



Porcupine!

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

Who's responsible for responsible fishing?

In most cases, the answer is 'government' but, in reality, we all are. Any of us who eat fish, catch fish, cook fish, culture fish, buy and sell fish, keep fish in aquaria, or study fish, are responsible and can help by the choices we make, the policies we support, what we teach and tell our friends and family. The task of managing open access resources, like marine fisheries, is enormously challenging and there is a growing appreciation that the actions and choices of the wider public also have an important, probably essential, role to play in filling the gaps that governments struggle with.

In 1995, the FAO (Food and Agriculture Organization of the United Nations) adopted the current Code of Conduct for Responsible Fisheries which sets out 'principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity' (<http://www.fao.org/fi/agreem/codecond/codecon.asp>). The Code is a set of guidelines for managing and developing fisheries, and, although voluntary, calls for countries to sign a Compliance Agreement. The Code not only covers the biological and ecosystem aspects of resources but also encompasses the interests of consumers and other resource users.

How can those of us at different stages in the consumer chain, whether seafood comes into our homes or forms part of our livelihoods or hobbies, make a difference? Since the FAO Code of Conduct was developed, other initiatives have emerged, typically through NGOs, whereby traders and consumers can pledge to buy fish that have been taken sustainably. Two examples that illustrate this approach are the Marine Stewardship Council (MSC) for food fish, and the Marine Aquarium Council (MAC) for aquarium fish.

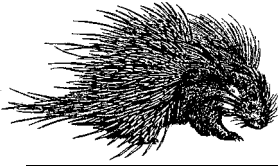
The MSC was formed in 1997, based on the FAO Code, as an independent, non-profit, organisation with a mission to identify well-managed fisheries and to promote consumer preference for seafood products bearing the MSC label of approval for demonstrably responsible fisheries. The hope is that well-informed consumers will contribute to conservation by expressing, through their purchases, concern about overfishing and poor mariculture practices. Several fisheries have been certified and others will follow (www.msc.org). Consumer awareness cards are also being developed in many areas to help us to make better seafood choices (e.g., www.mbayaq.org/cr/cr_seafoodwatch/sfw_resources.asp#ssi).

The MAC is also a not-for-profit organization that brings marine aquarium animal collectors, exporters, importers, and retailers together with aquarium keepers, public aquaria, conservation organizations and government agencies. Buyers of animals for aquaria will be able to make choices based on a system of core standards and certification applied to those engaged in the trade. The core standards address ecosystem and fishery management, collection, fishing and holding, and handling, husbandry and transport. As for the MSC, participation in the scheme is voluntary, with the hope that consumers will eventually reward those businesses that comply with the standards (www.mac.org).

The key to success for these systems is for traders, consumers, etc., to keep themselves informed and to exercise their considerable power in the market place by selecting more sustainable options. Consumer awareness is growing in Hong Kong: if we want to, we will soon be able to make responsible choices that could have profound effects on fishing and trade practices.

Yvonne Sadovy

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Editorial

Environmental, as well as consumer, awareness is growing in Hong Kong. Look out for the brand new book by David Dudgeon and Richard Corlett on "The Ecology and Biodiversity of Hong Kong" (full reference is on p. 27). Check the WWF-HK website for their consumer education campaign on the humphead wrasse (www.wwf.org.hk), and visit the related display at the atoll reef exhibit of Ocean Park. A voluntary set of standards for the capture and handling of live food is being developed by several NGOs and should be released shortly, and there are other local projects on consumer awareness around the corner. A new magazine on the marine aquarium trade, Aqua-Zone, carries a conservation as well as hobbyist message (info@aqua-zone.com.hk). Good news, indeed, for those of us who want to know more about Hong Kong's biodiversity or who, though avid, would also like to be responsible, consumers.

YS

News from DEB

Another academic year has finished and, once again, the staff of DEB have managed to survive the marking of nightmarish piles of examination scripts and student dissertations. The students too seem, on the whole, to have come through the exam ritual more-or-less intact. Examination marking can be a disquieting experience: things that you thought had been taught clearly turn out to have been rather muddled, and matters which were passed over in a few moments in lecture 7 have somehow acquired momentous import. Fortunately, for every student who seems determined to answer the exam question that you did not set, there is at least one who quite brilliantly answers the question you actually did set. I was pleased to discover that one undergraduate scored a combined mark of 95% in the assessments for 'Freshwater Ecology'; this was a notable achievement since I had not taught the course before and there were no crib notes or prior exam papers for students to rely on. Another student managed to obtain an outstanding 100% in 'Ecology of Hong Kong' taught by Richard Corlett. Hopefully, this means that we are doing some good.

The issue of what we, as a department, are achieving is at the forefront of my mind at present. Not just because another research assessment exercise is looming, but also because July 1 2004 is the tenth anniversary of the establishment of the Department of Ecology & Biodiversity. So however well we do what it is that we do, we have now been doing it for a decade. Ten years may sound like a long time but to me – and, I suspect, those colleagues who have been in the department since it was established – it does not seem long at all. I recall vividly the feeling that we were setting out on a new adventure, and (perhaps a less pleasant recollection) the experience of trying to carve out a departmental office in a cramped and over-crowded academic building. Thank goodness we now occupy spacious premises in the Kadoorie Biological Sciences Building.

Before I finish a couple of other matters should be mentioned. First, is to welcome of Dr Ming Sun, a Croucher Foundation Fellow from Huazhong Agricultural University who will be working on the molecular biology of bacteria with Dr Ji-dong Gu's research group for six months. And, secondly, DEB would like to welcome back to Dr Yvonne Su, who obtained her PhD last year under the supervision of Dr Richard Saunders. She rejoins DEB in mid-June as a Post-doctoral Fellow working on plant systematics.

It remains for me to wish DEB a happy 10th birthday!

David Dudgeon

Lim Chi Lan

It is with sadness that we report the death of Ms Lim Chi Lan, Gillian, who recently completed her studies in the second year of the Environmental Life Science Programme. Gillian was travelling in Tibet with friends at the time of her death. I am sure that readers of *Porcupine!* will join me in expressing condolences to her family and friends, and deep sympathy for her loss.

Feedback

Dear *Feedback*,

I would like to comment on the article “Fried water beetles” by Yvonne Sadovy in the recent issue of *Porcupine!* (issue 30) p.8. Yvonne reported on an article that discussed *Cybister* water beetles consumed in Guangdong. The article, from a book by Bodenheimer (1951), noted that the water beetles were hatched in special nursery because they were rare in the province due to insufficient habitats. However, I found Bodenheimer’s rationale to be weak since these beetles live in paddy fields, pools, reservoirs and streams (Hill *et al.*, 1982; Lin, 1991) and there are still plenty of suitable habitats left in Guangdong. *Cybister* water beetles used to be abundant in Hong Kong and were captured and sold as food (Hill *et al.*, 1982). This practice seemed to have stopped locally around 1970’s but even in the early 1990’s, whenever I walked under the Bonham Road flyover in autumn mornings, I could find several individuals under each street lamp. Even in fairly urbanised Hong Kong back then, this species was not rare. Raising wild animals for food has gained a lot of popularity in mainland China and many handbooks (ranging from raising scorpions to turtles) are now for sale in bookshops. However, none of the ones I have seen mention raising *Cybister* beetles, further suggesting that this is not being carried out.

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Michael Lau

All at sea-Introducing Cynthia Yau

by Cynthia Yau

I have a fascination for just about anything that lives in the sea. I also tend to be happiest when I am out at sea. I was born in Hong Kong but then I moved to Britain, when I was very young, where I grew up among the lush, green countryside of rural Shropshire. I developed a keen interest in nature from an early age and used to keep tadpoles and caterpillars in my bedroom just to watch them metamorphose, much to the consternation of my long suffering mum. But it was always the sea I loved the best and even as a teenager I was telling everyone I wanted to be a marine biologist. My parents owned a restaurant and take away business and, like most second-generation immigrants, I studied hard at school so I would not have to follow in their footsteps. Instead, I chose to take a joint Honours B.Sc. in Zoology and Oceanography at the University College of Swansea, Wales.

After graduating, I felt I still did not know enough to go out into the big, wide world looking for a job. Besides, I wanted to continue in education and learn more about my field, so I applied for a Ph.D. studentship at the University of Aberdeen in Scotland for a project on the ecology of cephalopods, i.e. squid, cuttlefishes and octopuses. My supervisor, Professor Peter Boyle, had already taken on another student for a different project but I was lucky enough that he changed his mind and accepted me as his second Ph.D. student that year. At that time, squid species were rapidly becoming a more important and valuable component of capture fisheries as traditional finfish stocks were declining around the coast of Scotland, so my project was to gain a better understanding of the early life stages of cephalopods from an ecological, as well as a fishery management, perspective. My study involved a great deal of boat work in inshore waters and offshore research cruises with the Scottish Office for Agriculture and Fisheries. One memorable trip was in a force 12 gale where I was convinced the ship was going to sink and I was going to die. “*Character building*” - as my supervisor used to describe it!

I learned a great deal during my Ph.D., including some surprising new skills ranging from building plankton nets to resuscitating sharks! One of my proudest moments was the day my supervisor, a student helper and I rescued a beached basking shark. We were conducting fieldwork on the West Coast of Scotland when a fisherman told us about a shark that had been caught in some salmon gill nets and was exposed by the low tide. We managed to drag the 3-metre long, juvenile basking shark back into the water between the three of us, then proceeded to swim it around in circles to force water through its gills (fish biology lectures do come in useful). After over an hour of this treatment the shark eventually revived, gave a few sweeps of its tail, then swam off into deeper waters on its own. To this day, I have way too much respect for these animals to eat shark fin soup!

I knew a lot of the theory behind fisheries science and fisheries management, in which I had become increasingly more interested during the course of my postgraduate studies, but I wanted to know how fisheries management actually worked in practice. So, after my *viva* and a summer stint as a volunteer crew for a whale-watching company in Scotland (it was my idea of a holiday anyway), I applied to the Falkland Islands Fisheries Department for a job because they reputedly have one of the best managed fisheries in the world. My role as a Scientific Observer mainly involved collecting biological information, working and living on board foreign fishing vessels for 3-6 week periods at a time. Much of the island’s revenue is derived from the sale of fishing licenses, so Falkland Islands Government invests heavily in fisheries management to ensure the stocks are sustainable. The work itself was mentally, as well as physically, quite demanding because often I was on a ship where most of the crew spoke no English and I don’t speak any Korean, or Japanese, or Polish. After a year I was promoted to the post of Observer Co-ordinator, where I was in charge of sending other Observers out to sea and collating the fisheries data from them.

Most people’s impression of the Falklands is from images of the conflict with Argentina in 1982 showing a cold, bleak land with more sheep than people. I loved living there! What I

remember most are the amazing wildlife, the pristine landscape, seeing the full Milky Way in the clear night skies, the unbelievable productivity of the seas with more squid than you can ever imagine, and the many close friends I made. There are so many stories I can tell but I won't bore you with these, as they will fill pages and I will quickly run out of superlatives. Suffice to say, it was the experience of a lifetime.

I finally felt I had accumulated sufficient, first-hand knowledge of fisheries to be able to call myself a fisheries scientist proper, and my familiarity with the Southwest Atlantic led to subsequent contract work with Imperial College, London, participating in research cruises to assess fish stocks along the Patagonian Shelf and around the island of South Georgia in the Southern Ocean. Later, I returned to Aberdeen University to conduct postdoctoral research on deep-sea fishery resources using autonomous, baited cameras as part Professor Monty Priede's Oceanlab group. By coincidence, this resulted in scientific cruises back in the Falkland Islands and South Georgia to study the Patagonian toothfish (*Dissostichus eleginoides*). Our group worked on determining the abundance of toothfish and its role in the slope community with the aim of improving management strategies for this lucrative fishery, especially since this species is the subject of considerable conservation concern regarding illegal, unreported and unregulated (IUU) fishing, and subject of the debate on whether deep-sea species can be exploited in a sustainable manner.

Being a Postdoctoral Fellow at the Zoology Department, Aberdeen University, also entailed substantial teaching duties and administrating a multi-national, European Union-funded project on autonomous vehicles for deep-sea research. However, after spending too many years living in cold places, I decided not to renew my contract and went off in search of warmer climes. I was actually intending to travel around the world when my parents (now retired and with a house in the New Territories) caught up with me and urged me to apply for an advertised position at the Hong Kong University of Science and Technology. My family probably thought I had drifted enough and it was time for me to 'settle'. So in 2001, I got the post of Visiting Scholar at the Biology Department, HKUST, which mainly involved teaching in subjects such as Ecology, Environmental Science, Marine Biology, and Fisheries Biology, though I was also working on government-funded consultancy contracts.

I joined the Department of Ecology & Biodiversity in September 2003 as an Assistant Professor and it is like having turned full circle. I consider myself extremely fortunate to be a part of this department and to be a resident faculty at SWIMS in particular. Some of my earliest memories of Hong Kong were of catching shore crabs and digging up clams for the congee pot....probably not recommended these days, and strictly not allowed at Cape D'Aguiar of course (because of the marine reserve)! But I do enjoy teaching our students about the diverse local marine fauna and sharing information with them. The marine environment here is very different to those of Britain and the Southwest Atlantic, but I hope to be able to bring my previous experiences into use and conduct research on local fisheries resources. At present, I have projects focusing on the ecology and fisheries of cephalopods and have begun work on updating the checklist of species from the

region in collaboration with the Chinese University of Hong Kong.

I still seize every opportunity to go out to sea, such as by taking part in regular trawl surveys of Hong Kong waters, and even to the extent of incorporating boat fieldwork into the Biological Oceanography course I direct. Oh, and in case anyone is wondering....yes, I *do* get seasick!



Fig. 1. Cephalopod (*Octopus membranaceous*) research at SWIMS – but who is studying who ?

VERTEBRATES

Big fierce animals in Hong Kong

by Richard T. Corlett

In his classic textbook, *Why Big Fierce Animals are Rare*, Paul Colinvaux (1978) explains why large carnivores necessarily live at much lower densities than their prey. For most of the world, however, it is not ecological necessity, but direct human impact that explains the rarity – or, in an increasing number of places, complete absence – of big fierce animals. They are killed because they threaten us or our livestock, or because they look as if they might, or simply because they are “bad animals”. The history of China could be deduced from a comparison of large carnivore distribution maps at intervals over the last 10,000 years. Robert Marks (1998) attempts this for tigers in southern China in his book, *Tigers, Rice, Silk and Silt*.

If big fierce animals – BFAs from now on – are history in Hong Kong, why concern ourselves with them? The fuss caused by one juvenile crocodile in Yuen Long shows that even the most fervent proponent of reintroduction is unlikely

to have much success with a “Bring back the BFAs” campaign. The answer is that we cannot hope to understand the ecology of Hong Kong today without knowing more about the environment in which the flora and fauna lived before the overwhelming human impacts of the last couple of millennia. BFAs were a key element of that environment, not just because they killed stuff, but also because they modified the behaviour of their prey – the so-called ‘ecology of fear’. By influencing the numbers and behaviour of herbivores, carnivores have an indirect impact on the structure of plant communities. Equally important may be the influence of large carnivores on the abundance of the smaller carnivores, such as civets, which are the main predators of birds and other small vertebrates. The removal of large carnivores can therefore have major consequences for the rest of the community as the effects propagate from level to level down the food web, from top carnivores to plants, in a “trophic cascade”. Unfortunately, we currently know far too little about the complexities of tropical food webs to predict what the impact of the loss of particular carnivore species will be.

The ultimate BFAs are the big cats, of which the tiger (*Panthera tigris*, 70-250 kg) and leopard (*P. pardus*, 30-70 kg) visited Hong Kong well into the last century. By that time, the largest prey species available were muntjacs and wild pigs but, given the opportunity, tigers specialize on bigger prey, such as the sambar deer (*Cervus unicolor*), which must have been here in the past. Each tiger needs about 50 large ungulates a year (Karanth et al., 2004), so there can never have been many tigers in Hong Kong. The leopard, in contrast, is the ultimate generalist. They take more monkeys than tigers do, and the commonest items in the scats of leopards on the outskirts of Mumbai are dogs and rodents (Edgaonkar & Chellam, 2002). A small population of leopards would probably thrive in modern Hong Kong but, although they would soon eliminate the feral dog problem and put the macaques back in the trees where they belong, they are a little too dangerous for comfort.

There is a big size gap between the leopard and only surviving felid, the leopard cat (*Prionailurus bengalensis*, 1-4 kg), and historical records are no help in filling it. Hong Kong is well within the present range of the clouded leopard (*Neofelis nebulosa*, 10-23 kg), however, so this species is a reasonable guess. Clouded leopards are at least partly arboreal and take medium-sized prey, such as macaques, muntjacs, pigs and civets. They do not appear to pose a threat to people, but they need forest and have large home ranges (> 20 km²) for their size (Austin & Tewes, 1999), so we will have to wait a few decades before even thinking about (re)introducing this species. More practical would be the Asiatic golden cat (*Catopuma temminckii*), which was present in southern Guangdong until recently (Gao, 1987), although at 8-16 kg it is not really a BFA.

The Asiatic black bear (*Ursus thibetanus*, < 170 kg) is an undisputed BFA. Hong Kong is well within the recent historical range for this species but, like tigers and leopards, a bear reintroduction would probably be too dangerous to people. Black bears are more herbivores than carnivores, with a passion for Fagaceae fruits, but they can and do kill muntjacs, serow and wild pigs (Hwang, 2003).

Dholes (*Cuon alpinus*, 10-20 kg) are not BFAs as individuals, but even tigers avoid a large dhole pack. In contrast to the big cats, but like other dogs, dholes do not deliver a killing bite, so large prey die from shock or loss of blood as a result of multiple injuries. There are historical records for this species in Hong Kong and a few small packs could perhaps survive here today if reintroduced, living on muntjacs, wild pigs and rats.

BFAs do not have to be mammals and it is a reptile, the Burmese python (*Python molurus*), that is the biggest, fiercest animal present in Hong Kong today. Stomach contents of these snakes have included porcupines, muntjac, wild pigs, civets and even leopards (Daniel, 2002). A really large one could kill, if not swallow, an adult human. And don't struggle too hard – they are a protected species in Hong Kong. The locally extinct water monitor (*Varanus salvator*) is not usually seen as a BFA, but they can reach a length of 2.5 m in some parts of their range. This is not much smaller than the Komodo dragon (*V. komodoensis*), which has occasionally killed people, and water monitors themselves have taken macaques and small deer. Skeletal remains of the false gharial (*Tomistoma schlegelii*) have been found in the Pearl River. This crocodile is often considered a fish-eater, but there are reliable accounts of adults, which can exceed 5 m in length, taking riverbank mammals as large as macaques. Finally, Hong Kong is well within the historical range of the largest reptile of them all, the saltwater crocodile (*Crocodylus porosus*). A 7-metre “saltie” would be a threat to anything up to and including a tiger.

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First record of the halfbeak *Zenarchopterus striga* (Blyth, 1858) in Hong Kong

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Mangroves are considered to be important nursery grounds for fishes (e.g. Thayer *et al.*, 1987; Sasekumar *et al.*, 1992). Unfortunately, little information is available on fish communities in mangrove habitats in southern China. Because mangrove habitats in many parts of the world are disappearing at an alarming rate (Tam & Wong, 2000; Zhao & Wang, 2000), baseline information on the diversity and species composition of fish communities in mangroves is needed for scientists and managers to devise effective strategies to protect these important and unique habitats for sustainable development.

A detailed study on the fish communities in mangrove waters in eastern Hong Kong was carried out between 2002 and 2003. During the course of the study, halfbeaks were frequently recorded in net samples. The truncated caudal fin and the modified anal fin in males indicate that this halfbeak belongs to the genus *Zenarchopterus* (Collette & Su, 1986). The occurrence of *Zenarchopterus ectuntio* in Hong Kong has already been reported (Kottelat *et al.*, 1993). Dr. Bruce Collette (National Museum of Natural History, USA) believes that two other species, *Z. dunckeri* and *Z. buffonis*, can also be found in this region (Bruce Collette personal communication). Specimens collected in this study have been identified by Dr. Collette as *Z. striga* after detailed examination. According to my study, this fish is one of the most abundant species in mangrove and brackish waters in the eastern parts of Hong Kong. Surprisingly, despite its high abundance, the presence of this species in Hong Kong has never been reported. This discovery suggests that there is insufficient information on fish communities in Hong Kong mangrove waters.

I am grateful to Dr. Bruce Collette of the National Museum of Natural History (USA) for his help in fish identification and suggestions.

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Fishing carnage at Pedro Blanco

by Charles Frew and Andy Cornish

Fish populations at Pedro Blanco (大青針), an isolated rock pinnacle lying 85 kilometers due east of Hong Kong in mainland Chinese waters are being devastated (Fig. 1). Fishers using explosives have been increasingly targeting the once healthy fish stocks, while at weekends hoards of spearfishers from Hong Kong descend to pursue those fishes remaining. It wasn't always like this. Just five years ago, when we first visited the site, the diving was some of the best we had experienced anywhere in SE Asia with large schools of Kawakawa tuna (*Euthynnus affinis*) (Fig. 2), Pickhandle barracuda (*Sphyraena jello*), and abundant groupers, parrotfishes and other reef fishes rarely seen in Hong Kong waters. Large oceanic fishes such as Whale shark (*Rhincodon typus*), Yellowfin tuna (*Thunnus albacares*) and Manta ray (*Manta* sp.) have also been seen in recent years.



Fig. 1. Pedro Blanco

Light fishing pressure was one likely reason why fish populations were so diverse compared with Hong Kong, but it also seems possible that different larval sources have played a part. Although it is often quoted that the branch of the tropical Kuroshio current that passes through the Luzon Strait approaches Hong Kong (e.g. Morton and Morton, 1983), it has been difficult to establish whether it actually reaches Hong Kong waters (Tang and Ni, 1996). The presence of tropical species common at Pedro Blanco and known from the Philippines (www.fishbase.org) but not from Hong Kong waters (Sadovy & Cornish, 2000) suggests fish larvae are transported to this pinnacle from the east by the Kuroshio current, but that this water body does not often get close enough to coastal reefs to allow larval settlement. Such species include Tropical striped triplefin (*Helcogramma striatum*), Yellow-brown wrasse (*Thalassoma*

lutescens) and Reticulated sandperch (*Parapercis tetracantha*) (Fig. 3).



Fig. 2. Kawakawa (*Euthynnus affinis*)

The isolation that once protected the fishes at Pedro Blanco now seems to be working against them. A letter written to the Guangdong Marine Fisheries and Agricultural Bureau in 2003 informing them of the blast fishing situation met with a favourable response and seems to have resulted in increased patrols in 2004. However, bombing continues as the rock is too isolated for regular patrols and it is difficult to catch the bombers in the act (Fig. 4). In addition, the increase in popularity of recreational fishing and spearfishing in Hong Kong in recent years, and the introduction of larger dive boats capable of taking up to 40+ divers to the site have greatly increased fishing pressure from these gears. As in Hong Kong, such fishing is not regulated.



Fig. 3. Reticulated sandperch (*Parapercis tetracantha*)

Although the effect of recreational fishers is probably fairly low, so many spearfishers targeting large reef fishes that typically show long life and are slow to reach sexual maturation is likely having a devastating effect on the fish populations on such a small reef. Even this, however, pales with comparison to the destruction from blast fishing. Blast fishing kills indiscriminately large and small fish alike through rupturing of swim bladders and spinal columns, and the bombs being used recently are large enough to be fracturing the bedrock. Hundreds of fishes have been seen

lying on the seabed following bombing as they sink to the bottom and the fishers only collect those few floating on the surface (Fig. 5). On a recent dive trip to Pedro Blanco, no groupers were encountered and only small schools of *E. affinis* were present. Unicorn leatherjacket (*Aluterus monoceros*), Hound needlefish (*Tylosurus crocodilus*) and countless moray eels lay on the seabed, evidence of recent bombing. As a final insult, divers from a Hong Kong dive centre were using small spears to jab into small holes and damaging surrounding corals.



Fig. 4. Bomb blast

So what is the solution? Pedro Blanco is an ideal site for some kind of Marine Protected Area in terms of its rich marine life, but enforcing regulations would be problematic due to the large distance between the pinnacle and mainland ports. For the time being we would like to see an increased effort by the mainland authorities to tackle the blast fishing problem, a realization by recreational and spear-fishers from Hong Kong that the fish populations at the pinnacle are limited, and that restraint needs to be shown in terms of the numbers of fishes and size taken if this amazing site is not to be ruined for everyone.



Fig. 5. Blasted Painted sweetlips (*Diagramma pictum*)

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Space partitioning by two common Bulbuls in Hong Kong

by Eric Chan

Introduction

The Crested Bulbul *Pycnonotus jocosus* (also called Red-whiskered Bulbul) and the Chinese Bulbul *Pycnonotus sinensis* (also called Light-vented Bulbul) are two of the commonest bird species in Hong Kong. Both of them are residents, and they can be found in a wide range of habitats throughout the region (Carey *et al.* 2001), including parks, gardens, farmland, shrubland, suburban areas, villages and so on.

According to Gause's Principle (also known as the Principle of Competitive Exclusion), similar species cannot coexist in the same ecological niche for a long time. However, according to casual observations, the Crested Bulbul and the Chinese Bulbul have long been abundant residents in Hong Kong and co-occur in many of the same habitats, although they both appear to have similar food and environmental requirements. Herklots (1946) and later literature (e.g. Herklots 1953, Herklots 1967, Viney & Phillipps 1977, Viney *et al.* 1994 and Carey *et al.* 2001) all described these two species as very abundant in Hong Kong. The life spans for both Crested Bulbuls and Chinese Bulbuls are around eight years; many generations must have passed after so many years of recording, and yet both of them are still very common and seem to coexist in many habitats. This study aimed to compare the ecology of the Crested Bulbul and the Chinese Bulbul, and to explain how both have managed to become so abundant in a small place like Hong Kong.

Methodology

Field observations were conducted from September 2001 to February 2002 to compare the two species. Transect counts were used: a route had been pre-determined in each site, and bulbuls that could be detected visually were recorded during the survey. Eleven sites were chosen in the study (Table 1). The sites cover a number of habitats in Hong Kong, including suburban areas, urban parks, hills and mountains, mangroves, villages and forests. Activities, group size, choice of substrates (e.g. tree branches, concrete ground) and estimated distances of the birds from the ground were recorded.

Table 1. Length of transects and number of visits for each site.

Site	Length of Transect (m)	Number of Visits	Habitat Type and brief descriptions of the sites
Hatton Road	604	8	Sub urban
Hong Kong Park	524	4	Urban park
HKU Campus (near Graduate House)	542	9	Sub urban
Kowloon Park	536	5	Urban Park
Lung Fu Shan	1,500	5	Hill, with secondary forest and rich understorey
Mai Po	1,600	2	Mangrove
Nim Wan	2,856	1	Mixed habitat, with mangrove, villages and cultivated area
Ping Kong	1,428	2	Villages, with cultivated area
Tai Mo Shan	714	3	Mountain (the site was at 700m above sea level.)
Inside Tai Po Kau Forest	4,000	5	Secondary forest with rich understorey
Outside Tai Po Kau Forest	1356	6	The periphery of a secondary forest
Total	-	50	

Results

A total of 451 Crested Bulbuls and 333 Chinese Bulbuls were recorded, and there was no significant difference between their activities, group size, choice of substrate and height above ground (p -values for all comparisons > 0.1). Both species favour trees and shrubs for perching and they mainly stay within 10 m above ground. However, it is striking to find that there was a clear difference in their spatial distribution (Fig. 1). In suburban areas (the small woodland and shrubland near Graduate House on the HKU campus) and urban parks (Hong Kong Park, Kowloon Park), there were a lot more Crested Bulbuls than Chinese Bulbuls. On the other hand, in rural areas including mountains (Lung Fu Shan, Tai Mo Shan), mangrove (Mai Po Marshes) and forest (inside Tai Po Kau Forest), there were a lot more Chinese bulbuls than Crested Bulbuls. In Ping Kong, Nim Wan and outside Tai Po Kau Forest, the differences were less extreme.

Discussion

The behavioural records in the current study suggest that these two species are very similar in their behaviour. Kwok and Corlett (1999) studied birds inside Tai Po Kau Forest, and their results showed that Chinese Bulbuls are a lot more abundant than Crested Bulbuls. Leven (2000) did bird surveys in six different shrubland sites and found that the density of Chinese Bulbuls was higher than that of Crested Bulbuls in all sites. These results are consistent with the current study. The observed space partitioning could simply reflect different habitat requirements by the two species. Alternatively, it could be explained by competition (perhaps for food and nesting sites), with the Crested Bulbul a better competitor in human-modified habitats (Kowloon Park, Hong Kong Park), while the Chinese Bulbul is a better competitor in rural areas (e.g. Tai Mo Shan, inside Tai Po Kau Forest). In sites where a combination of habitats is present (e.g. Ping Kong, Nim Wan), the differences between their abundances are less extreme (Fig. 1). Crested Bulbuls are in general confined to human-modified habitats and absent in forest, probably because it is an introduced species (Dudgeon & Corlett 1994; Leven & Corlett 2004). Swinhoe (1861) clearly stated that no Crested Bulbul was seen in Hong Kong, while the Chinese Bulbul was described as ‘an abundant resident’.

No survey in this study was performed during the breeding season (April to August). As differences in breeding requirements can affect their distribution, surveys in the breeding season will contribute to a better understanding of these two species.

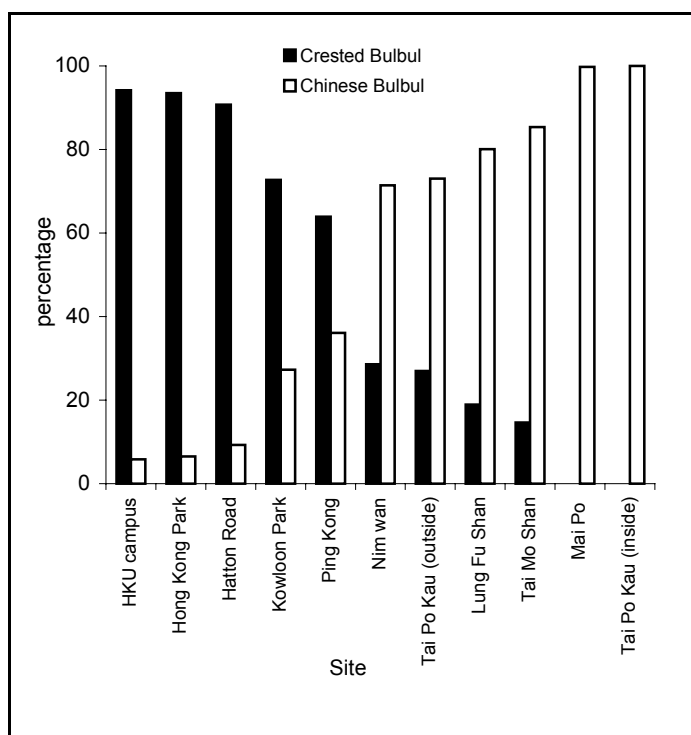


Fig. 1. Relative abundance of Crested Bulbuls and Chinese Bulbuls in different sites.

Other bulbuls (family Pycnonotidae) that can be seen in Hong Kong include Chestnut Bulbuls *Hemixos castanonotus*, Red-vented Bulbuls *Pycnonotus aurigaster*, Black Bulbuls

Hypsipetes leucocephalus and Mountain Bulbuls *Hypsipetes maclellandii*. Their distributions were also recorded in this study, but the sample sizes are too small to make any representative comparisons. However, there are two points worth noting: (1) Chestnut Bulbuls were only seen inside Tai Po Kau among the 11 study sites. This suggests that this bird is a forest specialist. (2) Five Mountain Bulbuls were recorded inside Tai Po Kau. There was just one disregarded record for this species in Hong Kong previously (Viney *et al.* 1994). This finding, and the subsequent records (Wild Corner 2003, 2004, Wong 2004, Lewthwaite 2004) for this bird in Hong Kong suggest, that Mountain Bulbuls are now re-colonizing Hong Kong as our forests are becoming more mature.

Acknowledgements

This study is the outcome of my final year project. I would like to express my sincere gratitude to Dr Richard Corlett, who supervised this project and has given me lots of useful comments.

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Nest abundance of ardeids in Hainan 2004

by Josephine Y.P. Wong and Captain Wong

Egret Research Group, Hong Kong Bird Watching Society

The Egret Research Group of Hong Kong Bird Watching Society, and Prof. Liang Wei of The Hainan Normal University jointly conducted a baseline survey of nest abundance in northern Hainan between 26 and 29 May 2004. A second survey of eight new colonies, reported by villagers after the press release of the first survey in the 1 June Hainan Daily, was conducted by Prof Liang in June. Press releases (in simplified Chinese) on the two surveys are available at first survey http://www.hinews.cn/jisxw/hn_article.php?wzid=32620 second survey: http://www.hinews.cn/jisxw/hn_article.php?wzid=33762

Of these two surveys, a total of 4547 nests of four ardeids, i.e. Little Egrets, Cattle Egrets, Chinese Pond Herons and Black-crowned Night Herons in 17 colonies in northern Hainan were found. The Chinese Pond Heron was the dominant breeding ardeid (56.8% of the total nests) and the Black-crowned Night Heron the least abundant (4.2%).

Table 1. The nest abundance of nine colonies in the northern Hainan in May 2004. The 2004 nest abundance in Hong Kong is listed for reference (+: present, % = relative abundance).

	Great Egret	Little Egret	Cattle Egret	Chinese Pond Heron	Night Heron	Unidentified nest	Total (%)
Daitian National Nature Reserve				5	190		195 (7.3)
Luoji Village		33	345	131		7	516 (19.2)
Chongwei Village			458	394			852 (31.7)
Guyue Resort		+	145	200	+		345 (12.8)
Nanwei Village			52	48			100 (3.7)
Hungdoubo Village				106			106 (3.9)
Nan Lai Lake Resort			105	156			261 (9.7)
Xianlailiang Village			10	115			125 (4.7)
Mingren Village				186			186 (6.9)

Sub-total (%)		33 (1.2)	1115 (41.5)	1341 (49.9)	190 (7.1)	7 (0.3)	2686 (100)
June survey		240	380	1241			1861
Overall (%)		273 (6.0)	1495 (32.9)	2582 (56.8)	190 (4.2)	7 (0.2)	4547 (100)
No of nests in HK in 2004 (%)	84 (10.0)	229 (27.7)	58 (6.9)	315 (37.3)	158 (18.7)	-	844 (100)

In the first survey in May, a total of 2686 nests of four nesting ardeids was recorded in nine colonies (Table 1, Fig. 1). Of the eight known colonies we intended to visit, two were abandoned but three new sites in Central and North East Hainan were discovered. The Chinese Pond Heron (49.9% of the total nests) and Cattle Egret (41.2%) were the dominant breeding species, while the Little Egret was the least abundant (1.2%) (Table 1). The Chinese Pond Heron and Cattle Egret were the most widespread breeding species, while only one colony was recorded for each of the Little Egret and Night Heron. The Chongwei Village colony at Chengmei County in central Hainan was the largest colony (31.7% of the total nests), while the Nanwei Village colony at Tunchang County in central Hainan was the smallest (3.7%).

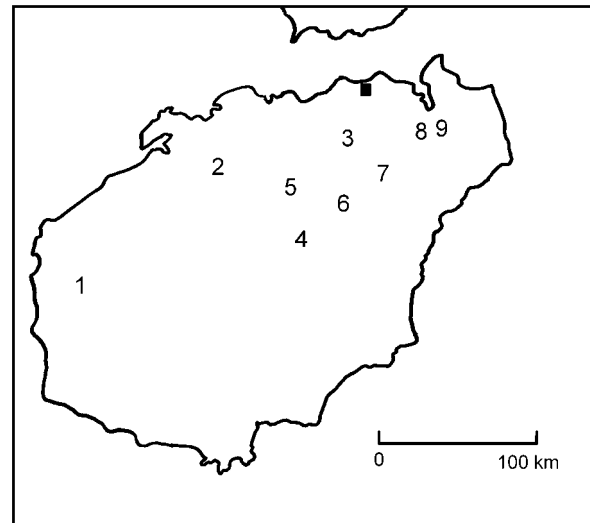


Fig. 1. Ardeid nesting colony distribution in Hainan (black square: Haikou, provincial capital; Colony numbers 1: Daitian National Nature Reserve, 2: Luoji Village, 3: Chongwei Village, 4: Guyue Resort, 5: Nanwei Village, 6: Hungdoubo Village, 7: Nan Lai Lake Resort, 8: Xianlailiang Village, 9: Mingren Village)

In the second survey in June, a total of 1861 nests of three ardeids was recorded in eight colonies (Table 1). Again, the Chinese Pond Heron was the dominant species and more nests of Little Egrets were found. Details of this survey are still being prepared. The large area of man-made feeding habitats like paddy fields in lowland Hainan could contribute to the dominant status of Chinese Pond Herons and Cattle Egrets. (Fig. 2) Only small nest numbers of Little Egrets and Black-crowned Night Herons were recorded in the present survey. This was quite unexpected as paddy fields were also the main

feeding habitats of Little Egrets in Hong Kong previously (Murton 1972), and in Japan (Takumi and Ezaki 1998), and of both ardeids in the Mediterranean region (Hafner *et al.* 1987).



Fig. 2. The extensive rice paddy in Hainan is feeding habitat for ardeids.

Probable differences in rice farming practices between south China and elsewhere could reduce the attractiveness of paddy fields to these two ardeids. Selective hunting due to the difference of “tastes” among ardeids, as reported by villagers, may also contribute to low abundances.

The preference for fishponds and mangrove by nesting Black-crowned Night Herons in Hong Kong (Wong *et al.* 1999) may indicate that they prefer coastal wetlands. In this survey, no Great Egret was seen to nest in Hainan. In considering the only currently known colony of 20 Great Egret nests in Guangxi South China (Wong *et al.* 2004), Hong Kong is so far the most important known breeding site of Great Egrets in south China.



Fig. 3. Nests were counted inside a colony through direct observations by binoculars.

Compared with the 2004 nest abundance in Hong Kong (Table 1), the nest number in Hainan is only three times that

of Hong Kong. Although we do not have the statistics of land use figures in Hainan so far, the area of wetlands, such as paddy fields in Hainan, is obviously much greater than Hong Kong. Apparently, the wetlands in Hong Kong support more nesting ardeids than those in Hainan (Fig. 3). In addition, hunting is the major threat for the survival of ardeids in Hainan, e.g. ardeids are still available at many restaurants.

Promoting environmental education is the most effective way to enhance the conservation of breeding ardeids. In fact, local county governments have put much effort into environmental education in recent years. Notice boards on conservation and promoting appreciation of ardeids were installed in front of colonies (Fig. 4). Governments also organized talks to educate the villagers about the importance of conservation. Moreover, conservation and environmental news often appear in the local newspapers. This could help to increase people’s awareness about conservation and their appreciation of wildlife. As mentioned earlier, the result of our survey in Hainan was published in the Hainan Daily three days after the survey, and new colonies were reported by villagers for our baseline study, indicating that some of Hainan people are concerned about their environment.

In the future, it is hoped that we can extend this survey to other parts of south China, and collect more up-to-date information about colony distribution and nest abundance in this region for assessing the regional status, and enhancing conservation and appreciation of these elegant birds.



Fig. 4. A notice board set up by the local government for educating the public about the importance of nesting colony conservation.

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Rediscovered ferns from Hong Kong, China

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Abstract

In recent field surveys in Hong Kong, four ferns, *Trichomanes auriculatum*, *Hypolepis punctata*, *Cyrtomidictyum basipinnatum* and *Chieniopteris kempii*, were rediscovered after about one hundred years.

Hong Kong (22°09'–22°37' N, 113°52'–114°30' E), consists of Hong Kong Island, Kowloon, the New Territories, and 235 other islands, of which the largest one is Lantau Island (148 km²). The total land area is 1098 km². The topography is extremely rugged, and the highest point is at Tai Mo Shan (957 m) in the central New Territories. The climate of Hong Kong has typical south subtropical characteristics. Hong Kong's flora is diverse for its island geography and 1911 flowering plant species and 242 fern species (including infraspecific taxa) have been reliably recorded from Hong Kong (Corlett *et al.* 2000; Lee *et al.*, 2003), most of which are pantropical and tropical Asian plants (Xing *et al.* 1999).

The earliest reported survey of Hong Kong plants was in 1841 (Bentham, 1861) and the Hong Kong ferns have been well studied since then. The Hong Kong Herbarium (2001) has published the Checklist of Hong Kong Plants four times. The most recent checklist (Lee *et al.*, 2003) shows that 242 fern species in 96 genera and 47 families have been recorded in Hong Kong.

There have been great changes in the environment, vegetation and species of Hong Kong since the Opium Wars (Corlett, 1999; Dudgeon & Corlett, 1994). Although documented extinctions of species are few, it is certain that some species have disappeared from Hong Kong because of the massive human impacts. Complete deforestation at low altitudes must have resulted in the loss of a substantial fraction of Hong Kong's native flora in the past (Dudgeon & Corlett, 1994). In recent evaluations, 57 species of ferns, 4 gymnosperms and 339 angiosperms are considered as locally extinct or very rare: 19% of the total recorded vascular plant flora. An additional 15% are considered rare. Twenty-one species of ferns were not seen during recent surveys (Corlett *et al.* 2000). However, in our recent surveys on the biodiversity of Hong Kong during 1996 to 2002, four fern species were rediscovered 100 years after they were first collected.

Chieniopteris kempii (Cop.) Ching, *Acta Phytotax. Sinica*. 9 (1): 39. 1964.

Illustration. Wu (1999): p. 208-210. fig. 36: 6.

Distribution. China (Fujian, Guangdong, Guangxi and Taiwan) and Japan.

Specimens examined. Very rare under forest near stream on Mt. Taimoshan (F. W. Xing 10078, in IBSC)

Notes. Only one specimen of this species was collected from Taimoshan in Hong Kong in 1899 (Hong Kong Herbarium, 2001) and it was considered as very rare. This is the first collection since 1899 in Hong Kong. This species is 40 cm tall and bipinnatifid in Hong Kong.

Cyrtomidictyum basipinnatum (Baker) Ching in *Acta Phytotax. Sinica*. 6: 262. pl. 51. 1957 (Fig. 1 and 2).

Illustration. Ching (1957): p. 262. fig. 51. Xie (2001): p. 219-220.

Distribution. Endemic to China (Guangdong and Hong Kong).



Fig. 1. Top side view of *Cyrtomidictyum basipinnatum* – a rediscovered fern from Bride's Pool.

Specimens examined. Rare on the wet stone wall under the fall at Bride's Pool. (Y. H. Yan 640, IBSC), altitude 150m.

Notes. Only one specimen of this species was collected from Mt. Nicholson on Hong Kong Island in 1906 (Hong Kong Herbarium, 2001) and it was considered as very rare in Hong Kong. This is the first collection since 1906 in Hong Kong.



Fig. 2. Underside view of *Cyrtomidietyum basipinnatum*.

Hypolepis punctata (Thunb.) Mett., Kuhn, Fil. Afri. 120. 1868.

Illustration. Shiew (1994): p. 156. fig. 60.

Distribution. Ceylon, Central and S. China, Himalayas, India, Indo-China, Japan, S. Korea, Malaya peninsula and Taiwan.

Specimens examined. Common along the roadside at the top of Mt. Taimoshan. (Y. H. Yan 605, IBSC), alt. 900m.

Notes. Only one specimen of this species was collected from Taimoshan in 1907 (Hong Kong Herbarium, 2001) and it was considered as very rare in Hong Kong. It is nearly one hundred years since it was last collected in Hong Kong. In our survey, a population of this species with more than 500 plants was founded at the mountaintop of Taimoshan. It is under the threat of heavy human disturbance because of its roadside location and numbers of tourists.

Trichomanes auriculatum Blume, Enum. Pl. Jav. 225. 1828.

Illustration. Tsai & Shieh (1994): p. 129. fig. 49.

Distribution. Widely distributed in China (Guangdong, Guangxi, Guizhou, Hainan, Jiangxi, Sichuan, Taiwan, Yunnan and Zhejiang), Himalayas, India, Indonesia, Japan, Malaysia, Micronesia, Ryukyu and Vietnam.

Specimens examined. Very rare on the tree or moist rocks near stream on Lantau Peak (Yan. H. H. 696, IBSC), alt. 700 m.

Notes. Only one specimen of this species was collected from Taimoshan in Hong Kong in 1907 (Hong Kong Herbarium, 2001) and it was considered as very rare in Hong Kong. It is very rare and only 5 plants were found. There are two species in *Trichomanes*, and the other species, *T. orientale*, is characterized by 3-pinnatifid fronds with longer stipes.

Acknowledgements

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It has now been approximately 6 months since the ceremony held at SWIMS to celebrate its renovation in December 2003. Since this event, and the upheavals of the renovation, we have finally been able to get down to the primary function of SWIMS – research. Students have adapted the aquarium to establish experiments. Over the last few months there have been a number of star species in the aquarium – notably the octopus and their babies; the burrowing *Austinoergia* (mudshrimp), bamboo sharks and their eggs, and also the echinoderms in the touch tank which recently featured in the nature column of Ming Pao.

This semester has also seen SWIMS host the undergraduate students undertaking their Coastal Ecology projects. Groups of students visited SWIMS to use the aquarium for their studies. In March, the entire class took part in a mini conference at SWIMS to present their results in the seminar room, followed by a BBQ and party at the residence block.

Postgraduate and undergraduate students from SWIMS participated in the Symposium on Marine Biology and Biotechnology held at Chinese University in April, with over 7 students giving talks/posters. We also hosted an alumni and Marine Biological Association (MBA, Hong Kong) open house and BBQ which was attended by over 60 people, including old friends and colleagues from Hong Kong UST, City University, Government departments and a large crowd from Chinese University led by Dr Put Ang. Dr Paul Shin gave a speech of welcome on behalf of the MBA and Kenny Leung coordinated the food and drink for what was a very relaxed and enjoyable evening!

Most recently, SWIMS hosted a Training Workshop on the Analysis of Multivariate Data from Ecology and Environmental Science using the statistics package Primer, led by Dr Bob Clarke (Plymouth Marine Laboratory, UK). For four days, 30 participants from DEB (HKU), Chinese University, City University, Agriculture, Fisheries and Conservation Department, Environmental Protection Department, South China Sea Institute and even as far afield as the National Institute of Education, Singapore were gently guided through the minefields of multivariate statistics (Fig. 1). It was truly enlightening to hear Bob, who has developed most of the methods, explain and demystify these techniques and before long people were discussing how they could apply Cluster analysis, MDS, ANOSIM and other techniques to their own data sets. The workshop was a great success, principally due to Bob's patience and teaching skills, and also the support team at SWIMS, especially Albert and Cecily who made sure things ran smoothly. No doubt we shall be seeing an increasing use of these forms of analysis in papers from Hong Kong and, as the workshop proved so popular, we may even run another one in a year or so's time!



Fig. 1. Primer workshop participants.

Gray A. Williams
Hon. Director SWIMS

DIVERSITY AT A GLANCE

This column aims to introduce interesting species of Hong Kong flora and fauna that might be encountered during fieldwork. Distinctive physical characteristics and some interesting ecological facts are included for each example.

Editor: Jacqueline Weir (jesweir@hkusua.hku.hk)

Macrobrachium hainanense by Sukhmani Kaur Mantel



Fig. 1. A large *Macrobrachium hainanense*.

Macrobrachium hainanense, known locally as the Hainan Swamp Shrimp 海南沼蝦 is a nocturnal shrimp belonging to the family Palaemonidae that you might encounter in forested upland streams in Hong Kong. These shrimps can be distinguished from other shrimps in these streams by their large chelae, due to which they get their name (*Macro* = large; *brachium* = arm). Palaemonid shrimps are present in tropical Asian and Neotropical streams, and species of *Macrobrachium* are found throughout the tropics, primarily in freshwaters. In Tai Po Kau Forest Stream (TPKFS in Tai Po Kau Nature Reserve) and Tai Shing Stream (TSS in Shing Mun Country Park), the shrimps are generalist predators that feed primarily on slow-moving or sedentary benthic macroinvertebrates. Tagging of shrimps, using individual numbered markers, followed by release in Tai Po Kau Forest Stream pools, was conducted to study their growth rate. Smaller shrimps grew faster than larger ones and growth rate was higher during the summer period. At the age of two years both sexes began breeding and females produced 20-75 eggs per brood between April and August. Males lived longer (up to four years) and grew larger (up to 79 mm total length) than females, which lived for only three years. Since these shrimps are relatively large and predatory in nature, it might be expected that they are important in structuring stream communities (Fig. 1). Experiments were, therefore, conducted in pools of the two streams (TPKFS and TSS) that compared

communities of benthic invertebrates in pools with shrimps to pools without *Macrobrachium* shrimps. Shrimp removal did not result in any significant change in the community, probably since these pools also contain benthic predatory fishes that might have cropped the excess prey made available by removal of the shrimps. Interestingly, however, this shrimp feeds on large quantities of *Brotia hainanensis*, a snail that is abundant in the streams, with the gut of one shrimp containing 74 small snails! It is therefore believed that the shrimp is probably responsible for the high mortality of small-sized *Brotia*.

Nerita by Ariel Yeung

When you walk along the coastal region of Hong Kong, you can find one group of animals easily, species of *Nerita*. They belong to the family of prosobranch gastropods Neritidae that is widely distributed in tropical regions. The shell of *Nerita* are globular or depressed. They have a flattened base. The colour of *Nerita* differs from species to species. Typical *Nerita albicilla* shells are black in colour (but some are eroded so white colour can be seen) while *Nerita yoldii* shells are creamy yellow with black bands.

These animals are grazers, feeding on algae attached to the shore with their radulae. Because of their high abundance, they are important to the structure of the algal community in the coastal region. For example, halos from absent biofilm are common on western rocky shores, due to the grazing effect of *Nerita*.

Nerita has separate sexes. Unlike some other gastropods, they possess internal fertilization. You can identify the sex of a *Nerita* by seeing the presence or not of a triangle-shaped penis beside its right tentacle. During autumn, white egg capsules ('white disks' with diameter about 5 mm) can be seen easily on Hong Kong shores. Within each egg capsule, more than 100 babies can be found!

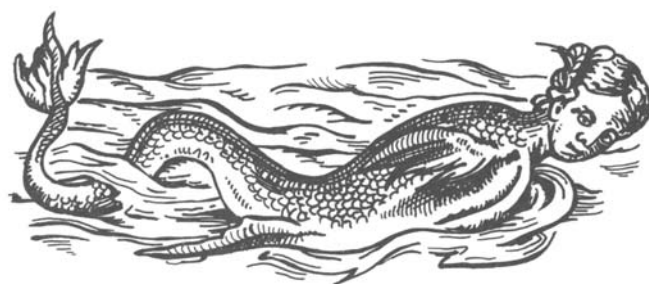


Fig.2. *Nerita costata*

There are more than 100 *Nerita* species in the world, while 8 of them can be found in Hong Kong. Most live on rocky shores. The commonest is *Nerita albicilla* in eastern oceanic waters, while in the western estuary region, a high density of

Nerita yoldii can be seen. Some big guys such as *Nerita costata* (black in colour, Fig. 2) and *Nerita plicata* (white in colour) can also be found on the rocky shores of Cape d'Aguilar. Apart from rocky shores, *Nerita spp.* can inhabit mangrove regions, such as *Nerita lineate*, and sandy shore regions, such as *Nerita chameleon*. Both are abundant in Three Fathoms Cove.

In order to live in the intertidal region, a highly variable environment, they have a particular strategy. They hide in crevices most of the time to escape from predators and physical stress. They also have an endogenous rhythm to ensure they forage at the right time. Next time when you walk along the shores, try to search out these animals. Try to observe their behaviour and see how they have adapted to the environment.



MISCELLANY

BBR 2004

by Fion Cheung
ENS Year 3 student

After a long (18 hours), hard and tiring bird-watching trip, the Big Bird Race (BBR) 2004 was completed successfully yesterday (28/2) at dusk. This year, our group consisted of 11 Environmental Life Science final year students and many other groups were amazed by our combinationall of us are girls!

As for last year's race, the bird-watching schedule was tight. Since this year's BBR began at midnight, we started walking around Kadoorie Agricultural Research Centre where we stayed for the night and then drove to Shek Wu Wai trying to record bird calls in the dark. It was windy and thus very difficult to detect the weak bird calls. Luckily, we were able to record the calls of a Collared Scops Owl and several Savanna Nightjars. After a short break, we set out again at about 6.30 to Pak Ngau Shek off Kadoorie Farm and then to Tai Po Kau. The number of birds recorded at Tai Po Kau was a little bit less than expected as a result of the windy morning and quite a lot of human disturbance (for example, cars of park-visitors). But then, our luck came back and the number of birds recorded surged in Sha Po, which is situated in North

Kam Tin, and Mai Po. Just in Sha Po, we recorded nearly 40 bird species (Fig. 1). However, it was sad to learn that this wonderful bird paradise was under imminent threat of development and illegal landuse. Despite the fact that we have the Environmental Impact Assessment Ordinance (EIAO) to govern the impacts of development on our environment, the unacceptable impacts at Sha Po warrant thorough evaluation of the way the EIAO is used. While we were observing a Yellow-billed Grosbeak on a tree branch on the way out of Sha Po, our “angel”, which was a handsome Hoopoe, suddenly came to visit us!! Every one of us was so excited by its sudden appearance that the poor little Grosbeak was put aside. When we arrived at Mai Po, it was sunny and so it was quite exhausting to watch birds there. Like many other groups, we could not spot any night herons in Mai Po so we went to A Chau to find them. Lastly, we reached the Little Egret Restaurant to finish the race (Fig. 2).



Fig. 1. Bird watching at Sha Po.

We recorded 115 different bird species and ranked the 10 out of 13 groups this year. However, we won the Pentax Cup as we had the largest number of individual sponsors. The prize is six pairs of Pentax binoculars. We have to thank all those who supported the Birdbrains Team this year. One thing I can be sure is that we were all lucky girls as nearly half of us got a prize in the lucky draw!



Fig. 2. End point at the Little Egret Restaurant.

Finally, I would like to express my gratitude to Dr Hau for his great effort in initiating our interest in bird-watching and organizing the Birdbrains Team for us this year. I must also thank Mr. Yu Yat Tung for his patience in teaching us the bird-watching skills. Mr. Yu is really an experienced bird-watcher and we are grateful to have him in our team. It was the second BBR for most of us to take part in and I am glad that Dr Hau said our bird-watching skills, especially on identifying bird calls, were better than last year. Although after graduation, there may be fewer chances for me to go bird-watching with my classmates, my interest in bird-watching will not fade and I do hope that my classmates and I can join the BBR again next year.

Sham Chung: a revisit

by Ken Ching and Eric Chan

The 30-hectare Sham Chung was in the news again recently. There are speculations that Sham Chung, where half of the land is privately owned, will be developed into a golf course with resorts (Ming Pao 3.5.04, SCMP 3.5.04). Sham Chung once included a 9-hectare freshwater marsh, which was rated as a site with high conservation value (Dudgeon & Chan 1996). The ecological value of Sham Chung marsh started to deteriorate in 1999, when the developers began to drain water out from the marsh and then grew grasses after tillage. This is still legal as Sham Chung is not protected under any conservation ordinance, while draining water from the wetland and growing grasses (some people call this ‘dry farming’) do not violate the permitted land-use of ‘agriculture’ as stated in the Outline Zoning Plans. However, this damages the marsh and it will be easier for the developers to pass the EIA when development plans are proposed. Now, the major part of the Sham Chung marsh has turned into grassland which has a lower level of biodiversity than the original abandoned paddy field.

Recently, Civil Engineering Department has submitted a proposal for the reconstruction of Sham Chung Public Pier (www.ced.gov.hk/eng/generalinfo/tsd/pp_04_sc.pdf). The reconstruction will extend the size of the original pier. This may be a further step towards the development of Sham Chung.

Despite the degraded marsh, streams in Sham Chung are still home to various species of fishes – at least six native freshwater fishes and five brackishwater species were found in a brief visit by us to Sham Chung. Three species of decapods were also spotted there. A brief survey focusing on birds, dragonflies and butterflies found that Sham Chung is now supporting a number of rare species (Table 1). It was a surprise to find a very rare raptor, the Brown Fish Owl *Ketupa zeylonensis*, which was photographed in the woodland there (Fig. 1). Also, this woodland may support mammals and rare species of plants. Active conservation activities and increased public awareness are necessary for Hong Kong society to make the best choices for the future of Sham Chung.

Bibliography

Dudgeon, D. & Chan, E.W.C. (1996) *Ecological Study of Freshwater Wetland Habitats in Hong Kong*. Agriculture & Fisheries Department, Hong Kong Government.

Hau, B. (1999) Sham Chung conspiracy? *Porcupine!* 19: 28.

Table 1. Uncommon species of birds, dragonflies and butterflies in Sham Chung. Data from surveys by Ken Ching (until 13 June 2004)

	Species
Bird	White-bellied Sea Eagle <i>Haliaeetus leucogaster</i>
	Brown Fish Owl <i>Ketupa zeylonensis</i>
Dragonfly	<i>Agriocnemis pygmaea</i>
	<i>Pseudagrion microcephalum</i>
	<i>Rhyothemis triangularis</i>
Butterfly	<i>Spindasis lohita</i>



Fig. 1. A Brown Fish Owl *Ketupa zeylonensis* photographed at Sham Chung (Photo by Ken Ching).

Big Fish Count 2004

by Allen To, Anna Situ & Kevin Kwok

On Sunday, 20 June, the first “underwater” version of the Big Bird Race, the Big Fish Count, was hosted by WWF Hong Kong. The event was to echo the World Oceans Day on 8 June, aiming to raise public awareness about marine life and funds for WWF Hong Kong. In addition, the event contributes to scientific knowledge of the local environment by gathering data on local fish species diversity to build up a database. Participating teams can go to up to three sites of their choice in search of fish species in a 45-minute dive at each site. The

team finding most fish species is the winner. We three teamed up with Kenny Leung and four other fish-loving divers to form the “HKU Diving Team” to compete with three other local diving teams (Fig. 1).

The three sites we chose were Bluff Island, Port Shelter and Sharp Island. Climate was ideal for diving: sunny, good visibility and warm water. However, the tide was very low on that afternoon and the water level was too shallow to do SCUBA diving. Therefore most of us snorkeled instead. Nevertheless, we still had a great opportunity to see many beautiful fishes. We swam amongst schools of Chinese Demoiselle and Regal Demoiselle and saw the common clownfish (Fig. 2). Some of us encountered a number of less common fish species in Hong Kong, including Bird wrasse (*Gomphosus varius*), Western gregory (*Stegastes obreptus*), Spotted knifejaw (*Oplegnathus punctatus*), Chevron butterflyfish (*Chaetodon trifascialis*) and Raccoon butterflyfish (*Chaetodon lunula*). Kenny even saw a 12-inch long abalone during the survey!



Fig. 1. Team photo of HKU diving team (Photo: WWF).

The 8-hour intensive survey was challenging and physically demanding. We were relieved when it ended. A celebration barbecue party was held at WWF HK Island House Conservation Studies Centre that night. Kenny of course did not miss the chance to refuel himself with chilled beer. Our team effort was highly acknowledged when our team was announced to be the winner. A record of 90 valid fish species by our group was far more than that of other teams. We were presented with the trophy and certificates by the competition judge, our beloved fish expert Dr. Andy Cornish.

This event enhanced our knowledge of fish species diversity in local waters. It surprised us that such a high diversity of fish was readily observable in the Hong Kong waters. Fish-watching can be an equally enjoyable and accessible activity as bird-watching. Hopefully Hong Kong people will begin to treasure and protect this beautiful underwater world, starting with an appreciation of its beauty.

Lastly we are thankful to our teammates including Dr. Kenneth Leung, Ken Ching, Raymond Chu, Rosemary

Torrance and Marija Minic for their efforts and Cheung Ming and Cheung Ming Hong for logistics and technical support.



Fig. 2. A photo of a Clark's anemone fish, *Amphiprion clarkii*, a common fish species encountered at Big Fish Count (Photo: Ken Ching).

Kadoorie Farm & Botanic Garden - Wildlife updates & sightings

by Gary Ades, Roger Kendrick, Paul Crow, Amanda Haig, Louis Cheung, Preston Chow and Rupert Griffiths
email: fauna@kfbg.org

Wildlife recordings, surveys and rehabilitation at Kadoorie Farm & Botanic Garden (KFBG) have produced a number of interesting and unusual records since December. 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 sightings records were posted between August and November, 2003:

August

5 August, 5.10pm; Scarlet-backed Flowerpecker (*Dicaeum cruentatum*), near tropical plants house - adult female with 3 juveniles begging for food.

23 August, (Night Safari) 7.30pm; Japanese Pipistrelle Bats observed hunting insects, and picked up at 46KHz on bat detectors, over the Butterfly Garden; 8.30pm - still a few fireflies along the stream at the Fern Walk

27 August, p.m.; Many-banded Krait hatchling found outside the Admin. Office

29 August; a male Macaque seen outside the Conservation Office.

September

1 September; at least 5 Birdwing butterflies (*Troides helenus* and *T. aeacus*) flying around the Butterfly Garden, 4 pm

3 September - Small Indian Civet at Signpost Corner

6 September - Bamboo Snake at Native Tree Nursery

8 September - Cobra near Helicopter Pad

10 September - Atlas Moth (mating pair) at Parrot Sanctuary

12 September - Muntjac (Barking deer) heard, below Kwun Yum Shan and near Post Office Pillars

12 September - Porcupine seen on road above Post Office Pillars

12 September - Wild boar seen on road above Post Office Pillars

13 September - Barking deer above Post Office Pillars

15 September - Porcupine at Apiary

24 September - Burmese Python near T S Woo Pavilion

29 September - Woodcock below Twin Pavilion

October

5 October - Black-naped Oriole, (two individuals) at Kwun Yum Shan summit.

24 October - Big-headed Terrapin, Magnolia Reservoir

25 October - 2 Ferret-badgers playing near Orchid Haven; 2 Porcupine at Raptor Sanctuary, unidentified species of Nightjar hawking for insects at dusk, summit of Kwun Yum Shan; Japanese Pipistrelle Bats above Upper Canteen; Himalayan Leaf-nosed Bats (*Hipposideros armiger*) hunting airborne invertebrates below TS Woo Pavilion; fireflies evident after dusk at the top of Kwun Yum Shan and at Great Falls.

November

21 November (evening / night) - Wild boar, Leopard Cat and Small Indian Civet - upper Farm tangerine terraces; HK cascade frog - stream pool near Orchid Haven; 3 Big-headed Terrapins, Lesser Spiny frog, 3 Anderson Stream Snakes -

stream above Magnolia Reservoir; HK Newt - stream near Fern Walk.

22 November (Night Safari) - Porcupine (2 adult, 2 sub-adult) on road beneath summit of Kwun Yum Shan; Porcupine (one adult) above Boulder Lodge; Fire-fly larvae (=glow-worms!) at Magnolia Reservoir, by stream at Orchid Haven, Fern Walk and below Butterfly Garden.

The following notable sighting records from Kwun Yum Shan (KYS) were posted between December 2003 and May 2004:

December

15 December - Daurian redstart
19 December - Red-tailed robin
19 December - Chestnut bellied rock thrush

January

13 January - White's thrush
16 January - Woodcock, rufous turtle dove, big-headed terrapin, and a Rhesus macaque
17 January - Hong Kong cascade frog, Malayan porcupine, a barking deer calling
21 January - Imperial Eagle over KYS

February

3 February - Small Indian civet
7 February - Two Malayan porcupines
10 February - Wild boar
12 February - Three stray dogs were seen eating a barking deer they had just killed
20 February - Two barking deer

March

4 March - A young barking deer
6 March - Small Indian civet
16 March - Two wild boar
24 March - Two barking deer
27 March - Malayan porcupine killed by stray dogs
31 March - Three Malayan porcupines

April

7 April - Red mountain racer
10 April - Wild boar
14 April - Small Asian mongoose
19 April - Three Malayan porcupines
20 April - A Hong Kong cascade frog calling
21 April - Leopard cat
23 April - Big-headed terrapin
25 April - Greater green snake
27 April - Bamboo Pit Viper
27 April - Two Styan's squirrels

(2) Kadoorie Farm & Botanic Garden – Fauna Department Project News:

The monthly moth survey has again increased the number of moths recorded at KFBG, to at least 1,171 species as of April 2004. Fourteen species have been recorded as new to KFBG in two nights light-trapping (28 February and 27 March) out of the 292 species recorded. The Yponomeutidae species reported as new to Hong Kong in *Porcupine!* **30** has been tentatively identified as *Teinoptila* sp. near *brunnescens*. One further species of note from 25 October 2003 has been identified as *Tirathaba ruptilinea* (Pyralidae, Galleriinae), also new to Hong Kong.

The second edition of KFBG's *Hong Kong Fauna – A Checklist of Selected Taxa* was completed in April. Copies are to be privately distributed, primarily to environmental non-governmental organisations and relevant government departments. The Checklist combines lists available from several sources into one reference and contains recent unpublished records. The list includes all the vertebrates recorded in Hong Kong, odonates, Lepidoptera (including moths), several beetle families and phasmids; just over 3,500 species in total. Further groups are to be added in future editions. Comments on this latest edition are welcome.

The endemic **Romer's Tree Frog** population on the KFBG hillside is still being monitored monthly. This year, courtship calls were first heard in March. In April and May a total of 20 adults were recorded in the field, but no tadpoles and eggs have been found yet. This is quite late compared to May 2003, when more than 100 eggs and tadpoles were found during the same night.

KFBG currently has a total of 21 **artificial bat roosts** of 4 different designs installed on site. The boxes are all between 1-2 yrs old and as yet have not attracted a significant level of occupancy however that is not to say they are not utilized. Our most successful design to date was our "first draft" which was our simplest design based upon simple principles laid out by Bat Conservation International and reference design laid out in "The Bat House Builder's Handbook" 1993 Merlin Tuttle and Donna Hensley.

The first design was recorded as housing up to 5 head of Japanese pipistrelle (*Pipistrellus abramus*) in a box at any one time and up to 11 bats at one time between all four roosts of that design. Unfortunately this box design was not resilient enough to last in the Hong Kong, climate being constructed only of plywood, and later upgrades have as yet failed to attract the same response from our local bats.

Other designs in use include a "Bat Condo" designed to offer housing to larger numbers of bats and prefabricated "Woodcrete" boxes designed to be built into permanent brick or concrete structures.

In many temperate countries artificial roost structures for bats are well researched and are recognized as a valid conservation measure for some species. By putting different designs through trial, we hope to find those designs most appropriate for use in Hong Kong that may have value in mitigating loss of existing bat roost sites. Plans exist in the future to test larger scale roost designs.

With the arrival of the new financial and working year in April of 2004 KFBG has formalized one of the ongoing monitoring projects into a more structured programme. The population of **Big-headed Terrapins** resident inside the boundaries of KFBG is the subject of the study. Initially basic occurrence data is being collected during routine stream searches, this has so far recorded 39 individual turtles, which have been marked, measured and released (Figs. 1 and 2). Turtles have ranged from 8.5 g hatchlings to adults just under 1 kg in weight. As an extension to this project, collaboration with the Savannah River Ecology Laboratory (USA) has been initiated and a radio telemetry project that hopes to uncover a little more of the ecology of this threatened species is underway. Currently only four animals are being regularly tracked but we hope to expand the project when manpower allows. Each turtle being tracked is also carrying an “ibutton” temperature logger that will provide a snap shot of the thermal environment the animals are selecting.



Fig. 1. An adult male big headed terrapin from the KFBG hillside fitted with radio transmitter and data logger package.



Fig. 2. A hatchling big headed terrapin is processed and numbered before re-release.

The results of a *Pilot biodiversity study of the eastern Frontier Closed Area and North East New Territories*

undertaken during 2003 have been published. The executive summary is reproduced here:

“A 7-day preliminary biodiversity survey was conducted between June and December 2003 at Lin Ma Hang and San Kwai Tin in the Frontier Closed Area (FCA), and Kuk Po, So Lo Pun and Yung Shue Au in North East New Territories (NENT) The aim of this survey was to provide up-to-date ecological background information relevant to an evaluation of ecological importance of potential ecological hotspots in the study area. Included in the study were surveys of plants, mammals, birds, amphibians and reptiles, freshwater fish and macro-invertebrates.

In the FCA botanical hotspots included the *feng shui* woods and secondary forest where forest-dependent birds including the Orange-headed Thrush were recorded. *Gymnosphaera metteniana*, a new fern species to Hong Kong, was recorded in the secondary forest. The present survey also reinforces earlier findings of high ecological value of lowland streams for freshwater fish, and lowland habitats for bats. A dragonfly, *Idionyx victor*, of “Local Concern”, was also recorded. The endemic Anderson’s Stream Snake of “Potential Global Concern”, and Mountain Wolf Snake and Diamond-backed Water Snake both of “Local Concern” were recorded. Three Hong Kong endemic moths were also recorded during a light trap exercise. A dragonfly, *Gynacantha subinterrupta*, of “Local Concern” was recorded.

In the NENT a total of nine plant species of conservation concern were recorded. The Yellow-bellied Weasel and Crab-eating Mongoose of “Local Concern” were recorded by infra-red camera exercises. The highest occurrence of mammals occurred at Yung Shue Au. In addition, the presence of the goby *Stiphodon* sp., which is of “Global Concern”, is the first record of this fish species in the New Territories.

Designating Country Park and Site of Special Scientific Interest status to lowland habitats of high ecological value is the most effective way to conserve these habitats. Priority for conservation should be given to the secondary forest and lowland streams at Lin Ma Hang, secondary forest and hillstream at San Kwai Tin, San Uk Ha *feng shui* wood at Kuk Po, secondary forest, the lowland stream/marsh, and seagrass at So Lo Pun, and the lowland stream at Yung Shue Au. Green corridors between Wutongshan National Forest Park in Shenzhen and Robin’s Nest in Hong Kong are recommended with cross-border cooperation, to enhance movement and dispersal of wildlife between the Hong Kong and Shenzhen mountain ranges.”

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

The last few months saw a fair amount of activity at WARC, with animals admitted for rehabilitation and veterinary treatment for a variety of conditions, we also received a number of young animals. The release of a Brown Fish Owl fitted with a radio transmitter provided a useful diary of habitat use and survival prior to the transmitter being recovered from a shed feather in April. Notable animals received during this period include a Saker Falcon and a Pied Avocet.

Below is a list of some of the animals received over the last few months that have been successfully rehabilitated and subsequently released.

SPECIES	LOCATION FOUND	RELEASE DATE	RELEASE LOCATION
RAPTORS			
Collard Scops Owl (<i>Otus lempiji</i>)	Unknown	20.09.03	KFBG
Collard Scops Owl (<i>Otus lempiji</i>)	Aberdeen	20.09.03	KFBG
Collard Scops Owl (<i>Otus lempiji</i>)	Peel Rise	25.10.03	KFBG
Collard Scops Owl (<i>Otus lempiji</i>)	Mui Wo	25.10.03	KFBG
Collard Scops Owl (<i>Otus lempiji</i>)	Quarry Bay	13.10.03	KFBG
Collard Scops Owl (<i>Otus lempiji</i>)	The Peak	27.04.04	The Peak
Black Eared Kite (<i>Milvus migrans</i>)	Unknown	05.10.03	KFBG
Black Eared Kite (<i>Milvus migrans</i>)	Taipo	17.12.03	KFBG
Brown Hawk Owl (<i>Ninox scutulata</i>)	Ho Man Tin	15.10.03	KFBG
Oriental Scops Owl (<i>Otus sunia</i>)	Kwun Tong	21.10.03	KFBG
Common Buzzard (<i>Buteo buteo</i>)	Kowloon Tong	06.11.03	Mai Po
Common Buzzard (<i>Buteo buteo</i>)	Unknown	05.12.03	KFBG
Kestrel (<i>Falco tinnunculus</i>)	Causeway Bay	11.12.03	KFBG
Kestrel (<i>Falco tinnunculus</i>)	Kwai Fong	20.02.04	KFBG
Saker Falcon (<i>Falco cherrug</i>)	Kai Tak	21.02.04	KFBG
Peregrine Falcon (<i>Falco peregrinus</i>)	Tai Hang	23.02.04	KFBG
Peregrine Falcon (<i>Falco peregrinus</i>)	Causeway Bay	26.02.04	KFBG
Eastern Grass Owl (<i>Tyto longimembris</i>) x 2	Sai Kung	27.02.04	Sai Kung
NON RAPTORS			
Koel (<i>Eudynamis scolopacea</i>)	Kam Tin	01.09.03	Kam Tin
Yellow Bittern (<i>Ixobrychus sinensis</i>)	Sham Shui Po	17.10.03	Mai Po
Schrencks Bittern (<i>Ixobrychus eurhythmus</i>)	Kwun Tong	18.10.03	Mai Po
Chestnut Bittern (<i>Ixobrychus cinnamomeus</i>)	Wan Chai	22.10.03	Mai Po

White Breasted Waterhen (<i>Amourornis phoenicurus</i>)	North Point	30.09.03	Lam Tsuen
White Breasted Waterhen (<i>Amourornis phoenicurus</i>)	Morrison Hill	22.10.03	Lam Tsuen
Chinese Pond Heron (<i>Ardeola bacchus</i>)	Central	27.10.03	Lam Tsuen
Water Cock (<i>Gallicrex cinerea</i>)	Cotton Tree Drive	06.11.03	Mai Po
Common Teal (<i>Anas crecca</i>)	Lok Ma Chau	19.11.03	Mai Po
Common Teal (<i>Anas crecca</i>)	Mai Po	06.12.03	Mai Po
Band Bellied Crane (<i>Porzana paykulli</i>)	Mongkok	19.11.03	Mai Po
Moorhen (<i>Gallinula chloropus</i>)	Peak	21.11.03	Kam Tin
Woodcock (<i>Scolopax rusticola</i>)	Tsim Sha Tsui	22.11.03	KFBG
Shoveler Duck (<i>Anas clypeata</i>)	Mai Po	06.12.03	Mai Po
Spotted Dove (<i>Streptopelia chinensis</i>)	KFBG	11.12.03	KFBG
Spotted Dove (<i>Streptopelia chinensis</i>)	KFBG	11.12.03	KFBG
Spotted Dove (<i>Streptopelia chinensis</i>)	KFBG	11.12.03	KFBG
Shoveler Duck (<i>Anas clypeata</i>)	Mai Po	18.12.03	Mai Po
Shoveler Duck (<i>Anas clypeata</i>)	Mai Po	18.12.03	Mai Po
Northern Pintail (<i>Anas acuta</i>)	Mai Po	30.12.03	Mai Po
Woodcock (<i>Scolopax rusticola</i>)	Beacon Hill	30.12.03	KFBG
Pied Avocet (<i>Recurvirostra avosetta</i>)	Mai Po	30.12.03	Mai Po
Chinese Pond Heron (<i>Ardeola bacchus</i>)	Fairview Park	17.01.04	Mai Po
Great Egret (<i>Egretta alba</i>)	Tai Po	27.01.04	Tai Po
Silky Starling (<i>Sturnus sericeus</i>)	Tai Po	25.03.04	Kam Tin
Common Kingfisher (<i>Alcedo atthis</i>)	Admiralty	03.04.04	Lam Tsuen
Chinese Pond Heron (<i>Ardeola bacchus</i>)	Sheung Shui	20.04.04	Sheung Shui
Chinese Pond Heron (<i>Ardeola bacchus</i>)	Lok Ma Chau	26.04.04	Lok Ma Chau
MAMMALS			
Greater Short Nosed Fruit Bat	Tai Po	11.11.03	Tai Po

(<i>Cynopterus sphinx</i>)			
Short-nosed Fruit Bat (<i>Cynopterus sphinx</i>)	Lam Tsuen	05.02.04	Lam Tsuen
Short-nosed Fruit Bat (<i>Cynopterus sphinx</i>)	Tong Fuk	16.02.04	Tong Fuk
Short-nosed Fruit Bat (<i>Cynopterus sphinx</i>)	Tung Chung	23.04.04	Tung Chung

(4) Feature: Feral Dogs & Native Wildlife – a cause for concern

During a Night Safari activity at KFBG on 27 March, a dramatic incident occurred which highlights the impact feral dogs have on the native wildlife. The KFBG security patrol radioed the Safari team to say they had seen a porcupine family (two adults and one juvenile) at approximately 300 m ASL. Before the activity group reached the location, dogs were heard barking excitedly, with the sound coming from close to the reported sightings. The Night Safari team reached the location of the Porcupine sighting, to be met by the security guards on duty and were informed that a juvenile porcupine had been killed by feral dogs. The body had not been removed, so the Night Safari participants were able to see first hand the gruesome result of the feral dog attack as they walked to the lower part of the Farm (Fig. 3). Once at Misha's Bungalow lower down the hill, there followed a lively debate amongst KFBG staff and Night Safari participants as to the possible courses of action that could be taken to deal with feral dogs.



Fig. 3. Juvenile porcupine killed on 27 March 2004, showing extensive wounds from the attack by feral dogs.

This incident followed the killing of a pregnant muntjac deer on 12th February and a third incident occurred more recently, with an adult porcupine killed by feral dogs on May 21 (Fig. 4). Staff have also witnessed feral dogs attacking a pangolin on KYS.



Fig. 4. The muntjac killed by feral dogs on 12 February 2004.

Readers are encouraged to provide records of their own experiences concerning feral dog activities and the locations where they occurred.

“From the Bar”

Feature essay: Wildlife rehabilitation and release at KFBG

by Rupert Griffiths

Introduction

KFBG Wild Animal Rescue Centre (WARC) carries out rehabilitation work for any native Hong Kong wildlife that is found injured or displaced. From 1994 to 2004, admittances of native animals to the centre totalled more than 2000*, and more than 1000 were released. Snakes make up the largest proportion of these animals (~50%) but birds follow closely behind (~40%).

The WARC also serves a second important function, that is as a holding and relocation facility for large numbers of confiscated endangered exotic species, but this article will focus only on the native wildlife rehabilitation side of the work.

Why do we undertake wildlife rehabilitation?

Some people who visit the WARC question the value of wildlife rehabilitation. Others blindly accept the need for it without proper consideration. We believe that there are two main reasons to carry out wildlife rehabilitation, animal welfare and species conservation, the former involves the element of compassion and the latter is scientifically based. Both have the long-term beneficial result of wildlife conservation and education but in different ways.

Some humans have this odd thing called ‘compassion’, and they feel the need to protect and help individuals that are less well off than themselves. This is where the role of the WARC starts. At KFBG we share this compassion and part of our mission is to help such stricken animals back to a normal life in the wild. It can be argued that such animals do not have what it takes to survive and this may be the case, but we are able to give them a second chance at survival in a world where the odds, already stacked against them, have been further increased by human development. By sharing compassion with the finder, we are actually helping them, and by illustrating our compassion to others, we hope to educate and pass on this compassion, resulting in a higher regard for the importance of wildlife, and eventually, greater protection and increased resource allocation for wildlife conservation work.

The number of a particular species being rehabilitated and released is usually very small in comparison to the number of individuals of that species in the wild, and they have little or no effect on the total population. Given suitable habitat, nature is far better at restocking population levels than people give it credit for. However, in some cases, the numbers of a species being rehabilitated is large in comparison to its wild population. This might happen when the number of admittances is very large, possibly due to a disaster such as an oil spill, or when the number of individuals in the wild is very small, such as species that are endemic to very small geographical regions. It is under such conditions that valuable species conservation work with immediate effect can be undertaken by wildlife rescue centres, and the years of experience and education gained through the rehabilitation of species of lower conservation value shows its true value to species conservation.



Fig. 1. Bird release.

Measuring the success of wildlife rehabilitation. Is the WARC successful?

After consideration of the purpose of the WARC as outlined above, we can see that KFBG needs to do two things for rescue work to be a success:

- 1) Ensure that our rehabilitation techniques and captive care follow high standards and are continuously improved;
- 2) Demonstrate genuine compassion for injured wildlife.

These two requirements are linked, as long as we fulfill the former requirement, and show the public that we have done so, the latter requirement is automatically fulfilled.

So does KFBG ensure the best possible rehabilitation practices? Well, this is a question of looking at measurable indicators and adherence to standards.

It can be argued that the admittance and release ratios for rescue centres, as well as data on expense and staffing levels can be used to determine the success of a centre. These black and white figures can be used to compare results with targets or with figures from other reputable wildlife rehabilitation centres. This might seem logical but different geographical regions and different habitats produce very different case-loads that, in most cases, are incomparable.

One of the main problems in determining successful wildlife rehabilitation is the inconsistency in standards between centres. Wildlife rehabilitation expertise is in short supply, especially in Asia, and there are few monitoring bodies or standards. In most cases the monitoring body for centres are the suppliers of the funds for the operation, and this leads to a tendency to exaggerate on the needs and successes of the centre, a dangerous situation in a profession that does most of its work behind closed doors. Although financial sustainability is a challenge for all wildlife rehabilitation centres, and therefore fund-raising is a high priority, it is important that wild animal rescue centres maintain their focus on the rehabilitation of the injured wildlife being admitted. The injured wildlife must remain the ‘client’, not the finder or the fund-donor.

At the WARC we are fortunate that funding is currently not a problem. This allows us to keep the focus pure, and place full emphasis on the needs of the injured wildlife. We do the utmost to reach the highest of standards, keeping abreast of new techniques by reading relevant journals, attending international conferences and courses and by adapting our experience to new situations.

Proof of post-release survival is a much stronger indicator of success. Two forms of post-release monitoring that have been carried out at KFBG are radio-tracking and tagging.

Radio-tracking is a very good way of determining if a rehabilitation technique works and which methods are most successful. It can also be used as part of the rehabilitation process to provide post-release support. However, radio tracking is fairly time consuming and it is also difficult to determine a suitable target success rate, or length of study time. Many people would instinctively think that a survival

rate for released birds below 30% to be very poor. However, numerous studies have shown a survival rate for wild birds as low as 30% in their first year of life and these birds are in their natural habitat and have the advantage of parental support. Suddenly a 30% survival rate for rescue centre releases is looking good. We presently have a survival and release of close to 60%. Post release monitoring is the only way to convert this release figure into meaningful survival data (Figs. 1 and 2).



Fig. 2. Radio-tracking monitoring after bird release.

At KFBG we have reserved radio-tracking for special cases that may need post release support. Three large raptors have been tracked, 2 white-bellied sea eagles and 1 brown fish owl. It has been very encouraging for us that all 3 of these birds appeared to adapt to life in the wild and that all 3 were alive and well at the completion of their respective tracking studies.

Ringling and tagging is a less time consuming form of post-release monitoring. KFBG WARC uses clearly identifiable rings or tags on nearly all released birds. If released animals are found again, whether in good health or not, then information about that animal can be passed back to us and help us determine if our rehabilitation work is successful or not. The percentage of animals that are found after release is very low but every bit of information helps.

Of the approximately 400 birds released from the WARC between 1994 and 2004, we have received information concerning 4 as a result of rings. Amazingly, the information was positive in all 4 cases and even included photographic evidence of activities such as hunting and breeding.

The WARC could be considered a successful wild animal rescue centre based on the present rehabilitation and release successes, and the centre has managed to maintain a high level of expertise and innovation through experience, continued contact and collaboration with international rehabilitation organisations, and by maintaining the focus on reaching the highest standards of animal care. Our recently produced 60-page operational guidelines, that includes lengthy pre-release preparation techniques, is evidence of this.

* including local confiscations the total number of animals received is close to 10,000!



“In the News”

by Jacqueline Weir and Jasmine Ng

China and International News can be accessed on the web version of *Porcupine* !

The installation of desulphurisation devices to Guangdong's biggest cluster of power plants is anticipated to improve Hong Kong's air quality by the end of the year. Significant improvements should be achieved by 2007 when all oil-fired and coal-fired power plants with a capacity over 125 megawatts in Guangdong are installed with such devices. Although Guangdong generated 80 % of the air pollution and Hong Kong only accounted for the remaining 20 %, the government has started to persuade China Light & Power and Hongkong Electric to reduce emissions. **(SCMP, 24.2.04)**

A study on live reef fish trade by nine independent marine scientists has shown that such trade is often unsustainable and could damage coral reefs and fish communities. To meet the market demand not only a larger volume of fish is harvested, fishing has also extended far into the Pacific and Indian oceans since previous fishing grounds are depleted. Authors of the study urged the Hong Kong government to educate consumers not to choose species that are threatened and turn to farmed fish (ie. hatchery-reared). **(SCMP, 1.3.04)**

Three hundred and seven India Star tortoises wrapped in newspapers and clothes were found in two unclaimed suitcases of passengers at Chek Lap Kok airport. The Agriculture, Fisheries and Conservation Department said the reptiles would probably be supplied to local pet shops. **(SCMP, 4.3.04)**

Profits on compact discs of a 'green' second-hand book and CD shop have gone down since the spread of music and visual entertainment piracy. Book stock is being increased instead. The shop, 'Flow', was set up with the vision of reducing waste and targeting Hong Kong's disposable culture. **(SCMP, 21.3.04)**

Unlicensed glass-bottom boats were found operating in the Hoi Ha Marine Park, which raised safety concerns for coral-watching tourists in the area. While the Agriculture, Fisheries and Conservation Department could not do anything to stop such operators as long as they did not violate the marine park

regulations, a spokesman of the World Wide Fund for Nature Hong Kong urged the government to enforce both safety and conservation measures to protect the fragile environment. **(SCMP, 29.3.04)**

The Hong Kong Dolphin Conservation Society is planning a skin sample study for the Chinese white dolphin in Hong Kong. A dart-like device which extracts a small amount of skin tissue is shot towards a swimming dolphin, and such biopsies should reveal the sex, feeding habits, levels of contaminants in the dolphin and its genetic relationship to other dolphins in the region. The study is anticipated to commence by the end of the year. **(SCMP, 8.4.04)**

A joint study by the Agriculture, Fisheries and Conservation Department and the Chinese University of Hong Kong revealed a total of 84 hard coral species in Hong Kong waters, of which 65 species can be found in Tung Ping Chau. **(Oriental Daily, 13.4.04)**

Agriculture, Fisheries and Conservation Department officers have been satellite tracking one green turtle per year from Sham Wan beach on southern Lamma, where they nest, since 2000. This year more may be tracked, depending on how many come to the beach. A WWF officer called for the Sham Wan area – which is currently protected between June and October – to be upgraded to a marine park. The species faces threats from increasing pollution and marine traffic. **(SCMP, 13.4.04)**

10 new bird species have been recorded in Hong Kong over the last 3 years, giving a total of 465 confirmed bird species in Hong Kong. **(SCMP, 19.4.04)**

Members of the Green Lantau Association and other Lantau environmental groups are worried about the impact on the island of a proposed super-prison on Hei Ling Chau Island, that would be linked to Lantau by a complex road and bridge network. Lantau's green organisations have numerous ideas for developing eco-tourism facilities and scenic improvements to the island, but complain they are not consulted about government plans until they are already finalised. **(SCMP, 26.4.04)**

Ocean Park has asked the Home Affairs Bureau for help to secure a gift of two baby pandas from the mainland. The pandas donated to Hong Kong by Beijing after the handover are reaching old-age (26 and 17 years) and have not bred. **(SCMP, 26.4.04)**

A city-wide signature campaign called 'Stop Greed and Waste' is being launched by the Hong Kong People's Council for Sustainable Development and the Conservancy Association, to ask New World Development and Sun Hung Kai Properties to abandon a plan to tear down the Hung Hom Peninsula. The new residential estate was built for the government but left unsold to help stabilise property prices. It has been bought back by the developers, who plan to demolish it. **(SCMP, 26.4.04)**

Another Lantau stream, the Ngong Ping stream, is channelized for MTRC's cable car development. The diversion destroyed 101 trees in the Lantau country park, and

the Democratic Party has urged the government to introduce a bill to protect natural streams from development. **(SCMP, 29.4.04)**

The restricted area on the border with mainland China is a sanctuary for a significant number of valuable species of plants and animals, according to a study done by the Kadoorie Farm and Botanic Garden. While the development of the area seems inevitable, the executive director of the Kadoorie Farm, Manab Chakraborty, hopes that thorough ecological assessment can be done prior to the development to minimize the impact on the species in the area, recommending different measures to protect selected regions for conservation. **(SCMP, 8.5.04)**

A wild boar has been roaming a slope at a public housing estate in Lai King. One resident claims to have seen it eating a puppy. An AFCD spokesman said there were no plans to catch the boar unless it posed a threat to residents. **(SCMP, 20.5.04)**

A male rough-toothed dolphin was found stranded on Lamma Island. These dolphins are not commonly found in this region, but mainly in equatorial waters close to the Philippines. In the last year other unusual beachings have included a sperm whale, Bryde's whale and false killer whales. It is possible that changes in the climate and ocean currents are to blame. **(SCMP, 20.5.04)**

Local schools held a one-day 'No Air-conditioning Day' campaign, organised by Footprint, a non-profit local environmental group. The hope was to raise awareness of the impact of air-conditioning on global warming. **(SCMP, 22.5.04)**

To conserve stocks and promote sustainable development of the fishing industry, the annual temporary fishing ban in the South China Sea, which lasts from 1 June to 1 August every year, is affecting about 1400 local fishing vessels this year. The Agriculture, Fisheries and Conservation Department has offered low-interest loans and training courses to help alleviate the negative effect of the closure on the livelihoods of fishermen. Fish prices are expected to rise up to 10 % as a result of the ban. **(SCMP, 1.6.04)**

An international study on the threatened Napoleon Humphead Wrasse by scientists from Hong Kong, Senegal, France, Papua New Guinea and the United States has concluded the species is disappearing, possibly due to the strong market demand. Dr Yvonne Sadovy, a co-author of the study and the chairperson of the World Wide Fund for Nature Hong Kong's conservation projects committee, said that the species is biologically vulnerable to heavy fishing pressure, and with a population that is slow to replenish more young fish are now being marketed. The group proposed to regulate the international trade of the fish, but such proposal is not welcomed by fish traders. **(SCMP, 21.6.04)**

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

A **Small Indian Civet** (*Viverricula indica*) was spotted by Dylan Thomas on a trail above Quarry Bay, around 6:15pm on 13 April 2004. The area has thigh-high shrubs and dwarf bamboo. It was making a great deal of noise, and then crossed the path when he approached.

Dylan Thomas saw an unknown **civet species** in the playground of Peak School on 28 May 2004.

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

A dead **Masked-Palm Civet** (*Paguma larvata*) was found lying in a water catchment beside Tsz Lo Lan Path by Grace Leung, Felix, Candy, Pig Pig, Janet, Ruby and Pinkid when they were hiking in Tai Tam on 3 June. Its abdomen was bitten, presumably by feral dogs, with the internal organs exposed.



A **Rhesus Macaque** (*Macaca mulatta*) was photographed by an automatic camera-trap at 9:43am on 4 April in Tai Om feng shui wood. The camera was placed there by Kylie Chung.

A **Ferret Badger** (*Melogale moschata*) was seen by John Allcock at very close range near the top of Sunset Peak on Lantau Island, at noon on 27 December 2003. It was carrying

grasses into a burrow and regularly making trips back and forth along the same route.

AMPHIBIANS/REPTILES

Eric Chan saw a **Red-Necked Keelback** (venomous) (*Rhabdophis subminiatus helleri*) trying to eat an Asian Common Toad (*Bufo melanostictus*) in Tai Po Kau near the Forest Trail at around noon on 24 May 2004.

A **Tokay Gecko** (*Gekko gekko*) was heard calling in a ravine by Nick Goodyer when hiking along the contour path on the south flank of Sunset Peak, around mid-day in early May. Michael Lau said this was the first record of this species on the southern slope of Sunset Peak.

On 15 May around 5 pm, Robert Davison saw a 50 cm **Greater Green Snake** (*Cyclophiops major*) on the Nature Trail in Tai Po Kau. When he approached the snake and came as close as 15 cm, it only moved 60 cm away off the path.

A freshly road-killed juvenile **Mock Viper** (*Psammodynastes pulverulentus*) was found by Jacqui Weir and Kylie Chung on the KARC drive on 31 May 2004. It was around 25 cm long.

A **Large-Spotted Cat Snake** (*Boiga multomaculata*) entered a bedroom at the Swire Institute of Marine Science on 7 June 2004. It was caught by Wai Tak Cheung, and identified by Andy Cornish and Jacqui Weir. It was around 35 cm long.

Alex Wong from WWF reported that a dead **Hawksbill Turtle** (*Eretmochelys imbricata*) (below) was stranded on a beach near WWF Island House Conservation Studies Centre in Tai Po on 25 April 2004. It was about 30 to 35 cm long. The turtle was collected by AFCDD on 26 April for examination.



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Michael Lau saw a **Glassy Bluebottle** (*Graphium cloanthus*) at Shing Mun on 19 June 2004.

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