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National Zoological Park · Smithsonian Institution · Washington, D.C. 20008-2598

1846-1996 Smithsonian

Letter From the Desk of David Challinor
May 1997

Environmental biology, like all disciplines, is subject to changing perspectives. One much discussed subject is the extirpation of species by man, climate, predation or other causes. In 1997 we have a great deal more knowledge about past extirpations and, when hard evidence is lacking, we are able to make informed guesses.

Extinction of species has existed since life began, but man's arrival has added a new component to the process. As Homo sapiens evolved, early humans became proficient hunters and fishers. Human-occupied caves from this period contain the bones from butchered animals. As fleet-footed tool users, men were well-equipped to compete successfully with other mammalian carnivores. Scientists can only speculate on whether they were such ruthless hunters that they could have eliminated an entire prey species.

Humans in historic times, however, have engaged in the wanton killing of prey animals, even when the harvest from such carnage exceeded the hunters' needs. The extirpation of 60 million American bison within about 20 years (1865-1884) is a classic example of such slaughter. It is true that mink will wantonly kill pinioned, confined waterfowl, and dogs will similarly slaughter sheep;[1] but, equivalent behavior in other mammals is rare. If such capricious killing is indeed a characteristic of Homo sapiens, this behavior supports a theory which could account for the massive Pleistocene extinctions in North America about 10-12,000 years ago when 20 to 40 bird species and about 40 large mammal species disappeared. Some examples of these extirpated birds and mammals are: horses, camels, giant condors, mammoths, giant ground sloths, wooly rhinoceri, et al.

When human immigrants to the New World from Asia established themselves about this time, huge herds of grazing animals filled the Great Plains. These grazers, which had evolved with their natural predators over millions of years, were suddenly faced with a ruthless new predator, man. According to the theory, much of the continent's megafauna was exterminated by human hunters before the prey animals had time to evolve an effective defense against the new arrivals. If such excessive hunting indeed occurred, it would have been the greatest human-caused mammal

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[1]See National Geographic article on dingoes, April 1997, page 16.

extinction ever. The supporting evidence for humans as the culprit in this extinction is sketchy, but the timing of man's arrival with the disappearance of so many animals seems more than just coincidence. The Pleistocene extinctions may have been caused by a combination of factors, including climactic ones, but human intervention must have been a major factor. The effect of these extinctions on the biological diversity of North America was almost immeasurable, because along with each mammal species that disappeared went its species-specific parasites and ecological dependents. The loss of seed-disseminating mammals in turn affected plant and tree distribution which consequently influenced the survival of the invertebrates dependent on them for their life cycle. Scientists can only surmise on the extent of ecological changes that occurred.

Today humans hunt either for sustenance or for sport, with the former motive having the greater impact on the biodiversity of the hunting area. Sustenance hunting often concentrates on species that are easily harvestable. For example, the yield from stampeding bison over a cliff is greater than killing individual animals by spear or arrow. Likewise, knowledge of spawning runs produces successful harvests of salmon and other fish species with nets as opposed to spears or hooks.

Sustenance hunting can be wasteful and has directly caused the extinction of many species (Great auk, Atlantic grey whales, dodos, Stella's sea cow, et al.). Sport hunting is considerably less destructive and has even led to the conservation of desired prey species. However, the wanton killing seen in sustenance hunting spills over into so-called "sporting events." A duck shoot, for example, held by the Maharajah of Bharatpur in honor of the visiting Viceroy in 1938, resulted in the killing of over 5,000 ducks and other waterfowl. The exact bag was duly recorded both on a stone marker as well as in a photograph of duck carcasses neatly arranged in front of the shooting party. Tiger hunts in the 1930's were also extravagant affairs during which local Maharajahs sought to entertain their guests. Such sport hunting is now relatively rare but survives as a "vermin control" measure, e.g. communal rattlesnake hunts in the southern U.S.

Hunting patterns in India have changed since the 1930's. Former sites of the Maharajah's duck hunts have become famous waterfowl reserves, such as Kadam Kunj in Bharatpur. Further, present tiger reserves exist in both India and Nepal. Likewise, duck hunters in the U.S., Canada and Mexico have organized Ducks Unlimited to promote breeding of waterfowl by saving and restoring wetlands. This effort, particularly when aided by wet years, has been a conservation success. Fly fishers have increased the use of catch and release streams to maintain ideal

habitats for specific game fish. Open space is maintained by the owners of grouse moors in Scotland, just as golfers maintain beautiful short grass savannahs in urban settings on which to indulge in their sport.

If today's conscientious hunters try to save prey species by supporting conservation measures, modern poachers have the opposite effect, threatening endangered species with the use of modern weapons, vehicles and smuggling techniques. The romantic image of the legendary Robin Hood as poacher of the King's deer has disappeared, replaced by large-scale commercial trade in rhino horn, tiger parts and ivory. Poaching is likely to continue as long as the profits are worth the risk, but the cooperative action by producer and consumer nations through the convention on International Trade in Endangered Species (CITES) has significantly reduced the market for these products.

Monitoring trade in animals and their products has also been broadened through the efforts of TRAFFIC[2] and the cooperative effort of the U.S. Customs Service and the Fish and Wildlife Service. Widespread negative publicity in the press and on television is also an effective deterrent to illegal trade in animal parts. Color photos of freshly skinned seal carcasses or even of dead finless sharks on the sea bottom triggers revulsion and calls for legislative action to stop the practice.

Cultural conflicts on the use of animals for food, beasts of burden, hunting aids and even as pets are inherent in human psyches. Fortunately, attitudes change within cultures and as the world becomes increasingly interdependent, we may eventually realize that we have a human responsibility to husband the planet's biodiversity.

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[2]Trade Records Analysis of Flora and fauna in Commerce, a program of the World Wildlife Fund (WWF) that monitors trade in wild plants and animals and their products through an international network.