

the DEER DILEMMA

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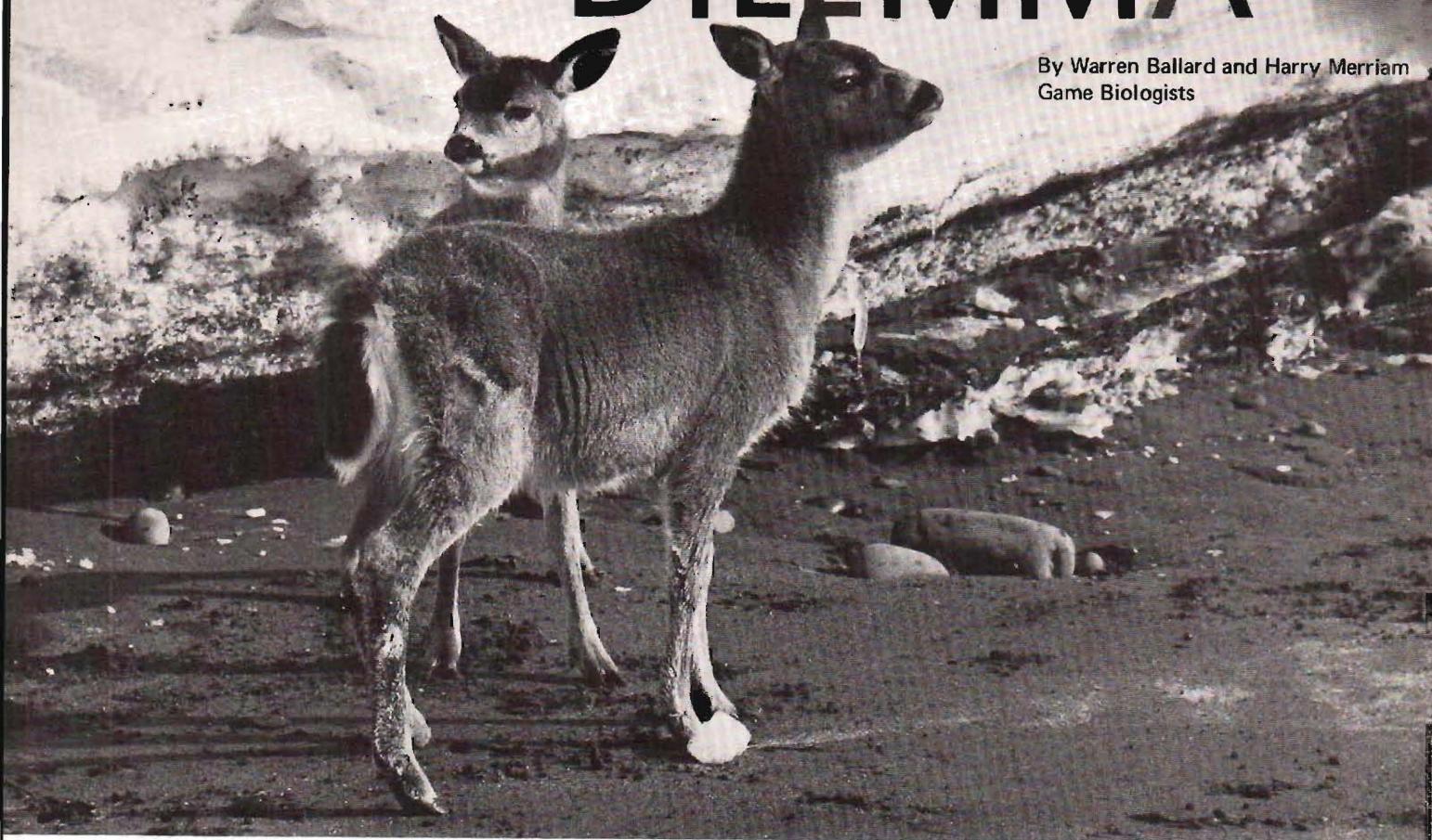


photo by Loyal Johnson

ON THE BEACH—Fawns driven to beach by heavy snow accumulation show advanced malnutrition. Fur is fluffed in attempt to conserve body heat.

Warren Ballard joined the department in 1973. He received a B.S. degree in wildlife management from New Mexico State University in 1969 and an M.S. degree in wildlife management from Kansas State University in 1971.

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EVERY YEAR about this time, the past deer season is a favorite conversation topic among sportsmen. Such conversations vary depending upon the hunters' success or lack of it, but often they evolve into a discussion of "what's wrong with the deer population."

Too often the conclusion is reached that the "problem" is the result of one or a combination of the following: (1) the deer season is too long (generally Aug. 1 to Dec. 31 with the taking of antlerless deer permitted after Sept. 15); (2) the hunting of both sexes; or (3) the bag limit is too high (currently four deer per hunter).

In some instances, hunters feel so strongly about their analysis of the deer situation that they present regulation proposals to the Board of Fish and Game. Most of these hunters are surprised to learn that Department of Fish and Game biologists oppose regulation changes aimed at shortening the season and/or decreasing the bag limit. Why do biologists advocate liberal deer seasons in the Panhandle area?

Before specific questions concerning Alaska's deer and hunting regulations can be answered, a few basic biological concepts common to all living things must be understood. Unfortunately any discussion about biology requires a few highfalutin terms.

All living organisms have a maximum reproductive potential. Obviously, to reach this potential a population would have to live and reproduce in super ideal conditions which rarely exist in nature. So populations usually reproduce and increase at a level below the maximum potential. Environmental resistance is the term used to describe the factors responsible for this performance below the potential.

Environmental resistance is of two types: (1) decimating factors = those that kill directly (predation, starvation, diseases, hunting, accidents, etc.); and (2) welfare factors = those such as cover, food, water, minerals, etc., that reduce the population indirectly by decreasing the breeding rate and weaken the animals' resistance to decimating factors.

The level at which a population reproduces and survives under a specific set of limiting factors is called the carrying capacity of the range. Range carrying capacity varies from year to year depending upon the severity of the limiting factors. Of significance is that if one limiting factor is removed, the population will increase (the amount of increase depends on the extent of control by that factor) but only until another limiting factor takes over. Let us examine how these concepts apply to Southeastern Alaska.

The first major fact to keep in mind is that deer in Alaska are at the northern fringe of their range. It is well known that organisms occupying the edge of their distribution exist in an unstable environment and thus radical fluctuations in total numbers are the norm rather than the exception. In Southeastern Alaska, the potential limiting factors for deer in order of importance are: (1) severe winters; (2) predation; and (3) hunting.

Winter weather is by far the foremost limiting factor affecting deer populations in the Panhandle. During the other three seasons, the carrying capacity of the range is high. Climate and soil conditions result in luxuriant growths of vegetation which provide abundant high-quality food and cover. However, most of this food and cover is not available during the winter. This is particularly true in clearcut logged areas. Thus, the amount of habitat needed to sustain high numbers of deer is not available. During severe winters, deer become concentrated on beach fringes and begin to feed on plants not normally eaten. Eventually they become weakened and die offs become imminent.

Deer rarely die directly from snow accumulations. Thus, according to the previously explained biological concepts, we see that weather is a welfare factor. Prolonged snow accumulations eventually cause deer to die primarily from malnutrition with predation and hunting playing lesser roles.

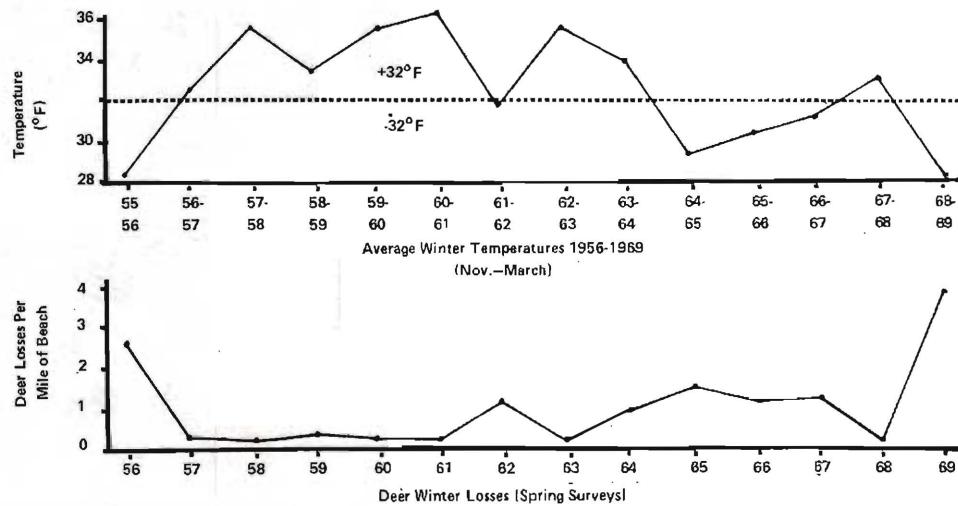
Each spring the department conducts its annual deer mortality study. In the study biologists walk many one-mile sections of beach fringe throughout the region looking for dead deer. Each dead deer is examined and its physical condition at the time of death is determined by looking at the bone marrow. If the examination reveals that the animal was in good physical condition at the time of death, then it can be deduced that the animal died from something other than starvation.

In most instances, however, examinations have revealed that the individuals were either very old or very young, and that they died from malnutrition.

Figure 1 shows the relationship between winter temperatures and numbers of dead deer found during the spring on the numerous one-mile samples of beach fringe. As temperatures decrease, the number of dead deer found the following spring increases because lower temperatures cause more snow to accumulate.

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Figure 1
Comparison of Winter Temperature
and Deer Winter Losses in
Southeast Alaska, 1956-1969.



As stated earlier, the extent to which winter weather limits deer numbers is closely related to the quality and quantity of food available. A few years of mild winters with high deer numbers usually result in overbrowsing. Prior to die offs, deer utilize all the past year's growth of browse and take even more, thereby crippling the plants and reducing the carrying capacity of the range for several years. Recovery of an overbrowsed deer range takes many years and sometimes is never complete. Thus, any form of management should strive to keep deer slightly below the carrying capacity during the critical season.

Predation is another (decimating) limiting factor on Southeastern Alaska deer populations. The primary natural predator is the wolf which occurs throughout Southeastern Alaska except on the ABC islands (Admiralty, Baranof and Chichagof) and a few other island areas. The department has limited knowledge about the wolf's influence in controlling deer numbers. However, it is believed (there are good data to support this) that the extent to which deer are utilized by wolves is related to prolonged snow accumulations. Long periods of snow definitely weaken deer and make them more susceptible to wolves. This is not to say that some predation does not occur year around. Unfortunately many hunters believe that wolves are completely responsible for the abundance or disappearance of deer. In some cases and in conjunction with other factors, this may be true. However, it should be kept in mind that deer and wolves have coexisted in Southeastern Alaska for hundreds of years. Both species have experienced radical fluctuations in numbers and this will continue with or without man's influence.

The third potential limiting factor for Southeastern Alaska deer populations is hunting. The effects of hunting on deer populations have been repeatedly studied and most findings indicate that hunting has little or no influence except in small localized areas. One of the more noteworthy studies on the effects of hunting was conducted on the Jawbone deer herd in California in the 1920s. In 1924 it was found that a few deer had contacted hoof and mouth disease. Since the disease was a threat to the cattle industry of California it was decided to attempt complete eradication of the herd. Prior to the program deer numbers on the Stanislaus National Forest were estimated at 10,000. From 1924 to 1926



photo by R. M. Burnett

WINTER KILL—Game biologist Dan Timm examines winter-killed deer on Admiralty Island during annual beach survey. Most deer found dead on beaches have died of malnutrition.

at least 22,214 deer were killed by trained hunters using rifles, poisoned salt and any other method capable of destroying deer. It was estimated that another 7,000 deer probably died from one cause or another, such as wounds, etc. Following the reduction, the original population estimates of 10,000 were revised upward and it was estimated that 10,000 deer still remained. Within 10 years the population returned to its prior level (much higher than 10,000), demonstrating that on suitable range deer can withstand tremendous hunting pressures without their population being suppressed for long. The great number of deer harvested commercially and as nuisance animals in New Zealand is another classic example.

Now, we'll answer the questions. Is the deer season too long? Absolutely not. In Southeastern Alaska we've had a liberal deer season for a number of years and our deer populations continue to fluctuate according to the severity of the winter. Our data show that during harsh winters, deer are concentrated along beach fringes and hunter harvest during this period is high. During mild winters when the range carrying capacity is high, deer remain at higher elevations and hunter harvest is lower. If deer are found along the beaches in November and December, it indicates that a hard winter is in progress and management should strive for a high harvest to utilize a resource which otherwise would be wasted.

Every year there are proposals to shorten the deer season. Some indicate that the season starts too early in the year and that this results in an overharvest. Our statistics over the past decade reveal that about 75

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