STATEMENT OF PROPOSED STUDY

Yoav Daniel Bar-Ness – India – Botany

LANDMARK TREES OF INDIA: AMBASSADORS FOR GLOBAL BIODIVERSITY

As environmental crises mount throughout the world, we need strong advocates for the conservation of biological diversity. Within even the most crowded urban settings, the most charismatic of plant forms stand tall to this challenge. Trees are the perfect ambassadors for the global biodiversity. A tree forms a nexus between the grand scale- life on Planet Earth- and the human scale – the shade beneath its branches. Trees serve as landmarks and as critical elements of our human landscape, and in this role, they serve as reminders of the natural landscape. India is a vast land of superlative biodiversity, and superlative population. India has a rich history of careful stewardship of natural resources in the form of tree temples, sacred groves, and public forests, and this will be challenged as the landscape becomes increasingly crowded and developed.

I propose to study the natural history of selected landmark trees throughout India in concert with their cultural history, and to thereby recognize the role of these organisms as ambassadors for global biodiversity. From snowy cedar forests to humid mangrove coastlines, India is a hotspot of biodiversity- and population growth. With 16% of the world's population, and 8% of the world's identified species, India's creative solutions in conserving natural biodiversity will be a critically important example to the planet. A rich body of information exists on the value of sacred groves and landmark trees as critical reservoirs of biodiversity. I propose to contribute by creating a tangible resource: a photo-illustrated guide written for and with schoolteachers, caretakers, and visitors to appreciate these trees as ambassadors of natural systems, available at no cost in print or on-line.

Landmark trees serve as advocates for conservation of natural biodiversity in many ways. They are ubiquitous: within the cities, along the rivers, within the villages, at crossroads, and beside the temples are trees that serve as landmarks for navigation and historical reference. These trees, and their anonymous counterparts, can sustainably provide oxygen, food, wood, fuel, shade, carbon sequestration, medicine, spices, ecological habitats (above and below ground) spiritual solace, and inspiration. Like us, they are the living descendants of organisms stretching back billions of years, and their forms are fascinating records of evolution and adaptation. Landmark trees are, by definition, trees with a special significance to human beings. The famous trees of India have names that ring with cultural and religious significance. The most revered living organism on Earth, the Bodhi Tree at Bodh Gaya, a tree of the utmost significance to Buddhist pilgrims, is a descendant of the *Ficus religiosa* under which Siddhartha Gautama attained enlightenment. In the Calcutta Botanical Gardens, a giant Banyan tree covers several acres of land with its network of inter connected trunks, and is the largest of its species in the world. The Sikh Golden Temple of Amritsar is built around a Ber Tree known to be 450years old. At the tomb of the musician Tansen in Gwalior, a tamarind tree has leaves with the magical property of bestowing a clear voice and soulful music. Furthermore, there are countless trees used as navigational or personal landmarks, each one with their own story and a wide range of ecosystem services.

Many books have been published profiling individual trees, offering pictures and words on their spiritual value, age, history, size, or grandeur. However, beyond photographs and text, I will use library, electronic, and interpersonal skills to generate a document integrating several threads of knowledge in an organized fashion. These

threads would stretch from the small scale (the individual tree's history, management, local ethnobotanical uses), to the national scale (the species' economic importance to India, its potential medicinal and agricultural value), to the global scale (the taxonomic position of the tree, the fossil record of the species, the extent of its natural forest cover). Combining these and other disciplines of knowledge will not only offer me valuable experience in the synthesis of research and education, it will also be an exciting exposure to India's economics, sociology, bioprospecting, religion, urban development, and history. The key to organizing the information is to recognize the individual tree is a representative of its species, and consequently, a representative of the natural world.

In the United States, like in India, population growth and landscape development places alarming stresses on the natural world. Indian cultural attitudes towards conservation can offer a valuable comparison to our cultural efforts to preserve biodiversity. A guidebook, webpage, or information card about selected trees in India can not only be visually enjoyable, it can simultaneously remind and inspire citizens of other countries of their own ability to preserve and respect these landmark organisms. We can make a difference: why not simultaneously create a webpage, a guidebook, and information cards?

I will visit a selection of landmark trees in India, as recommended by preliminary correspondence, feasibility, and other criteria. During the first third of the project timeframe, guidance in selecting, learning, and visiting about these trees will be done with the assistance of affiliates: the Ashoka Research Trust (Bangalore), The Energy and Resources Institute (New Delhi), and the Centre for Environmental Education (Ahmedabad). During the middle phase, I will work with local government and caretakers and visit the selected landmark trees. During these visits, detailed notes, observations and photographs (when possible) will be collected. Personal contacts with local schoolteachers and artists will be initiated to gain additional perspectives and further inspire creative outlets. In the final third of the project, I will organize this information and use library resources to research more elusive information such as fossil distributions, current forest cover, economic values, carbon sequestration, and ecological connections. To form a guidebook, concise graphic information profiles will be compiled, posted on the Internet, and printed. The work will be within the public domain, and resources will be pursued to provide printed versions with any and all interested parties, most especially the local teachers and governments that recognize that tree as a landmark.

When compiled in an organized format, the practical outlets for this guide are limited only by imagination and enthusiasm. Creativity can empower scientists- not just as researchers, but also as teachers- to make a positive difference beyond the academic realm. Most directly, local caretakers can use the information collected as a basis for management decisions, regional promotion, historical records, and educational initiatives. The elements of the guidebook and webpage will be freely available for anyone to reorganize to create educational and artistic resources: info placards, posters, card games, tourist brochures, lesson plans, museum exhibits, decorations, collage materials, field trip inspirations, management plans, coffee table books (just hit 'print'!), and visitor maps.

Using these creative ideas, and the cultural and ecological wealth of India as inspiration, I will create a visually appealing, multidimensional, and tangible resource sharing the stories of India's Landmark Trees… and use this knowledge to aid these Trees in their critical diplomatic mission representing the rest of Earth's biodiversity.