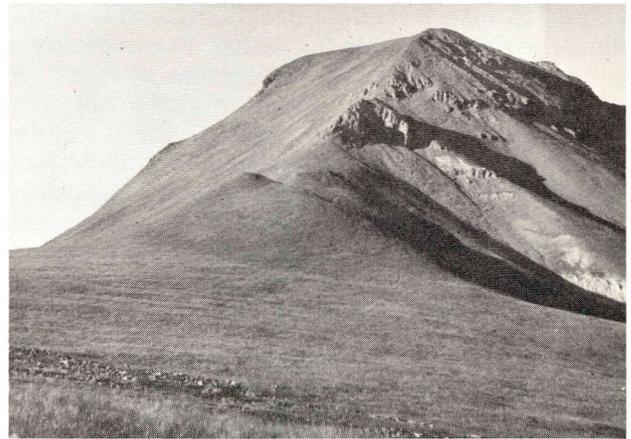


Fig. 3. The alpine tundra in the foreground on Buffalo Peaks receives practically no use by bighorn because of non-proximity of escape cover. This lack of interspersion on summer range limits usefulness and constitutes a severe deficiency on a proposed transplant site. (Photo by W. H. Rutherford)

The loss of much good bighorn winter range and the importance of making sure that adequate winter range exists in a proposed transplant area, discussed previously, leads to a discussion of competition. Bighorns generally do not thrive in competition with other grazing ungulates, and domestic livestock animals appear to be the most competitive. Ideally, bighorn sheep range at all seasons of year should be free from competitive grazers; but since this is rarely possible it becomes necessary to compromise in selection of transplant sites. As a general guideline, the presence of domestic sheep in alpine areas during summer and/or heavy use of winter range

by any grazing animals should be cause for rejection of the site.



Fig. 4. This south-facing slope on Mill Creek north of Gunnison, at approximately 8,500 feet elevation, remains snow-free during most winters and should be ideal bighorn winter range. Much of it, however, would have limited usefulness due to poor interspersion of rocky escape cover. (Photo by W. H. Rutherford)

Finally, the effect of human influence must be considered. This means not so much the mere presence of humans, but the inevitable presence of all those things associated with human usage — automobiles and highways, buildings, fences, water development, dogs, etc. The degree of human activity that bighorn sheep will tolerate is so variable in different situations that no firm guidelines can be set. Obviously, the quality of potential bighorn habitat is in inverse ratio to the amount of human influence, but the point at which habitat might be rendered unsuitable in this respect can be determined only by subjective judgment. In all probability, if a proposed transplant site should be rejected because of the human influence factor, it should also be rejected for other reasons as well.

LITERATURE CITED

- Rutherford, William H. 1972. Status of transplanted bighorn sheep in Colorado. Colo. Div. Game, Fish and Parks, Game Inform. Leaflet No. 92. 3 p.

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