First Asian School on Conservation Biology —A Trip Report—

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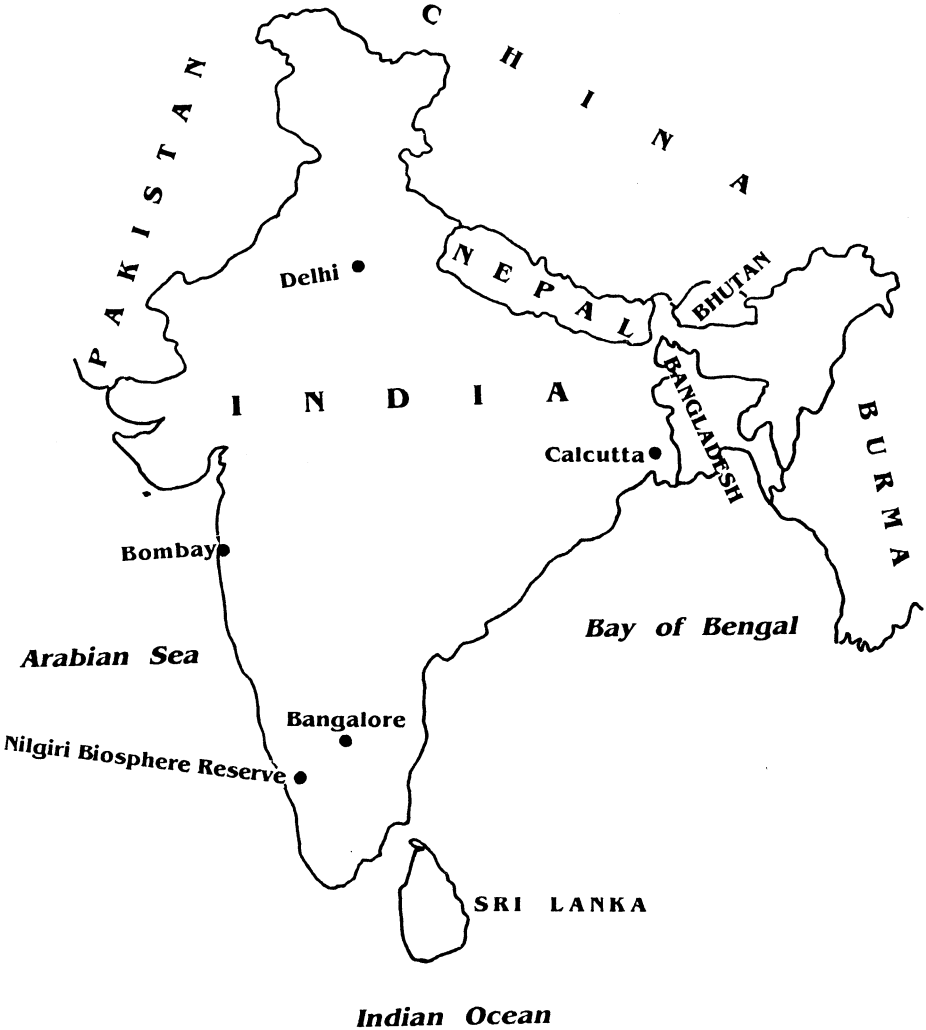
How does one encapsulate an experience in words, or create a narrative so true to the subject as to transport those reading it to the event? The dilemma is timeless, and each attempted solution unique. I will no doubt try often, over the next few months, to capture the experience of India for those who may never go. I won't succeed completely, for, like any other place, India contains dimensions far wider than words or even pictures on flat paper can portray.

Events of *getting* to India alone constitute a tale. Even with no delays, the trip is of duration sufficient to remove awareness of time and place, and almost of identity; sufficient to invoke the transition from one world to another. Entry to the country through the airport in Delhi confirms the transition; this truly is another world.

My initial impressions of India, and those which will endure longest, are of contrasts, vivid color, and raw, 'unpolished' life. There is a vitality throughout India which stands in defiance to her areas of poverty. There is rich, *intense* color in garment, which, perhaps once an afterthought, is now purpose; it appropriately complements the rust and green landscape. And there is life unmatched by any save the ocean's—constant motion, and constant change.

It was into this world that I stepped as a representative from the [U.S.] National Park Service (NPS) to the First Asian School on Conservation Biology. Organized by Professor Madhav Gadgil, Dr. Raghavendra Gadagkar, and Dr. R. Sukumar, the course was held at the Indian Institute of Science in



India and surrounding area—indicating the location of Bangalore, site of the Indian Institute of Science where the First Asian School on Conservation Biology was held, and the Nilgiri Biosphere Reserve where the four day field trip took place.

Bangalore, India. There were approximately 60 participants; all, except Christine Schonewald-Cox and myself, were from Asian countries, including Afghanistan, Nepal, Indoesia, Sri Lanka, Malaysia, Japan, China, Pakistan, Bangladesh, and India.

The course began with a four day field trip to India's first biosphere reserve (established in 1986), in the Nilgiris, South India. The Bandipur Tiger Reserve, Nagarhole and Silent Valley National Parks, Mudumalai, Wynaad and Upper Nilgiris Wildlife Sanctuaries are included in the Reserve. Problems in managing these areas include fire, loss of habitat due to shifting cultivation and erosion, intensive livestock grazing, crop damage (from elephants), manslaughter by animals (tigers and elephants), and poaching. We traveled into the Reserve through teak, coffee, and tea plantations, past terraces growing cabbage, carrots, potatoes, and cauliflower, and finally to Avalanche, an area of evergreen montane forest (shola). In Bandipur and Mudumalai, we were fortunate to see wild elephants, sambar, spotted deer, gaur, bonnet macaque monkeys, flying squirrels, and boar, etc., as well as very different and very diverse bird life including the pariah kite, drongo, doel, and yellow wagtail.

The next ten days were spent in a classroom setting, receiving instruction from Institute faculty and hearing presentations by course participants. The sessions were inaugurated on December 21, by S. Shyam Sunder, Chief Conservator of Forests, State of Karnataka. Oddly enough, Sunder's opening quote was taken from a plaque at the Epcot Center in Orlando, Florida, stating that man shall "cultivate earth as a garden for the human good." He emphasized that protection will only be possible if basic human needs are met. This was a point clearly demonstrated during the field trip, and repeated in countless examples discussed in presentations. Sunder challenged scientists to discover ways to "provide more" on one hand, while protecting on the other.

Core lectures during remaining days addressed diversity from the genome level, to that of species, population, and community. Effects of immigration, emigration, extinction, inbreeding, and outbreeding on population and community stability were also discussed. These lectures emphasized basic genetic concepts, and were important in establishing "equal footing" for all participants. Yet, I found it interesting to note that here, in a conference held halfway around the world, a source of consternation among some attendants was the same as at similar meetings held in the U.S. That is, core lectures were delivered by academicians, and many participants, as field managers of wildlife reserves or forest areas, were frustrated by the apparent gap between theory and application.

Later sessions helped to "close the gap" with topics such as setting priorities for conservation, practical problems in conservation, and human cultures and conservation. Christine Schonewald-Cox gave well-received talks on landscape ecology, and boundary theory as

it applies to conservation in nature reserves. Additionally, poster sessions, accompanied by 15-minute presentations, furnished "real world" examples of conservation efforts. Topics of the posters included acid rain studies in Malaysia, Asiatic lions (Gir Lion Sanctuary), mangrove studies in Sri Lanka, biological diversity in the Western Ghat (mountains) of India, and wildlife conservation in northeastern India.

I spoke on the National Park Service policy regarding exotic species management, and presented a poster illustrating the mountain goat issue in Olympic National Park. There was, as far as I could tell, agreement with the NPS approach to exotic species management. However, disparity between management strategies possible in our parks and those available to some Asian nature reserves was evident. During my presentation, I used a slide showing helicopter removal of mountain goats from Klahane Ridge in Olympic National Park. This particular slide received more comment—and astonishment—than any of the presentation's 70 photographs. That the expense of helicopter use could even be considered for such a purpose was unfathomable to most participants.

Final sessions of the conference involved open discussion on future directions for conservation of biological diversity on the Asian continent. A likely outcome of the meeting will be preparation of a textbook on conservation biology using Asian examples, and publication of a special issue of the journal, *Conservation Biology*, with profiles of cases from Asian countries.

An outcome of the conference for me personally was a considerably broadened perspective on worldwide conservation needs, and on the role of the NPS in conservation efforts. In particular, my thinking regarding biosphere reserves was "fine tuned." Biosphere reserves, as I see them, embody simultaneously one of the greatest potentials and greatest challenges to the conservation community.

In core, and multiple use zones of many biosphere reserves, inventories of resources are incomplete. Nevertheless, managers of these areas are working to complete resource inventories and generally have clear objectives and set operating procedures. Management of these areas follows a plan; in other words, a working "road map" exists to direct operations within these areas.

The challenge yet to be addressed in many reserves (again, from my perspective), is to prepare a "road map" for cooperative management within the reserve as a whole. Included areas may be of varied purposes, including traditional use, rehabilitation, experimental research, and/or multiple use zones. Some core area reserve managers are actively working with adjacent reserve area managers to develop mutual management objectives specifically to meet goals of the biosphere reserve program (e.g., Glacier or Great Smoky Mountains National Park Biosphere Reserves). However, many reserve managers, I feel, are not yet to this point. Of those who are, most are operating upon personal

initiative; no instituted methodology exists to direct such cooperative management.

Core areas of at least 24 designated biosphere reserves are within the [U.S.] National Park System. Regarding management principles, these areas usually operate under rather 'generic' agreements with adjacent reserve areas. The NPS, through managers of these areas, could contribute to world conservation efforts by taking the next step; that is, development of plans of mutual management objectives *specific* to the biosphere reserve concept.

Biosphere reserves offer potential for conservation of natural diversity in "core zones," and of cultural heritage and traditions in "traditional use areas." Traditional use areas, in particular, present a challenge. For example, within traditional use areas, what defines "appropriate" and "inappropriate" behavior for ethnic communities? Natural processes are perpetuated within reserve core areas; these areas continue to change and evolve. Indeed, allowance of natural change in these areas is a management objective. Yet, in traditional use areas, how much, and what type of "natural change" within ethnic communities can be allowed? In the Nilgiris Biosphere Reserve, how much will traditional agricultural practices be permitted to evolve?

Awareness within the NPS of the need for ethnographic resource conservation programs is increasing. A contribution to world conservation efforts could be made by NPS areas in which preservation of contemporary traditional "lifeways" (Douglas Scovill article, *Trends* magazine, 1987, Vol. 24, No. 4) is a concern. Ethnographic resources conservation programs for these areas (whether of biosphere reserve status or not) developed to be consistent with natural resource preservation policies, would provide useful models for similar efforts worldwide.

Thus, through fashioning cooperative management programs, *specific* to biosphere reserve objectives, and developing ethnographic resources conservation programs, I feel the National Park Service has additional contributions for worldwide conservation. I also feel we can learn much from other countries. Following my presentation, one of the participants from India commented that in conservation "the U.S. is one or two hundred years ahead of us." I had been thinking about this perception quite a bit; I felt it misguided, and told him so. Conservation efforts in the U.S. necessarily begin at a different point from those of long-inhabited countries, and so, have different objectives. These are neither better, nor worse, ahead, nor behind. In uses of technology, the United States may be ahead of developing Asian countries. But in many respects, the problems now faced in these "third world" countries bear lessons for conservationists in the United States.

In both situations, education of people to the need for conservation is a critical issue. As noted in the session's opening address, basic subsistence requirements must be met; only then will broad scale protection be a possibility. However,

subsistence *requires* conservation, although often the connection between the two is not direct, and therefore is not realized by a vast majority of the public. Inhabitants of industrialized countries are generally removed, in day-to-day life, from the land that supports them. People of developing countries are largely agrarian; they understand nature as the basis of their survival. While industrialized populations may not discern the link between conservation and survival, developing populations may not understand conservation practices. In both industrialized and developing countries, health of the people is inextricably tied to health of the land. To make that connection clear is a challenge that faces us all.

Having now represented the National Park Service in an international assignment, I feel a bit more qualified to comment on the value of such activities. Personally, of course, the experience was of great benefit in broadening my perspective; that influence will last throughout my life, and will doubtless shape my work according to a wider context.

Professionally, I very much support National Park Service participation in worldwide conservation activities; indeed, I feel it is our *responsibility* to participate. Communication and cooperative management are genuine struggles between organizations within a single country, and certainly between those of different countries. Yet, such cooperation is more than courtesy or polite protocol; it is duty, as stewards of the land, and it may be long-term survival. In *Science 86,* Susan Aritt says:

«There exists a fundamental dichotomy within us—a dynamic tension between our technological development and its regulatory restraint. We share the planet with animals of remarkable speed, strength, and agility: birds of soaring flight and extraordinary vision, insects of amazing adaptability and fecundity. Only one species, known as Homo sapiens, *depends on technology for survival. Working together in complex, communicating social groups, we make things, revamping the world to our own specications. Making judgments about what those specifications should be remains a relatively underdeveloped but increasingly important ingredient in human survival. Learning how to worry together as a species may well be our next essential evolutionary turning point.»*

There is wide latitude in what constitutes "conservation" in different world communities. In National Parks and other publicly owned lands of the United States, we have agreed upon some specifications for conservation. Whether the world community can judge and agree upon specifications for broader areas remains to be seen. We must participate in order to contribute and to learn.

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