

## *Ecology, Research--and You*

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What does the word *conservation* mean to you? Can you define *conservation*?

Pondering answers to these questions leads to a review of the many aspects of life that impinge on man and his survival, his competitors, his future, his children and his children's children. In the past, the layman probably has thought of conservation in terms of tangible, natural resources — forests, flora and fauna, soil and water. More recently, the additional intangible factor of "beauty" has come to the layman's attention as another important factor to be cherished and conserved.

In his Conservation Message to Congress in 1962, the late President John F. Kennedy spoke as follows: "Conservation . . . can be defined as the wise use of our natural environment: it is, in the final analysis, the highest form of national thrift — the prevention of waste and despoilment while preserving, improving and reviewing the quality and usefulness of all our resources."

It seems to me these considerations lead to the term *ecology* — a word much less well-known, but a term which is absolutely inseparable from conservation. Ecology — which refers to the sum total of all the actions, reactions, and interactions between an organism (in our case, man) and his environment—enters the definition of conservation under the terms "wise use" and "national thrift."

Ecology is recognized as a science, and as such requires systematized knowledge and measurement. It also involves research, for no branch of science possesses all of the knowledge necessary for its complete and final understanding. Ecology is no exception to this rule and, if anything, is in greater need of knowledge developed by research than many of the other biological sciences. Man is taking positive steps to obtain this ecological information, but it seems to come with agonizing slowness owing to the vast number of variables that impinge on the life of an organism, whether it be a nematode in the garden, a bird in the forest, or a man in the city.

Until significant ecological data is available, man must make the best judgments possible from information already developed by research, and from past and present experiences. With advances in electronic computers and other fields of knowledge, the possibilities of reaching valid conclusions in ecology are now more likely than they were several decades ago.

To my mind, the philosophy of conservation was admirably presented by Associate Professor of Forestry Emanuel Fritz, University of California, Berkeley,



in an address titled "Just What is Conservation?" and printed in the *Journal of Forestry*. As a preface to this article the editor commented as follows: "The author argues that conservation, to be meaningful, must be looked upon as wise use, frugality, and use without waste, and that it starts with the individual's *wise use* of his own resources—time, effort, and money. He believes that conservation is too frequently preached by those who are not guided by its basic principles in their own affairs and in the handling of public monies. He pleads for conservation teaching at its roots—frugality—to develop a race of citizens to whom all waste is abhorrent, and from whom a more frugal corps of public servants can be enlisted." Note, again, the term "wise use" in a definition of conservation.

Fire is an excellent illustration of the necessity of considering all of the environment in relation to man's ecology. In some localities of California, fire is used as a tool to burn the brush and chaparral and to increase the livestock carrying capacity of range land. In other places, particularly southern California, fire is disastrous for man and results in severe losses of homes, watersheds, and wildlife refuge areas. Man is seeking to practice conservation in the latter case by following the "Greenbelt Plan"—that is, by growing fire-resistant plants as protective barriers around homes. In the former case man practices conservation by "controlled burns." Each conservation practice has its place according to the total ecology.

In addition to fire control, man is grappling with the equally difficult problems of controlling pollution of air and water, which are as much our natural resources as forests and soil. One aspect of research being conducted here at the Arboretum to obtain the knowledge leading toward "wise use" of our environment is discussed in the article elsewhere in this issue by Dr. Robert Gonderman on "Fire Resistant Plants."

All of these problems result from man's existence in increasing numbers, and again emphasize our need for adequate basic knowledge to guide us toward satisfactory solutions—solutions which must be found if we are to live and thrive within our environment.

*Statistics and statements are abundant that show man's waste of natural resources and that they portend severe consequences if continued into the future. Excellent reading along this line is found in:*

*Baker, Richard St. Barbe, Green Glory, The Forests of the World. A. A. Wyss, Inc., N.Y. 1949. 253 pp.*

*Dasmann, Raymond F., The Destruction of California. Macmillan, 1965. 233 pp.*

*Douglas, William O., A Wilderness Bill of Rights. Little, Brown and Co., 1965. 181 pp.*

*Stefferdud, Alfred (editor), "A Place to Live." The Yearbook of Agriculture, 1963. United States Department of Agriculture. 584 pp.*

*Udall, Stewart L., The Quiet Crisis. Holt Rinehart, and Winston, 1963. 197 pp.*





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