

# **A Sustainable Environment: Our Obligation to Protect God's Gift**

by  
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## **Exceeding the Carrying Capacity of the Earth**

In last month's article, a short discussion was presented on what has happened to the natural environment from the origin of the earth through the Industrial Revolution to the present time. About 70% of the major fisheries have been depleted or are at their biological limit. It is estimated that the forest cover has been reduced by as much as 50% worldwide; 50% of the wetlands and more than 90% of the grasslands have been lost. Currently, almost 40% of the world's population is experiencing serious water shortages. Can we make a difference to extend a healthy world to some indefinite period of time? Or is it too late, and are we in the midst of a period of overshooting the carrying capacity of the earth, followed by a rapid collapse?

God did not create the natural environment for the benefit of the people so they can use and misuse it. The environment *can* be used indefinitely as long as it is replenished. It has the capacity to support the needs of living creatures – plants and animals, including humans – but only a finite number. If this carrying capacity is exceeded to the degree that it cannot be replenished, the population that it is supporting will decrease significantly. This can be demonstrated by a real experiment conducted by scientists a number of years ago.

In 1944 on St. Matthew Island in the Bering Sea, 29 reindeer were imported for an experiment on ecology. This island consisted primarily of vegetation and was void of any predators. Specialists had calculated that the island could support between 13 and 18 reindeer per square mile, or a total population of between 1,600 and 2,300 animals.

By 1957, the population was 1,350; but just six years later in 1963, the population had exploded to 6,000. Were the scientists wrong in their calculations of how many reindeer the island could support?

Eventually it was determined that the original calculations had been correct. The 6000 reindeer vastly exceeded the carrying capacity of the island and they were soon decimated by disease and starvation. Such a drastic overshoot, however, did not lead to restabilization at a lower level with some of the reindeer dying off. Instead, the entire habitat was so damaged by the overshoot of reindeer that the number of animals fell far short of the original carry capacity. By 1966, just three years later, there were only 42 reindeer living on St. Matthew Island rather than the expected 1,600 to 2,300.

This is an example of what could happen to the Earth. In the case of St. Matthew Island, the resources used by the reindeer were grasses, trees and shrubs, all renewable resources that can be replenished. Many of the resources necessary for human survival, however,

are not renewable. There is only a finite source of resources such as minerals, oil and coal. We must be cognizant of the over utilization of both renewable and non-renewable resources. The ecological footprint, the average land area needed to meet the demands for life on the earth, is becoming larger every day. I will discuss this concern in the next issue.