THE EFFECT OF EXPANDING HUMAN POPULATIONS ON WILDLIFE[1]

The theme of today's meeting is conservation education and I was invited to discuss the effect of the expanding human population on wildlife. The underlying thought of these two topics I believe is the necessity of public awareness of a very serious situation.

The word "wildlife" is present virtually in everyone's vocabulary today, yet the meaning of the term has been clouded by frequent but inappropriate use. We, biologists use the term to imply unmanipulated populations of living organisms (Incidentally Webster's International Dictionary defines the term similarly; i.e. living organisms neither human nor domesticated. With such a broad scope for the term "wildlife", the scope of my task has also enormously broadened.

Man as the most intelligent being on earth has made use of other beings from the earliest of times. The use has not always been wise use but any damage caused was negligible, for the numbers of man

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[1] Presented by Laszlo I. Retfalvi, Canadian Wildlife Service to the Rocky Mountain Section of the Canadian Institute of Forestry, November 22, 1969 in Edmonton.

were small and those of other beings were large. As time has passed, man, being a highly successful form of life, rapidly increased in numbers and his harmful consumptive habits became more and more noticeable. There came a time when wise members of his species realized that man is fully capable of destroying other beings at a rate faster than their potential to reproduce, and therefore advised a form of controlled use; take only the year's growth and protect the stock in perpetuity. Foresters call it the "sustained yield concept", other ecologists call it conservation.

Conservation has been the prevalent concept in the management of renewable resources for more than a hundred years in enlightened countries of the world. The idea was accepted because of the realization that today's lack is a result of yesterday's greed and because it made economic sense, but it was accepted mainly because the Old World by then was densely populated and the user had to live with the results of his actions. The absence of this condition due to the vastness of newly colonized lands at the time of great discoveries permitted greed to take over again as the prime motivating force in resource use. The much heralded pioneer spirit

of the early North American settlers is marred by their lack of foresight or simply their lack of awareness or disregard of their ancestors' experiences in the old country. In Stewart Udall's words: "It was the intoxicating profusion of the American continent which induced a state of mind that made waste and plunder inevitable. A temperate continent, rich in soils and minerals and forests and wildlife, enticed men to think in terms of infinity rather than facts, and produced an overriding fallacy that was nearly our undoing -- the 'Myth of Super-abundance'."

The bountiful natural resources of the North American continent were devoured at a fast rate by men in pursuit of quick financial gain. The "Big Raid" on natural resources started with the ruthless exploitation of forests. The prevalent practice of the day was the "strip and run" operation whereby mills were moved to new areas once nearby forests have been devastated. Along with wasteful operations, fires caused by care-lessness contributed to devastation. Ignorance rather than greed was the main factor in the large scale erosion of topsoil in the dry

prairie lands of North America. Overgrazing by cattle or simply plowing in the stabilizing grasses has made the soil prey to the winds and thousands of tons of topsoil were lifted into the atmosphere. This sad lack of foresight by early settlers set the stage for the disastrous Dust Bowl of the 1930's. The "Big Raid" on wildlife started with the trapping of beaver to satisfy a vogue then raging in Europe. The beaver came close to extinction and was saved only by a lucky turn of events in 1840 when beaverhats went out of style. Alaskan fur seals once estimated to number five million were subjected to unregulated slaughter until 1911 when an international agreement saved a remaining three percent from extinction. The story of the passenger pigeon is well known to most of us. Their estimated number in 1810 was in excess of 5 billion, probably a full third of the total bird population in the United States at the time. By the turn of the next century, however, the wild populations perished and only a single specimen was alive in the Cincinatti Zoo. With the death of this last survivor an animal species became extinct. The cause of the extermination was mindless,

wanton killing by men who thought superabundance was a fact. The saddest example of mindless destruction in these times was probably the ruthless butchering of the American bison, the most significant wildlife resource of the continent. An integral part of the prairie grassland community and of the Indian culture, the bison was the symbol of the untamed west. An epitome of human blindness, the destruction was done in the name of progress; to push on with the westward expansion, to subjugate the Indians and to create new cattle ranges. It is not incidental that the Dust Bowl of the 1930's was formed in former prime ranges of the American buffalo. The butchery had official sanction, its participants were depicted as folk heroes and patriots whose fame has survived to present day. Today however, we tend to feel more pity than awe for their actions and their fame is more of a notoriety. The buffalo hunters fortunately overlooked a few bisons in Yellowstone and in Canada, which animals gave rise to the herds presently in existence, serving as grim reminders of a tragedy of human blindness. There are many more species of wildlife in North America that survived the onslaught due only to fortunate accidents or to the fact

that some of its members in remote areas escaped the notice of exploiters.

Along with the decimation or extermination of its inhabitants the American landscape was also devastated. Greedy exploitation of the forest resources and ignorant destruction of prairie grassland and soil were only part of the story. Mining concerns did more than their share in denuding large areas by methods of hydraulic and strip mining, leaving desolate landscapes behind wherever they moved.

Early voices of concern were drowned out or brushed aside by the majority since in resource use greed and ignorance were the order of the day. Enlightment came slow but gained great momentum once great individuals emerged to head the movement in conservation phylosophy. Names like George P. Marsh, Carl Schurz, John W. Powell, Gifford Pinchot and John Muir were just a few of many outstanding men whose efforts brought changes in resource use that ensured perpetuity for many an endangered wildlife species. The story of resource use in Canada followed that of the United States but destruction was done on a smaller scale possibly due to our inhospitable climate.

Since the turn of the century conservation is the underlying theme in renewable resource management. Since reason has apparently won over greed, we may like to hope that we have reached a sensible balance with our environment. Such is, unfortunately, not the case. While the last century saw the direct effect of "man the plunderer" on the natural environment, our century is destined to see his indirect effect. This I believe is far more serious, and according to many it will cause our own destruction on this planet.

The gut of the issue is over-population and the resultant over-demand on our resources. While in the last century few took much of the resource to bring about a serious depletion of resources, in our century many are taking a little of the resource which puts us into the same situation. It is easy to see that with the number of takers on the increase, there soon will be a time when there will be nothing left to take. Beforethat time arrives however, the indirect result of our efforts to increase production of worldly goods will be the destruction of life itself. In their attempts to satisfy increasing consumer demands,

manufacturers and producers are employing methods and techniques that make our environment contaminated, less and less fit for human life. The story of environmental contamination is being unfolded in front of our eyes. Contamination is making impure, and as a result harmful, substances essential for life. Contamination is an effect of overpopulation and acts against human, domesticated, and wild life. It is difficult to pinpoint which form of pollution was the first on the scene. Most were around in minor proportions before, but they went unnoticed or caused no concern until their level reached that of human intolerance. This is not the level the body as an organism can withstand, but a level that human beings are willing to put up with. Probably the most widely known example of contamination is the smog in London, Los Angeles, or New York. Smoke particles, harmful chemical substances, and dust, absorbed in humid air result in a suffocating substance that hinders the intake of oxygen and poisons the inhaler. Also a byproduct of giant urban centers is noise pollution, the effect of which has not yet been fully evaluated but its seriousness is never debated. The effects of these two

forms of contamination on wildlife populationsare not known and possibly are not of serious proportions because they occur mainly in areas unfit for wildlife anyway. The greatest concern of the conservationists is the poisoning of the environment with so called pesticides and their residues. Pesticides have been in use for several decades but they came into prominence in man's fight against his competitors only after the Second World War. The first widely used chemical to combat insect pests was DDT and It's role in the reduction of malaria, and thus the saving of thousands of lives, has never been questioned. As a matter of fact, the main reason for the popularity of many of these substances is their measurable beneficial effects. It is their harmful effect that cause concern and their possible threat to human health and life that alarms many. The verdict against pesticides by environmentalists was passed because their poison kills not only the target organism, but other, often very beneficial forms of life as well. Their application has been likened to the throwing out of the baby with the wash water. Another important reason against their indiscriminate use is their stability as chemical

compounds. In other words, after they have done the intended poisoning, they remain poisonous to kill other life. This property of biocides (and this refers mainly to organochloric hydrocarbons and particularly DDT) has made them a serious threat to the well being of higher forms of life. After the chemical has been placed in the environment in a concentration to kill only intended pests, the compound travels along the ecological food chain and gets more and more concentrated. A complicating factor is that some animals (namely earthworms, fish) retain and concentrate them without being affected and pass on large doses to their predators. Not surprisingly, it is the predator at the summit of the ecological pyramid which gets first affected. Serious reduction of bald eagle numbers and a decimation of peregrine falcons to near extinction has shown to be (in the latter case more conclusively) caused by DDT poisoning. The chemical acts on the uro-genital system of these birds and interferes with secretion of hormones which ensure the formation of the egg-shell. Eggs layed in a thin shell are crushed by their own weight or the incubating bird. A similar fate has been lately demonstrated for the brown pelican in California.

DDT has been in use since the war and a great amount has been applied since then. The most concerned conservationists warn that the amount of DDT already present in the environment is enough to do the damage, all we have to do is to wait for our turn.

While our chemists and agriculturalists put dangerous substances into the environment to increase agricultural output, the rest of the industrial complex is doing its best not to lag behind in contaminating. Besides chemicals, produced to combat insect pests, chemicals released as industrial waste are the most serious pollutants. As most waste, industrial by-products are released into our waterbodies, the same bodies of water that we use for drinking water, recreation or for producing fish. If the chemical does not act as a poison to kill fish outright as was the case in Newfoundland recently, then it acts as a catalyst of events that eventually result in the death of the biotic community inhabiting that body of water. The saddest example in this regard is the dying of Lake Michigan and Lake Erie. Naturally, industrial waste is not the only culprit in these tragic events. Organic waste released untreated or slightly treated

by urban centers hasten the dying process of our waters and make them unfit for recreation. It is tragic indeed, that in Edmonton, the northernmost large Canadian city, surrounded by sparsely populated stretches of land, the participants of a raft race on the Northern Saskatchewan River this summer, were required to take typhoid shots to protect themselves from the disease carried in the water. And the raft race was taking place upstream from the major sewage entrance! There is no major population center upstream from Edmonton! What hope is there for places like Amsterdam at the mouth of the Rhine or New Orleans at the delta of the Mississippi River?

These foregoing examples have shown that the effect of expanding human populations on wildlife is the large scale destruction of their numbers and their habitat, indirectly caused by the frantic efforts to feed the hungry millions and by irresponsible resource use. Of course the welfare of wildlife is important only if we can ensure our own well being. The same causes that threaten the wildlife also threaten our own existence. By remedying these causes we will also remedy the ills of our live natural resources.

As I have said earlier, the gut of the issue is overpopulation. Stop population growth and the future will be saved! Of course we still will have to contend with the present.

The "Myth of Superabundance" was the curse of last century's population in North America, this century's population is cursed by our "Blind Faith in Technology". Our system of democracy and free enterprise has an inherent weakness; it operates on popular opinion and it promotes exploitation. Reason prevails only if it already has been sold to the public. Industrialists have done a marvellous job of selling the idea to the public that, whatever is their wrong doing, Science will put things right. It is a fallacy to call man an ecological dominant who is not required to abide by the laws of nature. Man is capable of dominating his environment if he properly understands its laws, but being a part of it he will suffer for ignorant actions. Man must learn to be concomitant - to live with his environment!

Since our mistakes are inherent in our political system, logic would point toward changing the system itself to avoid further ones. Our history

and the alternate examples, however, tell us that our system is still the best known and the most we can do is to modify it. First of all, we have to change the Scientist to abandon his dislike for salesmanship. If this is the business world's most powerful weapon for success, then let us adopt it. Attempts in this field are already numerous. The success of the Sierra Club, the Wilderness Society, and the Isac Walton League is based on potent public education programs. In Canada we have a long way to go to reach their effectiveness. A chronic ailment of societies of this type is the shortage of money. Public apathy is responsible for this but possibly to a greater extent is the size and undeveloped nature of our country. It is difficult to agitate someone in the provinces to the point of donating funds to make malpractice of resource use in the Arctic known by way of costly advertising. The apathy extends beyond this into dangerous ignorance. We fancy the idea that we are underpopulated, that we grow surplus food, and that we still have wide open spaces. The problem, however, is global, our responsibilities extend beyond our borders. We enjoy a high standard of living mainly because

we live off others! For example, the United States alone uses up 30% of the world's raw materials. An American citizen consumes 30 times the worldly goods that an Indian citizen has a chance to consume. We cannot even claim that our standard of living is high because we have kept our population at a sensible level. Since the Second World War birth-rates have decreased in most countries of the world, while the United States has shown the highest increase among the exceptions. Canada is not far behind.

It is consequential then, that before we set out to put the World right, we clean up our own backyard and get our own house in order. As I mentioned before, the most essential step is the checking of population growth. I do not have to emphasize the difficulties involved in this; it involves nothing less than the changing of a very basic human attitude that is reinforced with religious faith and governmental policy. Although in democratic societies, government policy follows that of public attitude; in this matter, however, that trend has to be changed to cope with the urgency of the situation. The government will have to abandon incentives

such as the "baby bonus" and tax relief for large families, that promote population growth and adopt instead, incentives that promote a stable population. Government will also have to take the lead in introducing legislation for sane resource use and for an economy geared for sufficiency and not for surfeit. Once we have adopted a course of action leading us towards these goals then we can ask other nations to follow our example. Being among the HAVE countries of the world (due of course only to our good fortune of being proprietors of a rich land) we can persuade HAVE NOT countries with incentives of foreign aid to control their own population.

With a problem so clearly defined it is our moral obligation to take the initiative.

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