

or farmer, or whoever it may be, is to protect his upland game from predators, he can best accomplish this by providing the cover in which the game can seek its own safety, and by providing the food which enables the game to reach that cover when it has to."

GAME MANAGEMENT IN THE NATIONAL FORESTS.

(By ALDO LEOPOLD.)

(Extracted from *American Forests and Forest Life*.)

The administration of the National Forests of America has for its real purpose the perpetuation of life—human, plant and animal life. Of first importance is human life, and so closely related is this to tree and plant life, so vital are the influences of the forest, that their problems have been fashioned into the major problems of forest management and administration.

Of next importance—and ever increasing—is the problem of animal and bird life. Driven from their once great range by civilisation the wild life that was at one time America's most, picturesque heritage has found refuge in the National Forests. Under protection their numbers have multiplied, and with it has come a new responsibility and a greater problem for the administrators of the National Forests. The wild life census of 1928 indicated there were nearly one million game animals within the boundaries of the National Forests.

The National Forests were placed under management in 1905. Up to that time the game-conservation movement had given birth to two major ideas. The first was the reservation or park idea—withdrawing samples of game range from economic development with a view to the perpetuation of threatened species. This has since grown to include the refuge idea. The second was the idea of limiting the annual kill on hunting grounds to the annual increment or "natural increase" of the game thereon. This idea of limitation of kill was really contemporaneous with National Forests, and part of its development may be credited to the foresters who had them in charge. In the interim, however, one additional major idea has emerged. This idea is corollary to the idea of limiting the kill to the annual increase. It asserts that the annual increment of any given game population may be increased at will by manipulating its environment. Such increase is limited only by the carrying capacity of the range, or, more rarely, by the unimpeded increase rate or "breeding potential" of the species.

Environmental control, in its essence, and as applied to hunting grounds, is in effect the shifting of mortality from natural enemies to human hunters. It is not a new idea. In