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Role Of Wildlife In Exotic Diseases

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According to a relatively recent U.S. Department of Agriculture (USDA) Report, on January 1, 1977, there were 122,896,090 head of cattle in the United States. On that day, the cash farm value of all cattle and calves in this country was approximately \$35.5 billion. At present, the total cash farm value of major forms of domestic livestock and poultry in the United States is between \$45-50 billion.

For comparative purposes, according to data compiled by the Wildlife Management Institute in Washington, D.C., in 1977 the combined hunting expenditure, table meat, and aesthetic value of white-tailed deer in the United States was appraised at approximately \$8.2 billion per annum.

In considering these three factors, the monetary value placed on white-tailed deer alone in this country is in excess of \$20 billion. This is more than half the cash farm value of all cattle and calves in the United States, or almost two times the cash farm value of all the hogs and pigs or chickens and turkeys in this country.

Of an ultra-conservatively estimated population of 12.7 million white-tailed deer in the United States, a price tag of \$1,657 thereby is placed on each animal. The estimated population of one million white-tailed deer in the State of Alabama, for example, has a monetary value equivalent to three items of all the sheep and lambs in the United States.

The few examples that have been cited relate to white-tailed deer only. This merely reflects a "tip of the proverbial iceberg" that comprises the wildlife resources of this nation.

According to the "1975 National Survey of Hunting, Fishing and Wildlife-Associated Recreation," released in 1977 by the U.S. Fish and Wildlife Service, in 1975 there were 20.6 million recreational hunters; 53.6 million recreational fishermen; 15 million wildlife photographers; and 49.3 million wildlife observers.

According to this report, 20.6 million hunters participated in 478.6 million days of hunting. They spend \$5.8 billion for

hunting activities, but valued those activities at \$84.9 billion per year.

In considering the major form of outdoor recreation, 53.9 million fishermen participated in more than 1.3 billion days of fishing. They spent \$15.2 billion fishing, but valued those activities at \$154.5 billion per year.

The 1975 Survey, compared to the 1970 Survey, shows that hunting and fishing have grown considerably as recreational activities. The number of reported hunters increased about 44 percent during the five-year period, and the number of recreation days spent hunting more than doubled. The number of fishermen increased 62 percent during the five-year period, and the number of recreation days spent fishing almost doubled.

Another interesting aspect of the 1975 Survey was that approximately 50 percent of the ranks of wildlife observers and photographers was comprised of hunters and fishermen. These figures show that sportsmen value wildlife in a much broader context than for just hunting and fishing.

It has been conservatively stated that, "Sportsmen spend enough money each year to purchase all the baseball and football stadiums in this country, including the players; plus all the automobile speedways and horse racing tracks, including the automobiles and horses; with enough left over to buy post offices in wholesale quantities." Aesthetic values are not included, only monies spent!

But few people realize that hunters and fishermen pay their own way. General taxes are not a significant source of funds for developing and maintaining this nation's wildlife resources, as is the case with many other government-provided goods and services. Sportsmen share the cost through self-imposed excise taxes on sporting arms, ammunition, fishing tackle, etc.; they also pay use and license fees to Federal and State agencies; and they contribute directly to numerous programs sponsored by

various conservation organizations for protecting and promulgating the game and fish resources of this nation.

In the fiscal year of 1977, Federal excise taxes alone amounted to more than 94 million dollars, and State license fees totaled to excess of 328 million dollars.

Concomitant with direct costs of the aforementioned type, many other factors enter into expenditures associated with outdoor recreation. For example, as far back as 1970, hunters numbering over 14 million traveled over 9 billion miles by automobile. Also to be considered is auxiliary equipment such as clothes, tents, stoves, etc.; privilege fees, club membership, land lease costs, etc.; guides, dogs, veterinary medical bills, flea collars, etc.; food, lodging, and many other associated expenditures.

In addition, guns and ammunition reflect a major expenditure. Sport hunting nourishes such corporate giants as the Browning Arms Co., the Ithaca Gun Co., Marlin Firearms Corp., Remington Arms Co. (subsidiary of DuPont), Savage Arms Corp., Winchester-Western (subsidiary of Olin Mathieson Corp.), etc. These and many other industries make immeasurable contributions each year to wildlife conservation.

The intent of this presentation, however, is not directed toward the impact that sport hunting has upon our national economy, but relates more to our irreplaceable wildlife resources for which such expenditures are made, and how they associate with the ultimate welfare of this country's domestic livestock resources.

The success or failure of most livestock disease control or eradication programs then will become directly or indirectly dependent upon whether or not a disease becomes established in wild animal populations and the availability of resources for early detection. Few animal disease control and eradication measures can be successful without continual availability of this type epizootiologic information. Monitoring and surveillance of disease entities among wildlife populations comprise necessary prerequisites to prevention, control, and/or eradication of native or exotic diseases of major significance to domestic animals and man.

A timely example of a critical need for this type information is reflected by the Exotic Newcastle Disease Eradication Program of 1972-1973.

After a national emergency was declared by the Secretary of Agriculture on March 14, 1972, a major concern was for whether or not viscerotropic velogenic Newcastle disease (VVND) virus had gained entrance into free-flying birds to spread from coast to coast.

Over 13,800 potentially free-ranging domestic or wild birds were collected from sites designated as high risk areas. Early in this surveillance program, information obtained strongly suggested that if free-flying birds were involved in the spread of VVND, they were of the domestic type, whereby corrective measures were immediately inaugurated.

Of 9,466 wild birds processed, VVND virus was isolated from only 3 of 1,817 house sparrows and 1 crow of 472 collected. Both sparrow and crow virus isolations were from

"hot premises" where maximum exposure had occurred. Two of three sparrows were from the same premise where heavy chicken mortality was in progress. The crow was known to ingest chicken eggs. Virus isolation attempts failed to reveal VVND infections in 752 mourning doves, 949 starlings, 3,399 migratory ducks, 262 migratory geese, and numerous other wild bird species most likely exposed to infected poultry.

From information accumulated, it was illogical to concur with the prevailing conjecture that free-flying birds in southern California had become saturated with VVND virus thus inferring that eradication of exotic Newcastle disease was impossible. Instead, VVND was a disease associated with confinement, which had not become established in wild birds of the United States. The State-Federal program therefore proceeded until ultimate success was announced in June, 1974.

Cost for eradication of exotic Newcastle disease was \$56 million. If this foreign disease had been allowed to spread and become entrenched in the United States, however, conservative estimates of that day and time showed an annual loss of \$230 million to the poultry industry and ultimately to consumers of poultry products.

It is interesting to speculate on the course of events that would have ensued had VVND gained entrance into birds in California, particularly in migratory waterfowl. We were indeed fortunate that this did not happen, but we could not always hope to be so fortunate with other foreign diseases. Such was borne out by an outbreak of duck virus enteritis (DVE) on Lake Andes, South Dakota, in January, 1973. At the peak of this spectacular die-off, daily mortality was in excess of 1,000 birds, with more than 40,000 birds ultimately succumbing to infection. This disease currently poses a major problem for the U.S. Fish and Wildlife Service and is a matter of grave concern for many other organizations and individuals.

Having gained entrance into the migratory waterfowl fauna of the North American Continent, DVE no longer is considered a foreign disease. It now is established, and both domestic poultry and wild migratory waterfowl interests of this country had best start working together toward living with it.

On the other hand, how well is DVE established on the North American Continent? Could it too be disease associated in part with confinement? There is circumstantial evidence that DVE virus may be perpetuated under pen-rearing conditions, from which waterfowl are sold for release into the wild.

Bluetongue is another foreign animal disease that was first recognized in the United States during the late '40s. This viral disease now is widespread throughout the Southeast and seriously involves both cattle and deer in much of that region.

Bluetongue, which is a companion epizootic hemorrhagic disease (EPD), comprises an emerging disease complex for the cattle industry of the United States. In addition, either of

these viral conditions can easily be confused with foot-and-mouth disease (FMD) or other devastating infectious entities from foreign shores.

There also is the disturbing cattle fever tick situation in Texas, where both deer and cattle are involved as hosts for potential vectors of the etiological agent of piroplasmiasis. These ticks, *Boophilus* spp., frequently threaten to break out of the quarantine zone.

Pseudorabies or Aujeszky's Disease of swine is another entity of increasing concern. In quoting from Dr. Frank J. Mulhern's excellent Questions & Answers section featured in the September 15, 1977, issue of the Journal of the American Veterinary Medical Association, The American Meat Institute has estimated that in the absence of a control program costs associated with this disease will increase to \$183 million in 1979. In reply to questions relating to potential involvement of wildlife in the epizootiology of pseudorabies, Dr. Mulhern pointed out that wildlife may be a factor in enzootic areas and that the role of wildlife will have to be better understood before any eradication goal can be set.

Racoons, for example, have been experimentally infected with Aujeszky's Disease and demonstrate capabilities of transmitting the disease to other racoons and swine. This year, tens of thousands of racoons will be translocated within and between States throughout a significant segment of this country; from Texas to West Virginia--Florida to Kentucky, etc. It is big business! Maybe dangerous business!

In speaking of Kentucky, fortunately contagious equine metritis (CEM) does not involve native wildlife. If this disease should break out of Kentucky, however, and become established in wild horses of some western States, insurmountable problems could be associated with any proposed eradication measures.

In collaboration with State Departments of Agriculture, basic national responsibility for the welfare of domestic animals belongs to USDA, but responsibility for the welfare of wildlife is divided between State and Federal Governments. This is a jealously guarded trust. Coping with jurisdictional problems therefore is difficult for any single State or Federal agency. Problems to be anticipated, however, should not be overwhelming, as many superficial roadblocks can be utilized to an advantage that will mutually serve domestic livestock and wildlife interests alike.

For example, concern and subsequent cooperation by game and fish agencies from coast to coast were vividly manifest during the recent National Test Exercise conducted January 30-February 2, 1979, by Veterinary Services, APHIS, USDA, at Hyattsville, Maryland.

During this one-week Test Exercise, which was coordinated from the Emergency Programs Information Center, 50 State game and fish agencies were contacted; 49 responded; and more than 5000 trained people with a comparable number of two-way radioed vehicles were committed as part of a national effort in combating a hypothetical introduction of FMD. In addition, many

aircraft, hundreds of trucks, bulldozers, draglines, boats, snowmobiles, etc., were made available by State game and fish agencies to assist in disease eradication.

Under real circumstances of such awesome magnitude, when better liaison is established even more cooperation can be anticipated from State Departments of Natural Resources. Although progress is being made along these lines, to date it represents only a beginning. Efforts must be intensified. Those individuals and agencies that represent livestock interests of this country need these people and organizations as friends, not foes! They can be either! They are asking to be part of the team.

We now are a long way from 1924, when more than 22,000 deer were killed under protest on the Stanislaus National Forest in order for FMD to be eradicated. We now are a long way from the late '30s and early '40s, when more than 20,000 deer were killed under protest without compensation to the people of Florida as part of the cattle fever tick eradication program. We also may be a long way from the day that domestic livestock will be vaccinated and wildlife slaughtered as part of any questionable effort to eradicate FMD.

Mutual understanding therefore is becoming increasingly mandatory. There will have to be some give and take on the part of all concerned, but there is one thing for certain, agricultural interests no longer enjoy the long assumed "high and mighty" attitude at the expense of wildlife conservation.

To be very realistic, hunting and trapping interests no longer can indulge in a similar attitude toward "The Protectionists," with disregard for a growing segment of the American people. We must develop a better rapport with these people. We no longer can ignore this aspect of the voting public.

In speaking of the electoral process, we already see that numbers of hunters and fisherman exceed the number of farmers and people of related industries. It is only a matter of time before the anti-hunting elements of our society outnumber those who hunt. This could be counterproductive for both wildlife and agricultural interests. It subsequently should behoove domestic livestock, poultry, and wildlife interests of this nation to form a coalition that will have to counteract sentiments of a growing multitude of well-meaning but minimally informed urban voters who do not understand or appreciate the full ramifications of wildlife management or the dependency of people of North America on agricultural products.

This therefore is to urge that domestic livestock and wildlife management interests resolve petty differences, strive for better understanding, and combine forces for the ultimate good of our national welfare. Whether specific concern is manifest for cattle, swine, sheep, poultry, horses, dogs, cats, or wildlife, a better spirit of cooperation must be forthcoming. Regardless of species involved, animal health in the United States should relate to a broad and encompassing concept that warrants equal concern by all individuals, organizations, institutions, or agencies directly or indirectly affected.