

For Discussion on
16 June 2015

**Advisory Council on the Environment
Nature Conservation Subcommittee**

Updates on Species Action Plans and Conservation Measures

Purpose

This paper updates Members on the species action plans and other targeted conservation measures implemented by the Agriculture, Fisheries and Conservation Department (AFCD).

Background

2. Species action plans are for the conservation of biodiversity at species level with a primary objective to reduce the possibility of extinction of the targeted species. An action plan may be designed for a single species or multiple species. The latter can be achieved when the life histories and habitat requirements of the species concerned are similar and the same actions can be applied to them simultaneously.

3. Despite of its small physical size, Hong Kong is rich in biodiversity. Some of the species found in Hong Kong are globally threatened/near threatened¹ or of local/regional conservation concern². To better protect these species, species action plans have been formulated and are being implemented by the AFCD. A multi-prong approach is being adopted in these plans and actions mainly include monitoring, various *in-situ* and/or *ex-situ* conservation measures, research and education. Conservation measures targeting species/species groups of conservation concern are also being implemented by the AFCD.

Species Action Plans

Romer's Tree Frog (*Liuixalus romeri*)

¹ According to the IUCN Red List of Threatened Species

² According to Fellowes *et al.* (2002)

4. The endemic Romer's Tree Frog (RTF) is listed as "Endangered" under the IUCN Red List and is locally protected by the Wild Animals Protection Ordinance (Cap. 170). Due to the construction of the Hong Kong International Airport at Chek Lap Kok in 1990s, a captive breeding and translocation programme was carried out by the University of Hong Kong (HKU), with the support from a number of organisations, including the AFCD and Kadoorie Farm and Botanic Garden (KFBG) (Dudgeon and Lau 1999). Populations were found to have established successfully in almost all of the translocation sites.

5. Since 2008, the AFCD, KFBG, HKU and the Ocean Park Hong Kong (OPHK) have jointly implemented a species action plan for the better conservation of the RTF. Habitat protection (e.g. designation of Site of Special Scientific Interest, SSSI) and management (e.g. installation of breeding pots) are the major *in-situ* conservation actions taken under the plan. Awareness of the conservation of RTF is also being raised through public education. Long-term regular monitoring results reveal that the species has stable populations in both natural habitats and the translocated sites.

Black-faced Spoonbill (*Platalea minor*)

6. With a world population of 3,272 (as at January 2015, HKBWS 2015), Black-faced Spoonbill (BFS) is classified as "Endangered" in the IUCN Red List. It is a migratory species endemic to East Asia which utilises mudflats, marshes, fishponds and mangroves along its migratory route. Hong Kong is one of the major overwintering grounds of this species.

7. Combining law enforcement, monitoring, habitat management and protection and education, the conservation plan for BFS is in place to conserve the species in Hong Kong. While the BFS is protected under the Wild Animals Protection Ordinance (Cap. 170), its major habitats in Hong Kong, i.e. Mai Po Inner Deep Bay Ramsar Site and Hong Kong Wetland Park (HKWP), are also properly protected and managed. The AFCD provides financial support to the World Wide Fund for Nature Hong Kong (WWF-HK) to manage the wetland habitats for the species to roost and feed. To better monitor the BFS that winters in Hong Kong, the AFCD has conducted age structure assessment and monitoring of the wintering BFS population. Under the public awareness and education programmes on BFS carries out by HKWP, education tours, teacher workshops, seminars and talk have been organised. The AFCD also

participates in the annual global census of BFS³ coordinated by the Hong Kong Bird Watching Society (HKBWS), BirdLife International Partner. Over the past five years, an average of 12% of the world population of BFS had been recorded wintering in the Deep Bay area.

Chinese White Dolphin (*Sousa chinensis*)⁴

8. In Hong Kong, the globally “Near Threatened” Chinese White Dolphin (CWD) is found in the western waters which form part of the Pearl River Estuary. Long-term monitoring shows that CWD are more frequently recorded near outer Deep Bay, Sha Chau and Lung Kwu Chau, Tuen Mun as well as to the north, west and south of Lantau Island. The population of CWD inhabiting in north and west Lantau waters is 61 (Hung 2015).

9. CWD is protected by the Wild Animals Protection Ordinance (Cap. 170) in Hong Kong. Import, export and possession of CWD, including any part or derivative of it, are also regulated by the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586). In addition, designation and management of marine parks under the Marine Parks Ordinance (Cap. 476) provide protection to CWD and its associated habitats. Systematic line-transect surveys and photo-identification studies are conducted annually in Hong Kong waters to monitor the distribution, abundance, movement patterns, home ranges, and social organisation of CWD. The possible causes of death of all reported cases of stranded dolphins are investigated. Tissue samples from the stranded animals are collected for scientific studies such as virology, histopathology, ecotoxicology, feeding ecology, growth, reproduction and stock structure. These research and long-term monitoring continue to feedback information for refinement of management strategies for the species. Cross-boundary cooperation on dolphin conservation has been established in multiple aspects, including regular meetings of Guangdong-Hong Kong Marine Resources Conservation Special Panel, public awareness projects such as Guangdong-Hong Kong-Macao Marine Life Drawing Competition.

Freshwater Fish⁵

³ Reports of The International Black-faced Spoonbill Census can be downloaded at http://www.hkbws.org.hk/web/eng/bfs_census_report_eng.htm

⁴ The Conservation Programme for the Chinese White Dolphin in Hong Kong can be downloaded at http://www.afcd.gov.hk/english/publications/publications_con/files/conpgm.pdf

⁵ The Action Plan for the Conservation of Freshwater Fish in Hong Kong can be downloaded at http://www.epd.gov.hk/epd/sites/default/files/epd/english/boards/advisory_council/files/ncsc_paper_01_2011.pdf

10. The AFCD has identified a number of freshwater fish species as species of conservation concern based on the restricted distribution of these species. Among these species, conservation plans have been devised for Rose Bitterlings (*Rhodeus ocellatus*), Chinese Rasbora (*Rasbora steineri*) and Taiwan Lesser Bream (*Rasborinus formosae*). The major conservation efforts include population monitoring, captive breeding, exploration of suitable translocation sites and trial establishment of captive bred population at translocation sites.

11. Rose Bitterling is an uncommon species in Hong Kong. To educate the public the conservation importance of this species, the AFCD and OPHK have been holding a display programme of the fish in OPHK since 2006. Besides, Rose Bitterling is also displayed at HKWP. A breeding trial has been carried out at HKWP and the preliminary result is promising. Feasibility of establishing a population of Rose Bitterling would be explored.

12. Chinese Rasbora only occurs naturally in two localities in Hong Kong. These localities have been designated as SSSI or Ecologically Important Stream (EIS) to prevent any incompatible activities/developments, and are monitored regularly. To further secure the population of the species, Chinese Rasbora was introduced to a rehabilitated wetland habitat at the Tai Lam Country Park in 2004. A stable population has been maintained at the introduction site since then.

13. Taiwan Lesser Bream is very rare in Hong Kong and could only be found in a single locality. A reintroduction project was conducted in 2010 in a mitigation wetland in the New Territories to increase its abundance. A stable population is maintained since the commencement of the project. Besides, to educate the public its conservation importance, Taiwan Lesser Bream is displayed at the Woodside Biodiversity Education Centre as a long-term exhibit.

Species Action Plan for Butterfly⁶

14. Currently, 51 species of butterfly are identified as of conservation concern among the 236 species recorded in Hong Kong (Chan et al 2011). Since butterflies have strong association with plants, active conservation of butterfly can be achieved

⁶ The Action Plan for the Conservation of Butterflies in Hong Kong can be downloaded at http://www.epd.gov.hk/epd/sites/default/files/epd/english/boards/advisory_council/files/ncsc_paper_03_2010.pdf

by habitat enhancement work such as planting suitable larval food plants.

15. In 2003, the AFCD initiated species action plans for a number of species, including Common Birdwing (*Troides helena*), Golden Birdwing (*T. aeacus*), Common Rose (*Pachliopta aristolochiae*), White Dragontail (*Lamproptera curius*) and Red Lacewing (*Cethosia biblis*). These species are all restricted to localities where their larval food plants are found. Under the action plans, a number of sites within protected areas and without previous record of these species were selected. Examples of selected sites are Tai Lam Country Park, Lions Nature Education Centre and Shing Mun Butterfly Garden. Food plants of these butterflies were planted in these sites. Except Red Lacewing, the other four species have established populations to various extents in the planting sites within one to five years. Regular monitoring and management of the food plants have been carried out for conserving the butterflies.

Other Targeted Conservation Measures

Sea Turtle

16. There are five species of sea turtles, i.e. Loggerhead Turtle (*Caretta caretta*), Green Turtle (*Chelonia mydas*), Leatherback Turtle (*Dermochelys coriacea*), Hawksbill Turtle (*Eretmochelys imbricata*) and Olive Ridley Turtle (*Lepidochelys olivacea*), recorded in Hong Kong. Among them, the globally endangered Green Turtle is the most common species encountered in Hong Kong waters. Green Turtle is also the only sea turtle species that nests in Hong Kong, representing one of the last dwindling nesting populations in southern China.

17. All sea turtles are protected under the Wild Animals Protection Ordinance (Cap. 170) and the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586). Moreover, a nesting beach in Sham Wan of Lamma Island has been designated as a Restricted Area under Cap. 170. Unauthorized entry to Sham Wan is not allowed during the nesting season of Green Turtle (i.e. 1 June to 31 October). Before the onset of the nesting season, the AFCD removes garbage and weeds which may hinder turtles coming ashore to nest in Sham Wan beach. During the nesting season, the AFCD conducts day and night patrols at the Sham Wan to protect and monitor any nesting turtles and their eggs. Public awareness and involvement in sea turtle conservation is aroused through seminars, publications and volunteer work. The AFCD gathers information and carries out monitoring to enrich

baseline knowledge of sea turtle occurrences. Rehabilitation of rescued turtles is also undertaken with the assistance from OPHK before release. Scientific research including tagging and satellite tracking of sea turtles have also been conducted for the better understanding of their oceanic movement and foraging grounds.

Burmese Python (*Python bivittatus*)

18. Burmese Python is a globally vulnerable species. It is the only native python species and is the largest remaining predator in the wild in Hong Kong.

19. Burmese Python is protected by the Wild Animals Protection Ordinance (Cap. 170) and the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586) in Hong Kong. In view of the occasional nuisance cases related to stray python, the AFCD and KFBG together formulated a long-term management plan on stray python in 2011. Under this plan, captured stray Burmese Pythons are sexed, microchipped and have the body measurements taken for identification and future monitoring before they are released back to remote areas with suitable habitats but away from human settlement and property. Data on the home range and habitat use have been collected since the commencement of the plan. It is anticipated that the plan would provide a better understanding on the distribution and population status of Burmese Pythons in Hong Kong. The data collected so far indicate that the local population of the python is considered stable.

Breeding Tern

20. A total of twelve species of terns can be found in Hong Kong. Among them, three species, namely Bridled Tern (*Onychoprion anaethetus*), Black-naped Tern (*Sterna sumatrana*) and Roseate Tern (*S. dougallii*), breed on small and remote rocky islands in the northeastern, southeastern and southern Hong Kong waters during the summer months.

21. A number of conservation actions, including monitoring, law enforcement, habitat protection and education, are taken to conserve breeding terns in Hong Kong. Monitoring surveys of terns are conducted during breeding season to obtain detailed information of individual tern species and their population in Hong Kong. Results showed an average of 1,600 terns recorded in Hong Kong waters during breeding season, in which Shek Ngau Chau accounted for around 34% of the overall population in Hong Kong. In view of its importance as a breeding ground of terns, Shek Ngau

Chau was designated as an SSSI in 2005. Prominent warning notices have been installed and maintained at a number of terns breeding islands to alert members of the public not to disturb breeding terns. Artificial nest boxes have been installed and maintained at Shek Ngau Chau. The AFCD also carries out regular patrol at different tern breeding colonies during the breeding season to advise visitors not to disturb breeding terns and their nests or eggs. Pamphlets on the codes for terns watching have been produced and distributed to local tour operators, fishing gear shops, green groups and their members or participants of local tours. Public seminars on tern conservation and wildlife photography have also been organized to remind the public the appropriate attitude when watching terns or taking photos of wildlife.

Indo-Pacific Finless Porpoise (*Neophocaena phocaenoides*)

22. The vulnerable Indo-Pacific Finless Porpoise (FP) lives in the eastern and southern waters facing the South China Sea. Previous surveys of FP in Hong Kong waters indicated a peak abundance of 152 animals in spring, while autumn was the low season for porpoises with an estimate of 55 animals (Jefferson 2000).

23. Due to the similar ecology and biology of FP and CWD, some of the conservation measures for the CWD (see para. 8-9) are also applicable for the conservation of FP. The FP is a protected species under the Wild Animals Protection Ordinance (Cap. 170). Long-term monitoring of FP is carried out to collect updated information on the distribution and habitat use of the porpoises in Hong Kong. Tissues samples from reported stranded individuals are collected for scientific studies and the possible causes of death are also investigated. Research has been conducted to study the life history, acoustic behaviour, mortality rate, etc. of the species⁷.

Horseshoe Crabs

24. Horseshoe crabs inhabit coastal embayments and breeds on intertidal shores. All three Asian species, i.e. *Tachypleus tridentatus*, *T. gigas* and *Carcinoscorpius rotundicauda*, have been recorded in Hong Kong in 1990s. However, only two species (*T. tridentatus* and *C. rotundicauda*) could be found in Hong Kong in recent years. Horseshoe crabs are mainly seen on some sandy beaches or mudflats in Deep Bay, Lantau Island and Starling Inlet.

⁷ Executive summary of the research is available at http://www.afcd.gov.hk/english/publications/publications_con/files/fin_executive_summary.doc

25. Various measures were adopted for conserving horseshoe crabs in Hong Kong. Horseshoe crabs are regarded as species of conservation importance in EIA studies. Such requirement would ensure that potential ecological impacts to horseshoe crabs are properly assessed and addressed if a designated project may affect horseshoe crab habitats. Besides, the trawl ban, effective since 31 December 2012, will not only facilitate recovery of damaged seabed and depleted marine resources, but would also help reduce by-catch of horseshoe crabs by local fishermen. Participation in academic and publicity events such as international workshops and public seminars/exhibitions would also help increase public awareness on conservation of horseshoe crabs.

Corals

26. There are 84 species of stony coral (Order Scleractinia), 67 species of octocorals and six species of black corals in Hong Kong waters (AFCD 2004; Ang et al 2010). The richest coral communities prevail to the east of Hong Kong where the waters is free from the influence of Pearl River. Although the western waters is estuarine and turbid, scattered stony coral communities have also been recorded in the area.

27. In order to actively monitor the status of the coral communities in Hong Kong, AFCD coordinates the Hong Kong Reef Check annually and undertakes comprehensive coral studies. Specially-designed marker buoys were installed in some sites for better protection of corals from anchoring damage. Import, export and possession of samples of all stony corals, are restricted under the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586). In addition, all corals and other organisms in Marine Parks and Marine Reserve are protected under the Marine Parks Ordinance (Cap. 476). Lectures, exhibitions, seminars are organized and field guide, leaflets and booklets are published to arouse public interest in corals and their conservation. The survey and monitoring results show that local corals are generally in a healthy and stable condition. Besides, there has been an overall increase in live coral cover in the marker buoy areas and damaged corals also show signs of recovery.

Plants

28. To protect the plant diversity of Hong Kong, measures including *in-situ* habitat protection and legislation (Forests and Countryside Ordinance, Cap. 96 and

Protection of Endangered Species of Animals and Plants Ordinance, Cap. 586) are in place. A number of SSSIs have been designated owing to their floristic importance. For example, Mau Ping on Ma On Shan has been listed as a SSSI in recognition of the presence of the largest population of *Camellia crapnelliana* in Hong Kong. Besides, the AFCD has set up the Shing Mun Arboretum in the Shing Mun Country Park for *ex-situ* conservation. About 300 species, including some rare and representative species, have been established there. In addition, the AFCD has propagated rare plants through various methods, such as seed collection and cutting. The seedlings are subsequently reintroduced to the wild at suitable habitats within the Country Parks, to facilitate the establishment of new populations and flourishing of the species in the wild. Successful examples of active propagation include *Keteleeria fortunei*, *Camellia hongkongensis*, *C. crapnelliana*, *C. granthamiana*, *Enkianthus quinqueflorus*, *Rhodoleia championii*, *Illicium angustisepalum*, *Castanopsis concinna*, *Lithocarpus konishii* and *Aquilaria sinensis*.

Advice Sought

29. Members are invited to note and comment on the species action plans and conservation measures implemented by the AFCD.

Agriculture, Fisheries and Conservation Department
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