The Biological, Ethical and Human Health Aspects of Wildlife Conservation and Rehabilitation.

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We humans evolved as a species connected to and part of the "Living Environment" composed of the flora and fauna we shared this planet with. *Homo sapiens* has been described as the "Nurturing Species". It has been suggested that our mental and emotional health in some ways is partly dependent on the opportunity for us to nurture.

This relationship existed for eons until recent times. The rise of the Industrial Revolution, improved health care and the human population explosion all contributed to human numbers exceeding their loading capacity. Overpopulation, land acquisition, agriculture, and the urbanization of society has led to massive habitat destruction and humans isolated from the "Living Environment".

In recent times, urban, technologically oriented society has reached out to the "Living Environment" hoping to re-connect to nature and make amends for the destruction we have created. The questions that must be asked are: how much good are we accomplishing and how much real and potential damage are we doing with our efforts? Let us explore this and although we may not arrive at conclusions and solutions, hopefully this paper and conference will stimulate discussion and awareness of the problems and risks involved.

In the 1970's the California Condor Project was started. The species was reduced to less than 20 birds. Evolved as a carrion eater of large herbivores, the species was biologically doomed with the extinction of the Wooly Mammoth and other large hoof stock that roamed North America. Lead and poisons introduced by humans further reduced their numbers.

One of the biologists working on the project was asked by the press why bother saving condors? His reply is a classic to be remembered by us all. To paraphrase his answer: "The reason to save condors is not so much that man needs condors but, in developing the skills and techniques required to save condors, Man may learn to save himself"!

Conservation and wildlife rehabilitation have become the buzz words of human efforts to reconnect with nature. Species close to extinction are often kept in captive breeding programs, but if the genetic pool is limited, one must wonder if there is a viable population to work with. Further more, if there is no habitat suitable for release, the numbers produced have no chance for a free existence, but are doomed to spend their lives in captive holding facilities. When down to the last member of a species we now toy with the fantasy of freezing it hopeful that, one-day we can recreate it from the genetic material in the freezer. As an example, we find a frozen Wooly Mammoth in a glacier in Alaska or as was a recent find in Siberia. Let's make one. We can use elephants as the recipient mother. If it works we will have food for the California condors!

In the last three decades, wildlife rehabilitation has become a very popular endeavor, resonably well organized in "First World" countries but always lacking adequate funds. Centers, training programs and international organizations have rushed in to fill the need. Is this effort of any value to wildlife? What are the ethical, moral, and humane aspects of keeping and caring for wildlife? If an individual cannot be released because of some infirmity, is it appropriate to keep it confined in captivity for "the term of its natural life." There is no such thing as an aged individual in "Nature".

Biologically, unless a rescued, rehabilitated individual can complete at least one successful reproductive cycle, the efforts to save it have been of no value to that species. Furthermore there must be concern that during the period of time that the creature was cared for pathogens were not introduced that might have devastating effects on the wild population after reintroduction. Can this be addressed? Where is the funding for this?

An example from first hand experience involved California Murres (U. algae) oiled off the coast of North America. The birds were de-oiled and kept in a facility located in a municipal park by International Bird Rescue Research Center, an organization formed in the early 1970's to care for oiled sea birds. There were about 27 birds in this group. After de-oiling some were released to swim back to the offshore islands they came from. The released birds were not strong enough and were recaptured shortly after release when washed up on the beach. A few days later proliferative lesons started to form at the commisures of beaks. These rapidly progressed to massive lesions of the head and all the birds died. They all ate well until death, some dying with fish in their mouths. The first pathologist that evaluated the tissue sections of lesions described papillomas and suggested that this may have spread from fish in the area that were known to have a viral papilloma. Further examination revealed Bollinger bodies. The birds had classic pox. It was discovered that the Blackbirds in the park had endemic Avian Pox and there was a high population of mosquitoes and biting flies in the area. If the affected birds had returned to their islands where there were huge swarms of biting flies the whole population of birds, some 200,000 breeding pairs might have been lost.

How many other potential pathogens are there, lurking and waiting for the opportunity to strike?

During the early 1970's, birds arriving at oil spill receiving centers often had been seen first by "well meaning" veterinarians. Some of these birds arrived accompanied by medical records listing observations and medications administered. Most birds had undergone "poly-pharmacy". In one case 26 different medications had been administered by every conceivable route.

This brings us to another point. Medicines, antimicrobials and the like used unnecessarily or at improper doses for improper periods of time. The issue of antibiotic resistance is a can of worms we have opened and seem to ignore most of the time. "Baytril deficiency disease" is a world wide problem!

What are the issues involving humans in wildlife conservation and rehabilitation? Zoonotic diseases need to be addressed. Are workers current on Tetanus protection? Lyssa virus is an issue for those working with bats. Eye protection must be provided and in use when working with fish spearing birds. If volunteer manpower is used, are people briefed on issues of death and loss? Is there a mental health care professional available? People who "rescue" creatures are at increased risk of having pathological grief responses when loss occurs. Personalizing and humanizing creatures also puts people at increased risk of "burn out". These issues must be addressed in training sessions prior to having volunteers participate in programs.. Professionals can also be at risk when overwhelmed by the extent of a situation. We must always remember to care for the caregiver.