

while editor of the *Marine Turtle Newsletter*, he urged and supported a letter-writing campaign to lobby for better protection of olive ridleys in Orissa by the government of India. But that was two or three decades ago, and it is instructive to observe that someone demanding protection of the extremely numerous Orissa ridleys is potentially guilty of inconsistency in now endorsing exploitation of the much less abundant Cuban hawksbills. One guesses that Mrosovsky would not spearhead a protection campaign today.

We all change with time, and perhaps we even get wiser with time. Archie Carr, in his earlier writings, waxed so eloquent about the glorious taste of green turtle meat that many have considered him, as the world's "master turtler," to have been the crucial inspiration for the Cayman Turtle Farm, an institution that he later came to deplore as he developed an extremely conservative philosophy about wildlife exploitation. The metamorphosis from "happy hunter to stern protectionist" is not an unusual one — Sir Peter Scott was a conspicuous additional example — and may mirror both external changes in the world (as wildlife populations and wild places become scarcer) and internal, psychological changes, as older people become aware of their own mortality. But Mrosovsky's philosophical transition has been the reverse. Perhaps he represents a variant on the Churchillian theme "he who is not a liberal when he is young has no heart; he who is a liberal when he is old has no head."

To conclude: most of the "exploitation experiments," ranging from the potentially disastrous exploitation of adult Kemp's ridleys at Rancho Nuevo in 1970, to the protracted olive ridley slaughter operation in Oaxaca, to Mariculture Ltd. in Grand Cayman, to the green turtle ranching in Surinam, the ranching of hawksbill turtles in the Torres Strait Islands, the legal take of adult green turtles in Caribbean Costa Rica, or the annual auctioning of "egg collecting rights" for the leatherback eggs in Terengganu, have all been curtailed or ceased to exist for one reason or another, in almost all cases to the rejoicing of turtle enthusiasts. Should we try and revive these operations, these entrepreneurial casualties, these dinosaurs, in the changing world of turtle conservation? Most would say no. Not because conservation by exploitation is fundamentally flawed; but simply because the opposite approach seems to be working.

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Conservation and Cultural Diversity: Reply to Pritchard

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First I will address some miscellaneous misconceptions in Pritchard's commentary (Pritchard, 2000) and then move to broader issues about sustainable use and protection.

Pritchard may be strong on civilized discourse but he is weak on statistics. He misunderstands regression lines. These are not based on taking distances between maxima and minima and drawing an artificial (his word) straight line. It is quite possible to obtain meaningful assessments of trends with data, such as those on nests per season, that show much variability. It simply takes more years to obtain significance. The suggestion that conventional regression lines be replaced by fitting lines to maxima immediately runs into the problem of defining objectively what is a maximum. Many data on turtle numbers do not approximate nice sine waves. However, Pritchard's offhand suggestions have sometimes been prescient, for instance, his speculations on leatherback thermoregulation (Pritchard, 1969). It may well be that improved methods of analyzing trends will evolve. But for the present, it is safest to use all the data, which regression lines do. If maxima are arbitrarily picked out, objectivity is lost.

Pritchard also misunderstands the Kyoto Resolution of CITES (conf 8.3). This resolution does not specify or exclude particular categories of species (endangered, not endangered, etc.), and this is hardly surprising because CITES is, after all, the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Consider the case of the Chinese alligator. This truly is critically endangered. Only a few hundred remain in the wild and many of these are too scattered to form effective breeding groups. There are about 5000 in captivity, reproducing well, but there is virtually no suitable habitat remaining for releases. It is all occupied by rice paddies and people who do not appreciate alligators eating their ducks. The cost of maintaining the captive stock is considerable. Without value to local farmers, the Chinese alligator, even with 2000 being the year of the dragon, is in real trouble. CITES has permitted regulated trade in the captive stock. Whether in the long run this will help or not remains to be seen; there may not be sufficient demand for Chinese alligator products. The point here though is that CITES (and conf 8.3) does not automatically exclude trade in endangered species, or even critically endangered species. Another example: limited trade of African elephant products has been allowed under CITES even though this species is listed by IUCN as endangered.

Pritchard suggests that the Cubans somehow reneged on agreements made at the 1994 CITES meeting. Cuba did not put in a proposal at that meeting. So there was no official proposal to metamorphose into something else. What happened at that meeting was that guidelines for ranching of sea turtles were elaborated. Regrettably, they were so complex and demanding that they constituted a considerable deterrent to anyone wanting to try ranching turtles, or to switch from wild harvesting to ranching.

Like many commentators on this issue, Pritchard neglects to mention that the Cubans have not proposed to start taking wild hawksbills. They have already been taking them, legally moreover, and without any striking declines in catch per effort, for at least three decades. What the Cubans have done is to voluntarily reduce their take from about 5000 to 500 or fewer per year. The meat of these hawksbills is eaten locally. It is the shells of these 500 turtles, legally taken within their waters, that the Cuban proposals at Nairobi in 2000 concerned. Foreign exchange for these shells would be an enormous boost for the Cuban turtle program, enhancing research and monitoring. Hawksbills, as other turtles, are being taken illegally in many parts of the Caribbean (e.g., TRAFFIC, 2000). Official protection is not working well here.

This last point is important to keep in mind in assessing claims that the protective approach has been a success. Often it is a combination of protection and the take of turtles that has been going on. For example, green turtle nesting at Tortuguero has increased almost threefold despite the considerable contributions that the use of this population has made toward the welfare and subsistence of poor people in Nicaragua (see Mrosovsky, 2000, for details). Often protection is far from total. So total protection is not the only thing that works. Or to put it another way, what is referred to as protection is often, in the real world, a combination of protection and use. So, returning to hawksbills in the Caribbean, the question is whether to try to substitute conservative, monitored, legal take for unregulated, unmonitored, illegal take (cf. regulations in the Netherlands on the use of marijuana).

Pritchard's enjoyment of discourse tempts him to introduce many irrelevancies into his commentary. Of course one selects publishers who may be sympathetic to one's book. Where my book was published is irrelevant to assessing its substance. Many of the other things that Pritchard mentions are equally beside the point. The pathetic story, from the 19th century, of attempts to raise a baby orang-utan whose parents had been shot is not only irrelevant, it is uncalled for. I know of no conservationist who advocates orphaning baby primates. In addition to this, Pritchard refers to "Mrosovsky's Brave New World," and implies that my hopes for the future entail monoculture and cultural homogeneity, with everyone speaking US TV English and eating hamburgers. This is absurd — and you will not find any of it in my book.

While on the subject of cultural homogeneity, consider the following from Pritchard's essay: "humankind is progressively making decisions that certain species should not

be consumed." This and other remarks exude a preservationist arrogance that seeks to impose its values on the rest of the world. In any case, for hawksbills this is not correct. Humankind, as represented by the nations at CITES in 2000, was quite divided about this species. In fact more countries supported than opposed the Cuban proposal; it only just fell short of the required two-thirds majority. Besides, while Pritchard is making pronouncements about humankind, some will appreciate the cultural diversity and social integrity in a few small Cuban communities fishing for turtle meat with the shell going to craftsmen in Japan practicing the centuries' old art of working of bekkō.

One of the main sections in my book, providing graphs and numbers, disputes the listing of the hawksbill as critically endangered. When one moves past Pritchard's urbane banter, it is evident that he agrees that this shorthand label is problematic: "total extinction is not just around the corner for the hawksbill." Another reviewer of my book thinks that the critically endangered category is inappropriate (Ross, 2000). And there are yet other informed people who hold the same opinion, but have not said so publicly. By not doing so, they reinforce basing conservation policy for this species on an inadequately debated and scrutinized foundation.

More generally, I ask sea turtle conservationists, especially some of the younger, what kind of community do they want? One in which people fear to say what they think? It is up to them to construct the kind of community they wish to live in, despite the considerable pressures to conform. For an example of such pressures — only concerning the black turtle, not hawksbills — see Bowen and Karl (1999). Ironically then, it is the official justification of the IUCN/SSC Marine Turtle Specialist Group (MTSG) on the listing of the hawksbill as critically endangered that states "the species is not expected to go extinct in the foreseeable future" (Meylan and Donnelly, 1999).

I believe the public is quite able to understand the idea that people will wish to conserve species and habitats that have value to them, and that what may be appropriate in one country or culture may not be appropriate in another. I do not chide the public. If I chide anyone, it is those who continue to exaggerate the predicament of species, such as the hawksbill, and lead the public to think they are on the brink of extinction. It is time that the IUCN presented a fair picture to the public. It is time that the MTSG and the sea turtle community in general started to evaluate in a truly constructive and open-minded way the possible benefits of sustainable use approaches to conservation. If my book stimulates more thought on such matters, it will have succeeded. So I am grateful to Peter Pritchard for his interest. But it is he and his preservationist colleagues who seek to reduce everything to simple rules that apply everywhere: take no turtles, not even "three or four individuals"! They must (he argues) be left — even if not seen or visited — as examples of fundamental good, to inspire the human spirit, rather than fill the hungry stomach. But not all of humankind thinks in this way, as the CITES vote showed, and as the continued take of turtles by poor people shows.

As well as irrelevancies, there are numerous inaccuracies in Pritchard's commentary. Some of these are minor, merely indicating failure to check facts (my last chapter is not called a Vision for the Future, it is called Why Conserve, and devotes much more attention to the latter). Other errors detract from his arguments. Mariculture for sea turtles started before, not after, the Endangered Species Act in the USA, and also before CITES (Fosdick and Fosdick, 1994). And Pritchard indicates that the letter writing campaign on behalf of ridleys in Orissa took place "two or three decades ago." In fact there were two campaigns, one in 1982, the other in 1993. I was heavily involved in both, but in both cases the value of these turtles as food was mentioned. The 1982 editorial appeal in the *Marine Turtle Newsletter* (MTN) said: "What is needed is not total prohibition but rational, or at least controlled, utilization. For instance, it might be better to concentrate on harvesting quotas of eggs, and leave the adults alone." This was balanced by recognizing that "other people will doubtless have different views about what should be done" and urging readers, whatever their conservation philosophy, to write. It may amuse readers to be reminded who initialed that editorial (in those days editorials in the MTN were initialed by authors). The authors were Mrosovsky, Pritchard, and Hirth.

This appeal about ridleys in Orissa was in fact an indoctrinaire action that recognized different viewpoints, and implicitly the possibility of compromise. I have never advocated utilization in every circumstance. In his simplified psychological biography, Pritchard neglects to mention that as recently as in the last five years I have worked (on temperature and hatchery practices) happily alongside colleagues from a preservationist organization. And my book (Mrosovsky, 2000) explicitly says that "not all sustainable use approaches promote conservation and biodiversity. It is a matter of understanding the conditions under which such approaches are valuable." I also talk about a "mutualistic combination between protection and sustainable use" and look forward to more funds going into "better patrolled and

expanded parks and into totally protected areas." This all rather undercuts Pritchard's attempt to characterize me as either inconsistent or one-sided (it is not quite clear what he is arguing) in my conservation philosophy.

My book is about the need for starting with a fair scientific assessment of the status of species, and for labels that do not mislead the public. It is about different reasons for conservation and different attitudes to wildlife, and the advantages of compromise between such different attitudes.

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