

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. Although the tree *Bauhinia* species are exotic and found only in cultivation in Hong Kong, they have been included due to the irony that one of the them is the Hong Kong emblem and the trees are widely planted and commonly seen during fieldwork.

Editors : Sukh Mantel (skmantel@hkusua.hku.hk) and
Jacqueline Weir (jesweir@hkusua.hku.hk)

The six common *Bauhinia* species in Hong Kong by Carol, P. Y. Lau

The flower of *Bauhinia blakeana* was adopted as the emblem of Hong Kong in 1965. The tree was first discovered on the shore of Hong Kong Island near Pokfulam around 1880 and described as a new species in 1908 by Dunn. It was named after Hong Kong governor Sir Henry Blake, who had a strong interest in botany. Fruit set is extremely rare in *B. blakeana*, as it is of hybrid origin.

There are six common *Bauhinia* species in Hong Kong, which can be separated into two groups, the tree species (subgenus *Bauhinia*) and the liana species (subgenus *Phanera*). *Bauhinia blakeana*, *B. purpurea* and *B. variegata* var. *variegata* are trees that are widely cultivated and distributed in different areas in Hong Kong, from roadsides to local and country parks. The tree species are exotics, originally from Guangdong province and Malaysia. The three *Bauhinia* tree species can be distinguished by their petal colours, number of stamens, flowering periods and fruit sets. *Bauhinia blakeana* produces fragrant flowers that have five rose-purple petals with darker veins and whitish towards the margins, and each flower has five pink fertile stamens. The colour of *B. purpurea* flowers is highly variable ranging from pale pink to violet. They have three fertile stamens, or rarely four. The petals of *B. variegata* var. *variegata* are purple, streaked with red and yellow. They have the same number of stamens as *B. blakeana*. *Bauhinia variegata* var. *candida* is a variety of *B. variegata* var. *variegata*. Its petals are white streaked with yellow and green veins.

Flowering period differs slightly for each species. *Bauhinia purpurea* blooms first, from September to January; *B. blakeana* blooms second and has the longest flowering season (8-10 months) from September to April-June; *B. variegata* blooms from late December to April.

Bauhinia corymbosa, *B. championii*, and *B. glauca* are liana species, the latter two being native. They grow on hillsides and stream-sides as natural populations in Hong Kong, such as in Aberdeen Country Park, Victoria Road, Bowan Road and Tai Po Road. *Bauhinia corymbosa* flowers first in late spring, followed by *B. glauca* in early summer, and then by *B. championii* in late summer. The liana species have smaller flowers than the tree species, and many small flowers cluster together to form inflorescences. *Bauhinia championii* has white to cream colour flowers. The petals of *B. corymbosa* and *B. glauca* are white with pink lines. *Bauhinia corymbosa* has smaller petals - the upper petal overlaps the lateral petals - and the deep pink colour of the androecium and gynoecium distinguish it from *B. glauca*. *Bauhinia glauca* is much more common than *B. corymbosa* in Hong Kong. It produces dense inflorescences which fragrance the hillsides. The flowering periods of these two species are coming - try to identify the two species by the characteristics described above and learn something new about them.



Fig. 1. *Bauhinia blakeana*

“*Siphonaria japonica*” by Wallis K.S. Chan

The Siphonariidae is the most primitive family of limpets, known as basommatophoran pulmonate limpets (Hyman, 1967). They are known as false limpets due to the presence of a secondary gill which lies within the mantle cavity. To accommodate the opening of this so-called “lung” the shells of these animals are slightly asymmetric.

Three species of *Siphonaria* (Sowerby, 1824) have been recorded on Hong Kong shores: *Siphonaria atra* Quoy and Gaimard, 1833; *Siphonaria sirius* Pilsbry, 1894 and *Siphonaria japonica* Donovan, 1834. *Siphonaria sirius* and *S. atra* are sometimes very difficult to tell apart and recently were proposed (based on electrophoresis and morphological analysis) to be ecomorphs of the same species; *Siphonaria laciniosa* (Slingsby *et al.*, 2000).

Siphonaria japonica is relatively small (10 – 25 mm, Morton and Morton, 1983; Liu, 1994), and is easy to distinguish from the other *Siphonaria* species on Hong Kong shores due to its distinctive shell morphology; with numerous ribs at regular

intervals radiating around the shell. *Siphonaria japonica* generally occurs from mid to low shore on sheltered to semi-exposed shores, such as Butterfly Beach, Cafeteria Old, Angler's Beach, Wu Kwai Sha, Clear Water Bay, Wah Fu, Middle Bay and South Bay.

Siphonaria japonica can live up to one year, growing rapidly during the winter and breeding and recruiting in winter. They lay yellow gelatinous egg ribbons on the mid-low shore or in rock pools. Their egg capsules are ellipsoid and early development is rapid, releasing veligers (one of their larval stages) after seven days at 21°C. These limpets disappear from the shore completely by May at most sites (after a life span of ~ 8 months). At some sites, which are north facing, (such as Wu Kwai Sha) they can survive for a year, perhaps due to the shores' aspect that protects the limpets from summer heat stress.

Siphonaria japonica is a grazer and the most abundant food items in its diet are cyanobacteria. The availability and species composition of this food supply, however, varies greatly around Hong Kong and has important implications for growth and reproduction. In my study, most population parameters were positively correlated with abundance of filamentous cyanobacteria (*Phormidium* spp., *Lyngbya* and *Oscillatoria* spp.), whilst negative correlations were found with *Kyrtuthrix maculans*, *Hildenbrandia rubra* and diatoms. Shores with a high standing crop of filamentous cyanobacteria were mostly found on the west coast, and supported faster growing individuals which laid more, larger egg masses, as compared to shores on the east coast which lacked these cyanobacteria.

Although *S. japonica* does not show strong food selection on the shore or in laboratory feeding preference tests, the spatial and temporal variation in the distribution of the cyanobacteria biofilm plays a significant role in the growth and reproductive effort of this species and perhaps explains variation in its success on different Hong Kong shores.



Fig. 2. *Siphonaria japonica*

Chinese three-striped box turtle *Cuora trifasciata* in Hong Kong: possibly the last viable wild population in the world by S. M. Cheung

The Chinese three-striped box turtle *Cuora trifasciata* (Bell, 1825) (Family Bataguridae) is one of the five native freshwater turtle species in Hong Kong. It is characterized by having three dark brown stripes on its back and the head, tail and limbs can be concealed within its shell by closing the hinge on its plastron when disturbed. The shell length of fully grown turtles can reach over 20 cm but local specimens are generally smaller in size. *Cuora trifasciata* is classified as a 'critically endangered' species on the 2002 IUCN Red List and has been included in Appendix II of CITES (Convention on International Trade in Endangered Species of wild fauna and flora). This turtle is among the rarest turtle species in Hong Kong and is protected by law under the Wild Animals Protection Ordinance Cap. 170. No wild turtles should be collected unless under a special permit obtained from the Agriculture, Fisheries and Conservation Department.



Fig. 3. *Cuora trifasciata*

Specimens of *Cuora trifasciata* are known from Southern China and Vietnam, where they inhabit low altitude (<600m a.s.l.) forested hill streams. *Cuora trifasciata* in Hong Kong, however, is considered to be the last viable wild population in the world. In Hong Kong, records of this turtle are scattered across the New Territories, Lantau Island and Hong Kong Island and thousands of trap-nights only revealed fewer than ten turtles. Since July 2001, an intensive ecological study has been conducted in a catchment in Hong Kong using radio-tracking. Some of the radio-tagged individuals remained at the same sites for up to two months even in the summer active season. This suggests that any over-exploitation or habitat degradation would severely deplete local populations. In fact, over-collection for the regional and international food market has played a major role in dramatic declines of *C. trifasciata* in Hong Kong and other parts of its range. A co-operative programme that includes the establishment of reserve areas with restricted visitor entry, captive breeding attempts and feasibility studies on using captive bred *C. trifasciata* to restock depleted wild populations, is urgently needed.