MARCH 2005 NUMBER 32

Porcupine!

Newsletter of the Department of Ecology & Biodiversity, The University of Hong Kong

Animal Rights and Conservation

Almost overnight Hong Kong has discovered that invasive species are a real problem, especially when they bite. The fire ants are not the first invaders and certainly will not be the last, but in at least one respect they not the most difficult to deal with. There has been universal agreement on "kill them all" as the correct response to an invertebrate invasion. Invasive plants elicit the same, unanimous response. When it comes to invasive vertebrates, however – particularly if they are big-eyed and furry – such unanimity cannot be guaranteed. To many people, vertebrates are individuals, not just species. Animal welfare societies, such as Hong Kong's SPCA, have been around for a long time, but over the last couple of decades they have been joined by groups who make much stronger claims for the rights of individual animals and are willing to act more forcefully in their defence.

At first sight, conservationists and people concerned with the well-being of animals would appear to be on the same side, but conservationists are concerned with the survival of species, genes and ecosystems, while animal rights advocates are concerned with the well-being of individual animals. It is common in practical conservation work to kill large numbers of individual animals – not only invasives, but also native species whose numbers have exceeded the carrying capacity of a small, isolated reserve. Many of us have killed animals during research. We usually justify these killings, as well as any non-lethal suffering we cause to animals, on conservation grounds. This defence is derided by some rights theorists as "ecofascism" – individual rights are subordinated to the overall good of the species or ecosystem. They point out that populations, species and ecosystems are merely human concepts and do not suffer, while individual animals can and do.

"Do fish feel pain?" (Photo: Valerie Ho)

Supporters of what has come to be called "strong animal rights" believe that individual animal rights override all, or almost all, other considerations. It is just as wrong to use lab mice for experiments as to use human children. These are the people who break into animal research labs. A slightly weaker version simply asserts that the suffering of sentient animals deserves equal consideration with human suffering, so, as with human suffering, one should always act to minimize it unless there is some other overriding consideration. Sentient is used to mean "able to suffer", and philosophers, on no particular evidence, seem to assume that this ability disappears somewhere between birds and fish. Do fish suffer? Note that simply responding to stimuli is not by itself evidence for suffering – robots and protozoa can do that.

Weaker still is the version of animals rights that I currently subscribe to – a sliding-scale of rights from the animals with the

most complex minds (great apes, dolphins?), down to animals with no minds at all. I support the Great Ape Project in its plan to give basic legal rights to chimps, bonobos, gorillas and orangutans, but I must also admit that this sliding scale is not entirely logical. How do I know that dogs, for example, suffer less than gorillas, and if they don't, how do I justify giving their suffering lesser consideration? Most people in Hong Kong, I suspect, support an even weaker version: animals have the right to avoid unnecessary suffering, but this can be overridden by human needs, such as cheap eggs and pork, or drugs and vaccines that have been tested on primates. There is also a very long western religious and philosophical tradition that animals are there for human use and have no rights at all.

I have emphasized suffering as the criterion for assessing rights violations, since at least the more mentally complex mammals undeniably do suffer in a way that is recognizable to us. It is not entirely logical – who could enter a Hong Kong fish market if we were similarly sensitive to suffering in fish? – but it is a start. Other issues are much harder to deal with. Do animals have a right to life, or is it O.K. to kill them painlessly? Do they have a right to freedom, even if freedom risks suffering and death? To me both these appear to be ascribing human concerns to animals without any evidence, but I could perhaps be similarly accused of denying them without any evidence.

Conservation biologists have long dismissed people concerned about the welfare of individual animals as "bunny-huggers", whose views can be safely ignored. But membership in animal welfare and rights organisations has skyrocketed world-wide over the last few decades. Even their – to conservationists – most extreme beliefs are supported by respected philosophers. I am not suggesting that we should stop controlling invasive vertebrates or that we should ban all intrusive research. However, conservationists have to start taking the ethical issues involved in causing harm to individual animals more seriously. We cannot continue to give purely scientific answers to ethical questions: projects must be justifiable on both ethical and scientific grounds. Failure to respond to ethical concerns will erode our public support and, ultimately, our ability to save species from extinction.

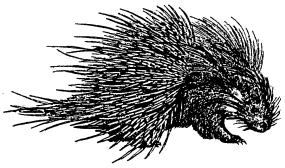
Finally, to put research and conservation killings into perspective: factory farming in the USA alone kills over 100 million mammals and 5 *billion* birds every year, after short, very unnatural, lives. Your diet is almost certainly causing a lot more suffering than your research.

Further reading:

DeGrazia, B. 2002. Animal rights: a very short introduction. Oxford University Press. *A readable overview of the field from an advocate of "equal consideration".*

Richard T. Corlett

Porcupine!



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INSIDE THIS ISSUE:

Editorial

Welcome to our new approach to Porcupine! We have done away with bulk mailings in favour of using a leaflet (which has been circulated separately), designed to highlight the flavour of each issue, in combination with our web-based version. I hope that you enjoy our new look, and would welcome feedback.

The delay in getting *Porc! 32* out is largely my fault, but I have as one of my excuses some good news to round out Professor Dudgeon's 'Year of Biodiversity'. Some of my leave last year was spent on preparations for a CITES conference in which, among other things, several species of interest to Hong Kong were listed on Appendix II. Important among these was the Humphead Wrasse (So Mei), part of the live fish trade and a star turn at Ocean Park. The listing is an important acknowledgement that some fishes, like other vertebrates, can be seriously threatened by exploitation, and will hopefully lead to a more sustainable trade in the future.

On whether or not fish, threatened or otherwise, may suffer pain in the same way as their back-boned relatives, however, is not so clear, according to the lead article of this issue (see also the two papers below by Sneddon and Sneddon et al. – thanks to Kenny

Leung for alerting me to these). An increasing number of publications suggest there is little reason to doubt that they probably do, but since we may never know for sure, we certainly can't rule out the possibility. The lead article, on animal rights and conservation, helped me to make a new year's resolution; in deference to the Rooster (or at least to his hen), I will only buy free-range eggs from now on.

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YS

News from DEB

2005 seems set to become the 'Year of Biodiversity' if present indications are anything to go by. Already we have faced the invasion of the killer Fire Ants (*Solenopsis invicta*), which is already well established on the mainland New Territories, and faced the spectre of Giant Anteaters wandering down Nathan Road. But seriously, the idea that we should introduce exotic anteaters to control invasive ants makes little sense, especially when we have ant-eating Pangolins existing locally. Perhaps this suggestion reflects a broader lack of awareness about Hong Kong's native biodiversity, as I doubt many senior government officials would recognise a Pangolin if they were fortunate enough to meet one on a dark night. My initial reaction to the *S. invicta* scare was to assume that someone had made an error, and confused exotic *S. geminata* with its more obnoxious relative. *Solenopsis geminata* was first recorded in Hong Kong in the 1930s, and was still here when John Fellowes studied local ants for his PhD in the 1990s, so it is safe to assume that it has become naturalized. After some delay, however, the identification of *S. invicta* was confirmed. My second reaction to the invasion was to wonder if we could study the impacts of Fire Ants on native biodiversity. Such an investigation would require a comparison of infested and ant-free areas, and I doubt that we could justify allowing an infestation to persist just we that we could look at its effects. So, could government have done anything to prevent the invasion? I think the answer is 'not much'. The Fire Ants were in Guangdong for some time before their presence was announced and, given the number of colonies detected here, it seems likely that they were transported into Hong Kong with ornamental plants well before the alarm was raised in the run-up to Chinese New Year. A quick response from government aimed at eradicating established colonies was what was needed and what, in fact, happened.

A second biodiversity issue that has been receiving some attention is government's ongoing consultation process on measures to protect local marine fisheries. Views on this vary: some feel that the annual summer moratorium on fishing should be lifted (although there are no signs that China will make such changes to fishery regulations that apply to neighbouring waters) while, at the other end of the spectrum, there have been suggestions that all of Hong Kong's territorial waters be designated a 'no take' zone. There is an almost infinite variety of compromise positions that might or might not involve licensing schemes for commercial fishers. The key point is that debate has been initiated because (at last) someone in authority has not only noticed that the existing situation is unsustainable but has decided that something must be done to improve things.

And then there is the recently-announced Lantau Concept Plan … With regard to that, space (and, perhaps, politesse) does not allow me to comment. Instead, I have one other thing to report. At the end of 2004, a new Research Assistant Professor, Dr Yixin Zhang, joined DEB. Yixin did his PhD at Umea University in Sweden, and has since worked at the University of California in Santa Barbara and the University of British Columbia. He is a stream biologist, and will be spending his three years with us looking at land-water interactions, and their relevance for conservation and management. Yixin introduces himself elsewhere in this issue of *Porcupine!*

All that remains is for me to wish readers of *Porcupine!* a healthy and prosperous – albeit belated - Year of the Rooster.

David Dudgeon

Fire ant nest in Long Valley: the nests are unique in Hong Kong. (Photo: Billy Hau)

All about Yixin Zhang, "newtest" Research Assistant Professor in DEB

by Yixin Zhang

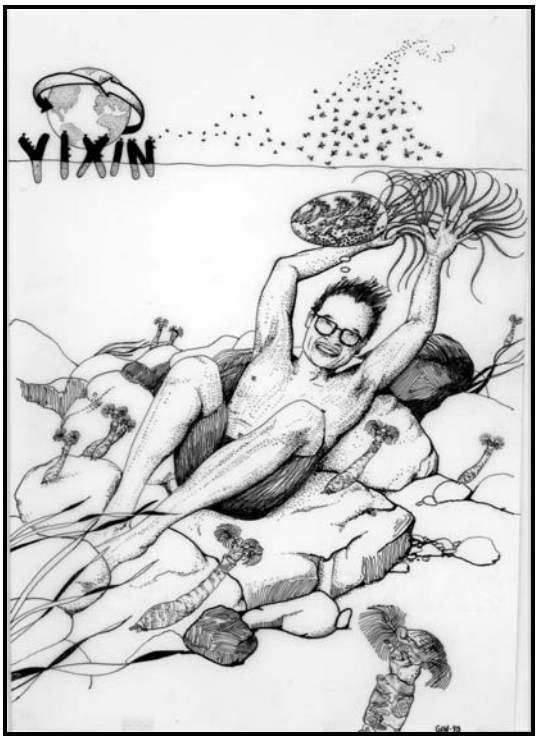
I got my M.Sc. and Ph.D. in Department of Animal Ecology at Umeå University in Sweden. After graduation, I received s Post-Doctoral Fellowship of Swedish Foundation for International Cooperation in Research and Higher Education and worked in the Department of Ecology, Evolution and Marine Biology at the University of California at Santa Barbara in USA. After that, I worked in the Department of Forest Sciences at the University of British Columbia in Canada as a postdoc and research associate.

Over the years, I have been asked by many people, “Why did you decide to go to Sweden for your graduate studies?” My answer was always the same, “Sweden gives the Nobel Prize to the world, and Swedish universities have a high standard for scientific research.” I had a tough beginning at the start of my graduate studies. The Department of Animal Ecology at Umeå University told me that it wanted to test my research capability first, before the department committee would discuss whether to accept me as a graduate student. I decided to take this risk to go to Sweden for my potential graduate study. I spent eight days travelling to Sweden by taking a cross-continent train from Beijing to Moscow, a train from Moscow to Helsinki, then to Waasa in Finland, and a ferry across the Baltic Sea to Umeå. After taking an advanced ecological course and completing a research project by working day-and-night, I was accepted as a graduate by the department committee.

My research direction in Sweden was to examine the effects of ecological processes on community structure of blackfly larvae in running waters, in terms of distribution, functional morphology and phenotypic plasticity, and feeding performance. In general, my questions were: how do blackfly larvae respond to variation in physical habitats at a large scale, such as hydrological change in a variety of river and stream systems, and how do these organisms respond, in terms of functional morphology and phenotypic plasticity, to variation in the availability of their food and hydrodynamic condition at a local scale? I was to immerse myself in these questions as well as in running waters. I sampled more streams and rivers than were visited by most Swedes; over 100 sites from the central coastal plain bordering the Gulf of Bothnia to the northern Swedish mountains within the Arctic Circle. These rivers often have elongated lakes and a number of falls and rapids. I enjoyed my fieldwork very much in those beautiful places with attractive scenery. My department at Umeå University had a high standard of academic requirement for PhD students: ten books for oral examinations, which covered many areas from evolutionary biology to scientific philosophy, from population ecology to theoretical ecology; writing grants for your own research funding; five papers including two single-author ones for the PhD thesis; an open defense of your dissertation, followed by a wonderful department celebration party, with a lot of drinking, singing, and dancing until midnight.

Having fledged from Umeå University, I went to the University of California at Santa Barbara. UCSB has a beautiful campus with a very wide sandy beach. Many students went surfing in the Pacific Ocean after classes. At UCSB, I studied the impacts of multiple predators on a shared prey to examine emergent predation effects on prey, which is not simply a sum of individual effects of single predator types. Emergent predation effects can be predation reduction referring to the case where the combined effect of multiple predators is smaller than the sum of single predator effects, or can be predation enhancement with a combined effect larger than the sum of individual effects. During the period working at UCSB, I was looking for postdoc possibilities in Canada because I already had Canadian permanent resident status.

In 2000, I moved to the University of British Columbia in Vancouver. I was told that UBC probably has the finest university campus in Canada. It is located on the tip of a peninsula surrounded on three sides by water and has a nice "clothing optional" beach. At UBC, I studied several projects, most of which were conducted in UBC's Malcolm Knapp Research Forest. (1) Trout foraging-mode shift and its effects on benthic communities. (2) Detritus processing, ecosystem engineering, and benthic diversity. (3) Trophic flows across habitats and their effects on ecosystem processes. (4) Cumulative catchment effects of forest practices on stream ecosystems.



In May of 2004, I met Professor David Dudgeon by chance in “a beer session” at the 4th World Fisheries Congress in Vancouver. Thanks to Qingdao beer, I found that we have lots of research interests in common. Later, I noticed an advertisement for an RAP position at HKU in Nature. I was fortunate to get the position, and joined this department as a Research Assistant Professor in September of 2004. At HKU, I am going to keep working on above-mentioned projects. I have received HKU Seed Funding for basic research to study ecology and genetic diversity of the stream-breeding salamander, the Hong Kong Newt (*Paramesotriton hongkongensis*) (Fig. 1, 2). I have proposed a broadening course (Global Environmental Change) and a research project (Trophic flows across ecosystems and terrestrial-aquatic linkages). As an honorary member in the Department of Forest Sciences at the University of British Columbia, I am continuing my research project supported by the Forest Research Program in BC, which investigates cumulative watershed effects on stream ecosystems. As the picture drawing, a graduation gift from my department in Umeå, shows I have traveled around the world and have been working on aquatic ecosystems in three continents. For this stop in Hong Kong, I hope that I can stay long enough to do my best to contribute my efforts to this department and to ecological studies in this region.

Fig. 1. Adult Hong Kong Newt

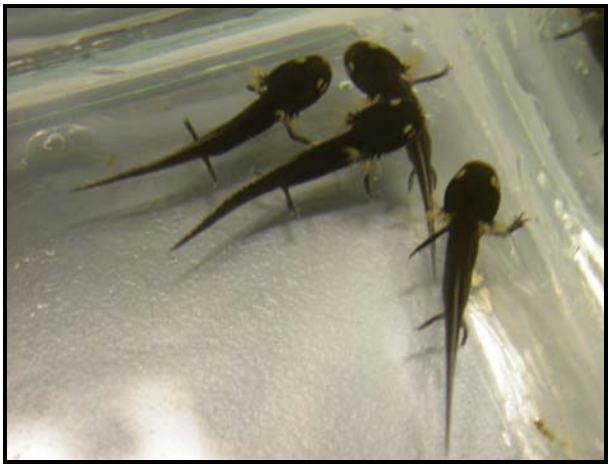


Fig. 2. Larvae of Hong Kong Newt (*Paramesotriton hongkongensis*).

VERTEBRATES

Preserving a gentle reef fish giant

by Yvonne Sadovy
IUCN Specialist Group for Groupers and Wrasses

Not so very long ago, the idea of a commercially important marine fish going extinct was considered highly unlikely, if not impossible. The assumption was that marine species are so widely dispersed and so fecund (productive of eggs) that there would always be places they could not be found, and that all those eggs endowed them with limitless capacity for recovery. Some biologists still argue that extinction is not possible, stating, in support of this view, that no marine fish has ever been known to go extinct from exploitation. Only time will tell whether or not they are right. However, we have learned enough about declines in populations of many fish species to know that these can be threatened with disappearance (or 'extirpation'), even if the species as a whole is not (Dulvy et al. 2003). Moreover, we now know that high egg numbers and wide geographic distribution are no insurance against serious depletions; the cod (*Gadus morhua*) and the southern bluefin tuna (*Thunnus maccoyii)* has shown us that. In any event, loss of single populations is the first step towards biological extinction and it makes little sense to wait until it is too late to see who is right.

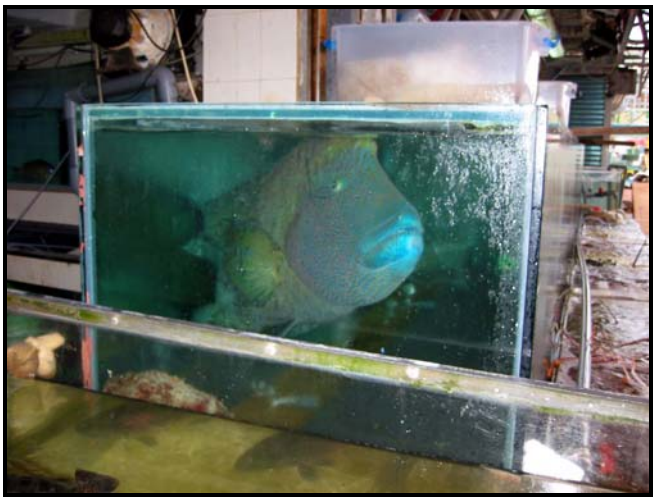


Fig. 1 Large humphead wrasse in small tank in Hong Kong. (Photo: Liu Min)

Many fish species for which serious declines have been noted are large and long-lived, often with life spans of several decades or more. Such species are likely to have rather low replacement rates and hence are particularly vulnerable because they are unable to withstand heavy fishing pressure. In other words, if too many fish are removed too quickly, the population will decline and, without management, dwindle and possibly disappear. This is especially likely if the species is particularly valuable because even if it becomes harder to catch, its value remains a big incentive to continue fishing. As just one example, a single large tuna can sell for US$40,000 or more. To make matters worse, increasing rarity may be associated with higher retail prices.

One of the largest and most valuable of all reef fishes is the humphead, or Napoleon, wrasse, *Cheilinus undulatus*, known better to many in Hong Kong as the 'So Mei' (Fig. 1). This species is a small but important part of the international trade in live reef fish for which Hong Kong is a major demand centre: at times its retail price has reached US$150/kg. So there is a lot of interest from traders and fishermen to find and market this species and, largely as a result of the trade in live reef fish, the humphead wrasse has declined in many areas. Even though it is widely distributed across the Indo-Pacific, sub-adults or juveniles, preferred as being a good 'plate-size' fish in restaurants, often occur inshore and are easy to overfish (Fig. 2). The species reaches 2 m in length and can live at

least 30 years. It is, therefore, rather susceptible to fishing, and, as a result of demand, is disappearing.

Due to concern for this species, the humphead wrasse was listed under Appendix II of the Convention on International Trade in Endangered Species (CITES at www.CITES.org) in October, 2004 (Sadovy et al., 2003; www.humpheadwrasse.info). This was an historic listing because it is one of the first commercially important marine fish species to be so classified. A species on CITES Appendix II in international trade must be monitored and can still be exported if it has been sustainably caught in the source country. Many people think that CITES is all about banning species in trade. In the case of Appendix II, however, this is not the case; listed species can only be exported if they are captured at sustainable levels and so CITES promotes and fosters sustainable use for vulnerable species.

Fig. 2. 'Plate-sized' humphead wrasse, ready for the plate. (Photo: Valerie Ho)

Listing of commercial fishes, historically, has rarely occurred under CITES which many governments feel is not a suitable convention for fish. With the humphead listing, however, the mood is clearly changing. The Food and Agriculture Organization (FAO) of the United Nations was previously seen as the only appropriate body for dealing with fishes, but the FAO is not directly involved in management and tends to deal more with the large, more economically important, global fisheries, not reef fish species or those of more minor global significance. CITES, therefore, is an excellent mechanism for moving towards the sustainable use of species, like the humphead wrasse, which science has clearly shown to be threatened and in need of attention, and is not otherwise effectively protected. The recent listing was considered a landmark for fish conservation and sustainable management because it was the first to receive strong support from countries that normally oppose applying CITES for fishes. Let's hope that this listing also casts a spotlight on the need to better manage reef fish fisheries in general. These must continue to support the livelihoods and lives of the millions of fishermen living in coastal areas around the tropics, and will, as a result, allow us to eat reef fish that are sustainably caught, guilt-free.

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Newcomers to the local fish list, or unwelcome exotics!

by Allen To and Anna Situ

The first fish to be added to the local fish list is the yellowtail tang, *Zebrasoma xanthurum* (Family: Acanthuridae), or so called "purple tang" among aquarists (Fig. 1). This beautiful reef fish was observed by Allen To and Kiwi Lee at Hoi Ha Wan Marine Park in mid-May. The tang was about 15 cm in total length and was hiding among rocks close to shore. This tang is documented to occur in the Western Indian Ocean (from Red Sea to the Persian Gulf) and the Maldives (Randall & Anderson, 1993).

Fig. 1. The yellowtail tang, *Zebrasoma xanthurum*. (Photo: John E. Randall).

Another exotic fish, which is also an aquarist's favourite, is the emperor angelfish, *Pomacanthus imperator* (Family: Pomacanthidae)(Fig. 2). That gorgeous 20 cm-adult angelfish was sighted in early June at Hoi Ha Wan Marine Park by Allen and Kiwi, in waters under the flyover to the education centre. This reef-associated angelfish was observed to be hiding within a crevice at a depth of about 1.5 m. It occasionally swam out of the crevice and looked curiously at us. Its documented distribution is in the Indo-Pacific (Red Sea and East Africa to Hawaiian, north to southern Japan, south to the Great Barrier Reef) (Fricke, 1999).

Fig. 2. The emperor angelfish, *Pomacanthus imperator*. (Photo: John. E. Randall).

A deep-sea fish, the pineconefish, *Monocentris japonica* (Family: Monocentridae) (Fig. 3), was collected by Allen, Anna Situ and Wallace Choi on 6 September from Ap Lei Chau Government Market. This specimen was about 6 cm in total length. This species had been described locally by another specimen reported to occur at Ching Chau in 2003 (hk-fish.net, 2004). Fishermen reported that the fish was caught in waters off Lamma Island. This species is characterized by its ability to give out light under its chin at night. Its documented distribution includes the Indo-West Pacific (Red Sea, South Africa, Mauritius to southern Japan) (Masuda *et al.*, 1984; Smith 1986; Lieske & Myers, 1994).

Fig. 3. The pineconefish, *Monocentris japonica.* (Photo: Allen To)

Last but not least is another surgeonfish, the humpback unicornfish, *Naso brachycentron* (Family: Acanthuridae) (Fig.4). The documented distribution of this fish includes the coast of East Africa to French Polynesia, Ryukyu Islands south to the Great Barrier Reef, the Philippines and Taiwan (Randall, 2001). This specimen was sighted in Sai Kung Market on 11 Oct 2004 by Allen, Anna and Wallace. Fishermen reported that they caught this specimen within Hong Kong but were unsure of the exact location. There has been no previous local documentation of this species.

Even though Hong Kong may fall within the documented distribution regions of the emperor angelfish, humpback unicornfish and pineconefish, there has been no known record of the first two fish species and only one recent record for the pineconefish locally. The yellowtail tang should not occur here according to its known natural distribution. In view of the increasing accessibility and popularity of aquarium fish, the most likely reason for the local record of the emperor angelfish and the yellowtail tang is from deliberate release; this might also be true for the pineconefish. People may release their fish because of sympathy, in the hope of good luck, health or even wealth. Large groupers, for instance, have often been released by local people for that reason. Marine parks such as the Hoi Ha Wan Marine Park might give the impression of being a "fish sanctuary" or "fish paradise" to those aquarists who were bored with their fish and would like to set them free in areas "ideal" to their fish. However, it is strongly recommended not to release fish into waters where they may not belong natually.

Fig. 4. The humpback unicornfish, *Naso brachycentron.* (Photo: Allen To).

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The South China Cascade Frog, *Amolops ricketti*, found in Hong Kong

by Michael Lau

On the night of 21 October 2004, an adult female of *Amolops ricketti* was found resting next to a small cascade in a stream draining from Tei Tong Tsai to Tung Chung at about 270 m. Visits to the same stream on 25 October and 25 November 2004 found 1 and 2 more specimens next to another cascade. This species is rather similar to the Hong Kong Cascade Frog *Amolops hongkongensis* in colour pattern but the dorsal dark blotches are usually less distinct. It can best be distinguished by the smaller suction discs on the 3rd and 4th fingers. Their diameter is less than 3 times the width of the fingers whereas in *A. hongkongensis* the diameter of the suction discs is 3-4 times the width of the fingers. In addition *A. ricketti* lacks the tarsal fold which is present in *A. hongkongensis*. The first fingers of breeding male *A. ricketti* have white, granular nuptial pads. *Amolops hongkongensis* also has white nuptial pads on the first fingers but they are velvety. The eggs of *A. ricketti* are reported to be glued under stones in stream (Ye *et al.*,1993) whereas the eggs of *A. hongkongensis* are laid on rock faces in the splash zones of cascades. Another apparent difference between the two species in Hong Kong is that *A. hongkongensis* is only found in the New Territories and Hong Kong Island, whereas *A. ricketti* only occurs on Lantau Island.

Amolops ricketti is widely distributed in South China, including Sichuan, Guizhou, Hubei, Zhejiang, Jiangxi, Hunan, Fujian, Guangdong and Guangxi (Zhao & Adler, 1993; Fei, 1999). This species has also been recorded in Wutongshan, Shenzhen just across the border (Kadoorie Farm and Botanic Garden, 2002). It has never been recorded in the pet or food trades (Lau *et al.* 1995; Kadoorie Farm and Botanic Garden, 2004) and it is unlikely that the frogs originate from human introduction. Hence the case that this frog is native to Hong Kong is deemed strong.

The amphibian fauna has been rather well-studied (Romer, 1979; Karsen *et al.*, 1998; Lau & Dudgeon, 1999) so it is intriguing as to why this species has not been found earlier. One of the reasons is that the stream supporting this species was not covered in previous surveys (e.g. Lau & Dudgeon, 1999 and the Hong Kong Biodiversity Survey). In addition, this species probably has a very restricted local distribution. Jiang & Xie (2003) reported several unidentified *Amolops* from a stream near Shek Pik Reservoir, Lantau. Based on the picture and the brief description in Jiang & Xie (2003), the frogs are likely to be *A. ricketti* and probably constitute another locality record. Because of its close resemblance to *A. hongkongensis*, this species may have been confused with the latter. Readers interested in finding out should examine the *Amolops* they come across, especially those in the New Territories, and look for the distinguishing features mentioned above.

Fig. 1. *Amolops ricketti*

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The occurrence of *Sphenomorphus incognitus* in Hong Kong with notes on its diagnostic features and distribution

by Michael Lau

The skink *Sphenomorphus incognitus* is very similar to *Sphenomorphus indicus*, a widely distributed species from South Asia to Indochina and northward to south and central China. The only clear-cut difference is the presence of a patch of enlarged scales at the back of the thigh in *S. incognitus* (Zhao *et al.*, 1999). *Sphenomorphus incognitus* is also slightly larger in size but the adult snout-vent length overlaps between the two species (see tables in Zhao *et al.*, 1999). Various researchers also report differences in general body colour and the shape of the lateral stripe (Zhao *et al.*, 1999) but colour markings of these wide-ranging skinks are quite variable and there is no consensus as to how to separate the two species based on colour markings alone. There is also a difference in life-history in which *S. incognitus* is oviparous while *S. indicus* is ovoviviparous (Zhao *et al.*, 1999), but this has limited use as an identification character. *Sphenomorphus incognitus* is endemic to China and, until recently, has only been recorded from Fujian, Taiwan, Hubei, Guangxi, Yunnan and Hainan (Zhao & Adler, 1993; Zhao *et al.*, 1999). This skink was discovered in Guangdong during the rapid biodiversity surveys carried out Kadoorie Farm and Botanic Garden (2002a) and was subsequently found in Wutongshan just across the border (Kadoorie Farm and Botanic Garden, 2002b). **[See Addendum Page 31 for photo.]**

It is likely that this species also occurs in Hong Kong and has been confused with *S. indicus.* Romer (1975) did report a *Sphenomorphus* skink with enlarged scales at the back of thigh from the Shek Kong area. However, he decided that more specimens were needed to draw a conclusion. To address this, *Sphenomorphus s*pecimens collected by the author from Hong Kong over the years and those in the St. Louis School and Kadoorie Farm & Botanic Garden collections were examined to determine their identity based on the scalation. Their markings, in particular the lateral stripes, coloration and snout-vent length were also noted to see if there is a consistent difference.

Both *Sphenomorphus incognitus* and *S. indicus* have been collected from Hong Kong. Some of the older specimens of *S. incognitus* were mis-identified as *S. indicus.* Adult *S. incognitus* is generally larger than *S. indicus* and the snout-vent length can exceed 90 mm (see Table 1). However, this is not be a good character for differentiating juvenile *S. incognitus* from *S,. indicus*. The colour pattern also shows a slight difference; the upper edge of the dark lateral stripe in *S.incognitus* is jagged while in *S. indicus*, it is smooth. Dorsally, *S. incognitus* is bronze in colour speckled with light and dark spots. *Sphenomorphus indicus* is more or less uniform brown. The picture of '*S. indicus*' in Karsen *et al* (1998) actually depicts a typical *S. incognitus.* There is also some difference in habitat preference, with *S. incognitus* favouring riparian forests and often seen basking on stream banks while *S. indicus* is more frequently found in forests and often encountered along forest paths. However, both species are sympatric in good forests in the central New Territories like Tai Po Kau and Shing Mun.

Table 1: Measurements of *Sphenomorphus incognitus* and *Sphenomorphus indicus* from Hong Kong.

Species	Locality	Age	Adult snout-vent length (mm)
S. incognitus	Shing Mun	Juvenile	-
S. incognitus	Shing Mun	Adult	76.0
S. incognitus	Shing Mun	Juvenile	-
S. incognitus	Tai Tung Wo Liu	Juvenile	-
S. incognitus	Kadoorie Farm & Botanic Garden	Adult	97.0
S. incognitus	Ho Chung	Juvenile	-
S. incognitus	Sheung Tong	Juvenile	-
S. incognitus	Kadoorie Farm & Botanic Garden	Adult	81.5
S. incognitus	Shek Kong	Adult	92.2
S. indicus	Shing Mun	Adult	68.5
S. indicus	Tai Po Kau	Juvenile	-
S. indicus	Tai Po Kau	Juvenile	-
S. indicus	Tai Po Kau	Adult	64.5
S. indicus	Tai Po Kau	Juvenile	-
S. indicus	Kadooie Farm & Botanic Garden	Adult	66.5
S. indicus	Tai Po Kau	Juvenile	-
S. indicus	Kadoorie Farm & Botanic Garden	Juvenile	-
S. indicus	Kadoorie Agriculture Research Centre	Adult	70.0

Due to the confusion of the two species in the past, earlier records of *S. indicus* from Hong Kong should be treated with caution. Re-examination of the available specimens and recent observations suggest that *S. incognitus* has a wide distribution in the New Territories covering the north-east, central and the

western part. It also occurs in the Sai Kung Peninsula. *Sphenomorphus indicus* seems to be restricted to the Tai Mo Shan massif in central New Territories. With forests becoming more mature, it is likely that the latter species will spread to other parts of the New Territories.

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FLORA

A survey on some native tree legumes for their ability to form root nodules and fix nitrogen in Hong Kong

by Angie Y. S. Ng

Introduction

Nitrogen is one of the most important nutrients required by plants but also one of the most deficient nutrients in most ecosystems, particularly on degraded land. Due to increasing land degradation around the world, forest restoration has been a hot research topic over the last decade. Reforestation in Hong Kong was started in the 19th century by the British colonial government (Corlett, 1999). Since World War II in 1945, mainly exotic tree species, for example *Acacia confusa*, *Acacia auriculiformus*, and *Eucalyptus* spp., were planted (Corlett, 1999). More native tree species were tried over the last decade and some more studies on native tree species were conducted. However, no work has been conducted on native legume tree species which should in theory have high potential for forest rehabilitation and restoration. It is because legumes are able to fix atmospheric nitrogen that they may allow them to perform better on degraded soils and improve the soil condition. The aim of my final year project was to investigate the nodulation and nitrogen fixing ability of native tree legume species in the field as well as in nursery conditions.

Materials and methods

Eight native tree legume species were investigated in the Native Tree Nursery of Kadoorie Farm and Botanic Garden and in the field (4 of the 8 species only) from September 2003 to early 2004 for their abilities to form root nodules and fix nitrogen (Table 1).

In the nursery study, about 20 nursery grown seedlings (mean height 6.4 - 41.6 cm) of each species were examined for the formulation of root nodules. The ability to form root nodules was measured in terms of presence of nodules, number and size of nodules. In the field survey, 3 seedlings of each species from 3 sites were examined (Table 1). The occurrence of nodules was examined by excavating the roots to 20 cm deep and 30 cm in diameter around the main stem. The activity of the nodules found was determined qualitatively by examining the interior colour of the nodules – effective nitrogen fixing nodules appear to be red inside due to the presence of the nitrogen fixing enzyme nitrogenase while ineffective nodules are white inside (Sprent, 2001). Quantitative methods such as acetylene-reduction assay (Hardy *et al*., 1968) or N-15 methods (Galiana *et al*., 2002) were not used due to limitation in laboratory equipment and facilities.

Since two of the studied nursery species formed root nodules in some individuals only, the nitrogen content between nodulated and non-nodulated individuals of these two species were compared by measuring the Kjeldahl total nitrogen in shoots (Bremer and Mulvaney, 1982).

Table 1. Nodulation survey results in the nursery and the field.

Species name	No. of nodulating individuals (No. examined)	
	Nursery	Field [Site]
Gleditsia australis	0 (20)	Not surveyed
Adenanthera pavonina	0 (20)	Not surveyed
Archidendron clypearia	20 (20)	3 (3) [Mui Tze Lam] 3 (3) [Tai Po Kau] 1 (3) [Wu Kau Tang]
Archidendron lucidum	20 (20)	0 (3) [Mui Tze Lam] 0 (3) [Tai Po Kau] 0 (3) [Pak Ngau Shek]
Archidendron utile	4 (10)	Not surveyed
Ormosia emarginata	9 (20)	0 (3) [Mui Tze Lam] 0 (3) [Pak Ngau Shek] 0 (3) [Wu Kau Tang]
Ormosia pachycarpa	20 (20)	0 (3) [Shek O]
Ormosia semicastrata	11 (20)	Not surveyed

Results

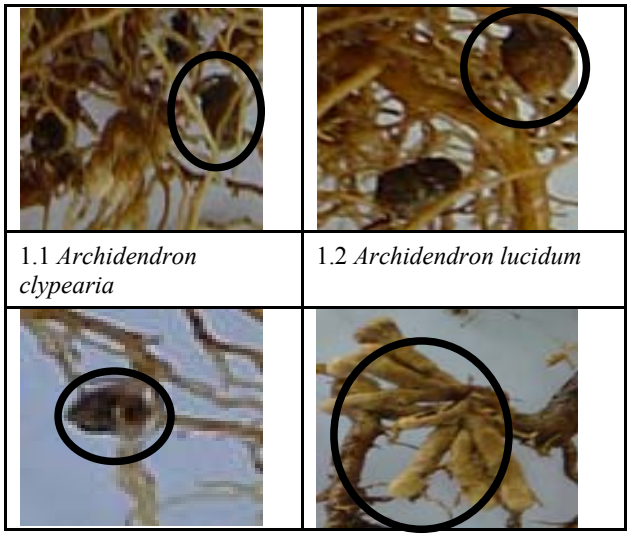
In the nursery study, *Adenanthera pavonina* and *Gleditsia australis* did not form root nodules in all samples examined. *Archidendron utile*, *Ormosia emarginata* and *O. semicastrata* nodulated in around half of the samples. Nodules were found in all samples of *A. clypearia*, *A. lucidum* and *O. pachycarpa* (Table 1). Field surveys showed that *A. clypearia* formed root nodules in all samples examined but no nodules were found in *A. lucidum*, *O. emarginata* and *O. pachycarpa* (Table 1).

Coralloid was the commonest shape among mature nodules while all young nodules were spherical (Fig. 1). Nodules concentrated in the top 10 cm of soil around the main root. Nodule interior colour varied from pale yellow to dark orange among species (Fig. 2). This indicated that most nodules were active in fixing nitrogen. In the nursery, the total nitrogen content in the shoot of nodulating seedlings was not significantly different from those in non-nodulating seedlings in *O. emarginata* (U=21.5, p>0.5, n=9, 6) and *O. semicastrata* (U=26.0, p>0.5, n=7, 8).

Conclusion

This study provided preliminary nodulation and nitrogen-fixing data on several native tree legume species in Hong Kong. Unfortunately, quantitative assessment of the nitrogen-fixing ability of these species was not conducted due to the lack of suitable equipment and time constraints. Future studies should include a more comprehensive survey on nodulation status of native legume species in the field. The rhizobia species associated with root nodules in these legumes may also identified. The nitrogen-fixing ability of the legume species should be assessed quantitatively, for example by acetylene-reduction assay or N-15 methods. Finally, the growth performances of the nitrogen-fixing legume species should be assessed by field planting trials. With these studies, suitable nitrogen fixing native legume species can then be selected for forest restoration on degraded land in Hong Kong.

Fig. 1. The six nodulating tree legume species from the KFBG nursery. The circled areas are root nodules. Young nodules are spherical in shape while mature nodules differentiate into variable shapes.



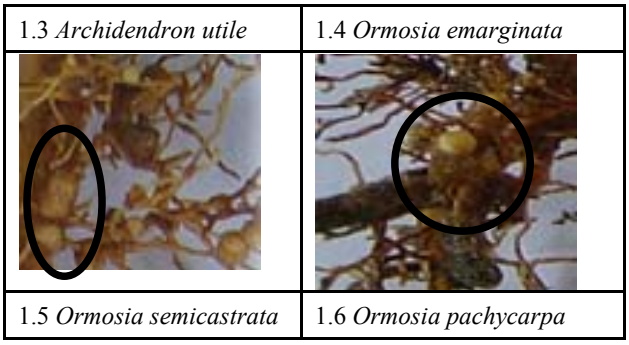
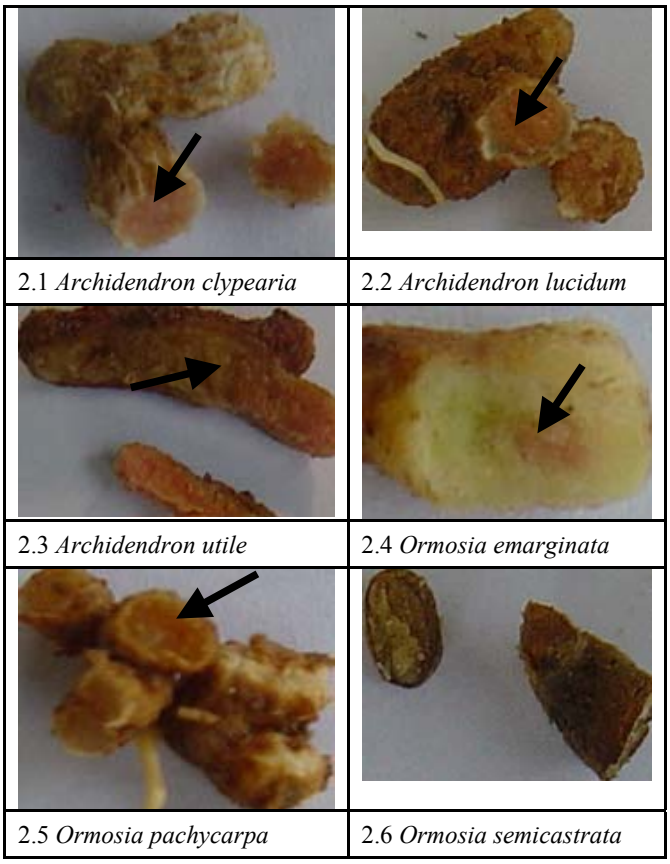


Fig. 2. Root nodules and their interior colours from the six native tree legume species from KFBG nursery. Pinkish to orange colour (Fig. 2.1 - 2.5, as indicated by arrows) indicates active nitrogen fixing nodules.



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SWIMS tidings....

SWIMS tidings……

This December saw SWIMS celebrate its first anniversary since its reopening in 2003. It has been a hectic, but productive, year, now documented in our Annual Report (available in PDF format from our website www.hku.hk/ecology/swims/index.htm). To celebrate this event, staff and students enjoyed an extended Christmas party at which Dr Jonathon Stillman (University of Hawaii) gave a talk on the thermal physiology of Porcelain crabs, followed by traditional party fare! There was also an informal showing of a recent Pearl Report, TVB programme which focused on marine conservation. This programme went on air in early December and featured the research and teaching of SWIMS staff and students. Many of the students made cameo appearances but the real stars were Valerie Ho and Karen Lui who gave very polished and professional performances, highlighting their research and the importance of marine conservation. The party was also a good opportunity for the new higher degree students, Wallace Choi, Allen To, Anna Situ, Vivienne Bao Wei Wei and Kevin Kwok to join the SWIMS team and move into the institute. In mid-December we welcomed Olivia Starck from Oldendorf in Germany, who has joined SWIMS to conduct her MSc project. It has also been good to welcome back Drs Liu Min and Wai Tak Cheung who both returned in October to undertake Post Doctoral research at SWIMS. Over December, members of staff and students also participated in the Marine Biological Association of Hong Kong's Annual Meeting; presenting their work at the Scientific meeting, and joining colleagues from other institutions for the dinner afterwards.

The most exciting development has been the launch of a new partnership with Ocean Park Conservation Foundation (OPCF) to establish a University Internship Programme. Students from SWIMS and our Environmental Life Science programme had the opportunity to apply for this programme which sponsors them to work for 7-10 days on OPCF projects in the SE Asia region. Mr Timothy Ng coordinated the OPCF programme and, together with staff from SWIMS, held an introductory seminar and then conducted interviews to select the candidates. Competition was intense and 6 students were finally chosen: SWIMS postgrads Wallace Choi, Anna Situ and Kevin Kwok, and Environmental Life Science undergraduates Heidi Lau, Karen Chan and Katy Ho. These students joined projects establishing a marine mammal stranding network in Cambodia and working on the conservation of the Irrawaddy dolphin population in the Mekong River. They were formally presented with their internships at Ocean Park's Conservation Day in January, officiated by Prof Paul Tam (Pro Vice Chancellor, Research) representing HKU, Prof Nora Tam (City University) as the Trustee Chair of OPCF and the OPCF Ambassador Andy Lau! We are extremely grateful to OPCF for establishing this unique opportunity for our students. These students are just returning from their trips and are giving seminars on their experiences which I am sure will excite and enthuse others to apply for the programme next year! (See photo below.)

Gray A. Williams
Hon. Director SWIMS

MISCELLANY

"Reef Check 2004" a big splash at Sharp Island

by Allen To and Anna Situ

Just a month after the Big Fish Count in late June, commenced another local marine event, Reef Check Hong Kong 2004. Reef Check was originally developed as a way to monitor coral reefs around the world. This event is now carried out in over 60 countries and territories (Reef Check, 2004). The aim of the present annual event is to raise public awareness on marine protection. It also helps gather important information about marine life such as abundance of certain indicator fish species (e.g. wrasses, groupers, sweetlips), invertebrate species (e.g. cucumbers, crabs) and percent coverage of coral communities, and their health. We two, teaming up with Kenny Leung, Polly, Kiwi, Wai Tak Cheung, Jasmine, Karen Lui and a few HKU graduates, who are also interested in marine life, joined the event. Long Ke was our survey site on 28 Aug.

When our boat arrived at Long Ke in the morning, we were surprised by the colour of the water. It was totally brown or even red in some areas! As Dr Leung suggested, dinoflagellates of the species *Prorocentrum micans* had spread to this area and formed the red tide. A very large area

of the water was invaded by the red tide. As you may guess, none of us dared get into the water. Having reported this red tide sighting, our team eventually decided to move over to Sharp Island. This surge of red tide later spread throughout eastern waters.

Fig. 1. Team-scientist Wai Tak Cheung explaining details of our survey (Photo: Wong Yuen-Yee).

We divided ourselves into different teams, each responsible for a specific category of marine life as mentioned before. The survey was carried out along a 100 m transect line laid near the coast. The heavy rain of the few days before our survey had increased the turbidity of the water thus reducing visibility and making our survey difficult. This, combined with the rough water on that day, disturbed our survey substantially. Luckily, we all came back safe without getting injured, although some of us got seasick and… threw up overboard. Despite the poor water visibility, we were still able to record certain indicator species. For instance, over 40 wrasses (mostly *Halichoeres* spp.) were recorded. Also encountered during the survey, as reported by our teammates, were a juvenile painted sweetlips (*Diagramma pictum*) and a grouper (possibly *Epinephelus coioides* or *E. bleekeri*). Other marine fauna such as Clark's anemonefish (*Amphiprion clarkii*) (Fig. 2), cornetfish (*Fistularia commersonii*), cuttlefish eggs (Fig. 3), various kinds of starfish and cucumbers were also observed.

Although the Hong Kong government has made an effort to promote marine conservation and protection, for instance through the Big Fish Count and Reef Check, it is not uncommon to hear news about people stepping on corals, stealing corals and catching fish for aquaria. We saw signs of coral bleaching and damage during the Reef Check survey. The increasing frequency of red tides also deserves more attention. It is obvious that marine conservation entails long-term work, much more has to be done and learnt not only by the government, but also by the general public.

Fig. 2. The anemonefish, *Amphiprion clarkii* (Photo: Wong Yuen-Yee).

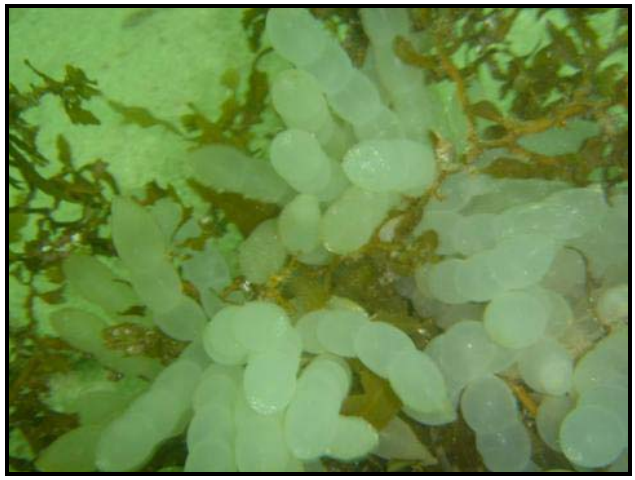

Fig. 3. Cuttlefish eggs observed during the survey (Photo: Wong Yuen-Yee).

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The Environmental Life Science Society

by Executive Committee, Environmental Life Science Society

The Environmental Life Science Society, SS, HKU Student Union, was established on the 2 March, 2005. A good start is half the way to success! No doubt the challenges of running a new society are overwhelming, but we, the executive committee, are determined to do our best to build a concrete foundation for our society and to work with sincerity and dedication.

The mission of the Environmental Life Science Society is focused on communication and promotion of the study of Environmental Life Science within the University. This year, our aims are in tune with our mission as a whole, that is, to foster the relationship between our society's members, and to raise the interest of students within the University in studying Environmental Life Science. In order to achieve these aims, we are going to organize different types of activities, such as "Capture the Wildlife" (Wildlife Photography Competition), in which all members within the University have the opportunity to experience the beauty of nature. This will be followed by the Super Pass Dinner in late April, which offers a valuable chance for our members to foster their relationships with one another. In August, there will once again be new students joining us. Therefore, through the Information Day and Orientation Series, we sincerely hope that they can meet and get to know each other in a friendly atmosphere.

Throughout this year, our electronic magazine, *Succession*, will be published every two months. The content of this magazine will include a review of our activities, upcoming events, interviews with Hong Kong environmentalists and comments from our members. Moreover, we will bring some current environmental issues to our members' attention.

We would like to give our heart-felt thanks for your support and to all those who have contributed to the establishment of our new society. We will continue to treasure your views and support. We look forward to seeing you in our activities!

Birdbrains in the Big Bird Race 2005

by Billy Hau

The Big Bird Race 2005 was held from 17.00 h on Friday 11 March 2005 to 17.00 h of the next day. Once again, I was honoured to be the leader of the DEB team – Swire Birdbrains. Team members included Yu Yat Tung (DEB BSc and MPhil graduate); Aidia Chan, Fion Cheung and Jackie Wang (DEB MPhil students); and Polly Chick, Vicky Yeung and Law King Wai (DEB graduates). Hit by a cool front during the race, temperature went below 10 degrees in the New Territories and it was raining most of the time. We were all soaking wet at the end of the race. Despite the appalling weather, the race was fun and we had a good start at Tsim Bei Tsui on Saturday with 45 species in less than two hours. However, our luck began to fall with the sunlight – we failed to get any owls! We arrived at the Kowloon Hill water catchment at 5.30 am the next morning looking for our bird of the day – the Forest Wagtail. We got 17 woodland birds there and, just before we gave up on the Forest Wagtail and were preparing move on to Tai Po Kau, I spotted one Forest Wagtail foraging down at the water catchment. Unlike other wagtails, in which the tail flips up and down while walking, the Forest Wagtail's tail swings horizontally. Our luck fell again at Tai Po Kau when the rain became stronger. We missed many of the "must see" species, such as the minivets, despite our strong determination in the rain. The rest of the day was depressing. We only managed to get 122 species which made us the 9th amongst the 13 teams. The winning team had 145 species. However, we did very well this year in fund-raising. Birdbrains (see photo below) raised nearly 20,000 dollars on top of the corporate sponsorship from Swire. I must thank David for agreeing to send the pledge forms out to colleagues in HKU under his capacity as the Head of Department. It surely worked! With the help of the HK Bird-Watching Society, I am currently running a bird-watching course for around 30 year 1 and 2 Environmental Life Science students and hope that some of them will form the Birdbrains Team in 2006.

Rocky shore envy: observations *vs.* experiments in ecological research

by Richard T. Corlett

Most scientific research involves manipulative experiments in which the investigator assigns treatments to groups of whatever is being studied. In ecology, the treatments are things like the exclusion of predators, the addition of nutrients, or the artificial pollination of flowers. Normally the treatments are assigned randomly to each experimental unit: for example, one could flip a coin to decide if a particular plant (or vegetation plot) is to be fertilized (or cut or burned) or not. The advantage of such a randomized experiment is that we can be sure that the differences between the groups are either the result of the treatment or a result of chance, and standard statistics are very good at telling us which of these is most likely.

Randomized experiments are relatively easy to do when the relevant spatial and time scales are small, but are much more difficult when we are looking at processes that happen on very large spatial scales or over very long time periods. In such cases we are often forced to rely on observational studies or so-called "natural experiments", where we take advantage of natural variation in the factor of interest (e.g. soil fertility). These studies produce data that looks *exactly the same* as the data produced by randomized manipulative experiments, so it is therefore tempting to analyze and interpret it in exactly the same way. However, with observational studies - including

natural experiments - the units are already in treatment groups and the investigator has no control over this. An example would be comparing plant growth on naturally nutrient-rich and nutrient-poor sites.

Fig. 1. Setting up controlled study on a rocky shore.

The problem with this approach is that the differences between groups could be the result of the treatment or of chance – as in a randomized experiment - or the result of some other confounding variable. With our plant growth example, for instance, any observed differences could be the result of other, unmeasured, ways in which naturally nutrient-rich and nutrient-poor soils differ, such as aeration or drainage. The possibility that the observed differences between groups are not the result of the variable of interest means that we cannot use observational studies alone to establish a causal connection. Our plants may grow faster on the nutrient-rich soil because it also has a better water supply. In contrast, in a randomized manipulative study we would assign the nutrient treatment at random to our plants so, even if water supply varied betweens sites, the fertilized and unfertilized plants would have an equal chance of being on a site with a good water supply. (Note, however, that confounding variables can be a problem in randomized experiments if they are an unintended consequence of the treatment: for example the increase in humidity that results from bagging flowers to exclude pollinators.)

Another alternative, which at first sight blurs the distinction between experimental and observational studies, is to make use of "unplanned experiments", i.e. manipulations carried out by people for reasons that have nothing to do with ecological research. If we want to look at the long-term impacts of rainforest fragmentation, for example, we can find fragments that have already been isolated for decades, which is a lot easier than creating new fragments and waiting for decades to see what happens. Comparisons between channelized and natural streams or polluted and unpolluted lakes are other examples of this approach. Unfortunately, such studies are no different from the observational studies discussed above unless we have good reason to assume that the "treatments" were applied randomly. In the great majority of cases this assumption is unlikely to be true. Human impacts, such as rainforest fragmentation, stream channelization, pollution and hill fires, do not occur at random, so there will almost always be confounding variables in comparisons with unaltered sites.

None of this will be news to rocky shore ecologists, for whom the random assignment of treatments is second nature. If a rocky shore ecologist holds a dinner party, the seats are positioned at random coordinates, the guests are seated randomly, and meals are then assigned to them randomly. Terrestrial ecologists, in contrast, sit with their friends and eat what they like – a hopelessly confounded design. But – seriously – if only fully replicated and randomized manipulative experiments are allowed, then terrestrial ecology would be limited to the small spatial scales (centimeters to metres) and time scales (days or weeks) that characterize most research on rocky shores. The great majority of interesting terrestrial phenomena - with spatial scales of kilometers or more and time scales of decades or centuries - would be forever beyond our reach.

The answer is not to abandon observational studies but to lower our expectations of statistics. We cannot avoid using (un)natural (non)experiments when looking at large spatial and time scales - the scales that are often most relevant to conservation problems - but we have to realize their limitations. With a fully replicated and randomized manipulative experiment, confidence in the conclusions is based largely on the results of the statistical analysis – the effect size and p-value. This can never be true for observational studies, including natural and unplanned experiments. In these cases, confidence in the conclusions depends at least as much on the additional information (usually from additional studies or the literature) that allows us to separate the effects of interest from the influence of possible confounding variables. The results will never look as neat as they would be if we simply pretended that we had done an experiment, but they will be nearer the truth. It should also be noted that, while ecologists are typically most interested in the causes of differences, in many practical applications of ecological research (e.g. conservation, forestry and fisheries) the magnitude of the difference is more important than its precise cause. Foresters, for instance, want to know where their trees will grow best, while teasing apart the various factors responsible for differences in growth has a lower priority.

Fig. 2. Experimental units on intertidal area.

I will end by touching on another issue, that of the independence or non-independence of the replicates, because it interacts with the problems discussed above. Most statistical tests require that replicates are independent of one another:

that is, they require that what happens to one replicate is not influenced by what happens to the others. In practice, independence can usually be ensured in ecological experiments by separating the replicates by enough space (or, in some cases, enough time) so that they are unlikely to affect each other. Non-independence is less likely to be a problem with randomized experiments, because the spacing between replicates will be variable and so less likely to consistently bias the results in one direction. Non-independence can, however, be a huge problem with non-randomized or non-experimental studies, particularly if we either do not know how much separation is enough or – and this is very common in terrestrial ecology – adequate separation is impractical. As part of his PhD study, Kwok Hon Kai compared the bird communities in a natural secondary forest and an exotic plantation. He sampled birds at four points in each forest type, but the points in each type were inside the same forest patch and only 80 metres apart. Clearly these points are not independent and cannot be considered as true replicates. He therefore published the study without any statistical comparison between the forest types, but with additional information from other studies about the ecology of the bird species for which densities differed between forest types (Kwok & Corlett, 2000). The alternative would have been to leave this important question unstudied, since there are not enough similar forest patches in Hong Kong for truly independent replicates and, even if there were, it would be logistically impossible to visit widely separated sites the sixty or more times needed to get an adequate estimate of bird densities.

To summarize: randomized experiments with independent replicates allow you to make full use of the power of statistics to separate the effects of the treatment from chance variation. Observational studies – including natural and unplanned experiments – are more difficult to analyze, since additional information is needed to account for the effects of confounding variables. Careful sampling design and the use of multivariate methods can mitigate, but never eliminate, this problem. Known confounding variables can be measured and accounted for statistically, but situations in which all potential confounding variables are known and can be measured are rare in ecology, if they occur at all. However, observational studies are the only realistic way of investigating a whole host of interesting ecological questions, including most of those of practical importance. We need more and better observational studies in ecology, but we must not pretend that they are experiments.

Bibliography and further reading

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Kadoorie Farm & Botanic Garden - Wildlife Updates & Sightings

by Gary Ades, Roger Kendrick, Paul Crow, Amanda Haig & Louis Cheung

Wildlife recording, surveys and rehabilitation at Kadoorie Farm & Botanic Garden (KFBG) have produced a number of interesting and unusual records since May 2004. In this report, KFBG Fauna staff provide some of the highlights of their findings.

General wildlife sightings are posted on the KFBG Wildlife Sightings Board on a fortnightly basis, with records provided by staff and visitors. Many records are generated by the Security team on night shifts.

(1) The following notable sighting records from Kwun Yum Shan (KYS) were posted between May 2004 and January 2005:

May 2004

9 May, Masked Palm Civet near Twin Pavilion.

13 May, two Barking Deer at Sign Post Corner.

16 May, three Fruit Bats at Administrative Office.

21 May, two Malayan Porcupines near Upper Canteen.

26 May, Wild Boar at Magnolia Falls.

July 04

28 July, two Velvet Fronted Nuthatch outside Conservation Building.

31July, Himalayan Leaf-nosed Bat, Chestnut Spiny Rat, HK Newt & Fireflies at Magnolia Reservoir; Collared Scops Owl calling at Post Office Pillars & Misha's Bungalow.

August 04

24 August, Birdwing Butterfly at Reception & Conservation Bldg; Indian Fritillary at Amenities Bldg; Tawny Rajah at Upper Canteen.

28 August, Malayan Porcupine at TS Woo Memorial Pavilion; Green Cascade Frog seen below Apiary; Chinese Cobra near Rainbow Pavilion.

September 04

5 September, Leopard Cat, Ferret Badger at West Prospect & Kwun Yum Shan.

7 September, Birdwing Butterfly at Organic Terrace.

8 September, Birdwing Butterflies at Butterfly Garden.

13 September, Anderson's Stream Snake & Big Headed Turtle above Magnolia Reservoir.

15 September, Eurasian Woodcock near Post Office Pillars.

17 September, Wild Boar at Bridge by Convent Garden; Dollarbird at Butterfly Garden.

19 September, Black-naped Oriole at T.S.Wu Pavilion; Striated Heron at Magnolia Falls.

21 September, two Barking Deer below Upper Canteen.

24 September, Rhesus Macaque near Orchid Haven.

26 September, Bonelli's Eagle flying near Kwun Yum Shan.

28 September, Wild Boar with five Piglets at KARC Road.

October 04

6 October, Lanceolated Warbler near Main Gate; King Cobra beside Conservation Building.

11 October, Great Barbet below the summit of Kwun Yum Shan; Emerald Dove near Conservation Building.

16 October, King Cobra near no 3 Reservoir; Barking Deer on the slope opposite signpost corner; Malayan Porcupine between Upper Canteen & Post Office Pillars.

18 October, Malayan Porcupine nearby Magnolia Reservoir.

23 October, Mountain Water Snake near Great Falls.

26 October, Juvenile Malayan Porcupine near Misha's Bungalow.

29 & 30 October, three Malayan Porcupine between Fern Walk & Butterfly Garden.

30 October, Fire Flies (50~100) main stream between Fern Walk & Convent Garden.

November 04

1 November, Chinese Cobra at Lower Farm Bridge.

4 November, Barking Deer at Post Office Pillars.

11 November, Pallas' Squirrel near Wild Boar Enclosure.

13 November, Malayan Porcupine at Misha's Bungalow.

17 November, three HK Newts at Lotus Pond.

23 November, Glassy Tiger, Common Indian Crow, Staff Sergeant, Common Grass yellow, Indian Cabbage White, Painted Jezebel & Chinese Peacock (Butterflies) at Lower Farm.

27 November, two Malayan Porcupines at Orchid Haven.

January 05

10 January, Chestnut-bellied Rock Thrush *Monticola rufiventris* at Conservation Bldg (present to at least 20 Feb);
29th Golden Emperor Moth at Butterfly Garden; *Athetis bispurca* (HK endemic moth) at Misha's & Butterfly Garden; Malayan Porcupine at Upper Canteen; Barking Deer at Great Falls; Collared Scops Owl at Orchid Haven.

February 05

15 February, Mountain Pit Viper near Fern Walk - at 11.30 am KFBG Fauna volunteers Kris Watson and Ben Seebohm, conducting routine turtle survey work, came across the Farm's third known record of a Mountain Pit Viper. It was out in daylight when the air temperature was only 18°C. It was at a fairly low altitude (~350m a.s.l.) with the animal being discovered along the stream course in the area of Fern walk.

26 February, three Malayan Porcupine between Upper Canteen and Post Office Pillars, and one more by the Raptor Sanctury.

Fig. 1. Mountain Pit Viper at KFBG's Fern Walk, 15 Feb. 2005. (Photo: Kris Watson)

(2) Fauna Conservation Department Project News:

The monthly moth survey [RK] has continued unabated. Between July 2004 and December 2004 a rather low total of 492 species was recorded. Results from 29 January 2005 have not been fully processed yet. None the less, a good night's

recording yielded an estimated 150 species, including: *Biston marginata* (Geometridae, Ennominae), new to Hong Kong; the second Hong Kong record of *Acrodontis hunana* (Geometridae, Ennominae), the third HK record of *Sugitania lepida* (Noctuidae, Cuculliinae) and the first record since 1998 of *Athetis bispurca* Galsworthy, 1997 (Noctuidae, Hadeninae), a species endemic to Hong Kong and only previously recorded from Kadoorie Agricultural Research Centre and once each from KFBG and Shan Liu Road, Plover Cove. The species reported in the last *Porcupine!* (Ades *et al*., 2004) as new to Hong Kong, *Tirathaba ruptilinea*, was a mis-identification of *Tirathaba mundella* Walker, 1864 (M.J. Sterling, pers. comm.).

Romer's Tree Frog [LC]
The monthly nocturnal survey on KFBG's hillside continues. From March to October 2003, a total of 513 tadpoles were counted in the different breeding pots. But from June to September 2004, only 68 tadpoles were spotted. In addition, there were no eggs found in the 2004 surveys but the presence of tadpoles showed breeding activity is still happening. Most breeding pots and the habitats around were found to have naturally dried out by September 2004; one artificial breeding pot was found totally dried out in July 2004. July was the peak breeding time in 2003, and in September 2003 male frogs were still actively calling next to the breeding pots for courtship. But in September 2004, we couldn't spot any adult frogs or hear any calls. Long periods of low rainfall from July may explain why there was so little activity later in the wet season.

Unfortunately, several breeding pots were found upside down in July, possibly because someone thought the pots were utilised by mosquito larvae that might spread Dengue Fever. (The Hong Kong Government started promoting the prevention programme on mosquito to prevent the spread of the fever during that period). The human disturbance and low rainfall during the breeding season may have contributed to the lower number of offspring observed in 2004.

(3) Wild Animal Rescue Centre (WARC) – update

The last eight months saw a decrease in the overall number of birds received at the WARC. This is a first since the set-up of the centre in 1994. It is suspected the generally 'mild' favourable weather this year (to early February) is a contributing factor.

However, as usual, we have been busy with a number of reptile related issues including confiscations, relocation & captive breeding.

The famous Yuen Long Crocodile, "Pui Pui", finished her quarantine and was moved to the large outdoor enclosure, where her anxious public could see her. She has since returned to her warm indoor environment to wait out the cold weather.

In late April 2004, 851 head of mixed species including Black Marsh Turtle (*Siebenrockiella crassicollis*), Malaysian Giant Turtle (*Orlitia borneensis*) & Malayan Flat-shelled Turtle (*Notochelys platynota*) were confiscated and received at the WARC. In mid October, 360 head of Fly River turtle (*Carettochelys insulpta*) were received.

Animal rehoming to organisations involved in captive breeding & conservation projects for those species included:

110 confiscated turtles sent to the Turtle Survival Alliance (TSA) USA & Europe collections.

201 Fly River Turtles (*Carettochelys insulpta*) were returned to their range country to Taman Akuarium, Indonesia.

2 African Spur Tortoises (*Geochelone sulcata*) and 1 Aldabra Tortoise (*Geochelone gigantea*) were sent to Singapore Zoological Garden for education and conservation purposes.

Captive breeding of the Three Banded Box Terrapin (*Cuora trifasciata*) & Vietnamese Leaf Turtle (*Mauremys annamensis*) continues. The chelonian conservation project achieved a major landmark on the 27 October, when the first ever *Cuora trifasciata* of wild HK parentage hatched.

Fig. 2. The first ever *Cuora trifasciata* of wild HK parentage successfully hatched in captivity. (Photo: Paul Crow)

Below is a list of some of the animals received since May 2004 that have been successfully rehabilitated and subsequently released.

SPECIES	LOCATION FOUND	RELEASE DATE	RELEASE LOCATION
RAPTORS			
Collared Scops Owl (*Otus lempiji*)	Chai Wan	08.06.04	KFBG
Black-eared Kite (*Milvus migrans*)	Victoria Harbour	18.06.04	KFBG
Black-eared Kite (*Milvus migrans*)	North Point	18.06.04	KFBG
Black-eared Kite (*Milvus migrans*)		12.07.04	KFBG
Crested Goshawk *(Accipiter trivirgatus)*	Tai Po Road	03.08.04	Tai Po Road
Crested Goshawk	Tai Hang Road	05.08.04	Tai Po Road

(Accipiter trivirgatus)			
Crested Goshawk *(Accipiter trivirgatus)*	Stanley	09.08.04	Tai Po Road
Black-eared Kite (*Milvus migrans*)		07.09.04	KFBG
Oriental Scops Owl *(Otus sunia)*	Mong Kok	04.11.04	
Brown Hawk Owl *(Ninox scutulata)*	Lai King	04.11.04	
Crested Goshawk *(Accipiter trivirgatus)*	Fortress Hill	09.11.04	
Collared Scops Owl (*Otus lempiji*)	Tai Po	13.11.04	KFBG
Black-eared Kite (*Milvus migrans*)	Tsim Sha Tsui	25.11.04	Sheung Shui
Asian Barred Owlet *(Glaucidium cuculoides)* x 2		06.12.04	KFBG
Collared Scops Owl (*Otus lempiji*)	Repulse Bay	08.12.04	Tai Po Kau
Common Buzzard *(Buteo buteo)*	Stubbs Road	21.01.05	Mai Po
OTHER BIRDS			
Emerald Dove *(Chalcophaps indica)*	KFBG	05.06.04	KFBG
Greater Coucal *(Centropus sinensis)*	Tin Shui Wai	20.08.04	Kam Tin
Little Egret *(Egretta garzetta)*	Sha Tin	13.09.04	Mai Po
Woodcock *(Scolopax rusticola)*	Pok Fu Lam	29.10.04	KFBG
Banded Rail *(Gallirallus striatus)*	Ho Man Tin	29.10.04	Mai Po
Chinese Pond Heron *(Ardeola bacchus)*	Admiralty	05.11.04	Lam Tsuen
Emerald Dove *(Chalcophaps indica)*	Mei Foo	05.11.04	KFBG
Little Swift *(Apus affinis)*	Fanling	23.11.04	KFBG
Blackbird *(Turdus merula)*	Tai Po Road	03.12.04	Tai Po Road
Savanna Nightjar *(Caprimulgus affinis)*	Sheung Shui	08.12.04	Kam Tin
Olive Backed Pipit *(Anthus hodgsoni)*	KFBG	14.01.05	KFBG
MAMMALS			
Noctule Bat *(Nyctalus noctula)*	KFBG	07.06.04	KFBG
Japanese Pipistrelle Bat *(Pipistrellus abramus)*	Mong Kok	12.06.04	KFBG
Malayan Porcupine *(Hystrix brachyura)*	Shek O	17.11.04	KFBG
Wrinkle Lipped Free Tailed Bat *(Chaerephon plicata)*	Ma On Shan	08.12.04	KFBG
Wrinkle Lipped Free Tailed Bat *(Chaerephon plicata)*		10.12.04	KFBG

(4) Feral Dogs & Native Wildlife – further news

On 3rd February 2005 a 17.1 kg female adult barking deer was found dead at KFBG Apiary. Approximately 70% of tissue was missing from the rear legs. The deer was not pregnant. It had a severe eye ulcer, which may have been part of the reason it was caught in the first place. There was a resting site in the open nearby, with half eaten mandarin orange. There was blood around the resting site and the deer was 2-3 meters away. It appears the deer was weak, possibly suffering and unable to choose a good resting site, with fatal consequences. The style of attack and flesh removal is similar to the previously recorded instances of feral dogs killing barking deer at KFBG (Ades *et al*., 2004). A flesh sample was taken from the deer and stored for future DNA work.

A stomach content analysis revealed the deer had been feeding on Farm produce – macadamia nuts and mandarins. There were also ferns in the stomach contents.

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Fig. 3. Barking deer carcass from feral dog kill at KFBG's Apiary, 3 Feb. 2005.

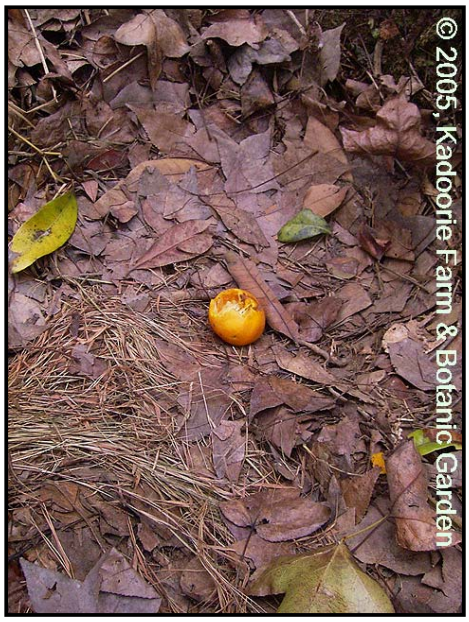
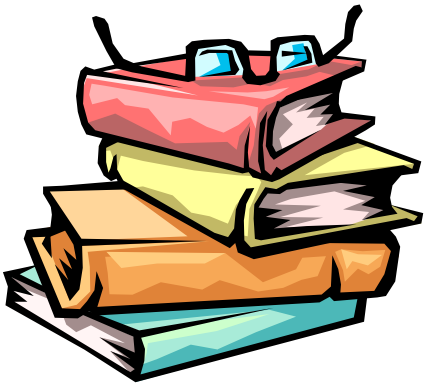


Fig. 4. Deer's resting site, with food item,

Fig. 5. Severe ulcer in eye – a possible reason why this animal was predated. (Photos: Paul Crow)



BOOK REVIEWS

Field Guide to the Dragonflies of Hong Kong 2nd Edition

by Keith D.P. Wilson, 383 pages, softcover. Cosmos Books Ltd, Hong Kong, 2004

The first edition of this landmark field guide, which appeared in the shops late last year, went completely unremarked in *Porcupine!* That is unfortunate, since this book, now in its second edition, has set a new standard for field guides of the local fauna.

The author, Keith Wilson, worked in Hong Kong for the Agriculture, Conservation and Fisheries Department from 1991 until 2003, and it is under the auspices of AFCD that this fine field guide has been published. The book was written in collaboration with AFCD's Dragonfly Working Group, whose survey work has resulted in four new species records for Hong Kong, including one undescribed gomphid, since its establishment in 2001. However, no-one should be under any doubt that this book is first and foremost the result of one man's efforts.

Wilson's first book on the subject (*Hong Kong Dragonflies*) was published in 1995 and listed 102 species for the territory. It was a truly ground-breaking work, with no local antecedents, but its large, floppy landscape format, coupled with the fact that species descriptions rarely appeared on the same page as their photographs, made it confoundedly unwieldy, and hopeless as a field guide. This was followed in 2002 by the mystifyingly pointless *Hong Kong Flying Colour: Dragonflies* booklet - another AFCD collaboration (and I beseech them not to repeat it) - which contained photographs of most Hong Kong species, but no text. The peril of producing this kind of anti-information, with no clues on habitat associations or diagnostic features of particular species, was brought sharply into relief for me when I reviewed the results of a dragonfly survey conducted in a disturbed lowland pond and marsh mosaic by an environmental consultant who had made his identifications from the photographs in *Flying Colour*: many dragonflies look superficially similar, and the hapless consultant had included several stream specialists and many other highly

improbable species in his impressive-looking but tragically-flawed list.

Fortunately, such calamitous failures of identification should now be a thing of the past, as anybody armed with *Field Guide to the Dragonflies of Hong Kong*, and a good dose of common sense, ought to be capable of making a decent fist of putting a name to most dragonflies they encounter in Hong Kong. An impressive total of 112 species has now been recorded in the SAR, and all of them are illustrated in this 2nd edition. Good, clear photographs of adult males and females are provided in most cases, along with useful information on distinguishing features, biometrics, habitat and distribution. This information is backed up with excellent, user-friendly keys to adults at sub-order, family, genus and species levels. There is also a handy pull-out photo index, a check-list, and a section on additional species which could be expected to occur locally. The layout is compact and attractive. Best of all, it fits easily into a field bag. One could wish for a more robust, hard-back production, and a less cursory treatment of the larvae, but otherwise this has all that one might reasonably ask of a field guide to adult dragonflies.

Graham Reels

Hong Kong Butterflies

by Philip Yik-fui Lo and Wing-leung Hui, 571 pages, softcover. Cosmos Books Ltd, Hong Kong, 2004.

In terms of the amount that has been written about them, Hong Kong butterflies are right up there with the birds. Certainly, no other insect group has received anything remotely approaching the attention that has been given to this small component of the Lepidoptera. I can think of at least ten books on the subject over the past four decades, including such major texts as Marsh's *Hong Kong Butterflies* (1968), Johnston & Johnston's *This is Hong Kong: Butterflies* (1980), Young & Yiu's *Butterfly Watching in Hong Kong* (2002) and, of course, the magnificent (and unrivalled) *The Butterflies of Hong Kong* by Bascombe, Johnston and Bascombe (1999). So the authors of *Hong Kong Butterflies* have built their attractive and impressive guide on a well-established foundation, and certainly could not have produced such a comprehensive text without the work of their accomplished predecessors.

Sadly, you would not know this from reading the book, which somehow manages to give the impression that the serious study of butterflies in Hong Kong began when AFCD belatedly took an interest in them in 2001 (there is a limited bibliography, but I could not find a single citation in the text outside of the brief sections on vagrants and suspected species). This failure to give due credit is perplexing. Some rather spurious "firsts" are claimed for the book on the back cover ("first butterfly guidebook in Hong Kong complete with information on 238 local species"; never-before-published species photographs) but in truth only one "first" can plausibly be claimed: Lo and Hui's *Hong Kong Butterflies* is the first major local text on this attractive group of insects to be published in field guide format.

This fact alone ought, one would think, to represent a significant step forward for the active study of butterflies in Hong Kong. Unfortunately, however, it is more a case of one step forward, two steps back. Information on larval food plants for the vast majority of Hong Kong species was provided by Bascombe *et al.*, while the local status and known flight periods of more than 230 butterfly species were given by Young & Yiu (who in turn were building on the work of George Walthew in the 1990s). Such readily-accessible information would have added immeasurably to the value of any butterfly field guide, but the authors of *Hong Kong Butterflies* appear to have ignored these rich sources of knowledge. Instead we have terse family-level generalisations for larval food plants, and a bizarre "status" system tucked away in the check-list at the back of the book, in which the vast majority of local butterflies, irrespective of their rarity or otherwise, are classified as "General Species", whatever that means. And there are no keys.

As for the information on local distribution of the Hong Kong species (another invaluable quality for a good field guide), one would again be better off turning to previous texts. Lo and Hui have a curiously myopic vision of Hong Kong, whereby the commonest (indeed, almost the only) geographical unit is the Country Park. Thus, if you wish to see common fare, such as Lesser Grass Blue, you can take heart from the fact that it is distributed in "Most Country Parks." If, however, you have a yearning to see the tiny Pigmy Scrub Hopper, you are advised to go to Sai Kung West or Plover Cove. Couldn't be simpler, could it? Except for the fact that many of the best butterfly sites in Hong Kong are not actually in Country Parks. Perhaps AFCD prefer not to let that particular cat out of the bag.

In spite of all this carping, I rather like this book. Although the authors have perversely contrived to prevent it from being the perfect field guide package, to have put together such a complete set of very high quality species photographs in such a short period of time is nothing less than remarkable, even with a large number of AFCD staff involved. The combination of live field photographs and set specimen photographs works very well indeed, and this is certainly one area in which *Hong Kong Butterflies* outdoes Young & Yiu's *Butterfly Watching in Hong Kong* (in which there are no specimen photographs, and many of the live photographs are of rather poor quality). Limited biometric information is provided for each species, along with useful pointers as to habitat and diagnostic features. Larvae are illustrated for many species. As with its companion, *Field Guide to the Dragonflies of Hong Kong*, the book is compact, easy to use and almost ridiculously inexpensive.

I particularly like the book because of the choice of photograph on the back cover. Whether or not this is the first "published" live photograph of the rare endemic Beggar's Ace skipper (and I suspect the Hong Kong Lepidopterist's Society might have something to say about that), this fabulous butterfly was, ahem, first discovered by me.

Graham Reels

The Ecology and Biodiversity of Hong Kong

by David Dudgeon and Richard Corlett, 336 pages, softcover. Joint Publishing (HK) Ltd., Hong Kong, 2004

Don't be fooled by the title. This book is in fact *Hills and Streams Mk 2: New Improved Formula*. It has been published in collaboration with AFCD (what's come over AFCD these days? They are scattering new books around like confetti) but is still authored by the same two academics – Hong Kong's most distinguished terrestrial ecologists – who wrote the original.

Hills and Streams: An Ecology of Hong Kong was published in 1994 by Hong Kong University Press, and ran to some 234 pages. That this revised edition is some hundred pages longer is testimony to the vast amount of new information on Hong Kong's terrestrial ecology that has become available in the ensuing decade (although it is also testimony to the fact that there are a lot more photographs in the new book). It is no coincidence that the Department of Ecology & Biodiversity of Hong Kong University, where the authors are based, is also ten years old this year.

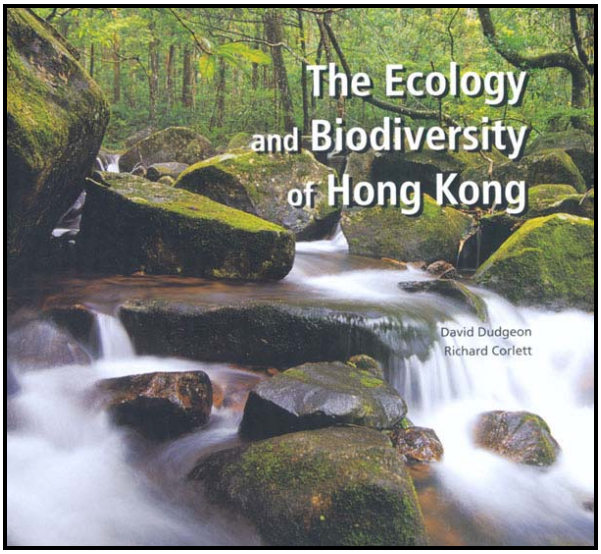
The book is essentially structured in the manner of its predecessor, with the rather significant addition of a chapter on biodiversity (another proof of the rapid expansion of our knowledge base since 1994), and takes the reader, through a series of logical chapter progressions, to an elegant synthesis of the current state of published knowledge on the territory's ecology and biodiversity. It should be essential reading for all undergraduate and graduate students in the DEB, and indeed for anybody who is interested in the natural history of Hong Kong. There certainly isn't any comparable text to which the student or lay person can turn.

Naturally enough, in a book of such sweeping scope, the approach has to be selective to some extent, and there are no doubt omissions of fact or subject matter which will frustrate some readers. My own main gripe is with the chapters on Biogeography and Seasonality. The authors exercise themselves quite strenuously in establishing that Hong Kong is tropical, whilst stating that "The real questions are: how does the biota of Hong Kong differ from that of land areas to the north and south, and what accounts for these differences?" These are certainly very interesting questions, but the authors could have answered them far more illuminatingly than they have done. For example, much information is given on seasonality and breeding of animals in Hong Kong, but little attempt is made to put this into perspective by discussing how such patterns differ in well-studied areas, having partial species overlap with Hong Kong, to the north and south of here (e.g. warm temperate Japan and equatorial Singapore). I would like to have seen a more concerted and detailed effort to place Hong Kong in its regional biogeographical context.

I have one or two other minor quibbles - there is not enough about upland grassland and shrubland (surely the most extensive terrestrial habitat in Hong Kong); the authors' brief remarks on this major habitat are largely restricted to a discussion of the effects of hill fires. And I am mystified by the comparison with the British Isles, which is made on more than one occasion in the chapter on Biodiversity. Comparison with a remote archipelago in northwest Europe, having a depauperate post-glacial fauna, may occur naturally to the two authors, both of whom have British origins, but is obscure, arbitrary and, frankly, irrelevant for anyone from Hong Kong.

It is easy, and perhaps rather trivial, to nit-pick in this manner. The bottom line is that this is an immensely valuable book, into which much thought and research endeavour has been poured, and which we should be grateful to be able to put on our bookshelves.

Graham Reels



WILD CORNER

Any sightings of civets, mongooses, ferret badgers, leopard cats, barking deer, pangolins and porcupines – live or dead – should be reported. Rare birds, reptiles, amphibians and fishes, or unusual behaviour by common species, are also of interest, as are rare or interesting invertebrates and plants. If you think it is interesting, our readers probably will! Please give dates, times and localities as accurately as possible

Mammals

David Cox saw a **Mongoose** (*Herpestes* sp.) at the junction of Stubbs Road and Magazine Gap Road on 18 May 2004 about 9 pm.

Two **Wild Boars** (*Sus scrofa*) (one adult and one juvenile) were seen by Eric Chan in Shing Mun Country Park (near Lead Mine Pass) at around 6.30 pm on 24 February 2005. They rushed into the vegetation after being sighted.

Fion Cheung and Alan To found a family of **Wild Boars** (*Sus scrofa*) (two adults and three juveniles) in Luk Keng marsh in the morning on 8 March 2005.

Three **Masked Palm Civet** (*Paguma larvata*) were seen at Tai Lo Shan on 23 October 2004 around 3.30 am by Samson So.

On 25 January 2005 at around 8.45 pm, Fiona Somerville saw a pair of **Porcupines** (*Hystrix brachyura*) on the Peak less then 500 m along Lugard Road from the Peak tram. One porcupine was spotted about 2 metre away and she observed it for about a minute as it didn't seem eager to get away, while the other one was about 5 metre away.

Tom and Ed Glenwright saw a **Javan Mongoose** (*Herpestes javanicus*) run across the road leading to Mai Po nature reserve at 2 pm on 1 October 2004.

A dead **Ferret Badger** (*Melogale moschata*) was found lying in a shallow pool of blood on Mt. Nicholson Road on 7 November 2004 by Barry Bousfield. It had probably been hit by a car during the night before and was about 40 cm long and weighed about 1 kg. The dead animal was removed from the road and placed in the undergrowth nearby.

On 1 November 2004 morning at 8 am, Sally Bunker found the body of a **Masked Palm Civet** (*Paguma larvata*) at Nam Shan on Lantau. The animal appeared to have a neck injury. It was a young female with nose to tip of tail around 46 cm, and shoulder to end of body 24 cm.

While walking up the Cheung Sheung trail, above Yung Shue O, Sai Kung at 5.30 pm on 26 October 2004, Ian Cowieson disturbed a beautiful adult **Barking Deer** (*Muntiacus* sp.) that had been feeding in an open grassy area, just on the edge of the forest. The deer ran off along the tree line for 100-odd metres before taking shelter among some trees.

Two sightings of wild mammals were made by Andrew Malone near HKU campus. He spotted a **Porcupine** (*Hystrix brachyura*) in early October 2004 on Hatton Road just above the fire station, and a **Masked Palm Civet** (*Paguma larvata*) was spotted climbing trees adjacent to the single storey building, at the south side of the Main Library on 18 October at 9.45 pm.

Ian Cowieson found an injured **Porcupine** (*Hystrix brachyura*) in a car park of Shan Liu Village, Sai Kung on the evening of 7 October 2004. It was quite badly injured on its right hand side, and had probably been hit by a car. It was still quite mobile but obviously fairly seriously injured, as it stayed in the vicinity of the car park for about one hour.

Michael Lau saw a group of three **Rhesus Macaque** in the feng shui wood of Sheung Yeung Village, Clear Water Bay from 26 January to 12 February 2005.

Birds

Kwok Hon Kai saw 21 **Striated Yuhinas** (*Yuhina castaniceps*) in Tai Po Kau on 19 February 2005.

On 9 October 2004, Kwok Hon Kai saw a cat holding a juvenile **Lanceolated Warbler** *Locustella lanceolata* (very

scarce) near New Town Plaza of Shatin. He seized the bird from the cat and released it. It could still fly!

Henry Lui, Leung Va and Kwok Hon Kai saw an albino **Black-necked Starling** (*Sturnus nigricollis*) at a reservoir (Barragem de Ka-Ho) on Coloane Island of Macau on 9 January 2005.

Sightings of **Slaty-backed Forktail** (*Enicurus schistaceus*) were reported from Tai Po Kau:

Kwok Hon Kai saw the bird in late September 2004.

Polly Chik, King Law and Vicky Yeung saw the bird catching and eating small fishes, probably *Parazacco spilurus* at around 8.45am on 27 December 2004.

Reports from Samson So:

A **Collared Scops Owl** (*Otus lempii*) was seen at the junction of King's Road and Parker Shan on 10 November 2004.

A **Woodcock** (*Scolopax rusticola*) was seen at Ma On Shan on 23 October 2004 (around 2.00 am), and another individual was seen at Gilwell Campsite at 3.30 am, during the Trailwalker event when hundreds of people were walking around.

A juvenile **White-Bellied Sea Eagle** (*Haliaeetus leucogaster*) perched aside a stream at Ma Wan Chung (Lantau) on 24 October 2004.

A pair of **White-Bellied Sea Eagle** were displaying at Shui Hou (Lantau) on 31 October 2004.

A **White-Bellied Sea Eagle** was chasing a passerine (probably a Black Bird *Turdus merula*) at Kowloon Reservoir on 6 November 2004.

Fish

A 10 cm desiccated remains of a poisonous **Eclipse Puffer** (*Takifugu ocellatus*) was found by R.D. Hill on the roof of the Kadoorie Biological Sciences Building, HKU on 2 December 2004. The fish had probably been taken dead from the sea by a common kite and discarded in flight. Presumably the kite took a mouthful, found it distasteful and dropped it.

Amphibians and Reptiles

A **Blue-tailed Skink** (*Eumeces quadrilineatus*) was seen near a stream by Lora Lam in Sai Kung West Country Park near Tsak Yue Wu.

Robert Davidson saw a 1.3 m road killed **Copperhead Racer** (*Elaphe radiata*) at Luk Keng in the afternoon on 23 October 2004.

Eric Chan and Fiona Chung reported the sighting of two **Great Green Snakes** (*Ophedrys major*) at 6.00 pm at streamside near Chuen Lung on the 8 August 2004. One of them slid on the boulders to cross the stream and then disappeared in the vegetation.

David Poon saw a **Yellow Pond Terrapin** (*Mauremys mutica*) wandering at the high shore of Starfish Bay in the morning on 11 November 2004. It is an endangered species and presumably this individual was released by people.

A **Bamboo Snake** (*Trimeresurus albolabris*) (length approximately 60 – 80 cm) was reported by David Cox. The snake was found on steps from Mount Nicholson Government Quarters down to Stubbs Road, HK Island, on 3 July 2004 at around 6.30 am.

Samson So reported the following sightings of reptiles:

A dead **Chinese Mountain Snake** (*Sibynophis chinensis*) was found at the catchment area of Kowloon Reservoir on 18 September 2004.

A **Burmese Python** (*Python molurus bivittatus*) was seen by Mai Po staff at the Scrape of Mai Po Nature Reserve on 10 September 2004. The snake was about 2 m in length.

A **Tokay Gecko** (*Gekko gecko*) was seen at the catchment area along Tan Sha River (near Hok Tau Reservoir) on 1 August 2004. The species was regularly heard at the same locality throughout 2003-2004.

A **Tokay Gecko** was seen near Nong Ping (Lantau) on 31 Oct 2004.

Invertebrates

Robert Davidson found a **Lantern Bug** (*Pyrops candelaria*) in Sheung Tsat Muk Kiu village (near Luk Keng) in mid-January. It was firmly stuck to a tree, about 1.3 m off the ground.

Samson So and Fion Cheung saw a *Labrogomphus torvus* at a small tributary of Hok Tau Reservoir on 4 September 2004. This dragonfly is regarded as rare by Wilson (2003).

Samson So reported the following sightings of dragonflies:

Pseudagrion microcephalum laying eggs at a rehabilitated freshwater pond of Mai Po Nature Reserve.

One *Macrodiplax cora* was seen at Luk Keng marsh (near mangrove) on 29 September, and both sexes of this species were seen at Mai Po throughout October.

Gynacantha subinterrupta was seen at Mai Po on 10 November and 5 December (both were male individuals).

Samson So saw a **Japanese White-eye** caught and eaten by a **Large Woodland Spider** (*Nephila maculata*) at Mong Tseng Tsuen (near Tsim Bei Tsui) on 22 August 2004.

Recent Publications

Books, monographs etc.

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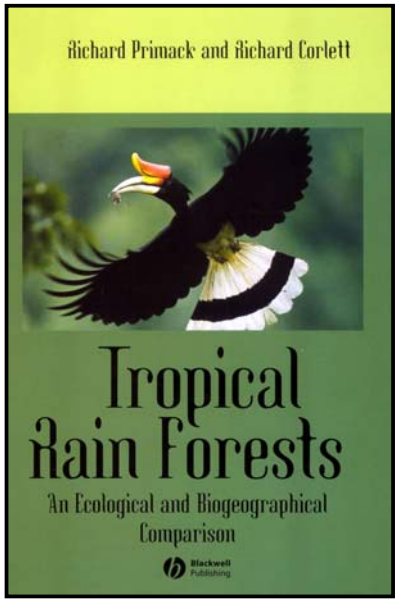

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2004 Postgraduate degrees from DEB

Durairaian Siva Sundara Kumar (PhD) Biological Screening and Isolation of Immunomodulatory Compounds from Endorphytic Fungi from *Tripterygium wilfordii*.

Lai Mei Yee (PhD) Fractionation, Mobilization and Bioaccumulation of Heavy Metals and Mineralogical Characteristics of the Mai Po Inner Bay Mudflat.

Lau Sui Yee (PhD) The Ecology of *Planaxis sulcatus* (Born, 1780) (Gastropoda: Prosobranchia) in Hong Kong.

Lee Cheuk Hung (MPhil) Microbial contamination of Enternal Feeds.

Poon Yiu Nam David (MPhil) The Population Dynamics and Feeding Ecology of the Mangrove Crabs, *Metopograpsus Frontalis* (Grapsidae) and *Perisesarma bidens* (Sesarmidae), in Hong Kong.

Sin Kai Wai (MPhil) Molecular Biology, Physiology and Metal-Resistance of Ligninolytic Enzyme System in a Newly Isloated Basidiomycete From a Hong Kong Forest.

Wai Tak Cheung (PhD) Herbivore-Induced Effects And Persistence of Non-Geniculate Coralline Algae in Low-Shore Rock Pools.

Wang Rui Jiang (PhD) Systematics and Phylogeny of Cyathocalyx (Annonaceae).

Wang Ying Ying (MPhil) Bacterial Degradation of ortho-Dimethyl Phthalate Ester and Adaptation of *Escherichia coli* K12 To Carbon-Limited Growth.

Weir Jacqueline E S (MPhil) Patterns of Seed Dispersal by Flying Frugivores in Hong Kong.

Yam Sau Wai Rita (PhD) Life History, Population Genetics and Feeding Ecology of *Caridina cantonensis* and *C. serrata* (Decapoda:Atyidae) in Hong Kong.

ADDENDUM:

This photograph from Hong Kong Amphibians and Reptiles was incorrectly labeled *Sphenomorphus indicus*, but is in fact *Sphenomorphus incognitus* - please refer to the article by Michael Lau on p. 9 of this volume of *Porcupine!* to learn more about this species.

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All contributions are welcomed. Any original article related to natural history, conservation or ecological research in Hong Kong will be considered for publication. Authors of long articles should send their work as a Word file, either by post (on disk, with hard copy attached) or by email. Original artwork should be sent by post (please indicate if return of material is required). Short articles (less than a hundred words) may be faxed or posted.

All authors can be contacted through *Porcupine!* unless alternative contact details have been provided.

一宗令人遺憾的消息。我們的好同事，好朋友周溥丞（Preston），今年十一月廿九日於農場工作時遇上交通事故，永遠地離開我們了。

周傅丞於今年四月加入本園，負責猛禽護理的工作。他曾治理過不少猛禽----由普通常見的麻鷹，以致連觀鳥者亦難得一見的褐魚鴞、鷹鴞等。Preston 生前曾說，很喜歡在本園工作，因爲，這裡他可以將鳥兒放回大自然。

相信，以後每當看見猛禽在天空中飛翔，我們便會想起這位努力保護鳥類的好朋友。

嘉道理農場暨植物園

Obituary: Chow Po Shing (Preston)

On 29 November, 2004, Kadoorie Farm lost a dear friend and work colleague, Preston Chow.

Preston was involved in a tragic car accident while undertaking his duties at KFBG.

He had a deep passion for birds of prey and since joining the farm in April 2004 was responsible for raptor rehabilitation work.

He cared for many birds from black kites to brown fish owls and brown hawk owls. Preston enjoyed the chance his work gave him to release raptors back to the wild.

We will remember Preston for his contribution to raptor conservation and his warm and compassionate nature. He was well liked by all that met him. We think of him every time a raptor soars over the Farm.

Kadoorie Farm & Botanic Garden