

Cambodian Journal of Natural History

Rediscovery of the Bokor
horned frog

Four more Cambodian bats

How to monitor a marine
reserve

The need for community
conservation areas

Eleven new Masters of
Science

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Cover photo: Wild cardamoms *Amomum kravanh* have long been harvested from evergreen forests that are traditionally managed and protected by the indigenous people of O’Som Commune, Veal Veang District, Pursat Province (© Lonnie McCaskill, Disney’s Animal Kingdom). In this issue, Grazia Borrini-Feyerabend and Jeremy Ironside explore the significance and challenges of community-managed conservation areas in Cambodia.

Editorial—The University Capacity Building Project and Centre for Biodiversity Conservation: the Project Manager’s perspective

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In February 2013, I became “the new Neil”, taking over from Dr Neil Furey as Project Manager of the University Capacity Building Project (UCBP) with Fauna & Flora International in Cambodia. Although I had worked extensively in the government, higher education and private consulting in Australia, I was new to Southeast Asia and to international conservation NGOs. In this editorial I offer my perspective on the UCBP and the Centre for Biodiversity Conservation at the Royal University of Phnom Penh through a discussion of our publications, the Masters of Science degree in Biodiversity Conservation, the Centre’s conservation research, and the future.

The UCBP Project Manager wears many hats: academic, administrator, scientist, personnel manager, fund-raiser and publisher. Linked to the last of these, I am very pleased to have become one of the four editors of the *Cambodian Journal of Natural History*. Published both in print and on-line, the journal is the most visible of UCBP’s activities and makes peer-reviewed studies of Cambodia’s natural environment readily accessible. Whilst the *Cambodian Journal of Natural History* publishes studies specific to Cambodia, its production and quality are of an international standard. I have heard a number of very well qualified scientists comment positively on the quality and breadth of the journal and its content, and as a new editor I will work to maintain and improve this standing. This is also a source of pride for Cambodia’s young scientists, who see publishing their work in the journal as a highly desirable goal. Despite its title, the journal’s scope goes well beyond natural history. This issue, for instance, contains papers ranging from the rediscovery of a long lost frog (Neang *et al.*, 2013) to the social and legislative aspects of community protected areas (Borrini-Feyerabend & Ironside, 2013).

One of the first tasks we carried out at the start of 2013 was a ‘needs assessment’ that sought the views of

Cambodia’s environmental sector on all aspects of our programme, including the *Cambodian Journal of Natural History*, the Masters of Science degree in Biodiversity Conservation, the Centre for Biodiversity Conservation and its reference collections. Respondents rated community-based natural resource management and livelihood issues, climate change, freshwater issues and biodiversity as the topics they would most like to see in the journal. I wonder whether a change of name (perhaps to the *Cambodian Journal of the Environment?*) might better reflect this journal’s wide scope and attract even more authors and readers, further cementing its pre-eminent role in Cambodian science.

If the *Cambodian Journal of Natural History* is more than its name suggests, so too is the Masters of Science (MSc) degree in Biodiversity Conservation. Delivering the degree course through the Royal University of Phnom Penh’s Biology Department is the UCBP’s biggest activity. Established in 2005, the two-year degree—one year of course work and a second year thesis—provides a solid grounding in the scientific method and covers a range of topics from conservation basics, such as wildlife surveys and species conservation, to integrated natural resources management, geographic information systems (GIS) and managing projects. However two notable absences from the original curriculum are freshwater ecology and forest ecology. I believe both of these topics need to be incorporated—and not only because my background lies in freshwater ecology and floodplain forest conservation! An understanding of freshwater ecology is essential to Cambodia because of the economic and social significance of its inland fisheries (Cooperman *et al.*, 2012), the incredible biodiversity of the Mekong River, and the vast area of the country that becomes a wetland mosaic during the rainy season. Equally, a grasp of forest ecology is crucial in a country where forest products provide essential resources for many

poor rural Cambodians (Koy *et al.*, 2011) and where vital ecosystem services and globally important biodiversity are now threatened by the rapid loss of forest cover. Our needs assessment also found that while most of the course's current topics were still relevant, further tools for examining the social and economic aspects of conservation were also desired. This is not surprising, as conservation biology is developing into a holistic conservation science.

I was pleased to learn that the MSc degree is highly regarded in Cambodia and a high percentage of its graduates now work in government agencies, conservation NGOs and the Centre for Biodiversity Conservation (CBC). Now recruiting its 9th cohort, and with its 10th anniversary just around the corner, the MSc programme is entering a new and challenging phase. When the MSc curriculum was established, almost all of the courses were developed and taught by visiting foreign academics. Now, the first year courses are almost exclusively taught by Cambodians, many of whom are themselves graduates of the MSc in Biodiversity Conservation. Some of the lecturers are university staff, while others come from Cambodian government departments and NGOs. All are sessional lecturers and are thus paid in addition to their normal salaries. An unfortunate downside of engaging practitioners is they are sometimes unavailable due to their other work commitments. This is a hurdle that can hopefully be overcome through increasing the number of full-time university staff that lecture and teach in the programme.

The UCBP's progression from international to national trainers shows how far we have come in building capacity. Even though the MSc course is delivered in English, the students can understand the Cambodian lecturers much more readily than my obscure South Australian English accent, and the local lecturers can also explain complex points in Khmer where necessary. I can, however, see a continued place for overseas academics to assist in teaching, perhaps with courses taught in conjunction with overseas universities. This will help our curriculum to continue to keep pace with the technology and approaches used in other countries, and allow local lecturers to exchange experiences with international peers.

The number of students undertaking the MSc degree has increased in recent years. Eleven students have just submitted theses (see pages 109–124 for their abstracts), whilst a record 16 will be preparing theses in 2014. Every year, around 30 candidates apply for the course. This highlights local interest and recognition of the importance of biodiversity conser-

vation, natural resource management and the overall educational value of the course. One of the factors that has helped the student numbers to grow is the generous provision of scholarships from other organisations such as the USAID HARVEST programme, WorldFish Centre, International Crane Foundation and the Kanitha Fund. Such scholarships pay student fees, support their thesis research or provide a living stipend, or a combination of all three. The modest income from student fees goes some way to supporting the costs of teaching and administering the MSc degree. However, the growing number of students can create difficulties in securing adequate guidance and supervision for their thesis studies, because every student requires at least one supervisor. In many countries, the primary supervisor is usually an experienced faculty academic, but while some Cambodian university staff have PhDs, the breadth of available expertise in Cambodian universities is still limited. Thus, supervision has largely come from outside, mostly from people working with international conservation NGOs based in Cambodia. I would be very pleased to hear from readers who feel they have the time and expertise to supervise one or more of our MSc students, especially in the fields of freshwater ecology and fisheries. External supervision introduces many of our students to future employers: I am often asked by leaders of the larger NGOs when the next batch of students will be finishing so they can seek out new recruits!

Thus far, the UCBP's diverse activities have been developed and delivered with funding from a range of philanthropic donors. Whilst student fees are starting to make a difference, they are not enough to cover the full costs of delivering the MSc course, let alone our wider capacity building programme. International grants have limited life spans and indeed our current major sponsor hopes to see substantial moves towards sustainable funding within the next few years. The MSc in Biodiversity Conservation was the first degree of its kind to be established at the Royal University of Phnom Penh. The university now offers three other MSc and runs 14 Masters programmes in total, funded in various ways. The challenges the MSc in Biodiversity Conservation faces in securing recurrent funding are likely to be faced by many of the other degree programmes. The most obvious sources of funding for these degree courses in the future are: a Royal Government of Cambodia allocation, the establishment of a well-funded foundation, support from other universities in delivering certain courses, and corporate sponsorship. All of these potential sources

are being explored. Yet another option is the delivery of shorter vocational courses, derived from the MSc modules, to fee-paying conservation and natural resource management professionals. This was trialled in 2013 by allowing a number of Fauna & Flora International's Cambodian staff to attend the GIS course and provide feedback, which I am pleased to say was positive. The needs assessment identified Integrated Natural Resources Management, Climate Change, Research Methods and Statistics, and GIS as the most requested subjects for vocational training.

Another important element of our project is developing the research capacity of the Centre for Biodiversity Conservation at the Royal University of Phnom Penh. The present CBC scientists have expert knowledge of reptiles, amphibians, bats, birds, butterflies and rotifers, and the necessary skills and equipment to survey them. The CBC zoological museum has significant collections of these animal groups, which have already contributed a great deal to our understanding of the variety of animal species in Cambodia. Research projects carried out by the CBC further help to advance the skills of MSc graduates, many of whom have gone on to pursue PhDs with institutions overseas. Whilst of enormous benefit to these individuals, and ultimately Cambodia, we risk losing qualified staff for several years if they chose to pursue their further studies abroad. Fortunately, we are training many worthy replacements every year through the MSc course. The CBC post-graduates have undertaken a number of pioneering research projects funded by Bat Conservation International, Zoos Victoria, the Conservation Leadership Programme and the Critical Ecosystem Partnership Fund. The CBC has also in turn provided financial and technical support to the National Herbarium of Cambodia, which is based in adjoining rooms in the Royal University of Phnom Penh, and I believe we should do more to develop this important resource.

In addition to applied research, environmental consulting could provide a source of funding for the CBC and its scientists. This year, the CBC carried out a zoological survey for an ecotourism development in Thmor Rung, and a number of similar companies have expressed interest in our services. This line of work requires caution, however, because the CBC team do not wish to be seen to endorse any developments that merely expect an EIA 'rubber stamp' or that might harm the reputation of the CBC and its partners for objective, high quality science.

Finally, and returning to the subject of publications, the CBC will produce three 'best practice'

manuals and field guides in 2014 and 2015. The first, as advertised in the previous issue, is the landmark *'The Birds of Cambodia: an Annotated Checklist'*. Whilst the remaining titles are under development, we are planning two diverse publications that will showcase the breadth of the CBC's expertise and provide valuable information for Cambodia's conservationists and natural scientists.

From my perspective, perhaps the most important long term goal is to see a Cambodian scientist take over the management of the University Capacity Building Project. With more Cambodians being trained and increasingly exposed to the management of complex programmes, I hope and believe that this can occur sooner rather than later. This project is as relevant and important now as when it was established in 2005. Cambodia's rapid and expansive economic development is placing unprecedented pressures on its rich natural resources and irreplaceable biodiversity. Whilst the complete solutions to these challenges are well beyond the scope of this project, I believe that training more Cambodian environmental professionals and communicating their discoveries, experiences and advice is crucial if the natural resources that so many people depend upon are to be managed sustainably and if the nation's unique biodiversity is to be conserved for future generations.

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