

# HONG KONG

# HEADLINE INDICATORS FOR

# BIODIVERSITY &

# CONSERVATION

## 2015 - 2017 REPORT



香港觀鳥會  
HONG KONG BIRD WATCHING SOCIETY

June 2018

## HONG KONG HEADLINE INDICATORS FOR BIODIVERSITY AND CONSERVATION 2015 - 2017 REPORT

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The Hong Kong Bird Watching Society is a local civil society established in 1957 aiming at appreciation and conservation of Hong Kong birds and natural environment. It was recognized as an approved charitable institution of a public character in 2002. In 2013, the Society was recognized as a Partner of BirdLife International.

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### Cover page and photographs:

The trend line shown on the cover pages indicates the changes in the annual winter peak counts of waterbirds in the Mai Po Inner Deep Bay Ramsar Site for the past 20 years from 1996-97 to 2016-17<sup>1</sup>.

Photographs on back and front cover page (from left to right, top to bottom): Well-vegetated and well-wooded Green Belt zone in Tseung Kwan O ©HKBWS; Small houses in the Kam Tin area ©HKBWS; Grassland Orchid (*Spathoglottis pubescens*) ©Stephan Gale; Sapphire Flutterer (*Rhyothemis triangularis*) ©Chung Yun Tak; Big-headed Turtle (*Platysternon megacephalum*) ©Sung Yik Hei; A fishpond in San Tin being re-profiled ©HKBWS; A section of the channelized lower Lam Tsuen River being enhanced ecologically by Drainage Services Department ©HKBWS; Dumping of construction and demolition waste at San Tin ©HKBWS; Vegetation clearance and site formation at Sha Lo Tung ©HKBWS; Globally critically endangered Yellow-breasted bunting in the paddy field ©Lau Sin Pang; Chinese White Dolphin in the North Lantau waters ©Jessica Wong.

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# TABLE OF CONTENTS

<b>BACKGROUND AND OVERVIEW</b> .....	<b>2</b>
<b>HEADLINE INDICATOR 1: COMMUNITY-BASED CONSERVATION</b> .....	<b>5</b>
1.1 Percentage of instances of illegal/unauthorized activity reported per year by environmental NGOs and verified sources where enforcement action led to successful prosecution and restoration of ecological function .....	5
<b>HEADLINE INDICATOR 2: ESTABLISH AND IMPROVE ACCEPTED GLOBAL BEST PRACTICES FOR THE CONSERVATION AND SUSTAINABLE USE OF BIOLOGICAL DIVERSITY IN HONG KONG</b> .....	<b>10</b>
2.1 Percentage of taxa on a published Red Data List protected by the law and covered by species action plans .....	10
<b>HEADLINE INDICATOR 3: REVERSING THE DECLINE IN NATIVE BIODIVERSITY</b> .....	<b>13</b>
3.1 Percentage of protected areas covered by published, resourced and active biodiversity management plans.....	13
3.2 Total area impacted by planning proposals that involves agriculture and conservation zonings...	18
3.3 Current status of lowland rivers (below 200m above sea level) .....	23
3.4 Trends in number and populations of known alien invasive species .....	25
3.5 Trends in populations of flagship and umbrella species.....	29
<b>HEADLINE INDICATOR 4: REVERSING IMPACTS ON GLOBAL BIODIVERSITY</b> .....	<b>34</b>
4.1 Hong Kong’s Ecological Footprint .....	34
4.2 Change in greenhouse gas emissions attributable to Hong Kong .....	36
<b>HEADLINE INDICATOR 5: PLANS AND RESOURCES FOR BIODIVERSITY CONSERVATION</b> .....	<b>37</b>
5.1 In how many months’ time will an approved, resourced and active BSAP that meets the principle and standards of the CBD be in place? .....	37
<b>REFERENCES</b> .....	<b>41</b>
<b>APPENDICES</b> .....	<b>48</b>

## LIST OF TABLES

<b>Table 1.</b> Information on unauthorized activities from NGOs and other verified sources (2009 - 2016) .....	5
<b>Table 2.</b> Information from PlanD and LandsD regarding Unauthorized Developments in rural areas from 2009 to 2016 .....	5
<b>Table 3.</b> Information from AFCD on illegal activities in Country Parks from 2009 to 2016 .....	8
<b>Table 4.</b> Globally threatened species and their conservation in Hong Kong from 2009 to 2016 .....	10
<b>Table 5.</b> Terrestrial Protected Areas (hectares) in Hong Kong from 2009 to 2016.....	13
<b>Table 6.</b> Marine Protected Areas (hectares) in Hong Kong from 2009 to 2016.....	13
<b>Table 7.</b> Area (hectares) of planning applications received by Town Planning Board from 2009 to 2016.....	18
<b>Table 8.</b> Area (hectares) of planning applications approved by Town Planning Board from 2009 to 2016 ...	18
<b>Table 9.</b> Small house planning applications in AGR and GB zones received and approved by the Town Planning Board in the past 10 years (as reported on 6 February 2013) .....	22
<b>Table 10.</b> Small house planning applications in AGR and GB zones received and approved by the Town Planning Board in the past five years from 2012 to 2016.....	22
<b>Table 11.</b> Length (km) of engineered river channels in Hong Kong from 2006 to 2016 .....	23
<b>Table 12.</b> Trends in number and populations of known alien invasive species from 2007 to 2016.....	25
<b>Table 13.</b> Trends in abundance and diversity of waterbirds from 2006-07 to 2016-17 .....	29
<b>Table 14.</b> Trends in populations of flagship and umbrella species from 2006 to 2016 .....	30
<b>Table 15.</b> Hong Kong’s ecological footprint from 2005 to 2012 .....	34
<b>Table 16.</b> Change in greenhouse gas emissions attributable to Hong Kong from 2005 to 2015.....	36
<b>Table 17.</b> Actions under BSAP which are related to the headline indicators.....	37

## LIST OF FIGURES

<b>Figure 1.</b> Some waterbirds were seen utilizing the partly reinstated fishpond .....	7
<b>Figure 2.</b> Changes at the Kam Tin Buffalo fields in the past two decades .....	9
<b>Figure 3.</b> The commonly consumed Golden Threadfin Bream is now a globally vulnerable species .....	12
<b>Figure 4.</b> An Incense Tree protected by barriers was illegally felled to harvest agarwood in June 2017.....	12
<b>Figure 5.</b> Chinese Grassbird’s conservation status was up-listed to “Vulnerable” by IUCN in 2016 .....	12
<b>Figure 6.</b> A site in Tai Lam Country Park proposed by the Government for public housing development ....	15
<b>Figure 7.</b> One of the Deep Bay Link constructed wetlands maintained by the AFCD .....	16
<b>Figure 8.</b> Extensive vegetation clearance and site formation at Sha Lo Tung in 2015.....	17
<b>Figure 9.</b> Number of cases and area of different land use types for approved applications 2014 - 2016.....	19
<b>Figure 10.</b> A wetland within the Wetland Buffer Area in the Deep Bay area was filled in 2015 .....	20
<b>Figure 11.</b> A concrete paved leisure farm with structures erected for barbecue and recreational activities	21
<b>Figure 12.</b> A trial site of DSD’s “Eco-hydraulic Study on Green Channels” at lower Lam Tsuen River.....	23
<b>Figure 13.</b> Site formation and vegetation clearance at the proposed Tung Chung River Park.....	24
<b>Figure 14.</b> Eradication of Apple Snails in paddy fields in Long Valley .....	26
<b>Figure 15.</b> A red fire ant mound .....	27
<b>Figure 16.</b> Invasive mangrove <i>Sonneratia</i> colonises in the intertidal area of the Kam Tin River.....	27
<b>Figure 17.</b> A poster to promote proper understanding of mercy release.....	28
<b>Figure 18.</b> Fishpond drained down for fish harvesting .....	29
<b>Figure 19.</b> Chinese White Dolphins were frequently observed in North Lantau waters back in 2010.....	30
<b>Figure 20.</b> Encounter rate and abundance of Chinese White Dolphin in different regions of Lantau waters from 2011 to 2016.....	31
<b>Figure 21.</b> Extensive site formation next to the Tai Tong egretty during the breeding season.....	32
<b>Figure 22.</b> Dead chicks were found at the Tai Po Market egretty right after the tree trimming incident.....	32
<b>Figure 23.</b> Illegal turtle traps are still found in the Hong Kong countryside .....	33
<b>Figure 24.</b> IUCN up-listed Helmeted Hornbill to “Critically Endangered” in 2015 .....	35
<b>Figure 25.</b> Pui O, the last remaining buffalo field in Hong Kong, is left in a vulnerable situation. ....	40

## LIST OF BOXES

<b>Box 1</b> – Development Permission Area (DPA) and Outline Zoning Plan (OZP) .....	7
<b>Box 2</b> – Nature Conservation Trust .....	17
<b>Box 3</b> – Leisure/ Hobby Farms.....	21
<b>Box 4</b> – Updated statistics of Town Planning Board on small house applications in AGR and GB zones .....	22
<b>Box 5</b> – Red Fire Ants.....	27
<b>Box 6</b> – <i>Sonneratia</i> Mangroves .....	27
<b>Box 7</b> – Mercy Release .....	28

## APPENDICES

<b>Appendix 1.</b> Distribution of Country Parks and Special Areas, OZPs which replaced DPAs, OZPs previously without DPAs, and areas without statutory protection .....	48
<b>Appendix 2.</b> Country Park enclaves and their protection status as of May 2018.....	49

## GLOSSARY (ACRONYMS AND ABBREVIATIONS)

AFCD	Agriculture, Fisheries and Conservation Department
AGR	Agriculture (zoning)
BSAP	Biodiversity Strategy and Action Plan
CA	Conservation Area (zoning)
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPA	Coastal Protection Area (zoning)
CR	Critically Endangered (IUCN Red List conservation status)
CWD	Chinese White Dolphin
DSD	Drainage Services Department
DPA	Development Permission Area
EN	Endangered (IUCN Red List conservation status)
GB	Green Belt (zoning)
HKBWS	The Hong Kong Bird Watching Society
HKSAR	Hong Kong Special Administrative Region
IUCN	International Union for Conservation of Nature
LandsD	Lands Department
LC	Least Concern (IUCN Red List conservation status)
MA	Management Agreement
NEL	Northeast Lantau
NGOs	Non-governmental Organizations
NT	Near Threatened (IUCN Red List conservation status)
NWL	Northwest Lantau
OZP	Outline Zoning Plan
PlanD	Planning Department
RN	Reinstatement Notice
SSSI	Site of Special Scientific Interest
SWL	Southwest Lantau
TPB	Town Planning Board
UD	Unauthorized Development
VU	Vulnerable (IUCN Red List conservation status)
WL	West Lantau

## BACKGROUND AND OVERVIEW

“*Hong Kong Headline Indicators for Biodiversity and Conservation*” is the only systematic monitoring of the state and progress of biodiversity conservation in Hong Kong. This is the fourth report of the same series, which reports on data collected on selected indicator species and observed developments over the past eight years. Under each headline indicator, the report documents and comments on the conservation issues and incidents from 2014-2017. Commentary on data in earlier years can also be found in previous reports (2011-2014)<sup>2</sup>.

### 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*<sup>3</sup> (“*The Framework*”) which was published in January 2011. These indicators were drafted based on discussions with environmental Non-governmental Organizations (NGOs), academics, consultants, officials and other stakeholders. The indicators were selected based on the following criteria:

1. Are they consistent with the strategic objectives of the Convention on Biological Diversity (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, particularly in the Bay Area of the Pearl River Estuary. These indicators 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 from time to time 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 and through Hong Kong’s own Biodiversity Strategy and Action Plan (BSAP).

### Data collection and a consistent set of indicators

The chosen indicators should be consistent so that results and trends can be tracked from year to year. The indicators also highlight areas where data should be collected in order for the Hong Kong community to have an accurate picture of its biodiversity and conservation initiatives. New data included in this report but not published in previous reports is highlighted in yellow.

More data gaps were filled in the current report, particularly information and data for various threatened species, invasive species and areas with management plans, giving a more complete picture of the status of biodiversity conservation in Hong Kong.

## Biodiversity Conservation in Hong Kong from 2015 to 2017

As with the last report in this series (2013-2014), much progress was made under Indicator 5.1, which measures the time before Hong Kong has an approved, resourced, and actively managed BSAP. The most significant step forward for biodiversity conservation in Hong Kong during this period was the launch of the city's first BSAP in December 2016. The Government also earmarked HK\$150 million to implement the first three years of BSAP. New conservation actions proposed under the BSAP include (i) the preparation and implementation of biodiversity management plans in Country Parks, Special Areas, Marine Parks and Marine Reserves, (ii) compilation of a list of threatened species for Hong Kong to guide conservation actions, (iii) formulation and review of species action plans, and (iv) increasing the capacity for management of invasive alien species. These are important steps to effectively manage and protect the biodiversity of Hong Kong.

One of the keys to successful implementation of the BSAP is the participation of all Government departments, industry sectors and the general public, such that the society as a whole can work towards achieving the BSAP's mission and vision. Drainage Services Department (DSD) is one of the most active Government departments in this process of mainstreaming biodiversity conservation in their drainage and river revitalization works (please refer to section 3.3). Other departments and sectors are encouraged to support and take part in nature conservation. However, Agriculture, Fisheries and Conservation Department (AFCD) and Environment Bureau were tasked with the challenge of coordinating with different Government departments, managing the aspirations of NGOs and academics on BSAP, as well as balancing the appetite of the Government for mainstreaming biodiversity into their policies and programmes, particularly where there are conflicting economic and development issues at play.

Recently, consecutive administrations have targeted Country Parks, Green Belts and agricultural land as potential sources of land supply for housing and infrastructure development. This clearly contradicts the original intention of the designated zoning/area to conserve habitats of conservation importance and arable farmlands as stated in various ordinances and other regulatory frameworks. Mechanisms for enforcement against unauthorized developments within private land and reinstatement of destroyed habitats are also largely ineffective, and thus continue to undermine the good intentions of the designation of protected areas and zonings (please refer to sections 1.1, 3.1 and 3.2) and serve to undermine the BSAP. On a more positive note, a recent judicial review found that the genuine need for village development within Country Park enclaves were not properly verified. Hopefully this favourable judgment would bring a more objective approach for designating Village Type Development zones, with the method for assessing the genuine need of small houses becoming more transparent and the actual landownership would be considered.

Ongoing habitat destruction continues to threaten native species, leading to a loss in Hong Kong's biodiversity. Reclamation works of various approved development projects in North Lantau waters has driven the number of Chinese White Dolphin sightings in the area to zero (please refer to section 3.5). While all wild birds are protected under the current ordinances, many other globally threatened species are not, and lack effective species conservation plans or actions (please refer to section 1.2).

On the plus side, AFCD has successfully controlled the invasive House Crow in Hong Kong. The current estimated population of House Crow is now one-third of that 10 years ago (please refer to section 3.4). Moreover, AFCD demonstrated great determination in combating the illegal trade in ivory by phasing out the local ivory trade and increasing the penalties under the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586). Such effort is also needed to control other alien invasive species and protect other threatened species from illegal trade, as Hong Kong is a significant global hub for the trade and transfer of globally threatened species including Chinese Pangolin, Shark fins and Helmeted Hornbill.

## Looking forward

The long-existing loopholes particularly in land use enforcement were not plugged in the current BSAP. The administration is urged to consider what actions and changes in policies or legislation needs to be taken to close these loopholes, so as to halt and reverse the ongoing ecological and environmental destruction that continues to undermine Hong Kong's biodiversity and quality of life.

Now that a formal BSAP has been published, HKBWS is considering a review of the current set of indicators. This review would involve a thorough discussion with relevant experts in the Government, NGO, academia and the corporate sector, as well as other relevant stakeholders such that they are better align with the current BSAP, without losing focus on the original intent of CBD. Regular monitoring of the state of biodiversity and conservation efforts, together with the implementation of BSAP, needs to be continued, in order to highlight the value and vulnerability of Hong Kong's environment that we all depend on.

# 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.** Information on unauthorized activities from NGOs and other verified sources (2009 - 2016)

	2009	2010	2011	2012	2013	2014	2015	2016
Impacted sites (cases)	37	35	27	26	33	19	31	33
Successful prosecution	2 (5.4%)	3 (8.5%)	0 (0%)	0 (0%)	1 (3%)	4 (21%)	10 (32%)	3 (9%)
Restoration of ecological function	0	0	0	0	0	0	0	2

**Table 2.** Information from Planning Department (PlanD) and Lands Department (LandsD) regarding Unauthorized Developments (UDs) in rural areas^ from 2009 to 2016

	2009	2010	2011	2012	2013	2014	2015	2016
No. of complaints received	644	604	778	870	944	845	1,089	859
Enforcement not possible under Town Planning Ordinance due to absence of DPA plans	37	23	46	41	22	36	35	31
Confirmed cases of UD <sup>s</sup>	115	100	148	138	113	130	156	154
Reinstatement notice (RN) issued*	25	19	30	41	12	24	31	22
Discontinued*	68	26	58	46	12	31	59	27
Regularized by the TPB*	13	7	5	7	2	3	3	2
Undergoing different stages of enforcement or prosecution actions*	24	61	76	75	92	80	86	120
Successful prosecutions	6 (5.2%)	3 (3%)	1 (0.6%)	2 (1.5%)	0 (0%)	2 (1.5%)	2 (1.3%)	1 (0.6%)
Cases referred to LandsD*	56	46	80	93	78	84	91	66
Land control or lease enforcement actions taken*	10	10	21	9	16	12	44	22
Successful prosecution made*	0	1	0	0	0	0	0	0

^Rural areas include Site of Special Scientific Interest, Coastal Protection Area, Conservation Area, Green Belt, Agriculture and Village Type Development zones.

\*The rows in blue are categories newly added in this report

## Unauthorized activities reported by environmental Non-governmental Organizations (NGOs)

The number of unauthorized activities reported by environmental NGOs has fluctuated at around 30 cases per year (except for 2014 when 19 cases were reported). The successful prosecution rate was generally low. It increased to 20-30% in 2014 and 2015, but then dropped back to 9% in 2016. The change in the prosecution rate is likely due to the various enforcement actions/stages that the unauthorized cases were undergoing, which may require one or more years to reach to the prosecution stage. The lengthened enforcement period maybe related to the time required for the Planning Department (PlanD) enforcement team to collect sufficient evidence for each case, the change in offence area, application for regularization through the Town Planning Board (TPB), and the change in the landowner or the person in charge.

On a positive note, PlanD upgraded the planning portal system in 2014<sup>4</sup>, which greatly improved the browsing speed, ease of use of the system, and the transparency of the TPB data. This enables environmental NGOs to regularly follow-up the current status of various UDs in Hong Kong using the new planning portal at the Planning Enquiry Counters.

## Ecological restoration of sites with unauthorized activities

As observed from the cases followed by the environmental NGOs, the reinstatement actions requested by PlanD are often not effective in restoring destroyed wetlands back into a wetland. An obvious example is the Kam Tin buffalo fields, which used to be a wetland and a birding hotspot in the past (Figure 2). Unauthorized land filling occurred since 2006 and PlanD has requested the landowner to reinstate the land by removal of construction and demolition waste, and grassing the land. This did not restore the wetland in the area. On the contrary, the land remained filled, which led to a drastic drop in numbers of wetland dependent bird species and the disappearance of the Greater Painted-snipe (*Rostratula benghalensis*) which used to breed in the area.

Poor reinstatement generally follows one of two approaches. In some cases filled materials were not completely removed from the affected site. In others grassing the land is often proposed as the method for reinstatement as it is easier to determine if the reinstatement has satisfied a court order. Clearly this method does not help the recovery of the ecological function of the impacted wetlands, but rather seals the fate of local biodiversity depending on the damaged site (Figure 10).

In the direct investigation report by Office of The Ombudsman on Government's control over fly-tipping of construction waste and landfilling activities on private land completed in January 2018<sup>5</sup>, one of the recommendations to PlanD was "*where sites of ecological/conservation value are involved, to require the RN (Reinstatement notice) recipients as far as possible to fully reinstate the sites to their original state in order to achieve the purpose of conservation*". This recommendation is helpful in providing very clear guidance to PlanD - RNs must be framed to achieve the conservation objective and enforced with a view to achieving the purpose of ecological restoration. It should also serve as an increased deterrent as the costs of restoration "*to the original state*" can be considerable.

So far, there are only two successful cases of restoration of ecological function. One of the cases relates to the illegal land filling and removal of mangroves that occurred at the Tsim Bei Tsui Site of Special Scientific Interest (SSSI) in late 2015. As most of the affected area is Government land, Lands Department (LandsD) fenced off the site and Agriculture, Fisheries and Conservation Department (AFCD) carried out restoration works in 2016 to safeguard the ecology in the area<sup>6</sup>. The other case related to fishpond filling in San Tin. After reinstatement, not all debris were completely removed, but as the pond was back in operation, some waterbirds were seen utilizing the pond (Figure 1). In order to ensure disturbed or destroyed sites are fully restored, particularly farmlands, wetlands and fishponds, all filled materials must be completely removed as the first step of restoration "*to the original state*". Opportunities for AFCD to provide professional advice and to which condition the reinstatement reaches satisfaction should be explored.



**Figure 1.** Only part of the debris was removed from the filled fishpond and was then filled back with water. But some waterbirds were seen utilizing the fishpond.

### **BOX 1 – Development Permission Area (DPA) and Outline Zoning Plan (OZP)**

OZP is a statutory plan under the Town Planning Ordinance (Cap. 131) which shows the land use zonings of an area and is prepared by the Town Planning Board. New towns and urban areas are usually directly covered by OZP. Whereas DPA Plan is generally with less details than OZP and is prepared for areas not covered by OZP, mostly in rural areas to control unauthorized developments. DPA is only effective for three years from the date of gazette, an OZP will be prepared and replaced within the period.

The Town Planning Ordinance empowers the Planning Department to carry out enforcement actions only in areas covered by a DPA or an OZP which has replaced a DPA. There are still a number of areas in Hong Kong that are not protected by any statutory plans (Appendix 1).

### **Unauthorized developments (UDs) identified by PlanD and LandsD**

The number of complaints received by PlanD regarding unauthorized activities in rural areas (i.e. SSSI, Coastal Protection Area (CPA), Conservation Area (CA), Green Belt (GB), Agriculture (AGR) and Village Type Development (V) zones) increased by about 50% from 2009 to 2016. The number of UD confirmed followed a similar trend. This is likely because of the rise in development pressure in the rural areas and the increase in public awareness of and willingness to report on unauthorized activities.

Even though there is an increase in the number of confirmed UD cases, the number of cases where enforcement is not possible due to absence of DPA remains more or less the same. The new statutory plans in rural areas or covering the Country Park enclaves made during this period all have DPAs, which allow enforcement actions to be taken by PlanD under the Town Planning Ordinance. However, the on-going destruction in areas without DPA continues to threaten the valuable natural habitats in these areas, such as the wetlands at Pui O in South Lantau (Figure 25). Moreover, the permitting system under the Waste Disposal Ordinance (Cap. 354) allows the dumping of waste in private land regardless of the ecological value of the site. Amendment of the Town Planning Ordinance and Waste Disposal Ordinance is urgently needed to enable designation of DPAs in conservation zonings (i.e. SSSI, CPA, CA and GB) and areas of conservation importance in existing OZPs, and for nature conservation to be taken into consideration in the permitting

system for dumping of waste on private land. Administrative measures which achieve the same result should also be explored.

No obvious trend is observed for the number UD cases with RN issued, discontinued or regularized by the TPB. The number of successful prosecutions also remains low throughout the years. However, there is an increasing trend for the number of UD cases undergoing different stages of enforcement or prosecution actions. It is likely that some of the enforcement actions taken by PlanD may already have successfully stopped the destruction or reinstated the site to PlanD’s satisfaction, and thus does not require prosecution action. Even though the total number of RN issued by PlanD increased significantly in recent years<sup>7</sup>, no increasing trend is observed for the RN issued for rural areas.

Restoration of the illegally filled wetland at the Tsim Bei Tsui SSSI was said to cost the Government HK\$ 6 million to restore the wetland<sup>8</sup>. Reinstatement should be required for all UD cases in order to restore the ecological function lost within these conservation zonings and rural areas. This would have a deterrent effect on unauthorized activities as the cost for reinstatement is generally much higher than that for destruction.

No clear trend is observed for the number of UD cases referred to LandsD, or the number of cases in which land control or lease enforcement actions were taken. Only one case was successfully prosecuted. There is no information on any reinstatement actions. Apart from PlanD and LandsD, Environmental Protection Department was also advised to “draw up proactive inspection plans for stronger actions against fly-tipping activities” in the aforementioned Ombudsman investigation report on the control of landfilling activities on private land.

**Table 3.** Information from AFCD on illegal activities in Country Parks from 2009 to 2016

	2009	2010	2011	2012	2013	2014	2015	2016
No. of reports	12	26	64	67	96	134	120	54
Successful prosecutions	1 (8.3%)	7 (27%)	29 (45.3%)	22 (32.8%)	9 (9.4%)	30 (22.4%)	5 (4.2%)	7 (13.0%)

### Illegal harvesting of Incense Trees

Illegal activities in Country Parks are indicated by the number of reports of illegal Incense Tree harvesting. The number continued to rise to a peak of 134 reports in 2014, then dropped suddenly to 54 in 2016. However, the successful prosecution rate fluctuated between 4% and 45%. AFCD and the Police are urged to work more closely to combat illegal felling of this protected tree species, and educate the public on this issue to raise public awareness for monitoring.

### UNRESOLVED ISSUE:

**What changes to the current land use system and regulations are required to lower the number of unauthorized development and improve the prosecution rate? How should the Reinstatement Notice be modified and enforced to ensure the original ecological function can be restored?**

*Figure 2. Changes at the Kam Tin Buffalo fields in the past two decades*

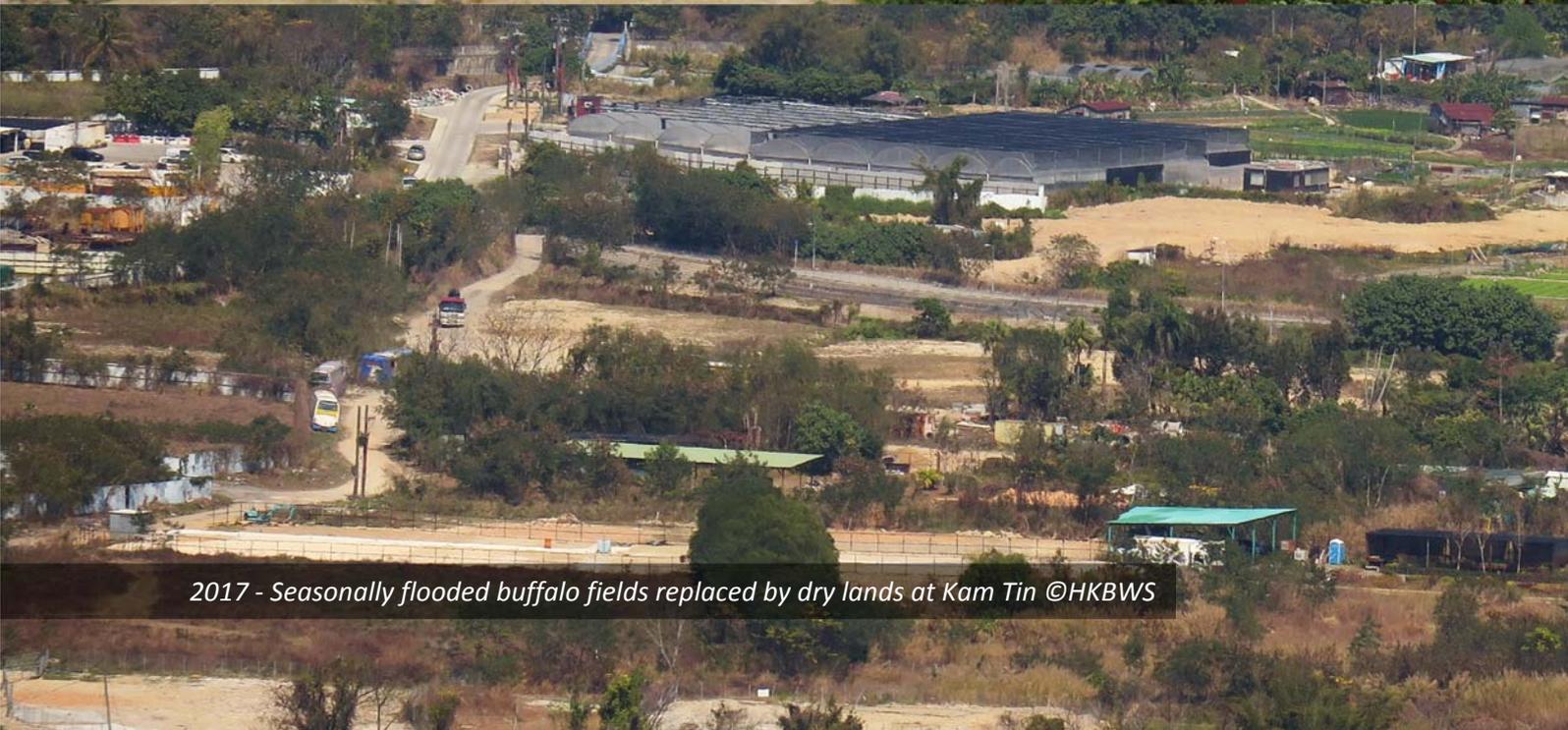


*2000 - Kam Tin buffalo fields, a seasonally flooded birding hotspot ©HFcheung*



警告  
此乃私人物業  
嚴禁傾倒泥頭  
及什物廢料  
如違究治  
業主示

*2008 - Land filling at Kam Tin buffalo fields ©HKBWS*



*2017 - Seasonally flooded buffalo fields replaced by dry lands at Kam Tin ©HKBWS*

# 2 ESTABLISH AND IMPROVE 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 the law and covered by species action plans

**Table 4.** Globally threatened species and their conservation in Hong Kong from 2009 to 2016

	2009	2010	2011	2012	2013	2014	2015	2016
Threatened species listed in IUCN Red List (CR, EN, VU)**	78	81	82	84	85	88	95	97
Covered by action plans (including global action plans)*^ 9	3 (3.8%)	3 (3.7%)	3 (3.7%)	3 (3.6%)	3 (3.5%)	13 (14.8%)	13 (13.7%)	13 (13.4%)
Species-specific conservation actions*^ 10,11	2 (2.6%)	2 (2.5%)	3 (3.7%)	3 (3.6%)	3 (3.5%)			
Species protected by law (Cap. 96, 170, 586)*	50 (64%)	52 (64%)	52 (63%)	54 (64%)	53 (62%)	54 (61%)	61 (64%)	63 (65%)

\*Figures were revised from the last report.

^Data since 2014 were combined as it is difficult to differentiate the two categories.

#Abbreviation used: CR – Critically Endangered; EN – Endangered; VU – Vulnerable; NT – Near Threatened; LC – Least Concern.

The number of globally threatened species in Hong Kong continues to increase. In 2014, Chinese Pangolin was up-listed from EN to CR due to the intense poaching for meat and scales to meet the heavy market demand<sup>12</sup> from traditional Chinese medicine. Three threatened species were newly added to the IUCN Red List, namely Threadfin Porgy (EN)<sup>13</sup>, Japanese Eel (EN)<sup>14</sup>, and Chinese Cobra (VU)<sup>15</sup>, mainly because of overexploitation and loss of habitat. In 2015, five bird species were up-listed, they are Far Eastern Curlew (from VU to EN)<sup>16</sup>, Great Knot (from VU to EN)<sup>17</sup>, Steppe Eagle (from LC to EN)<sup>18</sup>, Horned Grebe (from LC to VU)<sup>19</sup>, and Common Pochard (from LC to VU)<sup>20</sup>. They experience threats from habitat loss and human disturbance at their breeding grounds, migration routes or wintering grounds. The globally vulnerable Ijima's Leaf Warbler was added to the list as it was recorded in Hong Kong for the first time in 2015 at Po Toi. Three threatened plant species were also added – Hong Kong Lady's Slipper Orchid (CR)<sup>21</sup>, Hong Kong Camellia (EN)<sup>22</sup>, and Grantham's Camellia (VU)<sup>23</sup>. In 2016, two bird species, Rustic Bunting<sup>24</sup> and Chinese Grassbird<sup>25</sup> (Figure 5), were up-listed to VU. Similar to the aforementioned bird species, habitat loss and intensified disturbance are their major threats.

### Protection by law

The number of species protected by law increased with the number of globally threatened species recorded in Hong Kong, with the percentage of legally protected species remaining at just less than two-thirds of the total. This is likely because all wild birds are protected under the Wild Animal Protection Ordinance (Cap. 170); while the Camellia species and the Hong Kong Lady's Slipper Orchid are already protected under the Forest and Countryside Ordinance (Cap. 96) and the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586). Yet, some of these protected species, such as Chinese Pangolin, Incense Tree (Figure 4) and Hong Kong Lady's Slipper Orchid, are still heavily exploited in the wild. There is an urgent need to strengthen the enforcement on illegal harvesting in the wild and the trade of the species, and to increase the

penalties for any offense under the existing legislations. In the 2016 Policy Address, the Government committed to combat the illegal trade of ivory by phasing out local ivory trade and increasing the penalties under the Protection of Endangered Species of Animals and Plants Ordinance<sup>26</sup>. Such effort is also needed to protect other wildlife from illegal trade, as Hong Kong is an important global hub for the import and transfer of globally threatened species including Chinese Pangolin, Shark fins and Helmeted Hornbill.

However, about one-third of the globally threatened species are not currently protected under Hong Kong law. Among them, one third are marine and freshwater fish. Most of these fish species are threatened due to overfishing for consumption, such as the commonly consumed Golden Threadfin Bream (Figure 3) and the Chinese Bahaba, which has been hunted to the brink of extinction for its swim bladder.

A report published by the Faculty of Law at HKU in 2013 reviewed the effectiveness of five key ordinances for the protection of wild animals and plants in Hong Kong<sup>27</sup>. Recommendations include the creation of a “List of Hong Kong Species of Conservation Concern” which is regularly updated, and the protected species list under various ordinances should be updated to include fish and invertebrates.

### Hong Kong Red List

Neither the IUCN red list database nor the Agriculture, Fisheries and Conservation Department (AFCD) biodiversity database provides a complete list of the threatened species in Hong Kong. The nearest equivalent of a local Red List of endangered species is “Fauna of Conservation Concern” by Fellowes *et al.* published in 2002. While all wild birds are protected by law, the lists of protected species for other taxa groups under Forest and Countryside Ordinance and Wild Animal Protection Ordinance are out-of-date. All of them require updating. During the exercise for the formulation of Hong Kong’s Biodiversity Strategy and Action Plan (BSAP), many experts and academics provided opinions and views on the status of various taxa groups, which should be useful in the preparation of Hong Kong’s Red List. The Administration’s commitment to develop an official Red List for Hong Kong under the BSAP is an important step forward.

### Action plans and conservation actions for threatened species

According to AFCD, there are species action plans covering Green Turtle (since 1998), Black-faced Spoonbill (since 2001), Chinese White Dolphin (since 2001), Three-banded Box Turtle (since 2004) and Romer’s Tree Frog (since 2009) in Hong Kong<sup>28,29</sup>. Global species action plans for Black-faced Spoonbill and Spoon-billed Sandpiper were published in 2010<sup>30</sup>. A global action plan for the Yellow-breasted Bunting is being compiled in 2017. Such international action plan is particularly important for migratory birds as the conservation of such species requires the effort of all the countries along the flyway and at both breeding and wintering grounds.

Currently, AFCD has conservation measures<sup>31</sup> in place for the globally vulnerable Burmese Python and Indo-Pacific Finless Porpoise. Moreover, AFCD also has a programme for active propagation and reintroduction of rare plants. Successful examples include Hong Kong Camellia, Crapnell's Camellia, Grantham's Camellia, Hairy Chestnut and Incense Tree. Under the Hong Kong BSAP 2016-2021, AFCD has committed to prepare conservation actions for species/taxa groups which require immediate conservation actions, such as Incense Tree, Chinese Pangolin, corals, horseshoe crabs and selected freshwater turtles.

The percentage of species covered by species actions plan remains low - just above 13%. Even though there is an action plan for Chinese White Dolphin, it has not stopped or reduced the development and disturbance around their suitable habitats in Lantau waters, and the continuous decline in the population continues (please refer to section 3.5 for details).

**UNRESOLVED ISSUE: When will a comprehensive Red List of threatened species for Hong Kong be published?**



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**Figure 3.** The commonly consumed Golden Threadfin Bream is now a globally vulnerable species which is threatened by overfishing for consumption. There was an overall decrease in its annual catch of more than 30% in the last ten years<sup>32</sup>.

**Figure 4.** An Incense Tree protected by barriers located opposite to a bus stop in The Chinese University of Hong Kong was illegally felled to harvest agarwood in June 2017, despite regular security patrols on campus. The incident occurred when the no.8 typhoon warning signal was hoisted and most people stayed indoors for safety.

**Figure 5.** Chinese Grassbird is a scarce and localised resident of grasslands above 200m in the New Territories and on Lantau. The overall global population size is low (less than 2,500 mature individuals) while the population in Hong Kong is estimated to be about 490 individuals<sup>33</sup>. Habitat loss caused by conversion to farmland, regeneration of shrubland and tree-planting are likely the reasons for the declining population<sup>34</sup>. The species' conservation status was up-listed to "Vulnerable" by IUCN in 2016.



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# 3

## REVERSING THE DECLINE IN NATIVE BIODIVERSITY

### 3.1 Percentage of protected areas covered by published, resourced and active biodiversity management plans

**Table 5.** Terrestrial Protected Areas (hectares) in Hong Kong from 2009 to 2016

	2009	2010	2011	2012	2013	2014	2015	2016
Total land area of Hong Kong <sup>35</sup>	110,439	110,439	110,441	110,443	110,443	110,562	110,569	110,634
Protected area network (Country Parks and Special Areas) <sup>36</sup>	44,004 (39.8%)	44,004 (39.8%)	44,239 (40.1%)	44,239 (40.1%)	44,300 (40.1%)	44,300 (40.1%)	44,300 (40.1%)	44,300 (40.0%)
Area of Country Parks and Special Area covered by biodiversity management plans <sup>*37,38</sup>	110 (0.1%)							
Area not in protected area system, but covered by published, resourced and active biodiversity management plans <sup>39,40</sup>	1,801 (1.6%)	1,806 (1.6%)	1,806 (1.6%)	2,144 (1.9%)	2,161 (2.0%)	2,119 (1.9%)	2,179 (2.0%)	2,146 (1.9%)

\*Even though Country Parks and Special Areas are managed by AFCD, there is no biodiversity management plan which is accessible to the public, apart from that for the Hong Kong Wetland Park Special Area.

**Table 6.** Marine Protected Areas (hectares) in Hong Kong from 2009 to 2016

	2009	2010	2011	2012	2013	2014	2015	2016
Total marine area of Hong Kong <sup>41</sup>	165,064	165,064	165,062	165,060	165,060	164,941	164,934	164,869
Area of Marine Parks and Reserves <sup>42</sup>	2,430 (1.5%)	3,400 (2.1%)						
Area of Marine Parks and Reserves covered by published, resourced and active biodiversity management plans <sup>43</sup>	2,430 (100%)	3,400 (100%)						

^There are management plans for all the Marine Parks and are publicly available on AFCD website. However, they are to restrict the activities within the area. It is uncertain how the biodiversity and habitats in the area are actively managed.

#### Country Parks and Special Areas

Approximately 40% of the area of Hong Kong is designated as Country Parks and Special Areas, and it is slowly increasing. In 2011, the Government designated a number of islands in Sai Kung as Special Areas in order to protect the geological features in the Hong Kong GeoPark. In 2013, The Government incorporated the enclaves (areas of high ecological value that are surrounded by, but outside the boundary of, a Country Park)

at Tai Long Sai Wan, Kam Shan and Yuen Tun into their respective Country Parks. In 2017, three more enclaves, namely Fan Kei Tok, Sai Lau Kong and a site near Nam Shan, were included into the Country Park system.

Back in 2010, the then Chief Executive committed to increase the protection of enclaves. Of the 77 enclaves identified, 23 were already covered by an OZP and the remaining 54 were split between Agriculture, Fisheries and Conservation Department (AFCD) and Planning Department (PlanD) for inclusion into the Country Park system or protection by statutory plans. However, progress made by AFCD in incorporating the enclaves into Country Parks is much slower than that made by PlanD.

In the past seven years, AFCD incorporated six enclaves with a total area of some 50 ha into the Country Park system, while PlanD has made statutory plans for 29 enclaves covering a total area of about 1,119 ha (Appendix 2). The processes, which include the gazettal of a Development Permission Area (DPA) Plan and subsequent replacement of the DPA by an OZP within three years, for establishing statutory plans for all 29 enclaves is expected to be completed by 2017. Yet, 19 enclaves with a total area of around 186 ha are still unprotected.

Progress in designating new Country Parks remain slow. Robin's Nest is an important ecological corridor connecting Hong Kong with the Shenzhen's Wutongshan National Forest Park. Its ecological value is already well-recognized and was recommended to be designated as a Country Park in the land use planning study for the closed frontier area back in 2010<sup>44</sup>. The designation of Robin's Nest Country Park was finally mentioned in the 2017 Policy Address, but it will still take a few more years before the gazette of this 25th Country Park in Hong Kong<sup>45</sup>.

More positively, in 2017 the High Court ruled in favour of the plaintiffs in two judicial review cases related to Country Park enclaves in 2014 and 2015. AFCD did not provide detailed assessments of the conservation and landscape values for the consideration of the Country and Marine Parks Board for the Hoi Ha, Pak Lap, To Kwa Peng, Pak Tam Au, So Lo Pun, and Tin Fu Tsai enclaves<sup>46</sup>. As such, in April 2017, the judge ordered the Country and Marine Parks Board to reconsider its decision of not designating these six enclaves as Country Parks upon the submission of the relevant detailed assessments by AFCD.

In November 2017, the High Court quashed the Hoi Ha, Pak Lap and So Lo Pun OZP approved by the Town Planning Board (TPB) and the Chief Executive in Council and ordered the TPB to reconsider the plans on the grounds that the TPB failed to properly inquire if the Village Type Development zone was delineated based on the genuine needs of the indigenous villagers and to check the accuracy of the Hoi Ha coastline boundary<sup>47</sup>. Hopefully this favourable judgment would bring a more objective approach for designating Village Type Development zones, with the method for assessing the genuine need of small houses becoming more transparent and the actual landownership would be considered.

### Development threats to Country Parks

The Government is determined to increase land supply by adopting a multi-pronged strategy, and a Task Force on Land Supply was set up in September 2017 to facilitate consensus-building and provide recommendations to the Government on the land supply strategy<sup>48</sup>. However, the Task Force's composition has been criticized for its bias towards development - some members have publicly expressed support for large scale reclamation outside Victoria Harbour, reclamation of the Plover Cove reservoir, and development of Country Parks to expand the current land supply<sup>49</sup>.

In the January 2017 Policy Address the Government had already proposed to develop *"a small proportion of land on the periphery of country parks with relatively low ecological and public enjoyment value for purposes other than real estate development, such as public housing and non-profit-making elderly homes"*<sup>50</sup> (Figure 6). In May 2017 the Government commissioned the Housing Society to conduct a feasibility study on two sites at the *"periphery"* of Country Parks<sup>51</sup>. This took place before the establishment of the Task Force on

Land Supply in September 2017 and long before the completion of the public consultation on land supply in September 2018<sup>52</sup>. All the above suggests that the Government has always intended to develop the Country Parks, and to undermine the good intentions of the Country Parks Ordinance (Cap. 208), regardless of the views of the public and all other possible land supply alternatives. This is especially troubling as the public consultation document already included options to develop two sites at the “*periphery*” of Country Parks and additional areas of the Country Parks in the future<sup>53</sup>.

The term “*periphery*” is also misleading as it obscures whether the sites are inside or outside the Country Park boundary. It should be made clear the sites are in fact fully located within the boundary<sup>54</sup>. Yet, the Government’s track record in rezoning vegetated Green Belts of “*relatively low conservation value*” for development, which has led to a loss of well-wooded Green Belts with high or medium ecological value and buffering effect (please refer to section 3.2), gives the public no cause for confidence that the Government’s stated intention to develop the Country Parks would be limited to areas with “*relatively low*” ecological and public enjoyment value.

Given the importance of Hong Kong’s Country Parks for conserving biodiversity and other ecosystem services, and the expectation that they should be protected under current legislation, the BSAP and the Greater Bay Area plan, development of the Country Parks should be adopted as the solution of last resort only when all other options can be shown to have been exhausted, a public consensus is reached, and under rigorous application of all relevant legislation and international best practice.



**Figure 6.** A site in Tai Lam Country Park recently proposed by the Government for public housing development.

### Terrestrial areas with management plans

A published management plan for a protected area which is accessible to the public is important as it increases the transparency and accountability of the management authority and helps to highlight constraints (e.g. insufficient resources and manpower) for implementation or improvement<sup>55,56</sup>. Country Parks and Special Areas in Hong Kong are managed by AFCD via measures such as tree planting, hill fire prevention works, development control, regular patrol, provision of recreation and education facilities, etc<sup>57</sup>. However, under the Country Parks Ordinance, the Government is not obliged to develop a published management plan for Country Parks and Special Areas. The only publicly available management plan is the Hong Kong Wetland Park Special Area, which is a 60 ha wetland reserve<sup>58</sup>. There is limited habitat management in certain areas of the Country Parks, such as the plantation enrichment project, under which some 50 ha of exotic plantations were gradually replaced by native tree seedlings during 2009 - 2016<sup>59</sup>.

For places outside the Country Park and Special Area system, an area of around 1800 ha is covered by management plans, but their management regimes vary from a detailed and active biodiversity conservation plan to a bare minimum of habitat maintenance. Mai Po Inner Deep Bay Ramsar site, Kadoorie Farm and Botanic Garden and the Fung Yuen Valley Site of Special Scientific Interest account for the majority of this area. Other areas include the mitigation wetlands of various development projects, such as the Yuen Long Bypass Floodway Engineered Wetland, compensatory ponds for the Lok Ma Chau Terminus Public Transport Interchange, Deep Bay Link re-created wetlands (Figure 7), San Tin Eastern Main Drainage Channel constructed wetland, the Lok Ma Chau and West Rail wetlands, and the wetland restoration area for the residential development in Wo Shang Wai. There are also some remaining sections of meanders left after

river retraining works (such as the River Beas and River Indus in Sheung Shui). However, for most of these mitigation wetlands, it is uncertain if their current functions are performing as expected. Their performance should be reviewed and the relevant monitoring data should be made publicly available.

The area under management plans significantly increased in 2012 due to the establishment of the new Deep Bay fishpond Management Agreement (MA) project (partly overlapping with the Deep Bay Ramsar site management area). The area has fluctuated slightly over the years as the number of participants varied. The Hong Kong Countryside Foundation, with the support from local villagers, academics and environmental NGOs, started a rural community development revitalization programme “Sustainable Lai Chi Wo project” in 2014 which includes sustainable farming practices and biodiversity monitoring<sup>60</sup>. The Hong Kong Countryside Foundation and The Conservancy Association continue to manage the farmlands in Lai Chi Wo with a new MA project starting from late 2017.

Environmental NGOs have also proposed a Nature Conservation Trust for a more effective conservation of private land of high ecological value and a more holistic management and monitoring of the scattered mitigation wetlands and habitats, particularly in the Deep Bay area (please see Box 2 for details).



*Figure 7. One of the Deep Bay Link constructed wetlands maintained by the AFCD. The performance and function of these wetlands are uncertain.*

### Marine areas and Marine Parks

The total marine area of Hong Kong dropped by 195 ha between 2009 and 2016, particularly due to reclamation in Central and Wan Chai, and reclamation for the Hong Kong-Zhuhai-Macau Bridge Hong Kong Boundary Crossing Facilities.

The area of Marine Parks and Reserves remained the same until the addition of the Brothers Marine Park of 970 hectares in 2016. However, this “new” Marine Park is designated not purely for conservation but is actually a mitigation measure for the non-compensable loss of habitat and ecological function due to the reclamation of land for the Hong Kong-Zhuhai-Macau Bridge Hong Kong Boundary Crossing Facilities<sup>61</sup>. The proposed Marine Park of 2,400 hectares encircling the proposed reclaimed third runway of the Hong Kong International Airport is also a required mitigation measure. These Marine Parks were/will be gazetted only after the projects’ completion, which means “destruction” (e.g. destruction and degradation of marine habitats by reclamation works) would be allowed first within or adjacent to the proposed Marine Parks, and “conservation” (in the form of mitigation by designation of Marine Parks) will be carried out afterwards. The conservation effectiveness of these Marine Parks is questionable as the Chinese White Dolphin has left the area due to the current reclamation works (please see section 3.5 for details).

All Marine Parks and Reserves are covered by management plans, which mainly to control the activities within the area to avoid undesirable impact on the marine life<sup>62</sup>. However, it is uncertain if the marine habitats and biodiversity within the Marine Parks and Reserves are also managed or enhanced as there are no such plans publicly available.

**UNSOLVED ISSUE: What is the timeframe for a publishing and resourcing active biodiversity management plans for all terrestrial and marine protected areas?**

## BOX 2 – NATURE CONSERVATION TRUST

The MA scheme proposed under the New Nature Conservation Policy in 2004 has been quite successful in the management and enhancement of natural habitats on private land with the engagement of local communities. However, such protection is not fully secured as the scheme is not mandatory and landowners still have the right to develop their land instead of using it for conservation. The mitigation wetlands and habitats associated with various development projects are scattered and there is no holistic management.

In order to maximise conservation effectiveness and efficiency, and minimise the risk of destruction of private lands of ecological importance, the establishment of a nature conservation trust is required. Such trust or fund is similar to the National Trust in the United Kingdom. It should be able to hold and manage ecologically or culturally valuable land for the benefit of the society. It should be established by Hong Kong legislation and independent from the Government, developers or other vested interests. It should be a membership-based organization and can facilitate raising funds from the public.

The idea of a conservation trust was proposed to the Government by environmental NGOs more than a decade ago, but so far no progress has been made. It was not until in the Policy Address announced in early 2017, the then Chief Executive said “*the Government will establish a preparatory committee to study the ambit and modus operandi of a conservation fund, as well as the legislation and resources required for setting up such a fund*”<sup>63</sup>. However, since then there have been no further developments.



**Figure 8.** Extensive vegetation clearance and site formation at Sha Lo Tung in 2015. Similar activity has occur in the area for the past decades, and at last came to an end in early 2017, when the Government finally decided to protect Sha Lo Tung through non-in-situ land exchange<sup>64</sup>. An ecological conservation project would also be implemented in the area as announced in late 2017<sup>65</sup>. A nature conservation trust would have the power to acquire and manage private lands of high ecological value.

## 3.2 Total area impacted by planning proposals that involves agriculture and conservation zonings

**Table 7.** Area (hectares) of planning applications received by Town Planning Board from 2009 to 2016\*

	2009	2010	2011	2012	2013	2014	2015	2016
Site of Special Scientific Interest (SSSI)	0.0	0.0	0.1	56.8	56.8	56.8	56.8	56.8
Coastal Protection Area (CPA)	0.4	0.6	7.8	5.1	2.9	1.8	4.6	2.1
Conservation Area (CA)	5.7	0.2	22.6	1.4	1.1	7.0	0.7	1.5
Green Belt (GB)	20.1	12.1	8.5	17.5	20.6	18.8	7.1	24.2
Agriculture (AGR)	16.4	38.5	36.3	21.0	22.2	26.2	45.0	42.8
<b>Total</b>	<b>42.5</b>	<b>51.4</b>	<b>75.2</b>	<b>101.8</b>	<b>103.6</b>	<b>110.6</b>	<b>114.2</b>	<b>127.5</b>

**Table 8.** Area (hectares) of planning applications approved by Town Planning Board from 2009 to 2016\*

	2009	2010	2011	2012	2013	2014	2015	2016
Site of Special Scientific Interest (SSSI)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Coastal Protection Area (CPA)	0.7	0.6	1.2	2.9	0.6	1.8	4.6	1.9
Conservation Area (CA)	1.4	0.2	0.5	0.7	0.7	6.7	0.6	0.9
Green Belt (GB)	11.2	10.8	3.7	10.2	15.5	7.3	1.9	11.4
Agriculture (AGR)	13.2	11.1	13.6	11.6	12.0	12.4	9.0	10.1
<b>Total</b>	<b>26.5</b>	<b>22.7</b>	<b>19.1</b>	<b>25.4</b>	<b>28.8</b>	<b>28.1</b>	<b>16.1</b>	<b>24.2</b>

\*2009-2010 data are obtained from Planning Department through application for access to information. Data from 2011 and onwards are collected from TPB Portal, TPB Portal 2, TPB minutes and TPB papers.

The area of planning applications within “Agriculture” (AGR) and conservation zonings (i.e. SSSI, CPA, CA and GB) received by the Town Planning Board (TPB) rose threefold over 8 years, from 42.5 hectares in 2009 to 127.5 hectares in 2016. The area of approved planning applications in these areas fluctuated at around 24 hectares. The numbers reflect the development threats in AGR and conservation zonings were intensified, while TPB tried to tighten its control in these areas and reject developments that are not in line with the planning intention of the zoning.

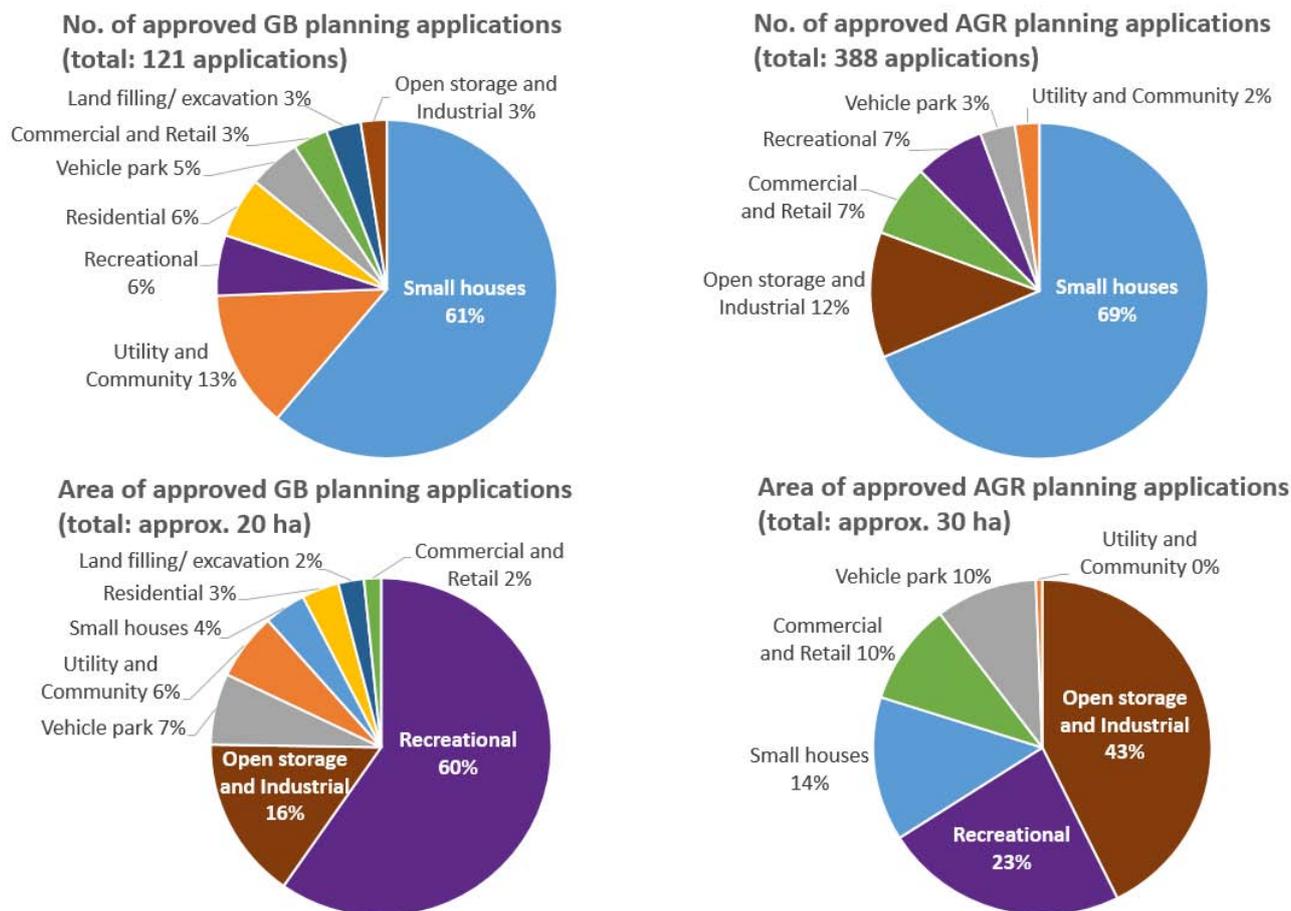
The increase in area of planning applications in SSSI was due to the proposed residential development in Nam Sang Wai, yet, the TPB continued to reject the development as the applicants failed to demonstrate how the planning principles within the Deep Bay area (e.g. precautionary approach and “no-net-loss in wetland” principle) can be met. From 2014 to 2016, the approved applications within the CA zone are mainly related to public utilities in the Sai Kung and Tuen Mun area, while those within the CPA zone are mainly fishing grounds and hobby farms along the coast of Lau Fau Shan to Pak Nai and public sewerage facilities at Pui O.

### Approved planning applications in AGR and Green Belt (GB)

Among the above five zonings, GB and AGR are the zonings with greatest development threats. Over the course of the 8 years for which data has been published, the average area of planning applications received in GB and AGR zone are 16 and 31 hectares per year respectively. For the past five years, the average number

of planning applications received per year by the TPB in AGR is more than double of that in GB zone. The approval rate of the planning applications in GB and AGR - zones intended to restrict development - are 48% and 61% respectively<sup>66</sup>.

From 2014 to 2016, a total of 121 and 388 planning applications were approved by the TPB in GB and AGR zone respectively, and small houses applications account for 60 - 70% of the total (Figure 9). However, in terms of the area involved, 60% of the GB land was used for recreational purposes, including the Pillar Point Valley Shooting Range and the Ma Wan Park. Open storage, industrial uses and vehicle parks - none of which are consistent with the planning intention - took up about 23% of the total area of approved GB zone. As for the area of approved AGR applications, 43% was used for open storage and industrial uses, particularly in the Ta Kwu Ling, Kam Tin and Pat Heung area. 23% was used for recreational uses, such as hobby farms, caravan holiday camp and barbecue site, whereas 14% was used for small house development.



**Figure 9.** Number of cases and area of different land use types for approved planning applications from 2014 to 2016

### GB zone

According to the TPB revised Master Schedule of Notes, the planning intention of GB for rural area and new town is “primarily for defining the limits of urban and sub-urban development areas by natural features and to contain urban sprawl as well as to provide passive recreational outlets. There is a general presumption against development within this zone”<sup>67</sup>. Simply stated it acts as a buffer to separate urban areas from rural areas and countryside. However, GB zones have been targeted for development in recent years. In the Policy Address of 2011 (and in subsequent 3 years as well), the Government announced its intention to use the “devegetated, deserted or formed” GB zones for development<sup>68</sup>. In 2013, the then Secretary for Development mentioned in his blog that the GB review has entered the second stage where GB sites of “insignificant buffering effect and relatively low conservation value” would be used for urban expansion<sup>69</sup>. However, sites with significant buffering, ecological and conservation value were also considered for development. The GB

site in Tai Wo Ping, which is well-vegetated and well-wooded with streams and breeding ground of the globally vulnerable Lesser Spiny Frog, was rezoned for residential development in 2014. In 2017, four well-wooded GB sites in Tsueng Kwan O with secondary woodland generally of “moderate” or even “moderate to high” ecological value<sup>70</sup> were proposed for rezoning for housing development. There appear to be marked discrepancies between the Government’s GB review criteria and the sites chosen in the selection of GB sites for development, so it is hardly surprising that the decisions for GB rezoning in Tai Po and Tai Wo Ping have been challenged by judicial reviews from the public<sup>71,72</sup>.

### AGR zone

Agricultural land has been under imminent development threat, and there is an ongoing incremental loss of arable agricultural land. Even though AGR zone is intended to “retain and safeguard good quality agricultural land/farm/fish ponds for agricultural purposes. It is also intended to retain fallow arable land with good potential for rehabilitation for cultivation and other agricultural purposes”<sup>73</sup>, it cannot offer full protection to farmlands. In the past five years, the average approval rate of planning applications in AGR zone is 61%<sup>74</sup>. This encourages land owners to paving or dumping of construction waste on AGR land in the hope of securing development permission or rezoning for development, and thus a loss of arable agricultural land. Moreover, not all farmlands are located within AGR or conservation zonings. Some active farmlands are found within village, residential or other development zonings.

In 2015, the Government launched the New Agriculture Policy and tried to address the above issues through the development and modernization of agriculture and strengthening the marketing and branding of local produce. However, this does not close the enormous gap in the land value for development and that for farming. Under the fear of land shortage in recent years, agricultural land is regarded as of high development and investment potential with paved agricultural land selling at a price five times higher than arable farmland<sup>75</sup>. This creates a perverse incentive for more dumping, fly-tipping activities and site formation to facilitate development in the hope of securing this higher value.

Furthermore, agriculture use is not limited to cultivation of the soil, and thus arable land are not safeguarded. Quality farmland or wetland (i.e. abandoned rice paddies or ponds) are often filled with soil and/or construction waste, then structures considered to be of agriculture use - such as greenhouses for hydroponics or aquaponics - were erected on top of the filled and paved land (Figure 10). The current broad definition of “agriculture uses” is, as a result, leading to the destruction of cultivable agricultural lands. There is a need for a stricter AGR zoning with a more precise definition of agriculture use to be established to protect farmland for cultivation use only and to avoid the trashing of arable land.



**Figure 10.** A wetland within the Wetland Buffer Area in the Deep Bay area was filled in 2015 (left). Planning Department (PlanD) identified it as an Unauthorized Development (UD) of land filling. The landowner “restored” the site and compliance notice was issued by PlanD, but the area is not a wetland any more. A greenhouse was later erected on the filled wetland in 2017 (right). However, greenhouse is considered to be an agricultural use, which is always permitted in that statutory zoning. There is insufficient evidence for PlanD to prove it is a UD. The loose definition of agriculture use and enforcement of the reinstatement requirements has led the continuous destruction of wetland and failure to restore its original ecological function.

### BOX 3 – LEISURE/ HOBBY FARMS

In recent years, leisure/hobby farms have increased in popularity. It is a land use related to agriculture where visitors can witness and participate in vegetable growing. Under the New Agriculture Policy, leisure farm is defined as “farms that are primarily engaged in commercial crop production while at the same time provide limited and ancillary leisure activities related to their operation”<sup>76</sup>. However, many types of leisure/hobby farms currently exist without proper regulations and some may even lead to the trashing of arable agricultural lands.

Among the 139 local leisure farms promoted in a booklet published by AFCD and Vegetable Marketing Organization<sup>77</sup>, more than 80% are located in AGR and conservation zonings<sup>78</sup>, and most of them involve in soil cultivation. However, about 20% of the leisure farms introduced are mainly operated for recreational purposes (e.g. paved land for barbecue, children’s playground, group activities, outdoor adventure games) or divided into small plots of land leased to “weekend city farmers”, which may not fit the above definition. Some leisure farms can even accommodate large amount of visitors, of over 1,000 visitors or even up to 8,000 visitors per visit<sup>79</sup>. They are usually strawberry farms or farms with larger recreation facilities.

During 2014-2016, there were approximately 27 planning applications related to hobby farms (including retail shop, caravan holiday camp, and hydroponic farm). 70% of them are located in AGR zone and again 70% are suspected to follow the “destroy first, apply later” approach as vegetation clearance, pond filling or placing of storage containers occurred at the site. Among the 18 applications approved by the TPB, 11 applications were later revoked or no hobby farm was seen established at the site. Some even applied for development uses (e.g. temporary carpark, caravan holiday camp, and barbecue site) after approval of hobby farm was obtained.

In order to safeguard arable agricultural land for cultivation, regulations on the amount of paved land and structures in leisure/hobby farm should be established, while recreation activities are recommended to be agriculture related. AFCD and Vegetable Marketing Organization could consider tightening the criteria for approval of leisure farms in their promotion booklet. AFCD, PlanD and TPB are also urged to establish a clearer definition of leisure farm/hobby farms and establish relevant guidelines to avoid the misuse of the planning system for trashing of agricultural land.



**Figure 11.** A leisure farm introduced in the “A Guide to Hong Kong Leisure Farm 2017”, which is concrete-paved and includes structures erected for barbecue and recreational activities. Planning permission for a temporary hobby farm, ecological cycling tour and barbecue spot was sought in 2012, but was rejected by the Town Planning Board in 2013.

#### BOX 4 – UPDATED STATISTICS OF TOWN PLANNING BOARD ON SMALL HOUSE PLANNING APPLICATIONS IN AGR AND GB ZONES

**Table 9.** Small house planning applications in AGR and GB zones received and approved by the Town Planning Board in the past 10 years (as reported on 6 February 2013, the data likely represents 2003 - 2012)<sup>80</sup>

	No. of applications received	No. of applications approved	Land area involved in the approved cases (ha)
<b>AGR</b>	457	286	6.81
<b>GB</b>	216	123	2.03
<b>AGR and GB</b>	12	8	0.19
<b>AGR/GB and other land use zoning</b>	361	294	6.92
<b>Total</b>	1,046	711	15.95

**Table 10.** Small house planning applications in AGR and GB zones received and approved by the Town Planning Board in the past five years from 2012 to 2016<sup>81</sup>

	No. of applications received	No. of applications approved	Land area involved in the approved cases (ha)
<b>AGR</b>	545	338	5.71
<b>GB</b>	160	64	0.78
<b>AGR and GB</b>	16	11	0.42
<b>AGR/GB and other land use zoning</b>	419	264	5.82
<b>Total</b>	1140	677	12.73

Comparing the above two tables, just in five years' time, the total number of small house planning applications in AGR and GB zones received by the TPB from 2012 - 2016 already exceeded the total number from 2003 - 2012. The total land area involved in the approved cases in the recent five years also approaching 80% of the total area in the previous 10 years. The approval rate of small houses in AGR remains more or less the same at around 62%, however, that in GB dropped significantly by one-third to 40%. Development pressure from small house on land zoned as AGR remains high.

**UNRESOLVED ISSUE: When will the PlanD and AFCD establish a stricter agriculture zoning and clearly define acceptable agriculture use in order to protect quality farmland for cultivation and prevent trashing?**

### 3.3 Current status of lowland rivers (below 200m above sea level)

**Table 11.** Length (km) of engineered river channels in Hong Kong from 2006 to 2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Length of engineered channels <sup>82</sup>	184	199	243	258	278	N/A	338	341	354	361	363

(Source: Drainage Services Department)

Before 2011, there was an average increase in the length of engineered channels by approximately 24 km per year, from 184 km in 2006 to 278 km in 2010. However, after 2011, the rate decreases to on average about 6 km per year, from 338 km in 2012 to 363 km in 2016.

Since 2012, the Drainage Services Department (DSD) has conducted regular informal dialogue with environmental Non-governmental Organizations (NGOs) to exchange views and expert advice on various drainage projects and related ecological issues. Recognizing the ecological damage done to natural rivers/streams by channelization, DSD began to introduce new and improved designs so as to enhance the ecological environment in the engineered drainage channels by providing suitable habitats for aquatic life. A new set of guidelines (DSD Practice Note No. 1/2015 – Guidelines on Environmental and Ecological Considerations for River Channel Design) was developed and finalized in 2015<sup>83</sup>. The Policy Address in 2015 also mentioned: “We will adopt the concept of revitalizing water bodies in large-scale drainage improvement works and planning drainage networks for NDAs (New Development Areas) so as to build a better environment for the public”<sup>84</sup>.

DSD is one of the leading Government departments to mainstream biodiversity into their works, including river engineering works and drainage/flood prevention designs (Figure 12). Their openness to new concepts and willingness to adapt to changes has made them a leader in contributing to the sustainable development of Hong Kong. Water quality of the watercourses is one of the vital elements in restoring the ecology in the stream or to promote water-friendly culture, and interdepartmental collaboration (e.g. between DSD and Environmental Protection Department) is important to tackle illegal discharge and water pollution problem in watercourses.



**Figure 12.** DSD enhanced a section of the channelized lower Lam Tsuen River under the “Eco-hydraulic Study on Green Channels”. The diversity of in-stream habitat was improved by adding more natural bed substrates and conducting in-stream planting. Various waterbirds and wetland dependent bird species were seen utilizing the site.

Water Services Department has also started to be more aware of the biodiversity within reservoirs and catchwaters. A regular meeting with green groups was set-up in 2016. In 2017, Water Services Department began considering the reintroduction of water back into the natural streams which were cut off by catchwater works, so as to enhance the ecological condition and biodiversity of these streams.

Some Home Affairs Department minor works in the rural areas have damaged or even channelized some natural streams in Hong Kong. In 2017, an initial communication channel has been set up between environmental NGOs and Home Affairs Department to prevent undesirable damage to the environment.

### Tung Chung River Park

The development in Tung Chung Valley has initiated a new attempt in combining nature conservation elements into the drainage and flood prevention system. Tung Chung River is one of the few rivers in Hong Kong where the whole river course is natural with only a small section of the eastern stream near Shek Lau Po being channelized. This damaged section of the river will be de-channelized and will be developed into a River Park for preservation, flood prevention, recreation, educational and research purposes<sup>85</sup>. It will also separate the Tung Chung River and its riparian zone from adverse development. A Sustainable Urban Drainage System concept has been adopted, which include the construction of polders, stormwater attenuation and treatment ponds, to avoid polluted storm water and surface runoff from entering the river. However, this is a new trial in Hong Kong. Given the amount of population and scale of development introduced in the Tung Chung Valley under the Tung Chung New Town Extension development, it is uncertain if these measures will be sufficient to conserve the ecologically sensitive Tung Chung River and the associated bay and valley. Various environmental NGOs have urged the Government to resume all private lots along the river in the Tung Chung Valley and expand the proposed River Park for better protection and management of the Tung Chung River.



**Figure 13.** Even though a section of the Tung Chung River has been designated as “Other Specified Uses” annotated River Park, which will be resumed later by the Government for the proposed River Park, site formation and vegetation clearance still occur and destroy the ecology of the area. There is an urgent need to resume all the private land to avoid further degradation of the river and its riparian zone.

### 3.4 Trends in number and populations of known alien invasive species

**Table 12.** Trends in number and populations of known alien invasive species from 2007 to 2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
House Crow <i>Corvus splendens</i> <sup>86,87</sup>	210	220	250	190	230	182	130	80	71	71
Apple Snail <i>Pomacea canaliculata</i> (kg) <sup>88</sup>	-	-	-	-	-	-	63	13	142	155
Area of Mikania <i>Mikania micrantha</i> removed (ha) <sup>89,90,91</sup>	2.6	3.3	4.4	2.4	10.9	6.7	2.6	8.0	6.4	6.2

(Source: AFCD, WWF – Hong Kong, Environmental Association, and Policy for Sustainability Lab and School of Biological Sciences of HKU)

According to the Global Invasive Species Database, there are at least 45 alien species present in Hong Kong, and 15 of them are confirmed to be invasive<sup>92</sup>. Some of these species are already causing substantial damage to the local biodiversity. Three species, covering plants and animals in terrestrial and freshwater environments, were selected to give a general overview of the current status of invasive alien species in Hong Kong.

#### House Crow

House Crow is considered to be a pest species causing ecological damage (especially to native birds) and nuisance to humans in almost all the countries where it occurs outside its native range. Its potential adverse effects in Hong Kong include reduction in urban songbird population, reduction in the breeding success of colonial nesting species, and nuisance to humans. Since 2004, Agriculture, Fisheries and Conservation Department (AFCD) monitored and controlled the population of House Crow in Hong Kong<sup>93</sup>. The population fluctuated around 200 individuals from 2007 to 2012. But since 2012, the population dropped steadily before stabilizing at around 70 in 2015 and 2016. The proactive efforts by AFCD to control this species have been successful. It is crucial that the Government continues its efforts in controlling this species in order to limit its adverse impacts on native birdlife. Recognizing how difficult control of House Crow has proven in other countries this is a notable achievement.

#### Apple Snail and Mikania

*Mikania micrantha* is a fast growing weed native to South and Central America that smothers other plants and reduces the sunlight for photosynthesis. Different Government departments are responsible for maintenance of vegetation (such as clearing of Mikania) on the Government lands which are under their jurisdiction<sup>94</sup>. AFCD regularly monitors Mikania in Country Parks, Special Areas, and Site of Special Scientific Interest, and has published a Practice Note to provide technical guidance on the clearance of Mikania back in 2003 (revised in 2006)<sup>95</sup>. However, there is limited data on the area of Mikania removed by the Government over the years.

Apple Snail is known to feed on wet agricultural crops and natural vegetation and out-competes native freshwater snail species. The Environment and Conservation Fund approved grants for the two research projects on the biology, ecology, and impacts of the Apple Snail back in 2006 - 2009<sup>96,97</sup>, and a recent MPhil thesis studied the use of black carp for the control of the Apple Snail in 2013<sup>98</sup>. However, there are still limitations in the use of such biological controls and mechanical method (i.e. hand-picking adult snails and eggs) continues to be used for the removal of Apple Snail<sup>99</sup> (Figure 14).

Currently, there is no comprehensive survey of Apple Snail or Mikania in Hong Kong. However, there is ongoing monitoring of invasive alien species in the Mai Po Nature Reserve by WWF - Hong Kong<sup>100</sup>, in Fung Yuen Butterfly Reserve by Environmental Association<sup>101</sup>, in Lai Chi Wo by the Policy for Sustainability Lab and School of Biological Sciences of HKU<sup>102</sup>, and in Hong Kong Wetland Park by AFCD<sup>103</sup>. The area of Mikania removed fluctuated over the years, but the amount of Apple Snails removed in the Mai Po Nature Reserve increased in 2015 and 2016.

Besides Apple Snail and Mikania, WWF - Hong Kong is also monitoring invasive fish species *Tilapia*, the grass *Typha*, the mangrove *Sonneratia* species and *Acacia* tree species in Mai Po, while Environmental Association monitors and manages *Wedelia trilobata* and *Asystasia gangetica* plants. Regular removal and control of White Popinac and Water Hyacinth plants, the invasive mangrove *Sonneratia* species, the invasive fish species *Tilapia*, and Red Fire Ant are conducted in Hong Kong Wetland Park.

There is no management of Mikania in Lai Chi Wo, but swordtail fish are removed to control the impact of exotic species on the reintroduction programme of rice fish in the wetlands. Luckily, so far no Apple Snails have been found at Lai Chi Wo. The habitat managers at Lai Chi Wo have even established quarantine measures for the vegetation/crops that farmers would like to introduce, so as to prevent unintended introduction of invasive alien species.



**Figure 14.** Apple Snails were handpicked and removed from the paddy fields in Long Valley, then were buried in a hole with calcium hydroxide to kill them.

## BOX 5 – RED FIRE ANTS



**Figure 15.** A red fire ant mound. The invasive ant is well-known for its aggression when disturbed, posing threats to the local ecology and natural environment. Its bite may cause painful, burning and itching sensation in humans, and on rare occasions may lead to fatal acute allergic reactions<sup>104</sup>.

The Red Fire Ant was first discovered in Hong Kong in 2005<sup>105</sup>. During 2006 and 2007, a total of 3,054 ant mounds were found in Hong Kong<sup>106</sup>; while 1,500 ant nests were found in Tsueng Kwan O just in the first three months of 2017<sup>107</sup>.

AFCD has published a technical note on the control methods of Red Fire Ants for pest control operators in 2007 (revised in 2008)<sup>108</sup>. Government departments have been monitoring and eradicating the ants mounds when found. However, the ants are now quite widespread across the territory and a significant effort is required to control the population of this invasive species. Red Fire Ants monitoring is conducted in Lai Chi Wo and a few trials of nest elimination were carried out. An organic pesticide will be tested in the field later.

## BOX 6 – SONNERATIA MANGROVES

Since 2001, AFCD, WWF - Hong Kong and other Government departments (Civil Engineering and Development Department, Drainage Services Department, Highways Department) have removed *Sonneratia* trees and seedlings from the mudflat and intertidal mangroves in the Inner Deep Bay area to reduce their impacts on native mangroves. The removal effort has increased significantly since 2008, from an average of about 1,000 individuals removed each year to about 13,000 individuals per year<sup>109,110</sup>. Even though efforts have been made to clear this invasive tree, its fast growth rate can easily re-colonize cleared areas. Regular collaboration between government departments and environmental Non-governmental Organizations from both Hong Kong and Shenzhen is needed to effectively eradicate *Sonneratia* from Deep Bay.



**Figure 16.** The invasive mangrove *Sonneratia* has gradually colonised in the intertidal area of the Kam Tin River and reduced the area of mudflat which is a foraging area for waterbirds and wetland dependent bird species.

## BOX 7 – MERCY RELEASE

Mercy release, or religious release, is a traditional and widely practiced ritual in which captive animals are released as an act of compassion. However, globalization and commercialization of such practice has led to serious ecological impacts on local biodiversity, such as introduction of invasive alien species and spreading disease from stressed captive animals into wild populations. These impacts are also well-recognized by the Society for Conservation Biology in their position paper on this issue<sup>111</sup>.

A comprehensive paper on religious release published in 2006 estimated that around 470,000-770,000 birds were sold in Hong Kong for release every year<sup>112</sup>. Many captured birds died during transportation in poor condition. A bird seller in Taiwan mentioned it would cost the life of 10 or more birds for every bird released<sup>113</sup>. The post-release survival rate can be as low as 25%<sup>114</sup>. There are occasional news reports on the consequences of animals being released into the wild. Freshwater turtles and fish were released into the sea causing most of them to die. The exotic Sabah giant grouper threatens both the native fish populations and safety of swimmers<sup>115</sup>.

Even though the ecological impacts of mercy release is unquestionably harmful, using scientific facts and figures to negotiate with religious leaders and believers whose justification is based on interpretation of scriptures and personal beliefs may not be effective. It is important to initiate dialogue between stakeholders and communicate with respect and humility as has been done previously in Taiwan<sup>116,117</sup> and China<sup>118</sup>. There are in fact many alternatives to the traditional way of mercy release which can cultivate compassion towards living beings, such as a switching to a vegetarian diet, protecting and enhance wildlife habitats, and becoming a volunteer in nature conservation organizations, etc.

The Government is advised to consider the experience Taiwan has in controlling the release of animals to the wild through legislation, and explore the possibility of using legislative means to regulate animal release activities and related trades in Hong Kong.

**Figure 17.** In 2016, AFCD and some NGOs designed a poster to promote proper understanding of mercy release and to raise public awareness on animal welfare. It was distributed to more than 50 religious organizations<sup>119</sup>. ©AFCD



### 3.5 Trends in populations of flagship and umbrella species

**Table 13.** Trends in abundance and diversity of waterbirds from 2006-07 to 2016-17

	2006- 2007	2007- 2008	2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017
Total peak count	80,108	90,986	87,633	87,379	76,679	72,492	61,674	51,573	53,711	55,509	56,354
No. of species	71	71	70	75	67	64	69	69	66	70	65

(Source: AFCD - Mai Po Inner Deep Bay Ramsar Site Waterbird Monitoring Programme<sup>120</sup>)

The total peak count refers to the sum of the peak numbers of each waterbird species from December to February, which represents the number of waterbirds dependent on Deep Bay during this mid-winter period. The figure peaked in 2007-08 at 90,986 individuals, since then it has owed a decreasing trend for six consecutive years with a total drop of more than 40%. Since 2013-14, the number slightly increased by 3-4% for three consecutive years. However, if using the January count (i.e. which is a method commonly used internationally for population estimates), only a general decreasing trend is observed although the drop seems to be dampened from 2011-12 to 2016-17. No obvious trend was observed in the number of waterbird species over the year.

The causes of the decreasing trend in the number of waterbirds for the past 10 years is complicated and is not yet fully understood (please refer to the trendline on the front cover of this report). It is believed that activities occurring outside Hong Kong, particularly the loss of wetlands and trapping/hunting pressure along the East Asian Australasian Flyway are contributing to this phenomenon. In 2012, HKBWS started a Management Agreement (MA) scheme supported by the Environment and Conservation Fund, under which fishpond operators in the Deep Bay area regularly drain-down fishponds to provide suitable foraging habitats for waterbirds and wetland dependent bird species (Figure 18). This habitat management and monitoring programme aims to achieve a win-win situation for both fish farming and bird conservation. However, it is not yet possible to confirm if the recent increasing trend of the total peak count is a result of the fishpond MA project.

Colonization of the invasive alien mangrove tree *Sonneratia* on the mudflats and intertidal areas of Deep Bay has led to a loss in foraging grounds for waterbirds (please refer to Box 6). Disturbances caused by the presence of mudskipper collectors and other fishermen still constitute an avoidable source of disturbance. Sedimentation in the Deep Bay area is also another possible problem, leading to a loss in area of intertidal mudflats. Moreover, conservation efforts have focused on artificial wetlands (i.e. fishponds and *Gei Wais*) in the Deep Bay area. It is important to extend the effort to the research and conservation of mudflats, a natural habitat which is extensively used by wintering and migrant waterbirds in Hong Kong.



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**Figure 18.** Fishpond drained down for fish harvesting. The remaining trash fish can attract large numbers of waterbirds to forage.

**Table 14.** Trends in populations of flagship and umbrella species from 2006 to 2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Chinese White Dolphin	Encounter rate per 100km <sup>121^A</sup>	6.9	9.9	7.2	6.3	6.8	7.6	7.3	7.2	5.5	4.7	4.1
	Abundance estimate in Lantau <sup>122^A</sup>	107	124	96	88	75	78	61	62	61	41	38
Breeding egrets and herons (no. of nests) <sup>123,124</sup>	1,017	822	664	809	734	803	852	758	960	1,418	1,248	
Dragonflies diversity and abundance <sup>125*</sup>	68	80	83	79	85	94	95	93	92	87	87	
Big-headed Turtle <i>Platysternon megacephalum</i>	26 male, 30 female, and 82 juvenile were recorded from 2009 to 2011 <sup>126</sup>											
Buddhist Pine <i>Podocarpus macrophyllus</i>	2000 -3000 mature trees <sup>127</sup>											
Grassland Orchid <i>Spathoglottis pubescens</i>	Currently no systematic monitoring programme.											

\*Provided by AFCD from their survey records, only the number of species of dragonflies recorded in Hong Kong is available.

^The encounter rate represents four areas Northeast Lantau (NEL), Northwest Lantau (NWL), West Lantau (WL), and Southwest Lantau (SWL), while the abundance estimate only include three areas (NEL, NWL and WL).

### Chinese White Dolphin (CWD)

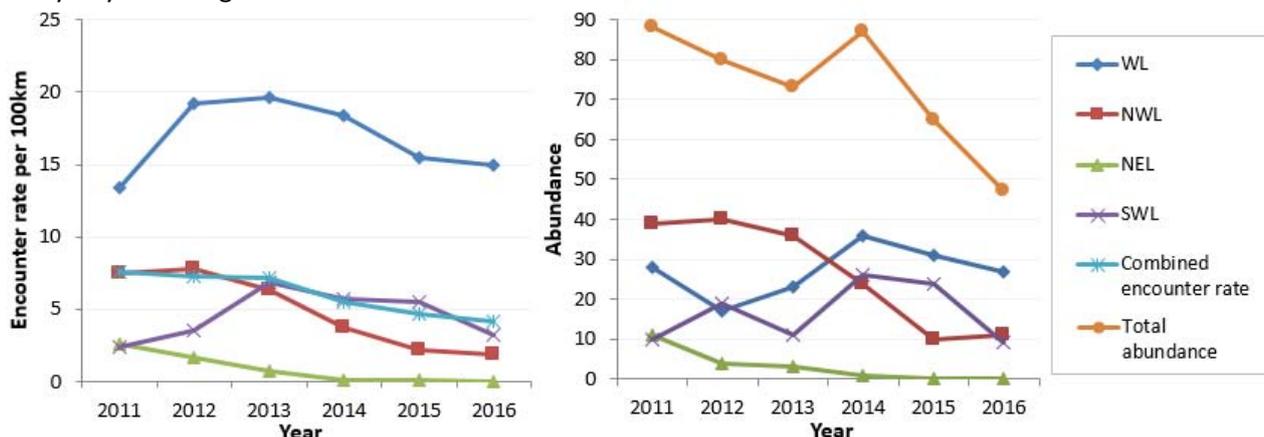
The encounter rate of CWD, which reflects the density of the dolphins, has continued to decrease for five consecutive years. Although the encounter rate in WL is consistently at least two times (up to 12 times) higher than that in other areas and the encounter rate in SWL showed an increasing trend from 2011 to 2013, encounter rate in all areas (i.e. NEL, NWL, WL, and SWL) showed a decreasing trend (Figure 20). The rate was less than one sighting per 100km in NEL in 2013 and eventually approached zero in 2016.

The abundance of CWD (only data from NEL, NWL and WL were included in early years of monitoring) in general showed a decreasing trend on average since 2006, with a drop of about 9 individuals per year. Only one sighting was made in NEL in 2014 and no individuals were seen in the NEL survey during the next two years. Since 2011, the data for SWL is also available. Even though abundance in WL and SWL shown increases in some years, the overall trend for the abundance of CWD has still decreased over the past six years (Figure 20). The abundance in SWL even showed a sharp drop from 24 individuals in 2015 to 9 individuals in 2016.



**Figure 19.** Chinese White Dolphins were frequently observed in North Lantau waters back in 2010.

The total encounter rate and abundance gives an overview of the current status of CWD, but the regional data within this dataset further explains the on-going decline of the species. The CWD shifted away from NEL, reduced in NWL and preferred WL and SWL. The construction works for the Hong Kong – Zhuhai – Macao Bridge Project (including the reclaimed Hong Kong Boundary Crossing Facilities) since 2012 in North Lantau waters have increased the severity of existing threats to the CWD in terms of poor water quality, lower prey abundance, underwater noise disturbance and increased vessel traffic. Besides the on-going construction works, there are several coastal developments planned or proposed around the North Lantau waters, such as the reclamation at Tung Chung East, Third Runway of the Hong Kong International Airport, Siu Ho Wan, Sunny Bay and Lung Kwu Tan.



**Figure 20.** Encounter rate and abundance of Chinese White Dolphin in different regions of Lantau waters (2011-2016)

However, conservation must go before development. In the case of the Brothers Island Marine Park, which used to be a CWD hotspot, the protected area was finally gazetted after the reclamation work has completed, when there was almost no sighting of CWD in the area. Restriction on the reclamation and coastal development around the North Lantau waters is required. Moreover, the number and speed of marine vessels should be strictly monitored and controlled. Re-routing marine traffic away from the CWD habitat should be considered, as from time to time, CWD are injured or killed by high speed vessels.

In 2014, Agriculture, Fisheries and Conservation Department (AFCD) announced their plan to designate the Southwest Lantau Marine Park and Soko Islands Marine Park<sup>128</sup>. This is indeed good news. It is recommended that Marine Parks in Lantau waters be extended and connected to form a larger marine protected area, since many areas in which CWD are currently active but not covered by Marine Parks, such as the waters off Yi O and Tai O.

### Breeding Egrets and Herons (Ardeids)

The total number of ardeid nests in Hong Kong per year fluctuated at around 800 from 2007 to 2013. However, from 2014 to 2016, the number increased to over 1,000 nests. The number of nests in the Deep Bay area, which accounts for over half of the breeding population in Hong Kong, followed a similar trend in 2015 and 2016. Breeding numbers of Great Egret, Little Egret, Black-crowned Night Heron and Chinese Pond Heron have generally increased. However, Eastern Cattle Egrets have gradually declined over the years. The Ho Sheung Heung colony supports the highest number of Eastern Cattle Egrets' nests. This is likely due to the presence of a mixture of dry and wet, active and abandoned farmlands in the area. Farmland is a major foraging habitat for breeding Eastern Cattle Egret and there is an on-going concern that the development of farmland in Hong Kong is a cause for the decline and abandonment of nesting colonies of this species<sup>129</sup>.

Even though the total number of ardeid nests has increased in recent years, several nesting colonies are still impacted by on-going disturbance and development pressure. San Sang Sun Tsuen egretty and the Tai Tong egretty are within or adjacent to planned new developments (i.e. the Hung Shui Kiu New Development Area and the housing sites in Yuen Long South). Even though some measures have been taken to preserve the

egretry and/or the flight path through the designation of conservation zonings and use of non-building areas, the breeding ardeids are still threatened by the scale of development and the disturbance caused by their associated construction works.

During 2013 and 2014, the Tai Tong egretry was completely destroyed during the non-breeding season to make way for rural open storage development. The new breeding colony formed near Pak Sha Tsuen still received on-going disturbance, such as smoke from burning materials and site formation immediately adjacent to the egretry during the breeding season (Figure 21). The water pipe laying and slope stabilization works at the Tai Po Market egretry in 2013 and 2014 affected part of the trees and the egretry shifted closer to nearby residents. The maintenance access of the slope also attracted photographers seeking close-up pictures of chicks, leading to more disturbances to the nesting colony.

In 2017, a disastrous incident occurred as the tree team of Leisure and Cultural Services Department conducted tree trimming at the Tai Po Market egretry in the middle of the breeding season, causing the deaths of 26 young birds and the loss of many more eggs and nests (Figure 22). Even though the incident seems to have violated the Wild Animal Protection Ordinance (Cap. 170), AFCD followed the recommendation of the Department of Justice and did not take any prosecution action. Leisure and Cultural Services Department, AFCD and corresponding departments/bureaux are advised to develop and/or strengthen internal government guideline(s) so as to avoid future destruction threats to bird species and their nests caused by tree pruning or other construction works. Reference can be made to the “Guidelines for Planning and Carrying out Construction Works at Egrettries” published by the HKBWS in 2016<sup>130</sup> which were developed following extensive consultation with representatives of relevant Government departments, ecological consultants and the private sector.



**Figure 21.** Extensive site formation occurred next to the Tai Tong egretry during the breeding season. This violated the approval conditions of an approved temporary plant nursery and retail shop for plants. However, no planning enforcement has been conducted as the site is located within a development zoning, which does not have any regulation on land filling and excavation.



**Figure 22.** Dead chicks were found at the bottom of the Tai Po Market egretry right after the tree trimming incident (left). Trees were trimmed very close to the nests (right).

## Dragonflies

The dragonfly data provided by AFCD generally showed a slight increasing trend<sup>131</sup>. Similarly, the cumulative number of dragonfly species recorded in Hong Kong also showed an increasing trend. In 1997, Keith Wilson compiled a checklist of dragonflies in Hong Kong with 107 species<sup>132</sup>. The dragonfly working group of AFCD later conducted territory-wide baseline and monitoring surveys and the number of species increased to 115 in 2008<sup>133</sup>. In 2016, the list had grown to 123 dragonfly species<sup>134</sup>. The increase in species number is likely due to the increase in surveying effort as more people have become interested in dragonfly-watching.

Dragonflies associated with forest habitats are considered to be relatively well-protected within the protected areas of Hong Kong. However, there are fewer secure habitats for pond-associated dragonfly species<sup>135</sup>. There are not many fish-free ponds, marshes, wet paddies and lowland streams left in Hong Kong, principally as a result of change in land use or urbanization. These habitats are often outside the protected areas system and are facing imminent development pressure.

## Other flagship and umbrella species

Big-headed Turtle is a globally endangered species for which the ongoing health of the Hong Kong population is critical for its survival. According to a paper published in 2014, a total of 138 individuals were found in Hong Kong, comprised of 26 males, 30 females and 82 juveniles. The populations monitored in the study are healthy and are located within protected areas or areas with active biodiversity management plans. However, it is suspected that some other populations in Hong Kong may be declining, due to illegal harvesting triggered by high demand in the food and pet market. Even within protected areas, the turtles are not necessarily safe from poachers as illegal trapping continues to be detected<sup>136</sup> (Figure 23). Clearing of illegal trapping devices is difficult as they are deployed in remote areas of Hong Kong and are difficult to find. Enforcement actions need to be stepped up on the selling and trading of these turtles, such that illegal trapping of these turtles can be stopped. The population in China has already drastically declined, there is a need for Hong Kong to better protect this and other endangered species from depleting in the wild.



**Figure 23.** *Illegal turtle traps are still found in the Hong Kong countryside. According to the Wild Animal Protection Ordinance, “no person shall possess any hunting device or make a pitfall for trapping protected animals unless a special permit is obtained”. If any traps are found, they should be destroyed and properly discarded. The case should be reported to AFCD through the Government hotline 1823 or dial 999 to contact the Police in an emergency<sup>137</sup>.*

Grassland Orchid is a widespread and abundant species in Hong Kong, with an estimated large and stable population of over 4,000 individuals<sup>138</sup>. It is commonly found in open upland grassland, and can also be seen along paths and on rocky outcrops in semi-shade in secondary woodland. However, similar to the Big-headed Turtle and Buddhist Pine, there are no publicly available data or systematic monitoring programme of these key indicator species.

**UNRESOLVED ISSUE: Resources are needed to fill in these data gaps for monitoring the status of these indicator species, or else other suitable species should be selected instead.**

# 4 REVERSING IMPACTS ON GLOBAL BIODIVERSITY

## 4.1 Hong Kong's Ecological Footprint

**Table 15.** Hong Kong's ecological footprint from 2005 to 2012

	2005	2006	2007	2008	2009	2010	2011	2012
Hong Kong Ecological Footprint per capita (global hectares)	4.4	-	4.0	4.7	-	5.4	-	6.7
Biocapacity per capita (global hectares)	2.1	-	1.8	1.8	-	1.7	-	1.7

(Source: WWF - Hong Kong)

### Hong Kong's Ecological Footprint

Ecological footprint is defined as the extent of human demand for the renewable resources available on Earth, whereas biocapacity refers to the renewable resources available or the capacity to regenerate the resources demanded. While the amount of global renewable resources per capita gradually decreased from 2.1 gha to 1.7 gha from 2005 to 2012, Hong Kong's ecological footprint per capita increased by over 50% to 6.7 gha. In fact, Hong Kong people was already using about two times more than the Earth's available resources back in 2005; and seven years later, we are using almost four times more than the Earth can provide.

According to the latest publication on ecological footprint by WWF - Hong Kong<sup>139</sup>, Hong Kong would need 3.9 planets to support the city's lifestyle, which ranks the city as the 17th highest territory globally and the second highest in Asia. Similar to the data analysis from previous years<sup>140</sup>, daily consumption (whether at the individual, family or company level) accounts for more than 75% of the ecological footprint of Hong Kong. Personal transportation, food, clothing and energy (such as electricity, gas and other fuels) contribute to more than half of this daily consumption.

### Sustainable Use of Biological Resources

Hong Kong is a densely populated city with low productivity and high consumption of natural resources and therefore relies heavily on imported goods. Adopting a "consume less and consume wise" sustainable lifestyle is important to help lower the ecological footprint of Hong Kong at an individual level.

In early 2016, the Consumer Council released a report about consumer behaviour and business reporting<sup>141</sup>. Results showed Hong Kong people are aware of the importance of sustainable consumption, 75% being prepared to pay more for sustainably-sourced goods. However, only half of the respondents regularly buy sustainable products. The gap between people's awareness and their actual purchasing behaviour suggests more commitment from both the Government and the business sector to create an environment which promotes and encourages changes in people's lifestyle to work towards more sustainable consumption.

In July the same year, the Council for Sustainable Development launched a public engagement on promotion of sustainable consumption of biological resources<sup>142</sup>. Views were collected not only from the general public, but also from companies and organizations. Major findings include:

- only half of responding organizations/companies had a policy for purchasing sustainable products,
- higher price and limited availability of sustainable products are the major factors that hinder individuals/organizations/ companies from purchasing; while
- greater community awareness and information platforms on sustainable products and suppliers are the main drivers for sustainable purchases in organizations/companies.

The Council for Sustainable Development suggested that a long-term strategy should be established to induce behavioural change towards more sustainable consumption and the Government should be more proactively promote green procurement with clear targets and timeline<sup>143</sup>.

### Combatting Wildlife Crime

Besides the consumption of natural resources, the Government also has an important and leading role to play in controlling the types of biological resources and products imported and transferred through Hong Kong. Although Hong Kong is well known for its free port status, it does not mean that the city has to tolerate illegal trade in wildlife that contributes to the unsustainable use of biological resources. Coordinated by the ADM Capital Foundation, a paper by 14 Non-governmental Organizations (NGOs) and concerned individuals was released in December 2015<sup>144</sup>, which analysed Hong Kong’s role in wildlife trade, identified the key challenges and proposed recommendations for the Government to stop wildlife crime.

In the 2016 Policy Address, the Government committed to phase out the local ivory trade and review the penalties under the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586) to provide a stronger deterrent effect. This is a positive step forward, yet, more needs to be done. Many endangered species are still traded for food consumption, traditional chinese medicine, pets, etc. For instance, the casque of the critically endangered Helmeted Hornbill (*Rhinoplax vigil*) is said to be more lucrative and rarer than elephant ivory<sup>145</sup>, and is hunted for making valuable ornaments and jewelry (Figure 24). On the other hand, many marine fish, including some globally endangered reef fish species, are not protected under the Hong Kong ordinance as presented in the paper published by ADM Capital Foundation in 2015<sup>146</sup>.



**Figure 24.** *Helmeted Hornbill* is native to Southeast Asia and is hunted for its casque to produce the lucrative “red ivory”. The bird has been listed in Appendix 1 of CITES since 1975, meaning trading of the species is prohibited. However, a recently updated trade hotspot map by the Environmental Investigation Agency and TRAFFIC further confirms Hong Kong and Shenzhen are the key import hubs for transfer of the hornbill casque<sup>147</sup>. In 2015, IUCN up-listed *Helmeted Hornbill* by three categories in the space of three years, from “Near Threatened” to “Critically Endangered”, mainly due to severe hunting pressure and habitat loss<sup>148</sup>.

### UNRESOLVED ISSUE:

**As Hong Kong sources most of the food and resources it consumes from outside its borders, what actions could be taken by the Government to measure and reduce the impacts on species which are heavily impacted by the trade and consumption in Hong Kong?**

## 4.2 Change in greenhouse gas emissions attributable to Hong Kong

**Table 16.** Change in greenhouse gas emissions attributable to Hong Kong from 2005 to 2015

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Emission estimate by EPD (million tonnes) <sup>149</sup>	41.2	42.1	42.9	41.6	42.3	40.8	42.6	43.0	44.3	45.0	41.6
Per capita emission estimate by EPD (tonnes) <sup>150</sup>	6.0	6.1	6.2	6.0	6.1	5.8	6.0	6.0	6.2	6.2	5.7
Per capita emission estimate by WWF - Hong Kong (tonnes)	-	-	8.1	-	-	13.4 <sub>151</sub>	-	-	-	-	-

(Source: Environmental Protection Department (EPD) and WWF – Hong Kong)

Until 2014, Hong Kong's greenhouse gas emissions continued to rise. From 2005 to 2011, the number fluctuated between 40 and 43 million tonnes. But from 2011, it rose for three consecutive years to 45 million tonnes in 2014. In 2015, the number suddenly dropped back to 41.6 million tonnes.

Even though there are fluctuations in greenhouse gas emission from year to year, the ratio of emission between each sector did not change much, with electricity generation consistently accounting for almost 70% of the total emission<sup>152</sup>. In 2015, there was a slight drop in the emission by electricity generation to two-thirds of the total, while transportation and other fuel uses slightly rose to almost a quarter of the total.

The Government expects the city's carbon emission will peak before 2020 as more coal-fired electricity generating plants will be phased out and more natural gas will be used for electricity generation<sup>153</sup>. Moreover, it is important that the Government, public sector and commercial sector to work together to reduce energy consumption in both new and existing buildings and infrastructure. To tackle carbon emission from transportation, apart from promoting the use of biofuels and improving the fuel efficiency of engines, the Government is urged to limit the growth of vehicle numbers and reduce the city's dependence on private vehicles, while at the same time maintaining public transport as the preferred mode of transport. Walkability and cycling facilities within the city could also be improved.

In May 2015, the Government launched its first blueprint for energy saving in Hong Kong, which aims to reduce the city's energy intensity by 40% by 2025<sup>154</sup>. On 4 November 2016, the Paris Agreement came into force succeeding the Kyoto Protocol. As China is one of the signatory parties, Hong Kong has a role to play in fulfilling the obligation that China has under the Agreement. In January 2017, the Government announced a longer-term action plan in response to climate change and target to reduce the carbon intensity by 65 - 70% by 2030 compared with the 2005 level, which is equivalent to 26 - 36% of absolute reduction<sup>155</sup>.

Low-carbon lifestyles involve different aspects of daily life, such as food, living space, clothing and travel. It is important for the Government to facilitate and assist the general public to adopt this new way of living through education and provision of corresponding measures and facilities for a more sustainable future.

**UNRESOLVED ISSUE: When will Hong Kong develop a science-based carbon emission reduction target?**

# 5 PLANS AND RESOURCES FOR BIODIVERSITY CONSERVATION

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

Hong Kong's first city-level Biodiversity Strategy and Action Plan (BSAP) was finally announced on 21 December 2016<sup>156</sup> - an important milestone since China extended the Convention on Biological Diversity (CBD) to Hong Kong on 9 May 2011<sup>157</sup>. Environmental Non-governmental Organizations (NGOs) established headline indicators for nature conservation back in 2011<sup>158</sup> and the city's conservation status has been regularly monitored since then<sup>159</sup>. In 2013, the Government set up a steering committee for the formulation of BSAP. Various experts, academics, representatives from green groups, private and public sectors were invited to participate in the 2-year participatory process. The final BSAP was published in late 2016, with HK\$150 million earmarked for the first three years of BSAP implementation<sup>160</sup>.

Some of the actions under the BSAP<sup>161</sup> are existing or planned programmes of the Government, while some are newly proposed and match with the headline indicators which this and previous reports have been using (Table 17). New actions include (i) the preparation and implementation of biodiversity management plans in Country Parks, Special Areas, Marine Parks and Marine Reserves, (ii) compilation of a list of threatened species for Hong Kong to guide conservation actions, (iii) formulation and review species action plans, and (iv) increasing the capacity for management of invasive alien species. These actions are essential steps to address the problems and concerns as illustrated in the previous chapters of this report.

**Table 17.** Actions under BSAP which are related to the headline indicators for biodiversity and conservation

HEADLINE INDICATORS		ACTIONS UNDER BSAP*	
1 Community-based conservation	1.1 Percentage of instances of illegal/unauthorized activity reported per year by NGOs and verified sources	/	/
	2 Establish 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 the law and covered by species action plans	5 Step up enforcement against wildlife crime
6 Implement conservation action plans for priority species			a) <b>Establish a standardised mechanism for formulating species action plans.</b> b) <b>Formulate action plans for species that require immediate conservation actions.</b> c) <b>Review and strengthen existing species action plans.</b>
14 Conduct species assessment			a) <b>Compile a list of threatened species for Hong Kong to guide conservation actions.</b>

HEADLINE INDICATORS		ACTIONS UNDER BSAP*	
<p style="text-align: center;"><b>3</b></p> <p style="text-align: center;"><b>Reversing the decline in native biodiversity</b></p>	<p><b>3.1</b> Percentage of protected areas covered by published, resourced and active biodiversity management plans</p>	<p>1 Maintain and enhance the management of protected areas</p>	<p>a) <b>Prepare and implement biodiversity management plans, outlining the approach to biodiversity conservation in country parks, special areas, marine parks and marine reserve.</b></p> <p>b) Carry out the Plantation Enhancement Project to enhance the biodiversity of plantations in country parks.</p> <p>c) <b>Review the management plan for Sites of Special Scientific Interest to enhance the conservation and monitoring work carried out.</b></p> <p>d) <b>Review the Mai Po Inner Deep Bay Ramsar Site Management Plan.</b></p> <p>e) Enhance habitat management work in the Mai Po Nature Reserve.</p> <p>f) <b>Review and enhance the ecological monitoring and habitat management plan of the Hong Kong Wetland Park.</b></p>
	<p><b>3.2</b> Total area impacted by planning proposals that involves agriculture and conservation (SSSI, CA, CPA, GB, AGR)</p>	<p>2 Conserve ecologically important habitats outside the existing protected areas</p>	<p>a) <b>Designate new marine parks in the waters near The Brothers, Soko Islands and Southwest Lantau.</b></p> <p>b) <b>Designate new country park at Robin's Nest, and extend country parks to cover country park enclaves at appropriate locations.</b></p> <p>c) <b>Develop a nature park at Long Valley for supporting conservation and agriculture in this ecologically important area.</b></p> <p>d) Continue to implement the Management Agreement and Public-Private Partnership schemes to actively conserve ecologically important sites under private ownership, including the 12 priority sites, country park enclaves and private land in country parks through collaboration with NGOs and rural communities.</p> <p>e) Explore innovative methods to enhance, support and promote the conservation of rural areas with high ecological value.</p>
		<p>4 Maintain habitat connectivity for wildlife</p>	<p>a) Enhance habitat connectivity and establish ecological corridors across the boundary.</p> <p>b) <b>Review and update guidelines on design of wildlife crossings.</b></p>
		<p>9 Incorporate biodiversity considerations in planning and development process</p>	<p>a) <b>Update the Sustainability Assessment system, to better integrate biodiversity considerations in major policies and plans of the Government.</b></p> <p>b) Integrate biodiversity considerations in the territorial development strategy.</p> <p>c) <b>Update and amend Chapter 10 of the Hong Kong Planning Standards and Guidelines by incorporating relevant guidelines on biodiversity considerations.</b></p> <p>d) Enhance the practices in addressing ecological impacts of projects through environmental impact assessment process.</p>
		<p>15 Collate information on terrestrial and marine habitats</p>	<p>a) <b>Compile relevant information on marine habitats for guiding conservation of marine habitats.</b></p> <p>b) <b>Review and develop a standardised classification of habitat types in Hong Kong, and prepare a Geographic Information System-based habitat map.</b></p>

HEADLINE INDICATORS		ACTIONS UNDER BSAP*	
	3.3 Current status of lowland rivers (below 200m above sea level)	3 Enhance conservation of natural streams	a) <b>Conduct ecological surveys and compile ecological database on natural streams, especially Ecologically Important Streams.</b> b) <b>Improve practices in minor maintenance and hygiene works in natural streams and catchwaters, with a view to minimising ecological impacts arising from these works.</b> c) <b>Control discharge of effluents from unsewered areas and its adverse impacts on streams.</b>
		10 Promote biodiversity in urban environment	f) Adopt the concept of revitalising water bodies in large-scale drainage improvement works and planning drainage networks for New Development Areas.
	3.4 Trends in number and populations of known alien invasive species	7 Improve management of invasive alien species	a) <b>Build up capacity for the management of invasive alien species.</b> b) Enhance the monitoring, management and control plans for target invasive alien species. c) Conduct education programmes to raise awareness and to discourage release of alien species to the wild.
			13 Conduct biodiversity surveys
	3.5 Trends in populations of flagship and umbrella species	16 Improve sharing of knowledge	a) <b>Develop a web-based information hub to provide a one-stop shop for information on local biodiversity.</b> b) <b>Develop a Geographic Information System- based platform to facilitate sharing of data among different groups of users.</b>
			22 Promote sustainable consumption
4 Reversing impacts on global biodiversity	4.1 Hong Kong's Ecological Footprint	/	Specific actions related to climate change and carbon emission were addressed in a separate document by the Government.
	4.2 Change in greenhouse gas emissions attributable to Hong Kong	/	

\*Actions which are not under existing programmes are highlighted using **boldface** type.

### Inadequacies of the first BSAP

From the commencement of the BSAP engagement exercise to its implementation, the Environment Bureau and the Biodiversity Conservation Division of Agriculture, Fisheries and Conservation Department have taken the leading role. Yet, in order to successfully mainstream the concept of biodiversity conservation across various Government departments, a high level inter-departmental committee under the Chief Executive is required to steer and co-ordinate the biodiversity conservation actions of different departments and bureaux, to monitor the implementation of the BSAP, and to ensure adequate resources is earmarked for BSAP. Currently, there are already conflicts between development and conservation policies, leading to a loss in biodiversity and natural habitats (e.g. approved development in conservation zones and the continuous decline in the number of Chinese White Dolphin).

Moreover, section 4.2 of the BSAP stated that “*We do not intend to initiate major changes of policies and legislation at this stage*”. Yet, long-running deficiencies in existing policies, legislation and planning system have been causing the continuous ecological degradation of important habitats and hindrance of effective enforcement as illustrated in this and previous reports. Adjustment of existing policies and legislation is critical to plug these loopholes and effectively halt the destruction. Loopholes in the existing regulatory framework includes: (i) absence of Development Permission Area (DPA) from existing OZP under the Town Planning Ordinance (Cap. 131), (ii) conflicts of interest in administration of the Environmental Impact Assessment Ordinance (Cap. 499), (iii) approval of waste dumping in private land under the Waste Disposal Ordinance (Cap. 354) disregarding the ecological value of the site, and (iv) sentencing guidelines which do not reflect the cost of ecological restoration of damaged habitats or the market value and enforcement cost of wildlife species. None of these were addressed in the current BSAP and there were no corresponding actions under headline indicator 1.1 (Table 17).

The implementation of BSAP and the city’s conservation status should also be regularly monitored using a set of consistent parameters and corresponding data and report should be accessible to the public as demonstrated by this and previous reports. This is important for reviewing the progress of the current BSAP and to plan ahead for the next 5-year BSAP.



**Figure 25.** Pui O is well-known for its wetlands of rich biodiversity. However, the wetlands are constantly being filled up by soil and construction waste/fenced off/paved/dredged for agricultural and other uses. No enforcement actions can be taken by the Planning Department as there was no DPA before the gazette of the South Lantau Coast OZP, leaving Pui O, the last remaining buffalo field in Hong Kong, in a vulnerable situation.

**UNRESOLVED ISSUE: When will the Government start regular monitoring of the implementation of Hong Kong’s BSAP and reporting the progress to the general public?**

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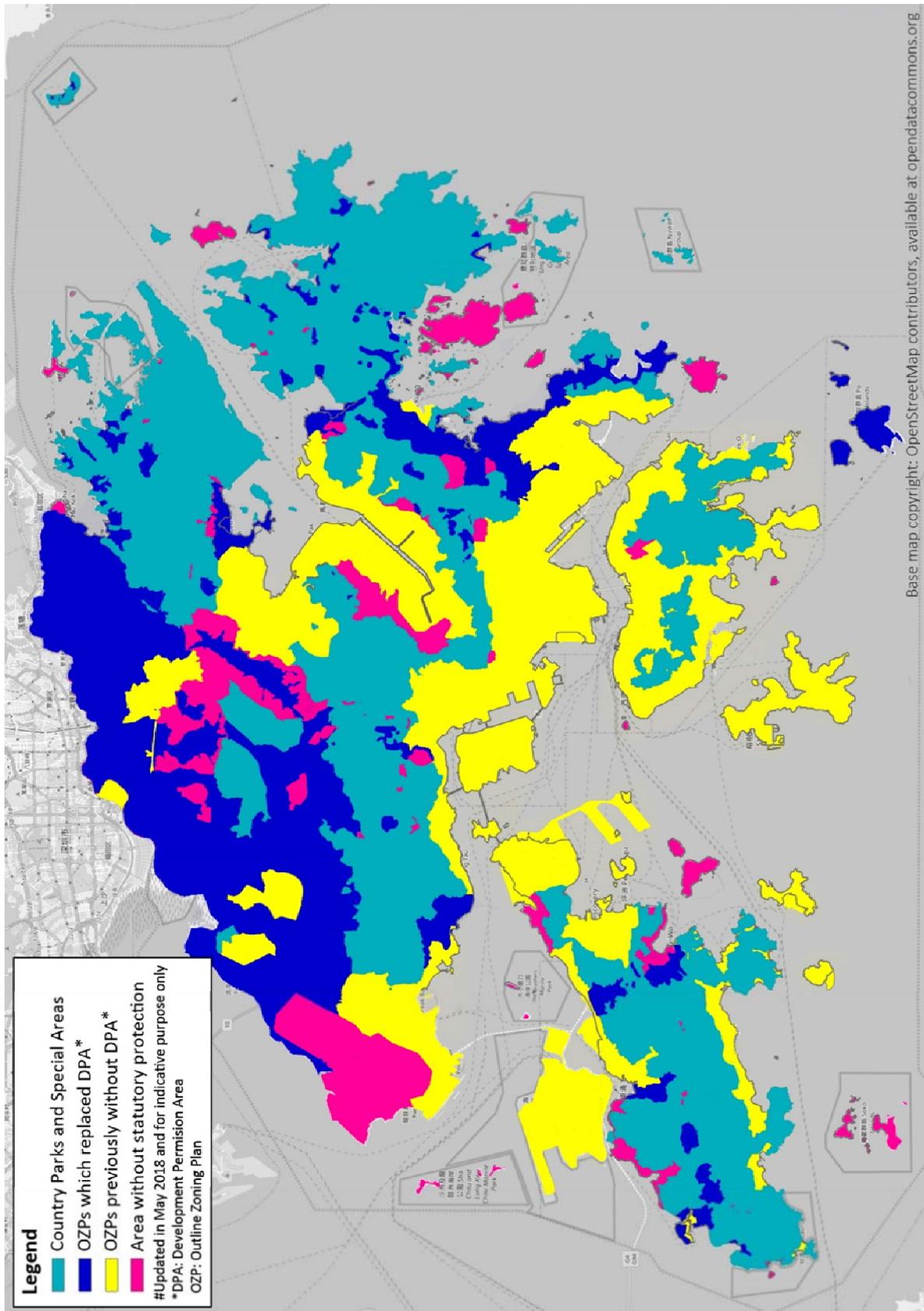
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# APPENDICES

**Appendix 1.** Distribution of Country Parks and Special Areas, Outline Zoning Plans (OZPs) which replaced Development Permission Area (DPA) Plans, OZPs previously without DPAs, and areas without statutory protection.



**Appendix 2. Country Park enclaves and their protection status as of May 2018.**

No.*	Name of Site	Area (ha)	Status^	Current Plan No.
<b>Lion Rock Country Park</b>				
1	Shap Yi Wat	3	OZP	S/ST-KYS/11
<b>Ma On Shan Country Park</b>				
2	Ngau Liu & Kwun Yam Shan	72	OZP	S/ST-KYS/11
3	Wong Chuk Yeung	37	OZP	S/NE/SSH/11
24	Mau Ping, Mau Ping Lo Uk, Mau Ping San Uk & Wong Chuk Shan	45	OZP	S/ST-MP/2
<b>Pat Sin Leng Country Park</b>				
4	Sha Lo Tung	56	OZP	S/NE-SLT/4
33	Ping Shan Chai	15	-	
<b>Plover Cove Country Park</b>				
5	Kai Kuk Shue Ha, Ho Lek Pui & Ham Hang Mei	8	OZP	S/NE-LK/11
6	Ho Pui, Tin Sam, Sam Ka Tsuen, San Uk Tsuen, San Uk Ha, Lo Wai, Leng Pui & Kau Tam Tso	98	OZP	S/NE-WKT/6
34	Hung Shek Mun Tsuen	10	-	-
35	Lai Tau Shek	10	-	-
36	Sam A Tsuen	23	OZP	S/NE-LCW/2
37	Sai Lau Kong	2	CP	-
38	Siu Tan	20	OZP	S/NE-LCW/2
39	Kop Tong, Mui Tsz Lam & Lai Chi Wo	91		
40	So Lo Pun	29	OZP	S/NE-SLP/1
41	Kuk Po San Uk Ha, Kuk Po Lo Wai, Yi To, Sam To, Sze To & Ng To	64	OZP	S/NE-KP/2
42	Fung Hang	9		
43	Yung Shue Au	18		
44	Fan Kei Tok	5	CP	-
45	Chau Mei, Tai Tong, Chau Tau, Sha Tau	26	OZP	S/NE-PC/1
<b>Sai Kung East &amp; West Country Parks</b>				
7	Wong Yi Chau & Hei Tsz Wan	9	OZP	S/SK-TMT/4
8	Pak Tam Chung	2		
9	Tsak Yue Wu	15		
10	Tai Long, Lam Uk Wai, Lung Mei Tau, Tai Wan & Ham Tin	46	OZP	S/SK-TLW/5
11	Pak Tam	5	OZP	S/SK-TMT/4
12	Shek Hang	3		
13	Tai Mong Tsai, She Tau, Ping Tun, Tit Kim Hang, Tam Wat, Tai Po Tsai, San Tin Hang, Tso Wo Hang, Wong Chuk Wan & Wong Mo Ying	126		
14	Wong Keng Tei & Tsam Chuk Wan	36		
15	Sham Chung	32	OZP	S/NE-SC/3
46	Pak A	11	OZP	S/SK-TA/2
47	Tung A	10		
48	Pak Lap	6	OZP	S/SK-PL/1
49	Pak Tam Au	14	OZP	S/NE-TKP/2
50	To Kwa Peng	9		
51	Chek Keng	31	OZP	S/NE-CK/2
52	Tai Tan, Uk Tau, Ko Tong, Ko Tong Ha Yeung	67	OZP	S/NE-TT/2
53	Tung Sam Kei	4	-	-
54	Ko Lau Wan, Mo Uk, Lam Uk, Lau Uk & Tse Uk	33	OZP	S/NE-KLW/2
55	Sai Wan	17	CP	-
56	Hoi Ha	8	OZP	S/NE-HH/1

No.*	Name of Site	Area (ha)	Status^	Current Plan No.
57	Pak Sha O, Pak Sha O Ha Yeung	29	OZP	S/NE-PSO/2
58	Nam Shan Tung	5	-	-
59	Lai Chi Chong	16	-	-
60	Yung Shue O	32	OZP	S/NE-YSO/2
61	Cheung Sheung	16	OZP	S/NE-CS/2
62	Tai Hom	5	-	-
63	Wong Chuk Long	4	-	-
64	Site near Wong Mau Kok	3	-	-
<b>Lantau South, North &amp; North (Extension) Country Parks</b>				
16	Fan Lau Tsuen	24	OZP	S/SLC/21
17	Pak Fu Tin	3		
18	Lung Mei & Tai Long	28		
19	Ngong Ping	103	OZP	S/I-NP/6
20	Lai Chi Yuen	5	OZP	S/SLC/21
21	Shui Tseng Wan	2		
22	Yi Long	7		
23	Shui Hau Wan	1		
65	Luk Wu, Upper Keung Shan, Lower Keung Shan, Cheung Ting & Hang Pui	155	OZP	S/I-LWKS/2
66	Tsin Yue Wan	4	-	-
67	Ngau Kwo Tin	7	OZP	S/I-LWKS/2
68	Tei Tong Tsai	15	-	-
69	Yi Tung Shan	7	-	-
70	Man Cheung Po	2	-	-
71	Site near Nam Shan	6	CP	-
72	Site near Peaked Hill	5	-	-
73	Tai Ho & Site near Wong Kung Tin	277	OZP	S/I-TH/1
74	Yi O	23	OZP	S/I-YO/2
<b>Kam Shan Country Park</b>				
25	Kam Shan	1	CP	-
<b>Tai Mo Shan Country Park</b>				
26	Site near Chuen Lung	10	-	-
27	Site near Tso Kung Tam	9	-	-
<b>Tai Lam Country Park</b>				
28	Tin Fu Tsai	53	OZP	S/TM-TFT/2
29	Tsing Fai Tong	26	-	-
30	Sheung Tong	10	-	-
31	Sheung Fa Shan	26	-	-
32	Yuen Tun	19	CP	-
<b>Tai Po Kau Special Area</b>				
75	Site near Ngau Wu Tok	5	OZP	S/NE-TPK/2
76	Site near Tai Po Mei	6		
<b>Ma Shi Chau Special Area</b>				
77	Shui Mong Tin, Yim Tin Tsai	2	OZP	S/NE-YTT/2

\*List of Country Park Enclaves (August 2011):

[http://www.afcd.gov.hk/english/conservation/con\\_nncp/con\\_nncp\\_new/files/map\\_eng.jpg](http://www.afcd.gov.hk/english/conservation/con_nncp/con_nncp_new/files/map_eng.jpg)

^Abbreviation used: CP - Country Park; OZP - Outline Zoning Plan.



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