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**An integrated approach to the public awareness programme:
the resumption of a traditional role by the
Raffles Museum of Biodiversity Research, Singapore**

by

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Abstract - The highly urbanised city state of Singapore still retains some natural habitats which are valuable both culturally and scientifically. The role of instilling public awareness and appreciation for these remaining habitats are now also adopted by the Raffles Museum of Biodiversity Research (RMBR). Initiated in 1998 as the RMBR, the Raffles Museum traces its roots to a proposal by Sir Stamford Raffles in 1823. The redefinition of the present institution has expanded its role beyond research into the field of public education. In this first phase, the multi-faceted but integrated pro-active approach being adopted is intended to ultimately result in a "brand-name consciousness" of the museum by the public to facilitate future work in conservation programmes in Singapore..

Introduction

The natural question that first arises is, "does Singapore have anything worth conserving?" The city state is a densely populated island with approximately four million people residing on a total area of about 660 square kilometers, a mere 40km at its widest! As a result of this, the primary forest cover is now estimated to occupy a mere 0.2% of the land (Corlett, 1992), and much of the wetland and marine environments have undergone extensive change from the construction of coastal reservoirs and large scale land reclamation since the 1960's which have increased the original land area by one-tenth and are still ongoing (see: Sivasothi, 1996).

Due to a highly urban lifestyle, much of the local population remains unaware of the uniqueness and extent of the diversity in the natural habitats that still remain. These include lowland tropical rainforest, freshwater swamp, mangrove, rocky shore, beach and coral reef. These habitats are still under scrutiny by international scientists, due to its biological value. For example, the mere 164-hectare plot of Bukit Timah Nature Reserve has more plant species than the whole of North America, more species of palms than the whole of the African continent, and the highest recorded number of ant genera in the world! Similarly, in the fringe of mangroves that line the north-western coast, new species of insect, crab, spider, mollusc and fish were discovered in the 1990's alone (Sivasothi & Tan, 1999). As for otters, in the 84-hectare Sungei Buloh Nature Park and its environs, a pair of Smooth otters took up residence and raised a cub there in 1999 - the first time in more than 40 years that cubs have been reported on the main island (Hendrickson, 1957; Sivasothi, in press.).

A recent six-year (1991-7) Nature Reserves Survey coordinated by the National Parks Board produced new records of at least four mammals, two reptiles and three amphibians, a red-cheeked flying squirrel which may be an endemic new species and 1,634 species of plants in the more than 2,800 ha of nature reserve land (Chan & Corlett, 1999).

Conveying information to a public which includes policy makers was previously done mainly through the efforts of the Nature Society (Singapore), composed of both layman and university researchers. While some measure of awareness has been established, the new challenge is in part offered by a younger generation raised in a totally urban setting, with little or no memory of local natural habitats, and thus with little understanding of or attachment to the areas that still remain. Loss of habitats to a rapid pace of 'development' occurs in most Southeast Asian countries (Kidron & Segal, 1995), and land-scarce Singapore is no exception. None of the present areas can be assumed to be sacrosanct, and a high level of public awareness and appreciation of the significance of these areas is paramount in ensuring their long term survival.

This issue was recognised by the IUCN/SSC Otter Specialist Group (Asian Section) during the Workshop on Methods of Surveying and Monitoring Otter Populations in Thailand in November 1997. While much research remains to be done with otters, habitat loss is an immediate threat, and one aspect of counteracting this is the introduction of an active public education programme initiated by the very researchers themselves.

Role of the Raffles Museum of Biodiversity Research

The Raffles Museum of Biodiversity Research was established on the 1st of October 1998, and is built on the existing academic strengths of biodiversity researchers in the Department of Biological Sciences, the National University of Singapore, and incorporates established animal, plant and fungal collections (see <http://rmbr.nus.edu.sg>). The faunal collection was built on the renown collection of the former Raffles Museum which was the brainchild in 1823 of Sir Stamford Raffles, the founder of modern Singapore and an eminent naturalist. It is the largest collection of Southeast Asian fauna in the region containing at least 400,000 catalogued specimens, including many types. The present name is thus a revival of an established name that fell out of favour when the museum was nationalised in 1961, and the collection given away.

The collection restricted its role purely to research since its establishment at the university in 1988. Thus few people locally even know of its existence! However, the recent changes that have seen a revival of its former name and the integration of the university's biodiversity resources has allowed a resumption of its role in public education. As an authority in biodiversity, it is well-placed to participate in this field, but to produce a significant impact, the approach has to be an integrated and multifaceted, much like the strategies adopted agencies in neighbouring countries.

Accordingly, several new programmes are in the process of being initiated:

I: Availability of information

Colour guidebooks and other publications involving local fauna and flora have been produced by natural history researchers for some time. However, this will be supplemented with items suitable for mass distribution such as posters, calendars, postcards and CD-ROMs. This is a largely an unexploited niche and it is currently easier to get depictions of non-regional fauna than it for Southeast Asian material.

The use of webpages and mailing lists in Singapore is viable with the private sector, civil service and most schools already online. While the present museum webpage has been useful to technical

users, more relevant sections for the layman are being prepared, and includes a news page to provide comments on current natural history issues. An existing electronic bulletin called *Habitatnews* provides information about organised events, but the current subscriber base is low and so a webpage (see <http://habitatnews.nus.edu.sg>) has been constructed and a publicity strategy using the media has been initiated.

II: Accessibility by the public

In late 2000, a public gallery will be opened, featuring natural history and phylogenetic displays (including the old mounted specimens) based on local and regional natural history. This will see the return of public visits to the museum after a hiatus almost 40 years. Guided tours will be available by trained guides who are university postgraduates or layman who are themselves are involved in some aspect of natural history research.

III: Coordination with schools

The Ministry of Education has introduced many new programmes in an effort to evolve education methods in schools. Special displays in the exhibition gallery will complement programmes which make use of natural history or biology. Worksheets and quizzes will be implemented via handouts and webpages.

There is a increasing practise of inviting speakers for assembly talk in schools and currently, this is conducted by museum speakers on an ad hoc basis. Plans to streamline this arrangement into a anecdotal lecture series on a standard variety of topics, will reach a wider audience with less effort. These talks will also be coordinated with a school's visit to the public gallery or a managed natural history sites such as the Sungei Buloh Nature Park.

Workshops for teachers are being arranged to provide them with refresher or specialist skills in biology, such as how to start and maintain a simple museum based on common fauna and flora, which can then be used in their courses on biodiversity. Another series of workshops intend to provide instruction on managing habitat field trips. Besides the obvious biological aspect, the training will also include management aspects such as assessing suitability of sites, transport arrangements, safety procedures, and even timing! Likewise, a workshop series for students on a different scale of topics is also being planned.

III: Entering public consciousness

The layman beyond the range of activities described so far remains the majority. The only effective method of reaching out to them is by engaging the mass media. Newspapers, radio, and television stations have their own objectives, and it is necessary to meet this at least part of the way. Hence an issue has to marketed to attract these agencies into adopting the story. The written or oratorical style has also to cater to their specific audience as well. E. g. the opening of the public gallery is recognised as a public relations opportunity. and will be exploited as such. There has been a marked increase in the number of stories produced in the media, but a deliberate policy to maintain a continuous presence has to be carefully prepared. An active approach by the museum is crucial at this stage but over time, the relationship must evolve to the point, that the museum is seen a source of opportunities and courted as such.

IV: Partnerships: Coping with problems of manpower and funding

The problems of manpower has to be dealt with by volunteers. A training programme for volunteers is being prepared to confer confidence and experience to these guides, partly by providing these 'apprentices' with first hand research experience during museum expeditions. Recruitment is not restricted to undergraduates, for the rigors of the training programme will see only the genuinely interested individuals persisting, and this is often the interested layman. This method is necessary to maintain a standard of passion and expertise that the public will come to expect from the museum.

Various professional and volunteer groups already exist whose objectives overlap partially with that of the Raffles Museum. Partnering such established groups amplified the effectiveness of both parties, and short-term projects have been successfully implemented with the National Parks Board, Ministry of Education, the Singapore Science Centre, Singapore Environment Council, Primary Production Department CITES Office, the Nature Society (Singapore), Docents at the Singapore Zoological Gardens, Sungei Buloh Nature Park Volunteers, and Operation Raleigh Singapore. This experience has suggested a future goal of coordinating an integrated approach to nature conservation in Singapore.

Corporate bodies have been identified that are willing to fund projects, but which require partners who can provide the stability and confidence of an institution. This is thus a niche that the Raffles Museum can exploit. The first attempt will be made in conjunction with special sections of the public gallery.

Conclusion

The current strategy of the Raffles Museum is to build a good "brand name" consciousness of the museum amongst Singaporeans. At this stage, a highly proactive approach is required and the current staff include individuals who are able to adopt the role of the "strong advocate". Furthermore, nothing has been mentioned about finance - at this early stage, the museum has to extend itself to facilitate opportunities. Eventually, however, the maturation of the public awareness programme will necessitate different measures to focus a value to the biodiversity programme offered by the Raffles Museum, and the very habitats it is helping to protect.

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