

Appendix 3: Terrestrial Mammals Sub-group Report

Status, Trends and Recommendations for Hong Kong Terrestrial Mammals

Overview of status and trends

The present assessments cover the terrestrial mammals of Hong Kong; marine mammals will be dealt with separately.

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Despite its small size (1,100km²), Hong Kong has a rich terrestrial mammal fauna of 55 species belonging to seven taxonomic orders (this total includes domestic feral dogs, cattle, feral cats and buffalo as considered in Shek, 2006). Indeed while the territory has lost many larger species, for some species it is now a regional stronghold in South China, a region which has among the most depleted mammal faunas of any continental region (Lau et al. 2010). Many of the local species lack in-depth study, however the present assessment has taken reference from local mammal publications, ongoing AFCD mammal studies and local expert contributions.

Hong Kong's biological diversity encounters major threats from habitat alteration, degradation and destruction and poaching of valuable species. Some local historical extinctions have been documented e.g. Tiger, Leopard, Large Indian Civet and Dhole (Dudgeon & Corlett, 1994). Despite an extensive protected area system the demand for

land for urban development puts many more species at risk. Sixteen mammals were identified as of Local Concern in Fellowes et al., 2002 (Table 1). This included several bat species which have since been reassessed during the ongoing AFCD mammal survey work.

Representative mammal species are present in all major habitat types in Hong Kong. The major habitats comprise woodland, shrubland and grassland. Other important habitats include freshwater wetlands and coastal environments, such as mangroves, sandy shores and marshes. Patches of agricultural land still exists in the New Territories in the vicinity of traditional villages, although some of them have long been abandoned.

There are currently 24 country parks and 22 special areas with a total area of about 442 km². These represent over 65% of the forests (including secondary forests and plantations) and around 50% of the shrublands in Hong Kong. The protected areas also cover all the fresh water reservoirs and most of the upper sections of streams. The designation and management of these protected areas allows wildlife protection in their natural habitats. Lowland habitats such as fung shui woods, freshwater/brackish wetland, fish ponds, mangroves and other intertidal habitats are comparatively less well represented in the country parks and special areas. Several restricted mammal species that also utilize these areas are of particular concern (e.g. Eurasian Otter, Crab-eating Mongoose and Chinese Pangolin).

Taxon	No. of Species in HK	Species in Global IUCN Red List Threatened Categories	Species in Local Assessment Red List Categories	No. of Species of Conservation Concern Assessed Locally

Table 1.

TERRESTRIAL MAMMALS	55 ^a	CR – 1 (Chinese Pangolin)	EN – 3 Chinese Pangolin, Crab-eating Mongoose, Eurasian Otter	Fellowes et al (2002) – 16
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a – AFCD (2007)

According to the camera trap survey in 2002-06, CT Shek of the AFCD ranked the **Eurasian Otter**, **Crab-eating Mongoose** and **Chinese Pangolin** as species of conservation concern; these species were also flagged by Fellowes et al (2002). In 2004, based on the results of an AFCD roost census of cave dwelling bats (from 2003-2004), **Horsfield's Bat** was considered the only rare cave-dwelling species, worthy for further conservation enhancement. Four species of bats new to Hong Kong were discovered during the same period: **Greater Bamboo Bat** (here considered Data Deficient in Hong Kong), **Least Pipistrelle** (Least Concern), **Whiskered Myotis** (DD) and a yet unnamed Pipistrelle (DD).

A review of Hong Kong's nationally and/or globally threatened mammal species (Table 2.), indicates that most are represented in the protected areas.

Table 2.

	No. of species in Hong Kong	No. and % recorded in Country Parks and Special Areas
Nationally threatened Mammal species listed in the China Species Red List	14	12(86%)
Globally threatened mammal species listed in the IUCN Red List of Threatened Species	2	2 (100%)

Major Threats Identified

- a) **Targeted poaching** could be a potential major threat to mammal species with high commercial value such as the Chinese Pangolin. So far only low-scale harvesting of pangolins has been noted locally but the future threat is real and severe as this species has disappeared from most parts of its range because of targeted poaching. Poaching for Wild Boar, civets and Indian Muntjac has also been documented in Hong Kong but

is believed to be at low intensity and probably for local consumption (Considered as a potential threat)

- b) **Loss or degradation of marginal habitats** due to urban development, especially in Country Park enclaves, could have a fragmenting effect which will impact mammal populations. Affected species could include the Crab-eating Mongoose. Even Pangolins are known to utilise marginal habitat in Hong Kong.
- c) Some **low-lying wetlands (including fish ponds) and marshes**, especially those in the North West NT, are at risk of being drained and converted to other land uses or degraded through intensification of fish culture. Such areas are critical to the Eurasian Otter.
- d) **Woodland habitats associated with traditional villages**, including both *fung shui* forest and patches of secondary lowland and hill forest, are also now highly vulnerable to degradation and trashing, often as a precursor to development. These habitats might be frequented by both civet species, pangolins, leopard cats, East Asian Porcupine, Indian Muntjac, Wild Boar and Crab-eating Mongooses.
- e) **Anthropogenic disturbances to bat roosts**, can create serious impacts to roosting bat populations. This has been noted in water catchment tunnels where small fires have been lit and BB guns have been used to target bats. Since approximately 50% of local bat species use cave, mine and tunnel roosts, protection of these locations should be a high priority.
- f) An additional little-understood threat is of **disease transmission** from feral animals, notably cats and dogs (Lau et al. 2010). This could be seen as a potential threat in Hong Kong as no definitive links between feral disease and wild animals has been documented to date.
- g) Climate change is an existing and future threat to many animal species. The effect although subtle now may become clearer through long term studies. In particular insectivorous species and frugivores may be worthy of research focus related to Climate Change.
- h) Feral dog impacts on wild animals have been widely observed in Hong Kong. The Wildlife rescue programme at Kadoorie Farm & Botanic Garden has recorded a significant number of wild animals that have been killed or injured by Feral Dogs, which leave characteristic body wounds on their prey. The list of wild animals that are impacted by the dogs includes Indian Muntjac, Chinese Porcupine, Chinese Pangolin, Wild Boar, Small Asian Mongoose, Small Indian Civet, Leopard Cat, and Eurasian Otter. Muntjac and porcupines in particular are frequent victims of feral dogs based on the rescue centre records. The pangolin and otter are listed under the priority species and are mammals requiring Action Plans based on their endangered status. The impact by feral dogs could be significant where populations are already small or restricted.

Major Knowledge Gaps to be filled

- a) There are still information gaps regarding local mammal species which ongoing AFCD baseline studies are attempting to fill. Priority study should be carried out on the Chinese Pangolin, Eurasian Otter and Crab-eating Mongoose. The status and taxonomy of several bat species (Black-bearded Tomb Bat, Wrinkle-lipped Free Tailed Bat, unnamed Pipistrelle, Greater Bamboo Bat, Daubenton's Bat, Fringed Long-footed Myotis, Greater Bent-winged Bat) remains unclear and requires further study to help fill an information gap.
- b) **Studies** on rodent diversity are required to further elucidate understanding regarding rodent taxonomy and in particular the rat species complex (Yung et al., 2014). Most rodents are not under extinction threat although local status may not be clear. The Bandicoot Rat which used to be fairly common and widespread in the past where agriculture practices were also widespread is rarely recorded today.
- c) The status of the Siberian Weasel is also uncertain and although the weasel is also found in Guangdong province and neighboring Shenzhen the single record may be due to escapees or release or range expansion.
- d) It is recommended that more studies be conducted on documented **locally extinct taxa**, in an attempt to facilitate restoration and reintroduction as necessary. Such possibilities include the Large Indian Civet which apparently became extinct within the last century.

Priority Species and Recommended Actions

- a) Resulting from the IUCN Red List regional assessments several species were flagged as under immediate threat or requiring urgent local study. The species that were keyed out as locally Critically Endangered, Endangered or Vulnerable were: Chinese Pangolin, Crab-eating Mongoose, and Eurasian Otter. All are priority species requiring conservation attention and/or action.
ACTION: Provide protected area zoning (Zoning for conservation) for the key sites of these priority species when they are identified from the studies recommended above. Reduce development pressure in CP enclaves in particular those in NENT where Crab-eating Mongoose is restricted locally; this would in turn reduce the anthropogenic disturbances to wildlife. Increase connectivity between country parks by enhancing/developing wildlife corridors. The EIA process can continue to encourage local projects to establish and enhance green areas with the 'wildlife corridor' concept in mind.
- b) Several species that are presently proposed as **NA** (not assessed) could also turn out to be locally endangered and in particular the bats; unnamed pipistrelle, Greater Bamboo

Bat, Black-bearded Tomb Bat and the Wrinkle-lipped Free-tailed Bat (the latter two are considered vagrants) should receive further study as indicated earlier. Although the tomb bats and free tailed bats are known to migrate it might also be possible that a local roost has been overlooked (e.g. sea caves). Only a single Greater Bamboo Bat has so far been recorded from mist-net surveys (AFCD) in So Lo Pun, an enclave in which some land clearance has occurred and faces small house development threat, but as the related Lesser Bamboo Bat is fairly widespread and both species are sympatric with overlapping roost niches (bamboo spp) it is possible that the larger bat is locally resident but much less common and therefore under-recorded.

ACTION: All species that have been categorized as **Data Deficient (DD)** or **NA** should receive further study. This will include further DNA work for mammals that form species complexes (Yung, et al 2014) and other mammals that might be vagrants but could also have been over-looked locally.

- c) **Rare cave bat species** can receive conservation actions that protect the day roosting locations by preventing access.

ACTION: **Mines and caves** can receive rapid protection by simply gating or grilling the mine or tunnel entrance. Several key bat roosts can be treated in this way not only providing protection to the threatened species but essentially protecting all species that utilize the cave or tunnel system. Lin Ma Hang mines which are already in a special area (SSSI) could be further protected in this way as could Lin Fa Shan mines (Tai Lam CP).

Another recommended action would be to develop a priority list of bat hibernacula and maternity roosts that can be provided lockable grill gates so research can be undertaken under permit and the bats are protected from unauthorized entry and disturbance. Long term bat population monitoring should be conducted for any key sites identified.

There are inherent problems related to gating water catchment tunnels and in these cases fencing to prevent access to the tunnels may be a more suitable means of providing tunnel security and has been done in some catchwaters already (grilling or gating the tunnel mouth would not be practicable)

- d) High vigilance should be maintained regarding **poaching activities**. Hong Kong is now recognized among the international conservation community as one of the few remaining locations which harbors a healthy Chinese Pangolin population. The global threat has been so severe that it has been extirpated over most of its natural range. This species is likely to be targeted locally for the illegal TCM and food trade and studies should be undertaken to determine if there are local hotspots which require special protection and regular patrolling. The threats are real and because of massive regional harvesting, Hong Kong is considered a possible refuge where animals could

support future recovery programmes in the region.

ACTION: It may be necessary to show a regular presence in hotspots which might face poaching pressures, this may require more AFCD ranger staffing. Also signage and appropriate fencing might be required in core activity areas combined with regular patrolling.

Setting up of a Wildlife Crime Unit has been raised in the Legislation Focus Group on several occasions. The group would possess tracking and investigative skills and can follow through cases of poaching (also severe in freshwater turtles, and valuable plants) and other wildlife crime activities, with close interdepartmental collaboration. This might be what is required to step up actions regarding the increasing wildlife crime we are seeing in Hong Kong.

More serious penalties for wildlife crime including smuggling should be considered in order to have a deterrent effect. Presently many prosecutions involve fines which are a very small percentage of the actual monetary rewards the criminal can gain through the wildlife trade.

- e) **The Eurasian Otter** is not secure in Hong Kong, and Hong Kong is probably the sole remaining place in the Pearl River Estuary where this species is still present. Due to rapid urbanisation and illegal poaching pressure combined, this species has largely disappeared from South China (Lau *et al.*, 2010). Although Mai Po is a well protected area, this species requires a wide home range to survive (e.g., travels a long distance to search for food to meet energy needs) and indeed otters do appear in many wetlands in the Deep Bay area some of which are still not appropriately protected.

ACTION: Detailed study should be carried out to determine the range, preferred habitat and ecological requirements of the Eurasian Otter. The ecological needs of this species and its conservation should be considered in the holistic planning of Deep Bay. The key Otter locations should be identified and further actions should be considered and implemented (e.g., in the design of managed wetlands in the Deep Bay area, the plans should include measures to protect Otters). Urgent action should be undertaken to limit the development pressure in the Deep Bay wetlands (e.g., through re-zoning, publication of new practice notes).

- f) **Species Action Plans** should be made a priority for the **Chinese Pangolin and Eurasian Otter**. The two species fall into the IUCN threatened categories and may require unique management and enforcement actions to prevent local extinctions in the future.

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