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Field Station Administration, University of California, Davis,
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It is a pleasure and privilege for me to welcome all of you to this conference. And it is a conference, not a convention. No motions or resolutions will be entertained, as this conference is made up of representatives of many governmental agencies and countries; hence, not a place for resolutions. We are here to get acquainted with each other and to listen to experts from North America and Korea tell us about the best methods of controlling troublesome and pestiferous birds, mammals and snakes, and to discuss related problems concerning diseases and pesticides. Since the program is crowded, each speaker will be asked to present an abbreviated version of his paper, saving the details for the published proceedings. If a member of the audience can contribute information about an effective control method not mentioned by a speaker, he should ask to be recognized, if time permits. But, please keep all comments from the floor both brief and constructive.

Without doubt, this is the first time a conference of this nature has been held anywhere, and the publication of all the papers under one cover should provide a valuable handbook on methods of controlling most of the nongame vertebrates of North America that at times become a pest to man.

It is a pleasure to acknowledge the generous assistance of the following members of an inter-agency planning committee which made this meeting possible: Maynard W. Cummings and Elbert M. Brock of the University of California; Walter S. Ball, James W. Koehler and Richard H. Dana of the California Department of Agriculture; John A. Ludeman and Adolph Zajanc of the Bureau of Sport Fisheries and Wildlife, U.S.D.I.; and Joe E. Brooks and Keith F. Murray of the California Department of Public Health. The committee is particularly grateful to Ralph E. Heal, Philip J. Spear and the National Pest Control Association for their generous offer to publish and distribute the proceedings.

Since we have come from near and far to attend this two-day conference on methods of controlling vertebrate pests, it is desirable to define at the outset what we mean by a vertebrate pest. It is more than merely an animal being where it is not wanted. To me, a vertebrate pest is any native or introduced, wild or feral, non-human species of vertebrate animal that is currently troublesome locally, or over a wide area, to one or more persons, either by being a health hazard, a general nuisance, or by destroying food, fiber or natural resources.

It is important to recognize that any animal that may currently be a pest to one or more persons, may at the same time be either desirable or of neutral value to someone else. There is no such thing as good animals and bad ones. Whether an animal is beneficial

or undesirable depends entirely upon one's relationship with it. The same is true with plants, and that is why the better a person is as a gardener, the more likely it is that he will hate weeds.

Judgment as to the propriety of controlling vertebrate pests is a relative matter. A homeowner usually will not tolerate the presence of a single rodent, snake or other animal that he may consider a pest, whereas a farmer usually does not object to most of these same species, unless they become so numerous as to cause him economic loss. Most state fish and game organizations have a policy of actively trying to protect nearly all kinds of wild animals, including predators; yet, at game farms, wildlife refuges, fish hatcheries, and for removing rough fish in lakes and streams, we find that fish and game managers have well-organized programs of using poisons, traps and other control measures to cope with their pests. Few naturalists enjoy watching moles make runways in their lawns or gophers feed on their prize flowers. For these reasons both a clear understanding and a degree of tolerance of other people's relation to the situation are required in judging someone else's decision as to what he thinks is a pest.

Another common misunderstanding concerns the meaning of the word control. Professional pest control operators are not out to eradicate or exterminate all members of a species; instead, their objective is to find a means of reducing these animals to tolerable densities in areas where they are pests. With practically all of

the vertebrate animals that are frequently called pests, it would be impossible to actually eliminate them, even if everyone got together and tried to do so. In fact, with most vertebrate pests, such as rats, mice, coyotes, and many kinds of birds, their numbers have actually increased because of man's activities. The fact that many animals have been eliminated locally is usually not the result of intentionally applied artificial pest control measures, but rather the consequence of habitat alteration inimical to the needs of that species.

It is too bad that biologists, conservationists, and the public in general cannot be more realistic when discussing the control of rodents, predators and other vertebrates that at times become pests. The persuasive pens of some who, well-meaning as they may be, in reality are either emotionally aroused, uninformed and ignorant of the true cause and effect relationships, or lack a proper perspective of vertebrate pest control, often obscure the true facts. Sensationalism is easy to get in the press; facts are dull. It would clear the air if more people would carefully review their reasoning, for vertebrate pest control is essential to our society, and doing it effectively is not simple. There is need for financial support to improve methods, for better answers are hard to find, and careful scientific research of the highest caliber is required.

It should not be forgotten that artificial regulation of the density of many animal species is not only common sense but also

good conservation of natural resources. To try to protect most species of vertebrate "pests" in the interest of conservation may actually be working against the very principle being striven for. Man's use of a resource may inadvertently provide suitable homesites for certain vertebrates, which then become too numerous and cause soil erosion^ prevent the resource from renewing itself, or conflict with man's interest in other ways.

Man has survived and improved his standard of living in direct proportion to his ability to gain control of nature and to manipulate the environment to his advantage. We do not desire wild fires and floods just because they both are natural events. And pest control is not just treating the symptoms while ignoring the disease as is often stated. Since man is part of nature, it is axiomatic that he will come into conflict with other phases of the environment around him, just as all other animals also have numerous species that are pests to them. There is never, of course, a place for unwarranted destruction of animals or unwise use of control materials that harm the dynamics of beneficial species. The primary objective of all control methods should be to accomplish the desired effect with a maximum of safety to man and to forms of life useful to him.

The interrelationships of man and animals have become increasingly complex as human populations have increased. Man's demand for additional food, fiber and timber have required more intensive use of the lands and waters. Most habitats for wild creatures have become so altered that many forms have suffered large population reductions. Other animals, finding these alterations to their

liking, have substantially increased, often creating problems that adversely affect man's interests and welfare.

Human welfare will be well served if more knowledge can be obtained on how to manage or control troublesome vertebrates with pesticides, repellents, frightening devices, manipulation of environments, biological control, and by better understanding the many related biological factors. Unfortunately, the lines of communication between research workers, pest control operators, and industrial developers of materials used in the field of vertebrate pest control are inadequate; hence the need for this Vertebrate Pest Control Conference. If conservation, sporting, recreational, and economic interests are to work together in harmony, much more information is required on losses caused by these animals and on methods of reducing these losses with maximum safety to man and forms of life beneficial to him. To bring about such harmony, educational institutions must recognize the value and ecological significance of vertebrate pest control and promote investigations of these problems. This neglected field of science should come into its own.

One way of bringing prestige to the words, "vertebrate pest control," is to keep the public better informed about pest problems. If we could keep the public informed about the true role of controls, they would soon acquire both a well-rounded perspective and a healthy philosophy about scientific control methods. This Conference should do much toward improving communications between research workers in this field. Another way of correcting some of the shortcomings in vertebrate pest control research is to form local organi-

zations of interested individuals. It also might help to establish an International Society of Vertebrate Pest Control. That there is no existing society or organization which encompasses this field of endeavor has been clearly exemplified by this Conference, for no society was interested in sponsoring it.

The establishment of organizations interested in vertebrate pest control could; 1) improve the effectiveness of scientists in securing such biological knowledge as may be required to provide the best and safest method of controlling vertebrates that become pests, 2) provide needed technical advice and guidance in this segment of environmental health and human welfare, 3) provide more rational thinking and an enlightened outlook on man's relationships with wild animals by improving the public's understanding and appreciation of the necessary roles of vertebrate pest control activities, and 4) they could provide a means whereby research articles on vertebrate pest control subjects could be published specifically for one's control-oriented colleagues.

An International Society would certainly help bring together the existing knowledge in this field and also help to coordinate this kind of research throughout the world. However, this Vertebrate Pest Control Conference by itself will surely do much toward advancing our knowledge on how to do a better and safer job of controlling vertebrate pests.