

Wildlife, Conservation, and Human Welfare: A United States and Canadian Perspective

By R. Taber and N. Payne. 2003. Krieger Publishing Company, Malabar, Florida. US\$29.50 Cloth.

This book is a firework; it is full of incredible details on managed and mismanaged wildlife and natural resources. The beauty is that this convincing text comes from two acknowledged experts who are actually within the wildlife management circles, and who have worked in this discipline for over 30 years. Therefore, one can hardly find a more honest and matching description of the current state of wildlife management in North America, and elsewhere. It will hopefully put publications by B. Lomborg (*The Skeptical Environmentalist*) and others to rest, and lighten up the entrenched old-fashioned sections of the wildlife community towards new horizons. The authors state that "...the traditional resource coterie tends to resist change. It has a high level of internal coherence and devotion to a well-defined philosophy, and is led by individuals educated in an earlier age".

This fascinating book offers 14 chapters showing shockingly how far away we still are from a truly sustainable wildlife management; e.g., as requested by the Rio Convention 1992, by common knowledge and by textbooks of science-based resource management. The Chapters 5 "European Trade" and 6 "Exploration and Settlement" expose our recent globalization as a simple repeat of history. I suggest Chapter 12 "Broadening Conservation and Wildlife" as required reading for any scholar of wildlife and natural resource administration.

The authors expose nicely that the widely heralded concept of "multiple use" often simply meant nothing else than: "Fiber first, and wildlife last". They provide extensive examples of how harmful unsustainable management of resources is: in part, Alaska was sold to United States from the Russians due to their overexploitation of fur and other resources (oil and gas wasn't known by then). The Roman Empire fell due to the failure of blending economy and society, including deforestation, overgrazing, erosion and pollution of the natural environment. Once the Roman dominance ended approximately 500 AC, it led into the Dark Ages lasting from 400-1400 AC; a so-called period of intellectual stagnation. Another example referred to in this book: in 1841 the Russians abandoned their southernmost port, Fort Ross, on the coast of northern California because the local supply of marine mammals (not only sea otters but also fur seals) was already exhausted by overhunting. It was only the gold findings in California in 1848 that brought a new group of settlers into the region.

During the 218 pages of fascinating text the authors destroy the Myth of Superabundance of wildlife in North America. The United States list of "vertebrates in jeopardy" consists of over 78 birds, 14 reptiles, 12 amphibians and 71 fishes, and of additional 148 invertebrates, and 596 plant species.

The book makes a strong case that the natural environment is a vital component of the human environment. It shows nicely that the developed nations have 22% of the world's human population, but use 88% of worlds' resources, 73% of its energy, and generate most of its waste and pollution. Whereas 78% of the world population consumes only 12% of earth resources. Instead of calling the Third World "less developed", the authors suggest to call them "less consumptive" (and consequently the western world "more consumptive"). The authors make clear that North Americans use the land and energy resources from the rest of the world: the average U.S. citizen consumes 50 times more than average citizens in India. Despite subsistence lifestyles in rural areas, it was the people of the urban activism, concerned with non-material rather than material satisfaction, that started "Earth Day" (actually led by U.S. Senator G. Nelson). It resulted eventually into the green or environmental movement and had a global impact.

Perhaps some readers would not expect such revolutionary and "challenge the hierarchy" thinking and statements from authors that are Vietnam veterans. But these successful Wildlife Managers with an emeritus status, one of them a former Aldo Leopold student, have gone environmental for a good reason: our current economy regime harms wildlife and habitats alike. The authors do a brilliant job in summarizing their own research work as well as the current wildlife habitat dilemma of the second millennium. For instance, one reads throughout the book that market incentives fail too often to conserve or use biodiversity on a sustainable level, "...they even facilitate degradation of ecosystems and depletion of species". One of the provided examples deals with the Hudson's Bay Company which, clearly held a monopoly, and did what monopolies do best: unconstrained exploitation until they overexploited the resource; buying low and selling high but without any considerations of long-term sustainability. History taught their business attitude a lesson.

The authors provide a brilliant analysis and description for furbearers, and how it affected the global community: already by 1840 Beavers became commercially extinct, almost world-wide! By then, silk replaced fur, and prices dropped for Beaver. In contrast to other fur animals such as fox, lynx, sable and ermine, Beavers are herbivores and thus they occur in high populations and are readily harvestable. The fur trade began approximately in 1500 in Cape Breton, Canada, delivering products to France and Spain/Portugal. Quickly, North American natives then became part of a global market economy; e.g., via Holland, England and France. Fur trade meant predominantly "beaver". Before the North American fur quest started, Europe, as well as parts of Russia, were already hunted out for Beaver pelts. The introduction of steel traps in 1750 and their mass production did the rest to harm populations of

Beavers and other furbearers. As authors show, Beavers in the New York region, the location of one of the first bases of the Hudson's Bay Company, were quickly eliminated. The nearby St. Lawrence and Great Lakes regions, down south to the Gulf of Mexico even, were next, and then followed by the boreal forest zones. Both sides of the Pacific Coast came last, which got enforced by the North West Company and Russian trade companies. Once the Beaver was "done", Muskrat and Raccoon were next in line.

This book is one of the best reads as a resource for wildlife management issues and related details: In North America, since the 16th century, 94 birds and 36 mammals became extinct, and 253 birds and 316 mammals are almost extinct. As the Hawaiian example shows, "Captain Cook opened the way to the extinction of 90% of the indigenous species of birds...and introduced species (870 plants, 2000 invertebrates, 80 vertebrates)". Within only 20 years of its discovery by the western world, Steller's Sea Cow became extinct; it took approximately 100 years for the Sea Otter. Asian Lions were found for thousands of years all over Asia, Africa and southern Europe; but in recent times they were reduced decade after decade and are now only found in India. As further shown, the experiences with Galapagos tortoise, Gray and Bowhead Whales are not any different. "Among the American colonies, local extirpation was the order of the day". It's simply part of the 'American way of life'; one of the largest export products ever existed. Settling the United States automatically meant extirpation for species such as Moose, Elk, Bison, White-tailed Deer, Wild Turkey and Beaver. "Wildlife populations in the more densely settled east were declining by 1850...". And "... as railroads connected markets a lively wildlife trade continued". Frontier farmers turned into commercial producers with railroad connections increasing pressures on the wildlife resource which resulted in further declines and extinction. Nowadays, the eastern American Black Duck population has declined due to acid rain.

This book brings interesting native issues to the forefront as well: refuges along native tribe borders always had enough deer and wildlife because they represented an "unused grey-zone". But their wildlife abundances crashed immediately once tribe borders changed. The quest by Europeans for furbearers brought human diseases into the land previously dominated by natives, an area over 5000 miles in diameter, and one of the worst cases of disease spread ever known in human history. Subsequently, that reduced native hunting pressure on wildlife; e.g., Bison populations sextupled! Nowadays, natives in Canada and elsewhere face two options: merge with dominant industrial culture, or adapt their traditional culture to new conditions.

The authors show that federal public lands are under direct control of the president of the United States via U.S. federal agencies [e.g. U.S. Fish and Wildlife Service (USFWS) and U.S. Bureau of Land Management (USBLM)]. However, only 3% of the United States is

actually protected (whereas Costa Rica has over 12%). Further, "most private land in U.S., more over the half total, is managed on economic principles within short time frames and with no discernable concern for human welfare in other than monetary terms, or for ecological sustainability."

Very enlightening are also the presented views and constraints about the wildlife and management profession itself: "A manager in industry who does not please the stockholders can be replaced. A manager in a public agency who does not please the traditional agency clientele can be punished in several ways, among them transfer, reduction in budget, no promotion, or salary increase." But eventually, this person is still irreplaceable, blocking progress and contributing to the Cult of Incompetence which is nowadays widely seen in governmental agencies ("dead wood"). As shown in this book, such a situation does not only create frustration but supports environmental devastation on large scales.

Need an example? The authors provide plenty: "Biologists closest to the natural behavior of endangered species have encountered the natural behavior of government agencies and its negative consequences for species recovery. In a broader view, it seems that practically all human entities involved in an endangered species recovery program will benefit most, materially, as long as the species does not become extinct but never recovers to a viable population level". The direct effect from this entrenched but incredibly harmful management and governmental culture of wasteful nothingness is that 65 forms of mammals are in jeopardy (according to the USFWS list from 2002; 251 forms are in jeopardy in other countries); many more life forms are under consideration but this is way beyond capability of the agencies. Despite the governmental management and mandate, much wildlife is not adequately considered nor managed.

The authors emphasize "...the ancient continuing tendency towards Tribalism" and "testosterone" in the wildlife discipline: especially young men follow agencies and clubs, including their agendas such as provided by professors, coop units, USFWS and CWS. The authors quote: "... government programs at every level are the responsibility of a multitude of separate regulatory agencies, each with a primary interest in self-preservation and continued customary service to its traditional clientele, and steadily supplied with new recruits from specialized professional curricula at universities." And "...the cadres managing the various renewable natural resources had inevitably been becoming more and more inner-directed, i.e., out of touch with these new cultural changes. Each managerial group was recruited from students attracted to the appropriate professional curriculum, the student was indoctrinated with the traditional philosophy of that particular resource by instructors who had a similar education and had often served in the industry or agency dealing with that resource. Each renewable resource then had its adher-

ents: students, instructors, researchers, agencies, industries, and particular user-groups, supporting and served by sympathetic elected legislators. Such a cadre focused on a particular resource and became more and more internally coherent over time, producing accepted terms and philosophies of management, with members meeting one another periodically to re-enforce the mutual vision of how their resource should best be managed. Eventually, as the whole society developed new perspectives, these traditional professional resource groups began to lose public trust and esteem. Perceived as a threat to draw each resource cadre together in a defensive posture."

Despite all these great and important contributions, I find the book does not address really well the actual mechanisms of how wildlife links with humans; e.g., why only 7% of North American adults hunt. For over 100 000 years humans made 99% of their living through hunting, and at least 1/3 of their diet consisted of meat. Taber and Payne show cases where hunting contributed to extinction of large mammals, such as with the North American native tribes of the Cahokians and Hohokam; humans as r-strategists. For the American sportsman, the loss of prairie grouse (Sharptail, Greater Prairie Chicken, Lesser Prairie Chicken) got simply compensated by the introduction of alien species such as Ring-necked Pheasant and Gray Partridge. The authors state that many national leaders were former soldiers, and this can affect wildlife due to the hereditary soldier-rule and aristocrat views which got directly imposed onto the environment then, and onto its legal administration. This forms a huge and lasting culture, as can be seen to this very day in the German Prussian, French, Russian, Royal English and even African hunting codes shaping the current set-up of wildlife, habitats and resulting attitudes of the globe. The authors make a strong case that the Legal Hunting rights for the common citizens in England were gradually reduced to nothing.

The text sections for National and Protected Parks are a great and very informative read: "When wildlife in the colonies became threatened, generally by human population increase and pressure on wildlife habitat (as it had in western Europe in medieval times), colonial administrators set aside some of the best remaining habitats as wildlife sanctuaries (just as their ancestors had done in medieval times). Most of these were established in 1930, til break up of colonial powers in the 1950s. Cultural concepts of wildlife conservation came to Canada and the U.S. principally from England...". This approach was often encouraged by the upper class society; e.g., reflected in many wildlife funding schemes. In America, the first National Park came into existence in 1872 in Yellowstone (where hunting was still allowed for the subsequent 22 years), and in Canada in 1887 with the Rocky Mountains park (now Banff), whereas the first real reserve was founded as early as 1832 with the Arkansas hot springs. In 1881, the first U.S. forest reserves got established, followed

1906 by the Forest Reserves Act. This is the lasting effect when hiring leaders with vision (in this case G. Pinchot 1901).

However, the authors report that despite National Parks, many endangered species are found in habitats fully shared by humans and far from protected natural areas. "No reserve, no matter how large, is large enough to sustain a viable population of its more space-demanding species". The buffer zones are supposed to improve this situation but this is an area where humans encroach, too. Authors hint to the controversial point of view of a consumptive use of National Parks in the Third World.

I really like the great descriptions and summaries of legal events that put wildlife management in a policy context: By 1969 the U.S. just had experienced three decades of unparalleled prosperity when the U.S. National Environmental Policy Act (NEPA) was initiated with the U.S. National Council on Environmental Quality (NCEQ) overseeing this process. The intent of NEPA is to force agencies predicting effects as far as possible in a quantitative fashion to avoid incidental damage to environmental values that their managerial decisions might cause. NEPA requires major things to be considered in regards to the environment. "These policy statements invoke the need to fulfill, assure, attain, preserve, achieve, and enhance social and environmental values in conservation and renewable resources...". In theory, this provides for a great template balancing the economy with social and environmental issues. However, "The intent of NEPA also was blunted by agency reluctance and inability to adapt to new directives and to competition between agencies for NEPA-generated funds and tasks". Secondly, land management agencies often had no clue about the actual land content as they only managed for timber, grass, flood control, military ranges, etc. Quantifying biodiversity must always be a priority for biodiversity conservation. Lastly, if a controversy occurs, each side tries to demand the burden of proof from the other side. Obvious legal and administrative problems exist with the actual "jeopardy opinion", which results in the acceptance of the actual burden of proof.

Here another statement based on the huge experience by the authors with a high academic status that does not help to increase public trust in governmental actions when it comes to the environment and human welfare: "In a culture of public employees, every player must be aware, for welfare of self and dependants, that he/she is vulnerable. The higher people advance in the agency, the more they have to lose. On their own behalf, then, as well as their belief in the virtue of their organization, they will tend to place the welfare of their organization above any different good".

The book certainly presents in detail another global milestone in legislation introduced in 1971: The U.S. *Endangered Species Act* (ESA). But progress on recovery of endangered species is slow due to too many

bureaucratic hurdles, and due to a slow listing process and inadequate funding of the act. The authors make it very clear that for listing species in ESA, any economical considerations have to be ignored: it should be purely driven by decline and extinction concerns. But instead, and often due to financial constraints, right now 600 Category I species await listing, 3000 Category II species still await research and sound assessment "But environmentally ignorant politicians often, usually, reduce environmental budgets", and "The responsible services respond by emphasizing work on charismatic; i.e., glamour species ..." to obtain easier funds from the politically powerful urbanite. "Furthermore, by imposing a more rigorous standard of review, decisions of often technical scientific issues are shifted from an agency with substantial biological expertise, to judges who have none".

Habitat issues get well-covered, and authors promote co-management of the land. They show that it is a huge short-coming for wildlife that the United States has an ESA but not a Habitat or Ecosystem Act. As history showed already in United Kingdom, forest cover loss and human pressure resulted in severe declines of Aurochs, Forest Bison, Brown Bear, Wolf and Red Deer. In North America, Atlantic forests had been kept open by natives through the use of fire in November (as supported by the well-known fact that the first European seafarers detected land long before seeing it by smell). This type of land management favored the Heath Hen, Elk and Bison; but it all changed in an evolutionary eye blink with the advent of farmers. In the U.S., and due to the extent of the land, trespassing was hard to control and a charge for use was impossible. Thus, everybody could use the available game.

From 1982 onwards, the ESA requested that for each endangered species a Habitat Conservation Plan (HCP) had to be added in order to address critical habitat. This shifted now the burden of proof to the agency, which consequently resulted in only a few completed HCPs, so far.

This publication gives a nice overview of North American wildlife management history. Before ESA, most attention was given to game species only, since agencies were in charge dealing with game management. It is only since 1910 that every U.S. state actually has had a wildlife agency. The federal agency did not come into place before 1940 (USFWS: 1947 for Canadian Wildlife Service CWS). Five periods of Wildlife Management are presented: 1600-1849 era of abundance, 1850-1899 period of overexploitation, 1900-1929 period of protection, 1930-1965 game management and 1966 to present environmental management.

The International Wildlife Conservation Chapter I find an outstanding read also. The global goal still appears to turn everything into sustainable use; failures of TRAFFIC and CITES conventions in administering this movement are shown. Three goals of international conservation are: (i) preservation of species,

(ii) integration of economic development and nature conservation, and (iii) effective cooperation of rural local people in wildlife conservation. Following this principle, authors present USAID as a development agency that has been heavily involved in hydro power projects world-wide. The roles of IUCN, Red Data Book, Survival Service Commission, WCMC, WWF and IWC get discussed in detail, too. A strong plea is made that U.S. should not withdraw from UNESCO (an agency that started with help from the English zoologist Julian Huxley, and which therefore included nature conservation within its scope).

This book shows that whatever happens in U.S. will eventually happen in Canada as well. It also shows that Canada is way behind when it comes to Wildlife Management, and that it is certainly not world-leading; e.g., the Canadian Environmental Protection Act got implemented as late as 1993. However, with Canada following U.S. almost blindly, at least consistency is assured across the North American continent; e.g., when compared to the diverse, if not even chaotic, policies in the European Union. The authors are not based in Canada, and some issues presented in the book for Canada sometimes appear a little too simplistic. Throughout the book, Canada gets portrayed as being similar to U.S., whereas U.S. has a much stronger NGO pressure than Canada has ever seen and experienced, making huge differences between the two countries. Despite the claim by the authors, Canada is definitely not further advanced in GIS and Satellite Imagery than U.S. (just have a look at the GAP programs for instance). From what I know, the Canadian Ecoregion approach to landscapes and management mentioned is actually very weak, to say the least.

This is an environmental history book *par excellence* but, unfortunately, without any relevant graphs, figures and maps. I am not a big fan of the reference organization either: references are not linked to the text and statements, and are hard to connect back from the text. Many chapters also have the same references cited several times. In some occasions, the text is a re-explanation of already published papers. The human welfare part could be stronger elaborated on, Adaptive Management principles by Carl Walters are hardly mentioned, nor any modern digital data issues for wildlife and habitats. For people with a European Union background, some of the related text sections might appear imprecise and blurred. At a few text sections, I am really at odds with the authors; for instance, they suggest that children had to be protected from wild predators, and that farming would have had negative effects on human life length and quality. Smaller errors can be forgiven (Domestication of African Elephants, Sperm Whale as the only large whale in tropical waters; U.K. being fully representative for Europe).

As a wildlife practitioner myself, I am extremely grateful that these two very experienced authors with highest academic ranking devote the book to "... students and field biologists acting under often trying

circumstances to strengthen the factual base for sustained positive relations between human and other forms of life." We need more of this, indeed. One might hope from this great book that Wildlife Managers will read, learn, and become environmentally considerate, eventually. But unfortunately, so far, the current facts and global political climate are just show-

ing pure denial of facts presented in this book, suggesting another period of "intellectual stagnation". As a reviewer, I recommend all managers buy this book and implement its lessons learnt today.

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Zoology

Amphibian Declines: The Conservation Status of United States Species. Edited by Michael Lannoo. 2005. University of California Press, 2120 Berkeley Way, Berkeley, CA 94704-1012. Distributed by NHBS2-3 Wills Road, Totnes, Devon TQ9 5XN, UK £62.00 Cloth

The Amphibians and Reptiles in Bulgaria. By V. Beshkov and K. Nanev. 2006. Pensoft Publishers, Geo Milev Street 13a 1111 Sofia, Bulgaria. 120 pages, Eur. 34.00

* **Antipredator Defenses in Birds and Mammals.** By T. Caro. 2005. The University of Chicago Press 1427 East 60th Street, Chicago, Illinois 60637 USA. 592 pages, U.S. \$38

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Cercopid Spittle Bugs of the New World (Hemiptera, Auchenorrhyncha, Cercopidae). By C. Carvalho and M. Webb. November, 2005. Pensoft Publishers, Geo Milev Street 13a 1111 Sofia, Bulgaria. 280 pages, Eur. 58.59.

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Ephemeroptera of South America. Aquatic Biodiversity of Latin America. (Abla Series) Number 2. By E. Dominguez, C. Molineri, M. Pescador, M. Hubbard, C. Nieto. 2006. Pensoft Publishers, Geo Milev Street 13a 1111 Sofia, Bulgaria. 490 pages, Eur. 95.00.

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Botany

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* **Tropical Rainforests – past Present and Future.** By E. Bermingham. Edited by C. Dick and C. Moritz. 2005. The University of Chicago Press, 1427 East 60th Street, Chicago, Illinois 60637 USA. 672 pages. U.S. \$45 Paper