

Some Biodiversity Points and Suggestions for the Myanmar Protected Area System

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Abstract—This paper is divided into a brief background section followed by Part I: Biodiversity Points, and Part II: Suggestions that are needed for the ecological integrity of actual and potential protected areas in Myanmar. Part I consists of general and Myanmar Biodiversity Considerations, and Part II consists of the following suggestions: (1) international financial and technical assistance, (2) establishing more protected areas, (3) transboundary protected arrangements, (4) creating Protected Study Areas (PSAs), (5) establishing Protected Natural Areas (PNAs) of small areas of high biodiversity, (6) Involving Buddhist Monks under a Deep Ecology orientation, and (7) innovative ecotourism.

Introduction

It is generally recognized that Myanmar has, next to Indonesia, the richest biodiversity in Asia, particularly with much of the country still forested, given massive logging operations. Currently, Myanmar has approximately 2 percent of its lands in protected areas in 23 wildlife sanctuaries and five national parks. Many Asian countries, like Thailand, Indonesia, etc., have approximately 10 percent of their country in protected areas (given some “paper parks”). However, these countries are also able to receive considerable international assistance for their biodiversity and protected area programs. The biodiversity and protected area potentials of Myanmar need to be given serious consideration by international sources concerned with the ecological integrity of biodiversity worldwide.

During my visits to Myanmar, I conducted “Protected Area Management and Interpretation” Workshops (four days) at various national parks and wildlife sanctuaries in the field. I also conducted a special workshop on this topic for all of the wardens/superintendents from protected areas and taught a three-week block course on protected areas to senior forestry students and graduate students at the Institute of Forestry, Yezin. With a great deal of strong interest and enthusiasm, the participants really wanted to learn about their first course on protected area management and interpretation training.

My training emphasis included biodiversity and ecological integrity considerations for protected areas as well as international aspects of protected areas for management

and interpretation, including ecotourism. This training and field experience also enabled me to observe biodiversity and protected area concerns in Myanmar.

In my training workshops, as well as in my professional/personal contacts, I found the leadership and staffs of national parks and wildlife sanctuaries, Division of Nature and Wildlife Conservation, Forest Department, to be very dedicated and interested in their protected area careers and work. Worldwide, I have visited and/or worked in protected areas in over 30 countries. I would certainly rank them at the top of this list in terms of real concern and effort for protected areas, despite shortages of funding, equipment, training, staff, and facilities.

In this sense, it is recognized that Myanmar has had practically no international funding (beyond the very limited science and science training funding from the Wildlife Conservation Society and Smithsonian Institution) for protected areas and biodiversity over the years. This situation is in direct contrast to other developing countries that have had substantial protected area and biodiversity funding from foreign aid programs, such as the World Bank, United Nations, U.S. AID, and other donor countries, private foundations, conservation organizations, etc.

Strong dedication, emphasis, and concern for protected areas everywhere are certainly required to protect and safeguard their biodiversity and ecological integrity from illegal logging, poaching, encroachments, overuse, etc. In my Myanmar training experiences, I found that the participants had a strong and unique professional and personal commitment for protection of biodiversity and/or “nature” within their protected areas as well as with the surrounding areas.

Given their strong commitments, there was concern in some of the protected areas about developments that were allowed to be undertaken inside these protected areas. Developments included gold mining with arsenic in rivers and streams, sugar cane, kachim, logging, etc. Although these developments were limited, they were not considered to be proper for protected areas by their staffs who were trying very hard to protect the biodiversity and ecological integrity from illegal logging, poaching, encroachments and other developments.

John Terborgh (1999) notes the lack of law enforcement and institutional control of illegal activities and developments in tropical forest protected areas in developing countries worldwide with the result that they are being degraded with serious violations to their ecological integrity and biodiversity. As a result, they become “paper parks” even though they may receive considerable funding from international sources (Terborgh 1999).

In Myanmar, the staffs were very serious about enforcement with considerable arrests or with driving illegal loggers and poachers away during their patrols (often at the risk of their

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own lives). I considered the various staffs, and their respected leadership, to be definite professionals in their strong and dedicated efforts to safeguard their protected areas, given a lack of funding, staffing, and equipment. Many of them are very concerned about the disappearing biodiversity in Myanmar and other parts of the world.

Biodiversity Protection

Worldwide, there has been increasing interest as well as international programs and funding for biodiversity protection aimed at maintaining the numbers of different kinds of plant and animal species, their genetic variations, and their complex ecological processes. It is estimated that there may be from ten to 100 million species of plants and animals (mostly insects) that have not yet been discovered or classified. There are approximately 1.4 million species actually classified at this time.

Tropical forests, which are located in developing countries, contain the majority of species in their biodiversity. Yet, leading scientists (for example, Terborgh 1999) as well as reliable scientific and international studies are now predicting that most tropical forests, and their biodiversity, will be destroyed within the next 20 years.

According to the Council on Environmental Quality and Department of State (1981), the best projections indicate that unless governments, individually and collectively, take action, much of the world's tropical forests will be scattered and highly degraded remnants by the first quarter of the 21st century. Consequently, present and future protected areas such as national parks and wildlife sanctuaries may well be the only feasible and permanent way of saving some of the remaining tropical forests and their rich biodiversity.

Virtually all leading scientists verify the incapacity of tropical forests to re-generate themselves in their primary forms of biodiversity and ecological complexity once they have been logged, degraded, or disturbed in some way. Developments in tropical forests, consequently, are irreversible for biodiversity. It is estimated that tropical forests are being destroyed at 100 acres (40 ha) a minute or approximately the size of England every year.

In the Asia region, many countries have already lost most of their tropical forests. Thailand, for example, now only has approximately 12 percent of its tropical forests/biodiversity remaining while over half of Thailand was forested approximately 70 years ago. Yet, these remaining areas are in protected areas that are being illegally and heavily logged, poached, or encroached upon.

The Burma Forest Department, in 1894, based proposals for protection of its forests on the following basic principles:

- (1) The forests of Burma are a valuable national asset and, as such, shall be safeguarded for all time by state ownership and management; (2) The forest estate shall be administered not only for the benefit of the population of today but also for posterity; hence suitable areas shall be reserved on a permanent basis, brought under proper protection and management; and (3) a scientifically trained staff (Morehead 1944).

It is generally recognized that Myanmar has the richest biodiversity in Asia, particularly with approximately 50 percent of the country still forested at this time. With over 1,400 tree species, 7,000 plant species, 1,000 bird species, 300

mammal species, and 400 species of reptiles and amphibians, Myanmar can certainly claim an abundance and diversity of species. Moreover, many of these species are endangered such as the Asian elephant, the tiger, golden deer, gaur, Aveyarwady dolphin, and four species of marine turtles (Forest Department 1998).

The "Protection of Wildlife, Wild Plants and Natural Areas Law" was promulgated in Myanmar in June, 1994, in order to carry out biodiversity and environmental conservation more effectively. The Government of Myanmar is a signatory to the Biodiversity Convention, which has provisions for the establishment and maintenance of protected areas for biodiversity. Currently, Myanmar has approximately 2 percent of its lands in protected areas in 23 wildlife sanctuaries and five national parks with plans to increase this amount to 5 percent and eventually 10 percent of its land area (Forest Department 1998).

The World Conservation Monitoring Centre has noted that Myanmar has one of the lowest levels of protected areas worldwide, which cover approximately 8.84 percent of the world's surface with 30,300 protected areas which total over 32.6 million acres (13.2 million ha). About two thirds of these worldwide protected areas have been established over the last 35 years (World Commission on Protected Areas 1996).

Like other tropical forest countries, Myanmar faces continual and severe loss of its remaining biodiversity through logging, poaching, encroachment, and developments. Leading ecologists like Eugene and Charles Odum and others strongly recommend that developing, tropical, agricultural countries like Myanmar have approximately 50 percent of their land area in natural systems/ biodiversity for ecosystems services.

Constanza and other economists estimated the economic value of ecosystem services (pollination, watersheds, genetics, nutrient cycling, soil, erosion control, climate stability, biological control, etc.) for one year. They arrived at an annual value of \$33 trillion U.S. dollars in comparison to the global gross national product, which is about \$18 trillion U.S. dollars (Constanza and others 1997). Too often, short-term gains are placed ahead of biodiversity and its greater, long-term benefits, which are not as tangible or obvious.

Wilson (1999) suggests that every country has three forms of wealth: material, cultural, and biological. Biodiversity protection is an issue because biological wealth is taken less seriously than the others. Over time, this will change. Diversity is a potential source for immense untapped material wealth in the form of food, medicine, and amenities. The fauna and flora are also part of a country's heritage, the product of millions of years of evolution centered on that time and place and hence as much a reason for national concern as the particularities of language and culture (Wilson 1999).

Under the auspices of the United Nations Environment Programme, many governments are now starting to draw up National Biodiversity Action Plans. There are also a growing number of countries, both temperate and tropical, that have pledged to protect at least 10 percent of each ecosystem type represented within their borders (Terborgh 1999). Besides being national and natural heritages, many of the unique biodiversity and ecosystems areas of Myanmar have obvious international interests and concerns, including financial, technical, and scientific assistance.

In a Resolution on Transboundary Protected Areas/National Parks at the 6th World Wilderness Congress, Bangalore, India, October 24-28, 1998, it was noted that there is high biodiversity along shared land boundaries, which contain about 35 percent of the world's biodiversity hotspots. Yet only 5 percent of the world's recognized protected areas lie along national boundaries. And only a dozen of these are functionally linked with some degree of formality (Henning 1998).

The Resolution also noted that opportunities for transboundary cooperation are opening up and that the World Bank, United Nations Development Program (UNDP), and other international donor organizations are increasingly involved in supporting transboundary initiatives for protected areas (Henning 1998).

With joint transboundary protected areas establishment, advantages would include (a) more effective management of shared resources such as watersheds, (b) more effective conservation and management of ecosystems services and species, (c) more jobs in local communities through enhanced ecotourism, and (d) better general cooperation between countries—all of which would contribute to biodiversity for the involved (Henning 1998).

With national boundaries along India, Bangladesh, China, Laos, and Thailand, Myanmar has tremendous potential for a unique system of transboundary protected areas that could protect threatened areas of high biodiversity as well as a range of its ecosystems. A transboundary protected area study and paper at a transboundary conference in China by U Uga, Director, Training and Research Division, identified several potential protected areas along the various national boundaries. All of these areas, however, were noted as needing urgent protection due to ongoing depredations.

Conclusions

Based on the above points as well as my experience in Myanmar as a volunteer protected area trainer and my overall background/experience, I would like to submit the following suggestions:

International Financial and Technical Assistance

International financial and technical assistance is obviously needed for Myanmar's protected area system maintenance and expansion for biodiversity preservation. It is also obvious that much of this biodiversity will be irreversibly lost or severely degraded in the near future under current trends. With the richest biodiversity in Asia, it has received very little help in this area due to various complexities while other countries with tropical protected areas and way less biodiversity have received considerable funding.

Because of the complexities with current international funding constraints, it is proposed to establish a special Myanmar Protected Area/Biodiversity Foundation, which could be administered by the World Commission on Protected Areas of the World Conservation Union (IUCN). This Foundation would be authorized to receive funding from various international and national organizations, including the World

Bank and UN, specifically for protected area biodiversity projects and assistance in Myanmar.

To ensure that the funding would go directly to protected area/biodiversity work in Myanmar, a select board and administration of protected area, international experts would oversee all funding and operations in conjunction with officials from the Division of Nature and Wildlife Conservation and with national representatives from the Wildlife Conservation Society and the Smithsonian Institution.

This funding would be utilized to provide needed equipment, facilities, training, and staffing for existing and planned protected areas as well as to finance studies and proposals for potential areas. Funding priority would be given to new and proposed areas with high biodiversity.

Recommendations for Potential Protected Areas

As noted, Myanmar Forest Department has indicated its intention to include 5 percent and then 10 percent of its total land area in protected areas from the present 2 percent (Forest Department 1998). With needed financial assistance from international sources, more emphasis could be directed toward study and recommendations of potential areas of biodiversity for protected area status.

In this regard, it is noted that a professional study and project of possible national park areas for Myanmar was conducted by UNDP in the early 1980s. Much of the information in this project should be relevant and valuable for current protected area proposals, particularly in bringing in ecosystem considerations.

While conducting a special training workshop for protected area wardens in March of 2001, I was impressed with the quality of leadership as well as the wardens and their concern for protecting the remaining biodiversity of Myanmar. Consequently, at the warden's training workshop, I suggested that the wardens form a special committee to make recommendations on protected area proposals. There was a strong interest in this suggestion and I certainly consider the wardens to be highly qualified for this type of assignment. With the past UNDP study, there would certainly be possibilities for building on past information as well as experience from U Uga, U Ye Zhut, and others who participated in this project.

With the strong interest in biodiversity by international funding sources (public and private), the formulation and beginning operation of a committee of this nature could serve as strong indicator for acquiring specific funding for its activities and proposed areas. The committee could also serve as a vehicle for getting more scientists, including university scientists, involved in needed biodiversity research for proposed protected areas.

Transboundary Protected Areas

As noted, transboundary protected area arrangements have a great deal of potential for protecting high biodiversity for Myanmar and neighboring countries. As also noted, U Uga, Director, Training and Research Division, has completed a study and conference paper (presented in China at a transboundary conference) on possible transboundary protected

areas for Myanmar. It was recognized that these areas are in urgent need of protection.

The World Bank, UNDP, and other international organizations have strong interests in funding transboundary cooperation and arrangements for biodiversity protection. Current constraints may not allow them to directly fund Myanmar protected areas at this time. However, there would still be possibilities for them to consider funding the adjacent neighboring country's protected area with the understanding that specific funding could then be reallocated to Myanmar for management and operation costs involving its protected area part. The key here would be to protect the rich biodiversity along border areas as international as well as national heritages, including possibilities for world heritage sites and biosphere reserves.

Protected Study Areas

Much of biodiversity in Myanmar, as elsewhere, is in tropical forests that are being rapidly deforested and degraded. Once disturbed, these areas will not regenerate into their ecological complexity, species composition, or genetic variation. The process of protected area considerations for some potential areas of high biodiversity may take extended periods of time. In the meantime, many of these unprotected areas are currently being exploited by legal and illegal means with urgent needs for their protection.

Consequently, it is suggested that potential protected areas of high biodiversity be declared "Protected Study Areas" (PSAs) so that they would have some protection during the consideration and study process until a decision is made for their establishment. This temporary arrangement for protection would be particularly valuable for the potential transboundary protected areas discussed above.

Also, international conservation and scientific organizations are often interested in funding and research associated with potential protected areas of high biodiversity concerns. If Myanmar were to suddenly declare 5 percent to 10 percent of its land as protected study areas, it would seem very probable that a great deal of international interest with some funding might be forthcoming, particularly from the above organizations.

Protect "Pockets" of Biodiversity

There are small areas or "pockets" of biodiversity and/or unique flora and fauna, which need protection at this time. These areas are usually too small to be considered as regular protected areas. The World Conservation Union Commission on Protected Areas only lists areas of over 247 acres (100 ha) in its 10,000 protected areas of the world. Yet these small areas or "pockets" of biodiversity deserve protection before it is too late.

As an example, there is a small natural teak forest near Yezin. This natural forest is used by the Forest Research Institute for research and by the Institute of Forestry for teaching in that there are no other natural teak forests in the entire area. Visiting and international forest researchers and professors are also given study tours of it. Some of the trees are named and trails go through the forest.

I visited this forest December of 2000, while teaching at the Institute of Forestry. After observing the small forest, I became very concerned about the logging operations that involved a number of teak trees being cut and dragged on the trails. There was a large pile of teak logs lying by the stream bank outside the forest. I was told that there were no formal protection measures for the forest that, obviously, cannot take this type of logging pressure. If logging continues without protection, it simply will not be a natural teak forest, let alone valuable for research and teaching.

Consequently, consideration should be given to a protection category that would encompass small areas of biodiversity and/or unique flora and fauna such as "Protected Natural Area" (PNA). Some of these types of areas might be located in pockets or core areas of reserve forests. Besides being valuable for biodiversity protection, they (PNAs) would certainly be of interest for national and international research and teaching as well as general nature study by the public and ecotourism.

On the international ecotourism aspect, a great deal of discernment and emphasis is placed on visiting areas that are in natural or near natural condition, not disturbed by human development. The average age of ecotourists is now 55 plus and many older Myanmar citizens, including Monks, need nearby access to wild and undisturbed nature. Many natural areas, if protected, would be particularly valuable for older ecotourists and citizens who could enjoy day or short trips to nearby areas.

Also, nearby universities could assist in the administration and protection of protected natural areas (PNAs) as well as provide natural history interpretation and environmental education programs for schools and the public, including ecotourists. University and international scientific research requires undisturbed natural environments and PNAs could supply this need for "living laboratories." It is recognized that international science and conservation organizations could bring in needed expertise, equipment, training and funding, provided the biodiversity and/or natural areas are relatively undisturbed.

In this regard, it would appear advisable to form specific NGOs for PNAs as well as regular protected areas that could consist of university, scientific, conservation, and other interested parties. These NGOs could serve as "Friends or Natural History Associations" to given protected areas on a private basis. They could, in turn, provide needed support, volunteer services, and contingency funds for requested equipment and projects, such as, slide projectors, special field studies, etc. This system has worked well internationally for providing supplemental and needed assistance to protected areas.

Public and Political Support

Existing protected areas as well as proposals for new protected areas to preserve biodiversity require public and political support. This is particularly true for villages and human settlements around existing or proposed protected areas with associated illegal logging, poaching, and encroachments. There is a great deal of potential for involving Buddhist Monks, under a Deep Ecology orientation, in environmental education programs toward gaining support for biodiversity and protected areas.

Much of the teachings and laws of Dhamma are concerned with the protection of nature and life. Pagodas are usually considered teaching centers for all ages and usually protect surrounding nature. As a highly respected religion or philosophy in Myanmar, Buddhism has great potential for influencing people and their thinking, values, and behavior toward tropical forests and biodiversity under a Deep Ecology orientation.

A mark of any great civilization is its care and protection of its wild nature or biodiversity. And much of this care and protection calls for spirituality and intangible concern for future generations of all life, not just human life, as good ancestors. In this sense, Buddhism and Deep Ecology asks us to face this needed and urgent care with protection of biodiversity and its myriad of life forms (Henning 2002).

In combination, Buddhism and Deep Ecology have a "Oneness," ecocentric, and spiritual approach toward the environment if the Deep Ecology aspects of Buddhism are brought out. Yet much of this relationship and potential has not been developed nor have many Monks, Nuns, and lay people been exposed to Deep Ecology orientations per se.

Consequently, it is suggested that special workshops on the interface between Buddhism and Deep Ecology for Buddhist Monks, Nuns, and laypeople be made available.

Ecotourism Contribution

It is generally considered that ecotourism can contribute to protected areas and biodiversity as well as to local and national economies. Durst (1994) an internationally recognized expert on ecotourism, however, notes that ecotourism is far from being a panacea for economic development and environmental protection. In some places, however, under well-managed conditions, it can make significant contributions.

Many other ecotourism professionals observe "the two edged sword" part of ecotourism in which it can destroy the very thing that attracts it. Consequently, good environmental planning and "well managed conditions" are needed and necessary as ecotourism starts developing in Myanmar, particularly in terms of the biodiversity and ecological integrity of protected areas. One of the Myanmar Tourism Development Management Committee policy elements in this area is: Tourism will be developed, without damaging the natural environment, through appropriate legislation (Ministry of Tourism 1999).

The International Society for Ecotourism as well as ecotourism companies observe that the average age on international ecotourism trips is 55 plus and that this age average is increasing. (Many "older" ecotourists have disposable income without time constraints). And many of these ecotourists want easy access to natural or near natural conditions, besides nearby good facilities. Consequently, areas too disturbed or developed would not only be bad for biodiversity and the protected areas but also for ecotourism and its economic contributions on a long-range basis.

It is suggested that there be more mutual arrangements between protected areas and ecotourism companies, particularly in the areas of planning, biodiversity, naturalist interpretive programs, and training. For example, naturalist interpretive/environmental education staff in protected areas could make substantial contributions in nature walks, evening talks, natural history information, and treks to ecotourists and their companies. Also, mutual training arrangements would ensure more correlation and cooperation for the biodiversity and sustainable ecotourism concerns of protected areas.

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