A photo record of the coral reef mantis shrimp, *Pseudosquilla ciliata* in Hong Kong

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There is virtually no documentation or record of coral reef associated Stomatopoda (i.e. mantis shrimps) in Hong Kong, as most local studies on stomatopod Crustacea have been conducted in deeper waters (i.e. >20 m in water depth) using shrimp trawlers (Lai *et al*. 2003). On 18 May 2003, Ming-Hong Cheung and Joey Leung were diving at the south of Shelter Island, Port Shelter, Hong Kong (Grid reference: 22° 19'N 114° 18'E; water depth: *ca.* 8 m and visibility: 10 m) where they discovered and photographed a greenish mantis shrimp walking across the coral reef area (Figs. 1 & 2). The total length of this stomatopod was *ca.* 100 mm estimated by the divers. It could move very fast on the seabed and was occasionally hidden under the sediment or reef structure.

Figs. 1 & 2. The coral reef mantis shrimp *Pseudosquilla ciliata* found at Shelter Island, Port Shelter.

Recently, these photo records have been sent to the leading authority of Stomatopoda, Dr. Shane T. Ahyong of the Department of Marine Invertebrates, Australian Museum for further identification. The photographed stomatopod is confirmed to be *Pseudosquilla ciliata* (Fabricius, 1787) by Dr Ahyong. Probably, it is the first record of this reef stomatopod species in Hong Kong waters. This is a widespread coral reef species, which have been found in Australia, Vietnam and Indo-West Pacific (Ahyong 2001). Due to its wide occurrence throughout the region of South East Asia, it is not surprising that *P. ciliata* also inhabits in the coral reef area of Hong Kong. Although this photographed specimen is green in colour, it is important to sound a note that the colour of the species is amazingly variable and can vary from lemon yellow to mottled green or brown to black-green; they can change their colour dramatically between moults (Ahyong, personal communication). Detailed information regarding the morphology and identification of this species can be found in Ahyong (2001).

This is, once again, a good example to illustrate how much we still don't know about the diversity of marine life in the marine environment of Hong Kong. In future, more studies should be carried out with a view to deepening our knowledge about the diversity and ecology of reef Stomatopoda in Hong Kong.

Acknowledgements

The authors are very grateful to Dr Shane Ahyong for species identification and invaluable information about this reef stomatopod species.

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VERTEBRATES

Fish checklist grows further at Cape d'Aguilar

by Andy Cornish

Despite poor visibility at the Marine Reserve all summer, a number of new records have been made in recent months. On 25 June a small school of Silvery Moony (*Monodactylus argenteus*) were recorded at 10 m depth. The same day, a 35

cm Giant grouper (*Epinephelus lanceolatus*) was observed in a small cave (Fig. 1). This huge species, which can reach 2.30 m in length, has been very rare in Hong Kong in recent decades although a few have been seen on artificial reefs in recent years (Wilson 2003). There has also been a resident school of Rivulated parrotfish (*Scarus rivulatus*) consisting of four terminal males and more then ten initial phase females. Although the females are relatively abundant locally, this is the first time I have seen a male in > 700 dives. A 20 cm terminal male Globehead parrotfish (*Scarus globiceps*) seen on 10 July with the Rivulated parrotfishes is not just a new record for the reserve, but also for Hong Kong. The cumulative total of reef fishes at Cape d'Aguilar (see *More new fishes from the Cape d'Aguilar Marine Reserve*, *Porcupine!* 28) is now 184.

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Fig.1. Giant grouper (*Epinephelus lanceolatus*) at the Lema Islands, China. (Photo: Andy Cornish)

Trouble with babblers: the White-bellied Yuhina is neither a yuhina nor a babbler, but the Japanese White-eye is both

by Richard T. Corlett

Alice Cibois has devoted most of her short career to sorting out the phylogeny of the babblers – a group traditionally defined to include mostly Asian, mostly forest, mostly more or less insectivorous birds. The traditional babblers are extremely diverse in morphology, ecology and behaviour, and it has been obvious for a long time that the conventional classification of the 200 or so species was a mess. Exactly how much of a mess is being revealed one paper at a time (Cibois *et al.*, 1999, 2001, 2002; Cibois, 2003). The revelations are by no means complete, but two recent papers are relevant to Hong Kong birds. The first shows, using mitochondrial sequence data, that the White-bellied Yuhina (*Yuhina zantholeuca*) (Fig. 1) is not related to the other yuhinas – which it doesn't look like anyway - or even the other babblers (Cibois *et al.*, 2002). The second shows, using sequences of three mitochondrial genes, that the Japanese White-eye (*Zosterops japonica*) (Fig. 2) is not only a babbler, but is also closely related to the two yuhinas included in the analysis (*Y. gularis* and *Y. diademata*) (Cibois, 2003). Although only one white-eye was included, the other *Zosterops* species are so similar they (but not necessarily the rest of the family) must all belong with the babblers. This study also – less surprisingly – placed the *Sylvia* warblers firmly within the babblers, as well as the American Wrentit (*Chamaea fasciata*) (for which, see also Barhoum & Burns, 2002). The laughingthrushes are not only back among the babblers (from which they had been separated by Sibley and Monroe), but also not monophyletic. The Chinese Babax (*Babax lanceolatus*) appears to be part of a group containing the White-browed Laughingthrush (*Garrulax sannio*). With all these inclusions, the expanded babblers now range throughout Africa and Eurasia to Australia, New Zealand and the Pacific, with the Wrentit as an outlier in North America.

Fig. 1 "The White-bellied Yuhina" is neither a yuhina nor a babbler. (Photo: Kwok Hon Kai)

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Fig. 2. The Japanese White-eye is a babbler.

The Ultraviolet Whistling Thrush and avian colour vision

by Richard T. Corlett

The retinas of most birds have four different classes of cones, rather than the three we have in our retinas. Birds have visual pigments maximally sensitive in the red, green and blue parts of the spectrum, like us, plus an additional pigment that is most sensitive in either the violet (400-426 nm) or the ultraviolet (355-380 nm). Note that although the peak sensitivities differ between the two forms of the fourth pigment – called VS and UVS, respectively – they both permit birds to detect ultraviolet light. A number of experimental studies have now shown that birds use their ability to see UV in much the same way as they use other parts of the visual spectrum, i.e., for finding prey and for signaling to other members of their species. Birds are often more brightly coloured in the UV than they are in our visual range. The feathers of our familiar Violet (or Blue) Whistling Thrush (*Myioph*onus *caeruleus*), for example, display a peak reflectance at around 340 nm and they must appear much brighter to each other than they do to us (Prum *et al.*, 2003). Other studies have shown that many fruits that appear black to human ecologists reflect strongly in the UV, and that these fruits become less attractive to frugivores if this UV signal is reduced (e.g. Altshuler, 2001). This presumably explains why "black", rather than the more conspicuous – to us - red, is the commonest fruit colour in Hong Kong (Corlett, 1996). Leaves and bark reflect little UV so a UV-bright fruit will be as conspicuous as a red one to a UV-sensitive bird. And it is not just fruit: both raptors (e.g. Koivula & Viitala, 1999) and shrikes (Probst *et al.*, 2002) use the UV-reflecting scent marks of rodents to detect areas where they are active.

The only bird species occurring in Hong Kong that have been shown to have the UVS form are the Blackbird (*Turdus merula*), the Common Starling (*Sturnus vulgaris*), and the Pekin Robin (*Leiothrix lutea*), but it has also been found in non-Hong Kong species of tits (*Parus*), munias (*Lonchura*), leaf warblers (*Phylloscopus*) and gulls (*Larus*) (Ödeen & Håstad, 2003). More generally, it appears that most passerine birds have cones with peak sensitivity in the UV, with all exceptions so far being either crows (*Corvus*) or tyrannids. In contrast, all non-passerines tested, apart from gulls, parrots and the rhea, have had the violet-sensitive form of the cone pigment. Hong Kong species shown to have the VS form include several species of raptor, the Grey Heron (*Ardea cinerea*), the Little Ringed Plover (*Charadrius dubius*), the Black-winged Stilt (*Himantopus himantopus*), the Great Cormorant (*Phalacrocorax carbo*) and the Eurasian Coot (*Fulica atra*). The UVS/VS character state is controlled by a single nucleotide difference, so one would expect bird species to rapidly evolve whichever form is most adaptive, but we are still a long way from understanding what factors control this. If prey detection is the most important factor, why are gulls UV-sensitive and raptors violet-sensitive? Why are both character states found among frugivores, insectivores and granivores? Perception of the colour of an object depends not only on its reflectance properties, but also on the background colour(s) and the ambient light conditions, so predicting the most useful form is not easy.

Fig. 1. The Ultraviolet Whistling Thrush (*Myiophonus caeruleus*) (Photo: Elsa Lee)

Confused? Me too. Clearly, we have a long way to go before the evolution and ecology of bird vision is fully understood. It is also likely that studies on a wider range of bird species will show that the situation is even more complex than it appears at present. One lesson is clear, however: we cannot use what we see as a guide to the colour world perceived by birds. Indeed this is not only true for birds: many reptiles and fish, some amphibians and some rodents can see UV light, while most mammals lack red-sensitive cones and are thus red-green colour blind. Invertebrates have an even wider range of visual systems. Of all the thousands of animal species in Hong

Kong, vertebrate and invertebrate, only the macaques see the world in the same way that we do.

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Birds of Paradise in Irian Jaya, Indonesia

by Andy Cornish

In late July I visited the Raja Ampat Islands in Irian Jaya (also known as West Papua) to dive their superb coral reefs. On a day off (the Papuan staff were all Seventh Day Adventists and so do not work Saturdays), I took the opportunity the visit some nearby Birds of Paradise, birds that are mostly endemic to New Guinea. Wake-up was at 5 am and a boat sped me across the channel from our dive camp on Kri Island to the much larger Gam Island. A guide appeared out of the dark from the local village and led me by torch for a half hour trek up into the rainforest where a crude hide had been made 10 m up a tree looking over a traditional "display" tree for the Red Bird of Paradise (*Paradisaea rubra*). Males of this spectacular species are bright red apart from a dark green head, yellow neck and chest and have many long tail feathers including two elongate "wire" feathers. *P. rubra* is endemic to a small number of islands in western Irian Jaya and there are conservation concerns about it due to hunting for skins (the feathers are used in traditional costumes) and habitat degradation, according to Birdlife International (www.birdlife.net). Three males were present as dawn broke, periodically their squawks would increase in frequency and they would fly up to some large, leafless branches at the top of the tree and above the forest canopy, extend their wings and swoop back a perch several metres below. This went on for 20 minutes and I wasn't terribly impressed. The birds were a good 10 m away and above so I could see little more than a small silhouette, even through the zoom on my camera. Worse, the mosquitos had discovered me.

I looked down to the forest floor expecting my guide to be thoroughly bored and was gobsmacked to find him watching the birds with a pair of decent Olympus 7x binoculars I hadn't noticed previously. I borrowed these off him and just in time, as the sun hit the top of the canopy and the true beauty of the birds became apparent, three more males appeared and the contest to attract the ladies reached a new intensity. Their efforts weren't wasted as within minutes, one and then another of the drab females landed in the tree. The males were visibly excited but the rules of courtship appeared to be that the female had to make the first move, even after one of the females liked what she saw, and hopped up to one of them. He started swaying from side to side in front of her and things seemed to be going well but they disappeared behind some foliage and it was impossible to say whether copulation took place. On the way back later we also saw Blyth's hornbill (*Rhyticeros plicatus*), Eclectus parrot (*Eclectus roratus) and* Sulphur crested cockatoo (*Cacatua galerita*). HK$ 50 for the guide may not seem much but it is more than a weeks wages for many Indonesians and counters the money to be made from killing the birds for island villagers who have virtually no other sources of income.

Hong Kong's common rat species

by Kylie Chung

There are two common rat species in Hong Kong – *Niviventer fulvescens* (Fig. 1) and *Rattus sikkimensis* (Fig. 2). *N. fulvescens*, which is also called the chestnut spiny rat, has unmistakable beautiful bright chestnut back fur interspersed with spines and a white belly. The bicolored tail with darker upper part is another characteristic of this species. The body is about 13 – 16 cm and the tail is usually 2 – 5 cm longer than the body. The other rat, *R. sikkimensis* is larger and looks more like a typical rat. It has greyish brown upperpart with long black guard hair and the underpart can vary from creamy white to pale greyish. Body length is about 17 – 22 cm and the tail can be a bit shorter though is usually about 2 - 4 cm longer. Its ears are comparatively smaller than those of *N. fulvescens*.

They are abundant and can be found in grassland, shrubland, woodland and forest. Both species are nocturnal and stay in their nests during daytime. Their nests were found underground or within big rock crevices by radio-tracking but some researchers have found that they can build nests in trees. Separation of nests of the two species was found to be smaller than 20 m showing they share the same territory.

Both species are omnivorous and eat different parts of plants, like fruits, seeds, leaves, grass and flowers; and invertebrates, like beetles and termites (Chandrasekar-Rao, 1994). Though seeds are not a major part of their diet, they are important seed predators. They usually only consume the fresh endosperm and leave the seed coat behind. However, intact small seeds, like *Rhodomyrtus tomentosa* and *Melastoma sanguinium* have been found in their faeces (Chandrasekar-Rao, 1994), indicating that they are potential small seed dispersers.

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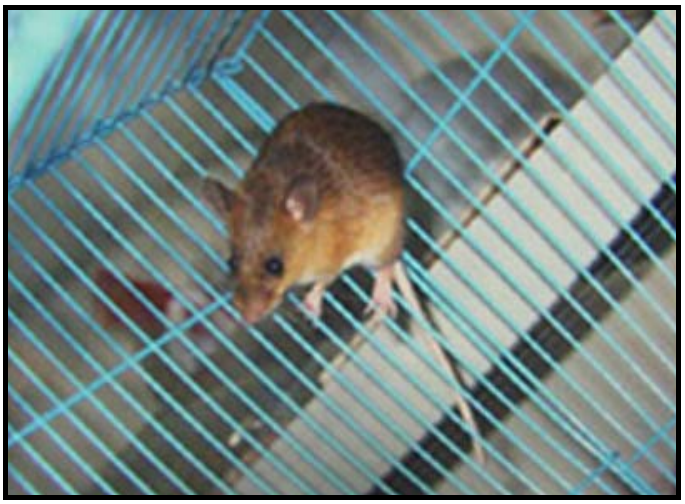

Fig. 1. *Niviventer fulvescens*

Fig. 2. *Rattus sikkimensis*

Update on South China Tigers at Meihuashan National Nature Reserve, Fujian Province, China

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Around 6 am on Sunday 20 July 2003 tiger number 4 gave birth to two cubs, increasing the Meihuashan population of captive South China Tigers from 12 to 14. I arrived at Meihuashan National Nature Reserve (MNNR) headquarters two days earlier, traveling from my base in Hong Kong with Paul Hilton, a professional photographer. Saturday morning we visited the nearby Longyan Meihuashan South China Tiger Breeding and Wild-Naturalizing Research Centre (the Tiger Centre) where we learned that a litter of cubs was due any day. Less than 24 hours later two cubs were born.

MNNR covers 22,168.5 ha in Longyan City of southwest Fujian Province. Access to the reserve from Hong Kong is by air to Xiamen, then by bus or taxi 160 km northwest to Longyan City, and a further 35 km northwest to Gutian. The Tiger Center covers 467 ha adjacent to MNNR some 18 km north of Gutian. Detailed physical, ecological, and anthropological descriptions of Meihuashan are given by Coggins (2003). Most of the lush forest cover of the nature reserve and the Tiger Centre has been protected since establishment of MNNR in 1985 and the Tiger Centre in 1998. Access to MNNR is restricted to researchers and government officials.

Tourists are welcomed at the Tiger Centre where captive wildlife can be viewed and a new visitor centre offers meals and souvenirs. New bungalows can be rented for overnight lodging. Over RMB¥20 million has been invested to date, and a specimen museum and additional tourist bungalows were under construction in July 2003. A fenced outdoor enclosure of some 20 ha was built for a herd of 18 Sika Deer (*Cervus nippon*) that are held in smaller pens for tourist viewing. An adjacent aviary houses breeding populations of Green Peafowl (*Pavo cristatus*), Common Pheasant (*Phasianus colchicus*), Silver Pheasant (*Lophura nycthemera*), and Chukar (*Alectoris chukar*). Rhesus Macaques (*Macaca mulatta*) are held in captivity where some are in need of treatment for mange. The captive populations all serve as tourist attractions.

Tigers are held in a 7 ha portion of the 467 ha Tiger Centre consisting of an office-residence building, a multi-cage tiger holding and viewing area, and three fenced outdoor tiger enclosures. Up to 5 tigers live mostly outdoors in the smallest fenced enclosure of about 1 ha. Others are kept in cages to avoid conflicts between tigers. Contrary to reports on the world wide web (e.g. www.china.com.cn), tigers cannot yet be released to roam the entire 467 ha of the Tiger Centre: There is no perimeter fence to keep them in and no internal fencing to separate tigers from tourists.

The 7 ha breeding and holding facility was near capacity with 12 tigers. Holding such a large captive population strains expense budgets given the estimated annual feeding cost of RMB¥10,000 per tiger. During the second half of 2003 larger enclosures are planned to hold tigers while they learn to feed on wild prey. Some of 12 tigers in the existing 7 ha facility will be moved to the larger enclosures. The new enclosures will be separated from the old by a mountain ridge that will block visual and most aural contact between the sites. From the new enclosures tigers will be released directly to the wild in MNNR beginning no later than 2008 to coincide with the summer Olympic games to be hosted by China.

The total investment in the tiger re-introduction project is often quoted as RMB¥146 million (Eastday.com.cn 22 July 2001). Most of this is in a long-term plan that has yet to be

approved, and much of it appears dedicated to capital construction. Some of the budget was approved for buildings, roads and landscaping from 1998 through 2003. Funding for construction and operations after 2003 has yet to be approved. MNNR generates income at a rate of RMB¥20-30,000 per month from tourist gate receipts. This is enough to feed 12 tigers but provides little extra for salaries and other operating expenses (RMB 8.1 yuan = US$1).

The two cubs born on 20 July were the first litter for tiger number 4. They were rejected by their mother and were reared for a few weeks by Tiger Centre personnel. This is a challenge, most importantly in terms of food supply. While goat milk was being used as a short-term substitute for tiger milk I shipped Feline Veterinary Diet™ Kitten Nursing Support™ (Waltham®) on my return to Hong Kong. Unfortunately the cubs died before the milk replacer arrived.

The China Action Plan for Saving the South China Tiger (SFA 2001) put the captive South China Tiger population at 62 in June 2000. Since 1998 the Meihuashan population has doubled in size. The SFA (*ibid.*) target for the captive population at Meihuashan was "at least 10 captive-bred ...cubs before 2007 and [to] prepare an integrated habitat of over 600 square kilometers before 2010 for reintroduction back to nature". Meihuashan has already bred 6 cubs at the Tiger Center and an additional litter was expected in mid-August 2003. This indicates that the breeding program is ahead of schedule and that the emphasis at Meihuashan could shift away from breeding and rearing to preparation of habitats for release of tigers into the wild. This is probably the greater challenge because decades of over-hunting have left little tiger prey in most reserves in south China, probably including MNNR. The 467 ha Tiger Center has adequate land area and high-quality habitat to take the first step toward releasing tigers into the wild. SFA (2001) includes budgets for 5 km of fence, rehabilitation of abandoned farmland, and prey re-introduction. However, a critical shift in thinking will be required at MNNR before release of tigers can begin. The Tiger Centre must become a place where tourists are protected in fenced enclosures and tigers are set free: At present these roles are reversed.

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FLORA

Losing a leaflet: why "*Schefflera octophylla*" is *Schefflera heptaphylla*

by Richard T. Corlett

Schefflera octophylla (Lour.) Harms. (Araliaceae) is probably the best-known native tree species in Hong Kong. Apart from being exceedingly common, it is instantly recognizable by its palmately compound leaves, with 5-10 leaflets radiating from the end of the stalk. The specific epithet "*octophylla*" means "eight leaves", which is a good way of remembering the plant if you know Greek (or the Greek if you know the plant). Now for the bad news. In 1990, David Frodin, the undisputed world expert on *Schefflera*, published a paper showing that our tree should actually be called *Schefflera heptaphylla* (L.) Frodin, with the specific epithet now meaning "seven leaves". The full story (Frodin, 1990) is long and complicated, but the essential facts are clear and the picture of the type specimen will convince any doubters. The original name for this specimen was published by Linnaeus in 1771 as *Vitis heptaphylla*. He described it as a climber – although nothing on the specimen itself suggests this – and this may have influenced his decision to place it in the grape genus, *Vitis* (Vitaceae), which, in any case, he considered to be close to the ivy genus, *Hedera* (Araliaceae). Linnaeus did not mention a source or collector, but simply gave its origin as "in India orientali". Later, however, it came to be believed that this supposed Asian origin was an error and the specimen then became (incorrectly) associated with an American species of *Schefflera*, until Frodin recognized it as the plant long known as *Schefflera octophylla.* The Linnaean name was published 19 years before Loureiro's and so has precedence.

Fig. 1 *Schefflera hepaphylla*