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## SWIMS tidings....



This is the start of a new section to *Porcupine!* in which we shall provide a regular update on activities at SWIMS (Swire Institute of Marine Science). As most of you may know there have been some pretty major changes at SWIMS over the last few months. The Institute has, thanks to the generosity of The Swire Group and matching funds from the University, undergone an extensive refurbishment. This is going hand-in-hand with a change in staff and a new influx of postgraduates.

The renovation has involved connecting the laboratory, and most importantly for all our residents, the residence block to the mains freshwater supply. Within the Institute we have extensively upgraded the aquarium and seawater system. Now, thanks to a consultants report, we have a much-improved water supply, having removed the high sediment loads which were a constant problem. The aquarium has been gutted and a more flexible system installed including separate rooms for controlled experimental work. The main laboratory has been totally renovated and redesigned to provide greater working space per student, as well as to rationalize the central facilities such as the chemical stores, ovens, freezers etc. This has also freed up the old small laboratory, now remodelled as a molecular/analytical facility. Along with these major renovations, SWIMS has had a face-lift, with a new reception area and external façade, and further improvements in the seminar room. More good news for our resident postgrads is that we have been able to renovate the old residence block – and also plan to install Broadband connections.

In line with the renovation there has also been a change of personnel as Prof Morton has retired and left Hong Kong. Drs Kenny Leung and Cynthia Yau have just been appointed as

new Assistant Professors who join Dr Benny Chan as part of the research team at SWIMS. These staff are joined by a number of new (and not so new) postgraduates who are now able to either start, or return to, their work at SWIMS following the renovations. With the new facilities and the fresh start we plan to report on the research and other activities in future issues of *Porcupine!*

The new renovations are nearing completion. The official university opening will take place sometime in late October – dependent on the availability of senior members of The Swire Group and HKUs Vice Chancellor. There will, however, soon be an “unofficial opening” to thank everyone for their help and support over the last year or so and to celebrate the new SWIMS with friends and colleagues at DEB. I hope many *Porcupine!* readers will be able to attend both the formal and informal meetings that we plan at SWIMS over the next year and .... onwards into the future...!

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## 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.

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### “*Desmos*” by Ada Ng

*Desmos* Lour. is a small genus in the pantropical plant family Annonaceae. This genus comprises about 25-30 species. They are either climbers or scandent shrubs that often have leaves that are glaucous below. Some species have edible fruits while some are commonly used as folk medicines in Asian countries.

One *Desmos* species, *D. chinensis*, is found in Hong Kong. It is a spreading shrub in shady places and may develop into a higher climber. This species is widespread in Asia and northern Australia. The plants are commonly found in thickets and hedges in Victoria Peak, Pokfulam Country Park, Tai Mo Shan, Tai Po Kau, Sai Kung, Lantau Island, Lamma Island etc. The flowers open between April and July and fruit can be observed from June to March of the following year.

### Phenology

The solitary flower is pendent on a pedicel and often terminal or supra-axillary. Each flower consists of three sepals and six valvate petals in two whorls. The outer three petals are longer

than the inner ones, with numerous stamens and carpels in the centre. Young flowers are green and inconspicuous. The outer petals open first followed by the inner ones, and then some time later the reproductive organs in the middle are exposed. The petals grow in length and breadth and with the colour gradually changing from green to light yellow. The lower part of each inner petal grows closer again and then coheres together, forming a pollination chamber between the petals, and allowing insects, like beetles, to enter it.



Fig. 1. Mature flower of *Desmos chinensis*.

The flower is hermaphroditic and protogynous, and the stigmas become receptive before the pollen is released from the anthers. During the pistillate phase, bright red marks can be observed on the petals and at the same time, and strong fruity scent can be detected at a distance, especially during the evenings. It is observed that small beetles are attracted by the scent and they visit the flowers during this period. This stage can last for 24 hours or longer and is followed by pollen exposure. When the flower fades, the petals turn to rusty-red and then drop.



Fig. 2. Mature fruit of *D. chinensis*.

The shape of the fruits makes them more easily recognisable than the flowers. From the end of the flower pedicel, a series of carpels radiates outwards like a chain of beads. The fruit are fleshy berries and each carpel contains one to several seeds with constrictions between each segment. They are green and inconspicuous at first and then change to yellow in autumn. They finally mature to red and later turn to brownish purple. It is observed that the ripe fruit is dispersed by birds. Check *Desmos* out as you go hiking in Hong Kong countryside!

#### Atyid shrimps in Hong Kong streams by Rita S.W. Yam

Atyid shrimps, notably the genus *Caridina*, are widespread in tropical and subtropical streams. They can act as filter-feeders, collector-gatherers and omnivorous scavengers (Hart, 1981; Pringle *et al.*, 1993) and, because of their biomass and abundance, may play a key role in the organization of lotic communities.

Atyid shrimps have a long rostrum that usually extends beyond the eyes. They are sexually dimorphic after maturation; ovigerous females have large eggs, and the larvae undergo direct development (Dudgeon, 1987; Cai & Ng, 1999). Four species of *Caridina* shrimps have so far been found in Hong Kong. *Caridina cantonensis* (Fig. 3), *C. apodosis* and one previously unrecorded species *C. trifasciata* (Yam & Cai, in press) occur in streams in the mainland New Territories, while *C. serrata* is apparently endemic to Hong Kong Island (Cai & Ng, 1999; Yam, unpublished data).

These tiny little shrimps range between 0.9 – 9.8 mm (*C. cantonensis*), and 1.2 – 7.4 mm (*C. serrata*) in carapace length. *Caridina* usually inhabit trailing vegetation at stream banks. They are also found associated with leaf packs accumulated in stream pools. Hong Kong atyids generally have an annual life cycle and breed when water temperatures exceed 20°C (i.e. spring and summer) (Dudgeon, 1985). Wet season spates are common in Hong Kong streams, direct development of the *Caridina* larvae, therefore, reduces spate-induced mortality because the juveniles, as a small replica of the adults, are able to grasp trailing vegetation and roots thereby avoiding being swept away during spates.

Studies on the ecology of atyids shrimps have, however, received scant attention. As a result, it is difficult to make any generalizations about the possible ecological roles of atyids, especially in southeast Asia. My research begins at studying the population dynamics of *C. cantonensis* and *C. serrata* in Hong Kong streams. My study is further directed to investigate the role of atyid shrimps in the stream food webs using stable isotope analysis. As *C. cantonensis* and *C. serrata* are truly freshwater species, gene flow among populations may be highly limited as a result of their intolerance to high salinity and incapability of terrestrial dispersal. Therefore, my study also focuses on the genetic differentiation of *C. cantonensis* and *C. serrata*. The results could have conservation implications for *C. serrata*, which is apparently an island endemic.

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Fig.3. "*Caridina cantonensis*"



## Nature outlook: consultation document - review of nature conservation policy

by Billy Hau

The long-awaited Hong Kong conservation policy review paper was put out for public consultation on 17 July 2003 for 3 months. No matter whether you are a conservationist, ecologist, naturalist or just a nature lover, you should submit your comments and opinions on this policy paper to the

government. The document is available at <http://www.etwb.gov.hk> and the deadline for submission is 18 October 2003.

For those who have yet to go through the document, please don't be misled by its name. I have to say this consultation document is not a full review of the conservation policy. There is neither an overall policy objective nor anything about marine conservation. Though there is a review in Chapter 2 of the achievements and inadequacies of the existing conservation policy and measures on the terrestrial system, this paper focuses only on private land with high conservation value. The two new items that this consultation paper is seeking for public opinions i.e. the scoring system for objective assessment of the relative ecological importance of sites and the various options to protect important sites are concerned primarily about private lands.

As far as I understand, the scoring system has two main goals. Firstly, it is intended to be an objective assessment system and secondly, it assigns priorities to sites (private lands) that need action. Unlike other conservation prioritisation methods where diversity and the presence of rare or endemic species are the most commonly used criteria for selecting sites for conservation such as nature reserves (Prendergast *et al.*, 1993) and larger scale biogeographic units such as hotspots (Myers *et al.* 2000) and ecoregions (Olson *et al.*, 2001), the proposed scoring system, however, gives "habitat" criteria a higher rating (total 60%) than "species" criteria (total 40%). If you apply this system to many of the small biodiversity hotspots in Hong Kong e.g. a 0.5 ha Romer's Tree Frog marsh in So Kwu Wan, Lamma Island the score will be very low. In recent consultation meetings with the Environment, Transport and Works Bureau, it was clarified that the proposed scoring system would apply to private land only. Clearly, there is a need for making known the detailed conditions under which the scoring system will be applied.

It is rather obvious that this system is designed to protect those ecologically "important" private lands such as Long Valley and Sha Lo Tung (Note: site names are not mentioned in the whole document) which are relatively large in size in the local context. Even so, the species criteria (1. Diversity & richness. 2. Rarity & endemism) should be rated higher than the habitat criteria (I propose 30 % each rather than 20 %). There are several reasons. Firstly, species diversity, richness, rarity and endemism can be more objectively determined than many of the habitat criteria. Secondly, the ultimate aim of the scoring system is to protect sites with relatively better biodiversity but not sites that are natural or can be recreated. On the other hand, the habitat criteria (altogether 5) should be further refined. The "Naturalness" of a site is given 15% but many of the unnatural habitats in Hong Kong such as Gei Wai and fish pond support rich biodiversity. Thus, naturalness should be cancelled or given very low weighting e.g. 5 %. The "Habitat diversity" weighting (15 %) is fine. The "Size" (10 %) should be the size of the major habitats of a site but not the size of the site. "Non-recreatability" (10%) and "Degree of disturbance" (10%) are rather arbitrary. If they have to be included, their weighting should be reduced (to say, 5 % each)