Attachment 1

Hong Kong Headline Indicators for Biodiversity & Conservation

2013 & 2014 Report








December 2015

The Hong Kong Bird Watching Society

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RECOMMENDED CITATION

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Hong Kong SAR Government Departments

- Agriculture, Fisheries and Conservation Department
- Drainage Services Department
- Environmental Protection Department
- Lands Department
- Planning Department

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Contents

Introduction

In May 2011 the Convention on Biological Diversity (CBD) was formally extended to Hong Kong[1], opening a new page for nature conservation in the Special Administrative Region. Under the CBD the community is encouraged to formulate a Biodiversity Strategy and Action Plan (BSAP), which should be published, implemented, monitored, and reviewed. The Conference of the Parties of the CBD recognize the regular publication of headline indicators as an effective means to monitor and share information about the state and progress of biodiversity conservation and thus reflect the progress of a BSAP[2].

Selection of headline indicators

A draft set of indicators were suggested by Civic Exchange in its report *Nature Conservation: A new policy framework for Hong Kong*[3] ("*The Framework*") which was published in January 2011. These indicators were drafted based on discussions with environmental non-government organisations (EnvNGOs), academics, consultants, officials and other stakeholders. The indicators in this publication were based on the following criteria:

1. Are they consistent with the strategic objectives of the CBD and the Framework?
2. Are they scientifically robust?
3. Are they clearly defined, logical and easy to understand?
4. Could the information be readily obtained?
5. Are they easily comprehensible by the public?
6. Will they drive positive changes in biodiversity conservation?

Protecting our biodiversity also plays a critical role in retaining Hong Kong's position as the most liveable city in China. These indicators will provide a broad picture of the state of both biodiversity and conservation in Hong Kong. The Hong Kong Bird Watching Society (HKBWS) publishes these indicators every year so that the community can measure its progress in protecting, managing and enhancing our biodiversity in line with international best practice as expressed through the CBD.

Recommendations for actions that would improve Hong Kong's performance are added after each of the indicators. These are derived according to the current situation and are considered to be reasonably achievable.

Lack of data

The indicators also highlight areas where data should be collected in order for Hong Kong to have an accurate picture of its biodiversity and conservation initiatives. Most of the data gaps identified in the previous report remain unfilled. This year HKBWS continues to look for alternative data to provide partial information for these indicators.

A consistent set of indicators

The chosen indicators should be consistent so that results and trends can be tracked from year to year. Revision of the indicators may be required if improvements can be made, and they may be reviewed following thorough discussions when a formal BSAP for Hong Kong is prepared.

Biodiversity Conservation in Hong Kong in 2013 and 2014

The most significant event for conservation in Hong Kong during the two years covered by this report was the commencement by the Environment Bureau and the Department of Agriculture, Fisheries and Conservation of the development of a BSAP for Hong Kong[4]. This is an important milestone under Indicator 5.1, which measures the time before Hong Kong has an approved, resourced and actively managed BSAP. The HKBWS along with various NGOs actively participated in providing recommendations to be put forward in into the action plan. The voluntary involvement the community, including NGOs in various focus groups is critical in order to formulate a comprehensive plan with recommended actions. For example, assessment results from the Status and Trends and Red List Focus Group would not have been possible without experts from various NGOs with historical databases in their specialized fauna groups i.e. HKBWS, KFBG, etc. While the enthusiastic participation of the NGO and academic sectors has been encouraging, the lack of time and resources provided by Government to support the development of the BSAP has, with the exception of AFCD's conservation staff, been disappointing and does not augur well for the future rollout of the plan.

At the same time, a range of mostly development-related pressures continue to threaten Hong Kong's biodiversity. Terrestrial habitats that are either protected or due to be protected by appropriate landuse zonings continue to be trashed – mostly to facilitate small house development. There has been little change in the long-running lack of adequate plans, mechanisms and resources to prevent such destruction and to actively manage ecologically important habitats. At the same time, the reinterpretation of Green Belt as a zoning that facilitates rather than prevents

development has created a new and serious cause for concern (see page 18). Extensive areas of marine habitats are now threatened by new plans for reclamation. While the reasons remain unclear, and may well lie outside Hong Kong, further declines in the number of waterbirds wintering in Deep Bay and Chinese White Dolphins continue a worrying trend. Major gaps remain in the collection of data for all indicator species except birds and Chinese White Dolphins.

On a more positive note the Government's rejection of yet another proposal for a residential development at Nam Sang Wai has safeguarded this large area of fishponds in the Deep Bay Wetlands for now. Even more encouraging were the decisions of both the Legislative Council and the courts to include Tai Long Sai Wan within Sai Kung Country Park. These outcomes highlight the growing value the wider community attaches to conserving Hong Kong's natural heritage.

Looking forward

At the strategic level the completion of the BSAP development process will remain the most important opportunity to create a world-class framework for biodiversity conservation in Hong Kong. Key issues to watch:

1. the willingness of Government to participate in and provide resources to support the development of the BSAP,
2. the decisions regarding the degree of protection afforded to the Country Park Enclaves and other sites and habitats of high ecological value,
3. Government's solutions in mainstreaming conservation into wider government policy in the face of conflicting development needs, and
4. the development of a Red Data list for Hong Kong.

The Headline Biodiversity Conservation indicators – 2013 & 2014 update

Focus Areas and Indictors	Data year	Status in 2011	Status in 2012	Status in 2013	Progress in 2014
Focus Area 1: Community-based conservation					
1.1. Percentage of instances of illegal/unauthorized activity (trashing, trapping, collection, etc.) reported per year by environmental NGOs and verified sources (e.g. media and websites) where enforcement action led to a) successful prosecution, and b) restoration of ecological function	2009-2013	↓	↑	↓	↓
Focus Area 2: Establish (and strive to improve upon) accepted global best practices for the conservation and sustainable use of biological diversity in Hong Kong					
2.1 Percentage of taxa on a published Red Data List protected by law and covered by species action plans	2009-2013	↓	↔	↔	↔
Focus Area 3: Reversing the decline in native biodiversity					
3.1 Percentage of (terrestrial and marine) protected areas covered by published, resourced and active biodiversity management plans	2009-2013	↓	↑	↔	↔
3.2 Total area impacted by planning proposals that involves conservation zonings (SSSI, CA, CPA, GB, AGR)	2009-2013	↓	↔	↓	↓
3.3 Percentage of lowland rivers (below 200m) that (a) remain in natural state and (b) are impacted by channelization	2006-2013 (partly)	?	↓	↓	↓

Focus Areas and Indictors		Data year	Status in 2011	Status in 2012	Status in 2013	Progress in 2014
3.4 Trends in number and populations of known alien invasive species	a) House Crow	2007-2013	↔	↔	↔	↑ *
	b) Apple Snail	...	?	?	?	?
	c) Mikania	...	?	?	?	?
3.5 Trends in populations of flagship and umbrella species	a) Waterbirds	2006-2013	↔	↓	↔	↓ *
	b) Chinese White Dolphin	2006-2013	↓	↔	↔	↔
	c) Breeding egrets and herons	2006-2013	↓	↔	↔	↔ *
	d) Dragonfly diversity and abundance	...	?	?	?	?
	e) Big-headed Turtle	...	↓	?	?	?
	f) Buddha Pine	...	?	?	?	?
	g) Grassland Orchid	...	?	?	?	?
Focus Area 4: Reversing impacts on global biodiversity						
4.1 Hong Kong's ecological footprint		2005, 2007-2008	↓	?	?	↓
4.2 Change in greenhouse gas emissions attributable to Hong Kong		2005-2010	?	↔	↔	↔

Focus Areas and Indictors	Data year	Status in 2011	Status in 2012	Progress in 2013	Progress in 2014
Focus Area 5: Plans & resources for biodiversity conservation					
5.1 In how many months' time will an approved, resourced, and active BSAP that meets the principles and standards of the CBD be in place?	N/A	↓	↑	↑	↑

**Natural fluctuations occur for some indicators. The figures are compared to the mean value and standard deviations of previous years. A difference is larger than 2 standard deviations is considered to represent a significant change.*

*** The report is structured in that the reporting year is one year proceeding the year of which the data is obtained*

Legend and Summary		
Deterioration since previous year	↓	5
Same situation as previous year	↔	5
Improvement since previous year	↑	2
Insufficient Information	?	6

Results and Discussion

1. Community-based conservation

1.1. Percentage of instances of illegal/unauthorized activity (trashing, trapping, collection, etc.) reported per year by environmental NGOs and verified sources (e.g. media and websites) where enforcement action led to a) successful prosecution, and b) restoration of ecological function.

Table 1.1a Information from EnvNGOs and other verified sources

	2009	2010	2011	2012	2013
Involved sites (cases)	37	35	27	26	33
Successful prosecution	2 (5.4%)	3 (8.5%)	0 (0%)	0 (0%)	1 (3%)
Restoration of ecological function	none confirmed	none confirmed	none confirmed	none confirmed	none confirmed

Table 1.1b Information from Planning Department and Lands Department regarding unauthorized developments (UD) in rural areas[5]

	2009	2010	2011	2012	2013
No. of complaints received	644	604	778	870	944
Confirmed cases of UD*	115	100	148	138	113
Enforcement not possible under Town Planning Ordinance due to absence of DPA plans	37	23	46	41	22
Successful prosecutions	6 (5.2%)	3 (3%)	1 (0.6%)	2 (1.5%)	0 (0%)

** The Planning Department has issued enforcement notices for all of the cases.*

Table 1.1c Information from AFCD on illegal activities in Country Parks[6]

	2009	2010	2011	2012	2013
No. of reports	12	26	64*	67	96
Successful prosecutions	1 (8.3%)	7 (27%)	29 (45.3%)	22 (32.8%)	9 (9.4%)**

** 39 cases are reported by public and 25 cases detected by AFCD staff*

*** Some cases are still open for investigation as of January 2014*

Discussion

2013 saw an increase in reported unauthorized activities both inside and outside the Country Parks. Overall, successful prosecutions continue to remain low. In 2013, there was a decrease in the number of cases that could not be pursued under the Town Planning Ordinance due to the absence of Development Permission Areas Plans. This may be a positive outcome of the Government's action to extend planning protection to formerly unprotected sites.

Illegal activities in Country Parks increased substantially while successful prosecutions remain low. Illegal harvesting of Incense Trees (*Aquilara sinensis*) has become increasingly common[7].

There continue to be no confirmed cases of restoration of ecological function. While in some cases there is no authority to require or carry out reinstatement of any kind, in other cases dumped material was removed, but this cannot be classified as restoration of ecological function. It is suggested that the EnvNGOs should re-visit affected sites after some time in order to observe habitat conditions. Without restoration, enforcement serves only as a deterrent and provides no reversal of the harm that has been done. A mechanism that can truly deliver a restoration of ecological function is urgently needed.

The Planning Department should continue to designate Development Permission Areas Plans where plans are absent. Restoration opportunities at damaged sites should be explored by AFCD.

2. Establish (and strive to improve upon) accepted global best practices for the conservation and sustainable use of biological diversity in Hong Kong

2.1 Percentage of taxa on a published Red Data List protected by law and covered by species action plans

Table 2.1a Threatened Species and their conservation in Hong Kong

	2009	2010	2011	2012	2013
Threatened species listed in IUCN Red List (CR, EN, VU)	73*	75*	75*	76**	76
Covered by action plans (incl. global action plans)[8]	3 (4.2%)	3 (4.0%)	3 (4.0%)	3 (3.9%)	3 (3.9%)
Species-specific conservation actions[9]	2 (2.9%)	2 (2.8%)	3 (4.2%)	3 (4.2%)	3 (4.2%)
Species protected by law (Cap. 96, 170***, 586)	45* (60%)	45* (60%)	45 (60%)	46 (60.5%)	46 (60.5%)

* *Figures have been revised and differ slightly from previous reports*

** *The change of IUCN status for Burmese Python is reflected in the 2012 figure, whilst the change in status of Yellow-breasted Bunting does not affect these figures*

***All birds are protected by law (Cap. 170)*

Discussion

The key reference for the conservation status of fauna in Hong Kong is *Fauna of Conservation Concern* by Fellowes *et al*. This paper is over ten years old and covers only terrestrial species[10]. Fortunately, a Hong Kong Red List that will cover both terrestrial and marine species is being prepared as part of the BSAP process. However, information gaps still exist for all fauna groups due to the lack of available information. As for marine fishes and fauna groups of lower trophic levels (i.e. algae, lower plants, lichens and many invertebrate groups) little to no information is currently available that would allow a Red List assessment to be conducted.

There was a slight increase in the number of threatened species listed by the Hong Kong SAR Government since 2012. Despite their existing local protection, Yellow-breasted Bunting (*Emberiza aureola*) and Burmese Python (*Python bivittatus*) were both uplisted by IUCN due to over-exploitation outside of Hong Kong. In 2012, Burmese Phython was uplisted to Vulnerable (VU). In 2013, Yellow-breasted Bunting was uplisted from VU to Endangered (EN).

An important information gap exists for the marine environment, where only the distribution of hard corals in Hong Kong have been studied and published, while the status of soft corals and gorgonians remain unknown. There are currently eleven species of hard corals in Hong Kong that are listed as VU under IUCN. Local legislation provides protection to all corals within the boundaries of Marine Parks from collection under the Marine Parks Ordinance (Cap. 476), but none to those located outside the Marine Parks.

No new species have been covered by published action plans in the last year. Legislative protection in Hong Kong of threatened species continues to remain low - only 46 species (60.5%) are protected. This is because relevant ordinances are in need of update. Marine fish (including some globally Critically Endangered species) continue to be excluded from these ordinances.

Under the CBD, Hong Kong has a duty to strengthen its legislative protection of threatened species. Recently, “A Review of Hong Kong’s Wild Animal and Plant Protection Laws” has been published. The proposals from this document will feed into the BSAP process.

There is a need to update existing legislation and develop species action plans to protect threatened species based on the findings from the Hong Kong Red List being developed under the BSAP process.

Yellow-breasted Bunting was uplisted in 2013 to “Endangered” by IUCN. © A. Chan

Burmese Python was uplisted in 2012 to “Vulnerable” by IUCN. © A. Chan

The status of Gorgonian corals in Hong Kong has not been studied. © K. Kei

3. Reversing the decline in native biodiversity

3.1 Percentage of (terrestrial and marine) protected areas covered by published, resourced and active biodiversity management plans

Table 3.1a Terrestrial Protected Areas in Hong Kong

	2009 (ha)	2010 (ha)	2011 (ha)	2012 (ha)	2013 (ha)
Total land area of Hong Kong[11]	110,439.00	110,439.00	110,441.00	110,443.00	110,443.00
Protected area network: Country Parks and Special Areas[12]	44,004.34 (39.8%)	44,004.34 (39.8%)	44,239.00 (40.1%)	44,239.00 (40.1%)	44,300.00 (40.1%)
Area of Country Parks and Special Area covered by biodiversity management plans[13]	60.00 (0.05%)	60.00 (0.05%)	60.00 (0.05%)	60.00 (0.05%)	60.00 (0.05%)
Area not in Country Parks and Special Areas, but covered by published, resourced and active biodiversity management plans[14]	1,656.35 (1.5%)	1,656.35 (1.5%)	1700.80 (1.5%)	2,082.5 (1.9%)	2,057.5 (1.9%)

Table 3.1b Marine Protected Areas in Hong Kong

	2009 (ha)	2010 (ha)	2011 (ha)	2012 (ha)	2013 (ha)
Total marine area of Hong Kong[11]	165,064.00	165,064.00	165,062.00	165,060.00	165,060.00
Area of Marine Parks and Reserves[15]	2430.00 (1.5%)	2430.00 (1.5%)	2430.00 (1.5%)	2430.00 (1.5%)	2430.00 (1.5%)
Area of Marine Parks and Reserves covered by published, resourced and active biodiversity management plans	None	None	None	None	None

Discussion

Hong Kong has yet to meet the CBD's Aichi Biodiversity Targets[16,17] requirement for 17% of our land and 10% of our marine territory be "effectively and equitably managed, ecologically representative and well connected".

In 2013 the Government began to designate various country park "enclaves" in accordance with the Chief Executive's commitment in the 2010 Policy Address[18]. Fifty-four enclaves will either be incorporated into their surrounding Country Parks or covered by statutory plans. Decisions have been made for Yuen Tuen, Kam Shan and Tai Long Sai Wan to be incorporated into their surrounding Country Parks. Pressure from small house development in enclaves with private land is believed to be the driver for the decision for other enclaves to be excluded from Country Parks and instead covered by OZPs. Despite their ecological value, Hoi Ha, Pak Lap and So Lo Pun will be covered by OZPs where village type development may be permitted in existing undeveloped and natural habitats under the Green Belt and Agriculture zonings. In 2013, the area of Country Park increased by 61 hectares. The designation of Country Parks and incorporation of enclaves into surrounding Country Parks should continue in the upcoming years.

Improvements in the area covered by active biodiversity management plans is noted in recent years. The Management Agreement Programme covering 664.5 hectares of fishponds in North West New Territories, supported by funding from the Environment and Conservation Fund provides resources to HKBWS to actively manage fishponds in the Deep Bay area. This is the largest documented increase in area of active biodiversity management in recent years.

Progress in marine habitat protection is questionable. There was no change in the area of marine protected areas in 2012 and 2013. A marine park at the Brothers Islands will be designated in 2016 as part of the compensation for reclamation works of the Hong Kong Link Road and the Hong Kong-Zhuhai-Macao Bridge projects[19]. Unfortunately, more reclamation works in Hong Kong waters are on the drawing board. In late 2012, the Civil Engineering and Development Department commissioned a study on "Enhancing Land Supply Strategy – Reclamation outside Victoria Harbour and Rock Cavern Development"[20], together with the proposed Third Runway for the Hong Kong International Airport, the marine waters of Hong Kong (especially North Lantau), are still highly threatened. Moreover, about two hectares of marine habitat were lost to reclamation during this reporting period in Victoria Harbour from the Central - Wan Chai Bypass project.

Under the Aichi Biodiversity Targets, a lot more work needs to be done in order to achieve the target of 10% marine areas to be protected and managed by 2020[17].

To protect the integrity of Country Parks, designation of enclaves as part of their surrounding Country Parks should continue. Marine habitats should be protected based on ecosystem function and ecological value rather than a compensation measure for reclamation works.

HKBWS currently manages over 600 hectares of fishponds in Deep Bay under a Management Agreement. Funding is provided by the Environment and Conservation Fund. © HKBWS

3.2 Total area impacted by planning proposals that involves conservation zonings (SSSI, CA, CPA, GB, AGR)

A range of mostly development-related pressures continue to threaten Hong Kong's biodiversity. Terrestrial habitats that are either protected or due to be protected by appropriate landuse zonings continue to be trashed – mostly to facilitate small house development. There has been little change in the long-running lack of adequate plans, mechanisms and resources to prevent such destruction and to actively manage ecologically important habitats. At the same time, the Government is rezoning Green Belts for housing, which further facilitates development, creating a new and serious cause for concern.

Table 3.2a Area (ha) of planning applications received by Town Planning Board*[21]

Zoning	2009	2010	2011**	2012**	2013**
Site of Special Scientific Interest (SSSI)	0.000	0.000	0.069	315.601	315.600
Coastal Protection Area (CPA)	0.367	0.614	7.825	5.149	3.966
Conservation Area (CA)	5.674	0.216	22.572	1.690	1.133
Green Belt (GB)	20.053	12.081	8.460	16.215	21.232
Agriculture (AGR)	16.391	38.505	36.320	33.127	33.385
Total	42.486	51.417	75.246	371.782	375.316

Table 3.2b Area (ha) of Planning Applications Approved by Town Planning Board*[22]

Zoning	2009	2010	2011**	2012**	2013**
Site of Special Scientific Interest (SSSI)	0.000	0.000	0.069	0.00063	0.000
Coastal Protection Area (CPA)	0.688	0.550	1.206	2.936	1.735
Conservation Area (CA)	1.401	0.216	0.511	0.824	0.187
Green Belt (GB)	11.183	10.800	3.681	5.959	12.288
Agriculture (AGR)	13.230	11.086	13.584	22.044	16.985
Total	26.503	22.652	19.051	31.763	31.195

** Applications and approvals are separately tabulated on a calendar year basis and do not mutually correspond.*

***This data is obtained from the Hong Kong SAR Government's Statutory Planning Portal and also information from Town Planning Board Minutes.*

Discussion

The land area in conservation zones subject to planning applications substantially increased in 2012 and 2013. The application for a residential development at Nam Sang Wai is reflected in substantially increased area of applications in SSSIs in both years.

To tackle housing demand, the Policy Addresses in recent years proposed to rezone Green Belt areas which "are devegetated, deserted or formed"[22] for residential use and the Town Planning Board has been approving increasing numbers of development applications on land that is zoned as Green Belt (GB). Both of these approaches are contradictory to the "presumption against development" in GB zonings and ignore the planning intention of GB, which is to prevent urban sprawl, protect the existing natural environment, and provide passive recreational outlets. These approaches facilitate development rather than conservation and set undesirable precedents for similar development cases within GB zones, thus leading to a permanent loss of well-vegetated and functioning Green Belt areas across the rural areas of Hong Kong.

In villages where the demand of New Territories Exempted Houses (NTEHs) has exceeded the capacity of the existing Village Type Development (V) zones, there has been an increase in encroachment into the surrounding areas zoned GB and Agriculture (AGR). It is roughly estimated that NTEHs applications account for more than 90% and 65% of the approved applications in AGR and GB zonings respectively[23]. The pressing demand for land for NTEHs under the Small House Policy will continue to threaten surrounding areas, particularly AGR and GB zones.

The loss in area of conservation zoning is a territory-wide issue. The Planning Department should not just continuously review and rezone GB in every district to meet the demand in land supply, but should revise the current land supply policy together with relevant Departments/Bureaux in order to prevent further loss or depletion of lands with conservation zonings (particular GB) in Hong Kong.

There is a need for a comprehensive study on the planning and landuse of conservation zones, especially Green Belt and Agriculture zones, which are commonly under-valued.

Vegetation clearance is common on Green Belt land close to Tai Po where potential residential developments are proposed. © HKBWS.

Green Belt Land at Tung Tsz Road, Tai Po, to be rezoned as residential use. © HKBWS.

3.3 Percentage of lowland rivers (below 200m above sea level) that a) remain in natural state and b) are impacted by channelization

The information on length of natural streams is not available. However, the length of engineered river channels is presented below:

Table 3.3 Length (km) of engineered river channels in Hong Kong

	2006	2007	2008	2009	2010	2011	2012	2013
Length of engineered channels[24]	184	199	243	258	278	N/A	338	341

Discussion

River channelization works continue to be the principal threat to riverine biodiversity in 2012 and 2013 as the length of channelized rivers increases. Although the increase between this reporting period and the previous was large, the trend after 2012 has slowed down.

In recent years, the Drainage Services Department (DSD) has begun to take into consideration the ecological damage done by channelization. New and improved eco-friendly designs have been developed with active participation from experts and EnvNGOs. The information gathered is being put together in a Practice Note intended to provide guidance on ecological enhancement opportunities for new and existing channels. DSD will use these guidelines to rehabilitate some existing concrete drainage channels with eco-friendly designs. Even with the implementation of eco-designs, there is still an urgent need to protect those rivers that remain in their natural state.

DSD should continue their efforts in engaging experts and NGOs to explore opportunities for eco-designs and rehabilitation opportunities in channelized rivers especially in the proposed new development areas of the New Territories.

Lowland natural streams are becoming increasingly rare.

© HKBWS

Channelized rivers commonly found in New Territories.

© HKBWS.

Kau Lung Hang stream where revitalization by DSD has taken place. © HKBWS.

3.4 Trends in number and populations of known alien invasive species

At least 29 exotic species on the Global Invasive Species Database are present in Hong Kong. However, not all are confirmed invasive in Hong Kong. Nevertheless, some of the known invasive species have caused substantial harm to local biodiversity. Three species, covering terrestrial and freshwater environments, are listed below.

Table 3.4 Trends of selected invasive species

	2007	2008	2009	2010	2011	2012	2013
House Crow *Corvus splendens*[25,26]	210	220	250	190	230	182	130
Apple Snail *Pomacea canaliculata*	No systematic monitoring in Hong Kong						
Mikania *Mikania micrantha*	Controlled by AFCD in Country Parks, Special Areas and SSSIs[27] but there is no comprehensive survey of the coverage of Mikania in Hong Kong. WWF and the Tai Po Environmental Association conduct removal of Mikania at Mai Po Nature Reserve and Fung Yuen Butterfly Reserve respectively.						
Area of Mikania removed (ha)	N/A	N/A	N/A	N/A	8.5[28]	4.3	N/A

Discussion

There has been a decreasing trend in the population of House Crow since 2012. The proactive efforts by AFCD to control this species has been successful, and the population in 2013 is the lowest in the last six years. The government should continue its efforts in controlling this species in order to limit adverse impacts of House Crows on native birdlife.

Monitoring data is still not available for the other two selected species, Apple Snail and Mikania. Both are known to have negative impacts on the biodiversity of the habitats they colonise[27,29] and continue to be widely found in Hong Kong. Government departments have conducted removal of Mikania sporadically and WWF continues to conduct Mikania removal in Mai Po Nature Reserve. In 2013, the Tai Po Environmental Association also carried out Mikania removal both at Fung Yuen and in neighbouring areas with Mikania problems[30].

Systematic invasive species monitoring and removal programmes supported by AFCD in collaboration with other Government departments and other relevant organizations could effectively reduce the colonisation rate and impacts of alien invasive species on local biodiversity.

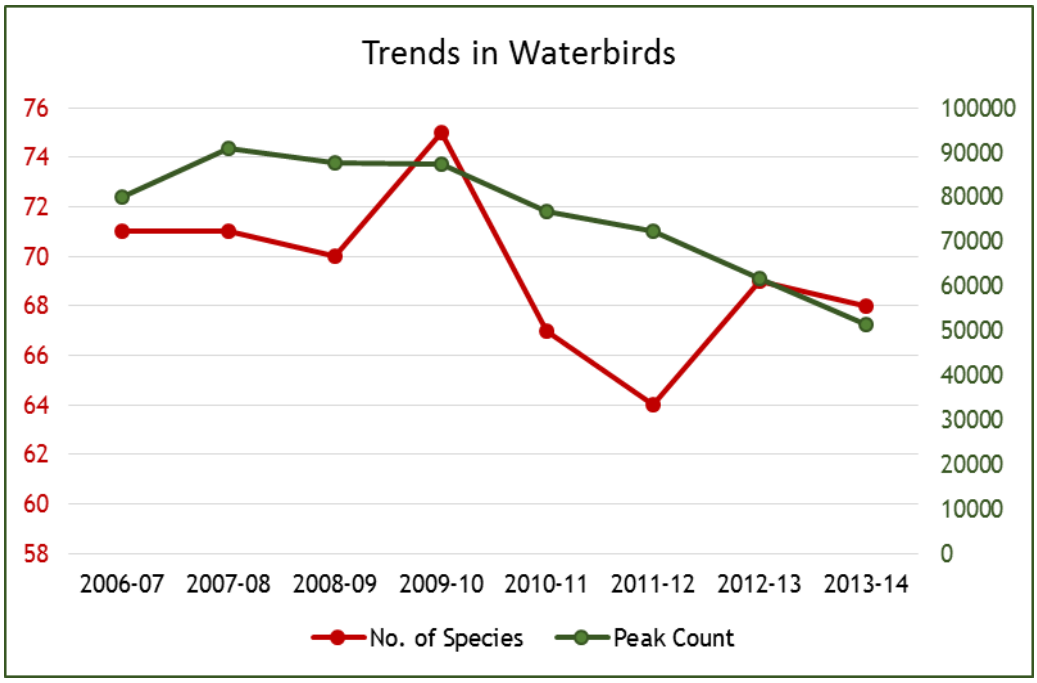
Apple snail is a predator of native freshwater snails and lotus plants in Hong Kong and is commonly seen in freshwater wetlands. © HKBWS.

Mikania climbs up other plants and eventually covers them, blocking light for photosynthesis and smothering them. © YW Yip

3.5 Trends in abundance and diversity of water birds

Table 3.5 Trends in Waterbirds[31,32]

	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Peak count	80,108	90,986	87,633	87,379	76,679	72,492	61,674	51,313
No. of species	71	71	70	75	67	64	69	68



Discussion

The peak annual count of waterbirds and the number of species recorded has been decreasing since 2008 and continued to do so in 2013-14. Although the reason for this trend has not been fully investigated, it is that believed activities occurring outside Hong Kong, particularly loss of wetlands on the East Asian Australasian Flyway are contributing to this phenomenon.

At the local level, the colonization of invasive mangrove species *Sonneratia* spp. at unmanaged mudflats has led to a loss of foraging grounds for waterbirds. Disturbances caused by the presence of mudskipper collectors and other fishermen in the Deep Bay and the adjoining Futian National Nature Reserve have decreased in recent years, but still constitute an avoidable source of disturbance.

A communication platform is needed for relevant stakeholders to further investigate the causes of the decreasing trend across the region. On a local level, active management for the removal of invasive *Sonneratia* mangroves should be carried out at areas outside of Mai Po Nature Reserve and Hong Kong Wetland Park.

Pied Avocet is one of the most numerous wintering waterbird species in Deep Bay. However, Common Shelduck has an average annual decrease rate of 22%. © YT Chung.

3.6 Trends in populations of flagship and umbrella species:

Table 3.6 Trends in flagship and umbrella species

		2006	2007	2008	2009	2010	2011	2012	2013
a) Chinese White Dolphin *Sousa chinensis*	(Encounter rate per 100km)[33]	6.9	9.9	7.2	6.3	6.8	7.6	7.3	7.2
	Abundance estimate in Lantau[35]	107	124	96	88	75	78	61	62
b) Breeding egrets and herons (no. of nests)[34,35]		1,017	822	664	809	734	803	852	758
c) Dragonflies diversity and abundance		AFCD conducts regular monitoring but data is not published							
d) Big-headed Turtle *Platysternon megacephalum*		HKU research completed. Findings from surveys by KFBG and AFCD have not been published[36].							
e) Grassland Orchid *Spathoglottis pubescens*		Currently no systematic monitoring programme.							
f) Buddha Pines *Podocarpus macrophyllus*		- - -	2000 ~3000 mature trees[37]	- - -	- - -	- - -	- - -	- - -	- - -

Discussion

Chinese While Dolphins and breeding egrets both experienced a downward trend in 2012 and 2013. For Chinese White Dolphins, the reclamation works for the Hong Kong-Zhuhai-Macao Bridge Boundary Crossing Facilities and the Hong Kong Link Road in North Lantau may have increased the severity of existing threats in terms of poor water quality, lower prey abundance, underwater noise disturbance and increased vessel traffic. Dolphins were infrequently sighted near the construction site and the encounter rate in North Lantau was the lowest since 2002. The number of breeding egrets and herons continues to decline. Rural development and associated habitat destruction in and near wetlands are the most likely causes.

There are data gaps for other flagship species and a pressing need for resources to be made available to enable systematic monitoring and reporting of the status of key indicator species.

The trends in flagship and umbrella species should continue to be monitored. Potential resources to monitor species where data gaps exist should be explored, especially for taxa where no data is available.

Penfold Park Egretry. © HKBWS.

4 Reversing impacts on global biodiversity

4.1 Hong Kong's Ecological Footprint

Table 4.1 Hong Kong's ecological footprint and global capacity per capita[38,39,40]

	2005	2006	2007	2008
Ecological Footprint per capita* (global hectares)	4.4 gha	- - -	4.0 gha	4.7 gha
Global Bio-capacity per capita** (global hectares)	2.1 gha	- - -	1.8 gha	0.03 gha

* *Ecological footprint is defined as the extent of human demand for the regenerative capacity of the biosphere*

** *Bio-capacity is defined as the availability of regenerative capacity of the biosphere*

Hong Kong's trade in and consumption of imported goods – especially live and dried seafood - affects the biodiversity and ecosystems of other parts in the world. WWF's *Hong Kong Ecological Footprint Report 2013,* which provides ecological footprint data for 2008, suggests that Hong Kong's ecological footprint per capita is more than twice that of China and nearly triple the average footprint of the Asia-Pacific region. There has also been a substantial drop in global bio-capacity between 2007 and 2008, the new figure of 0.03 gha means that the per capita ecological footprint (demand for resources) exceeds Hong Kong's biocapacity (supply of resources available) by more than 150 times. Hong Kong has the second largest per capita deficit within Asia. It is substantially dependent on imports from mainland China and overseas, and some of the city's most important trade partners are already running bio-capacity deficits.

In recent years, public awareness of the problems caused by consumption of unsustainably harvested seafood products such as shark fin has increased as a result of continued campaigns and education programmes by a number of EnvNGOs. At the time of publication, 25 other airlines have now followed Cathay Pacific's lead by banning shark fin from cargo flights[41].

Continue to track Hong Kong's ecological footprint trend and formulate long-term strategies to stabilise and eventually reduce its Ecological Footprint, especially for marine products.

4.2 Change in greenhouse gas emissions attributable to Hong Kong

Table 4.2 Hong Kong's greenhouse gas emission estimates

	2005	2006	2007	2008	2009	2010	2011
Emission estimate by EPD (million tonnes)[42]	42.0	42.3	43.6	42.3	42.7*	40.8	42.7**
Per capita emission estimate by EPD (tonnes)[42]	6.2	6.2	6.3	6.1	6.1	5.8	6.0**
Per capita emission estimate by WWFHK (tonnes)	- - -	- - -	8.1[38]	13.44[43]	- - -	- - -	- - -

**Since the last report, this figure has been updated from 42.9 to 42.7.*

***Provisional figures subject to revision*

EPD reported a slight decrease in greenhouse gas emissions per capita in 2010, but in 2011 emission levels reverted back to the 2009 levels. Since 2009, no third party information regarding the source of greenhouse gas emission are available for comparison.

Substantial reduction in carbon emissions can be achieved through optimising energy use in Hong Kong's 50,000 existing buildings.

5. Plans & resources for biodiversity conservation

5.1 In how many months' time will an approved, resourced, and active BSAP that meets the principles and standards of the CBD be in place?

The best news of 2013 was the commencement of the formulation of a BSAP for Hong Kong. The Environmental Bureau and AFCD are leading the process to compile the plan under an approach that aims to actively involve experts from all sectors of the community in the formulation by 2015 of a plan to enable Hong Kong to comply with the Aichi Targets. However, limited resources have been made available to support the process, and the formulation of the BSAP currently relies heavily on the input of volunteer experts from the NGO and academic sectors and existing resources within AFCD.

As active participation from other branches of Government has been limited in the BSAP formulation process, there are concerns on how the identified conservation actions which will require cross-departmental co-operation will be developed, approved and implemented, as required under article 6 of the CBD[44].

It is the Government's duty to provide resources to the BSAP process so that the standards of the CBD and in particular the Aichi Targets can be met.

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