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Enhanced Management of Wild Pigs

PURPOSE

This paper informs Members about the current situation of the proliferating wild pig nuisance in Hong Kong and the proposed enhancement measures to address the nuisance.

WILD PIGS IN HONG KONG

2. Wild pigs are the largest terrestrial mammals in Hong Kong. They are not domestic pigs that have been abandoned or gone strayed. Wild pigs scatter throughout the territory especially the country parks and are adaptive to different habitats, including woodlands, scrublands, grasslands and agricultural areas. Individual wild pigs can move around in an extensive area on a regular basis. They are also very good swimmers and can swim across islands or along coastlines.

3. Wild pigs are opportunistic omnivores that feed primarily by rooting and grazing. Around 80-90% of their diet is composed of plant matters, including fruits, seeds, roots and tubers. They also eat invertebrates such as earthworms and small vertebrates as supplements. However, wild pigs also readily accept food from human sources owing to their opportunistic feeding behaviour. Wild pigs accustomed to foraging in urban areas are mostly active at night, or occasionally in early morning.

4. Wild pigs have the highest reproductive rate among hoofed terrestrial mammals. They reach sexual maturity and can produce offspring at about one year old. Breeding occurs all year round and the population size may increase fivefold in

12-15 months under favourable conditions, where a pair of adults can over such a period give birth to and raise an average of eight offspring to independence. Adults could reach 150kg in weight, 1m in shoulder height and 1.6m in body length. Large males are very powerful and usually have a pair of prominent canine teeth protruding from their mouths.

5. Wild pigs were once common and regularly hunted in the rural areas in Hong Kong in the past. In the 1950s, however, wild pigs in Hong Kong were considered close to extirpation owing to over-hunting and habitat loss. In recent years, owing to habitat improvement and the control of hunting, as well as a combination of the characteristics of wild pigs including high reproductive rate, opportunistic diets and the disappearance of natural predators to the adults (mainly tigers), the wild pig populations have gradually grown in the countryside areas throughout Hong Kong.

6. Based on data collected from the territory-wide surveys by the Agriculture, Fisheries and Conservation Department (AFCD) in 2002-2006, wild pigs were more abundant in the New Territories and less common on Hong Kong Island and Lantau Island. However, more recent surveys conducted during 2011-2016 showed that they had become more common on Hong Kong Island, although still remained uncommon on Lantau Island (**Figure 1**). Their populations had also expanded to other outlying islands, including Po Toi, Double Island and Lamma Island.

EMERGING NUISANCE AND THREATS OF WILD PIGS

7. In recent years, wild pigs have become an emerging nuisance in Hong Kong, especially the urban areas. The number of complaints/reports on wild pigs received by AFCD soared from 225 in 2011 to a record high of 738 in 2017, reflecting a dramatic increase by more than threefold in seven years (**Figure 2**). We also have been receiving increasing number of complaints from District Councils (DCs), notably the Central and Western DC, Sai Kung DC, Southern DC, Tai Po DC and Wan Chai DC. The wild pigs which caused nuisance were mostly those accustomed to feeding or scavenging refuse in residential or public areas. The complaints were usually related to environmental hygiene problems owing to leftover food or faeces. In general, most reports were received from the residential or built-up areas in the neighbourhood of country parks on Hong Kong Island and the New Territories. The reports reflected the growing intensity of human-wildlife conflict, and were also related to factors including population density of wild pigs, changes in their feeding behaviour, and more accommodating attitude of people towards wild pigs.

8. Like some other wild animals which are prone to create nuisance (e.g. monkeys), once wild pigs are strongly accustomed to accepting food from feeding or scavenging near residential areas, they will return to the same areas to feed regularly. Some wild pigs may even actively approach human for food. This behavioural routine put passers-by on an increasing risk of direct conflict with wild pigs.

9. Though naturally secretive and wary of contact with human, wild pigs are powerful animals and can cause serious injury to human if provoked, or when they feel threatened. Among the 12 cases of public injury caused by wild pigs reported to AFCD in the past decade (November 2008 – October 2018), ten took place between 2016 and 2018. The increase in the number of injury cases in 2016-2018 is commensurate with the mounting reports of wild pigs in areas around human establishments (**Figure 2**).

10. Despite the limited number of reported injury cases, wild pig attacks could lead to serious injuries or even fatalities. Wild pig attacks pose a high risk to public safety (particularly children), as the nuisance spots are usually in densely populated urban areas. On the other hand, wild pigs in the countryside generally remain secretive and wary of contact with human.

PROPOSED ENHANCED MANAGEMENT MEASURES

11. In light of the proliferating wild pig nuisance in the past few years, AFCD has reviewed the current situation, international practices and the pros and cons of various control measures. AFCD plans to adopt a multipronged approach to abate the potential nuisance that might be caused by wild pigs, as elaborated below.

Reduce Food Attraction

12. In recent years, more and more wild pigs have lost their natural fear to human owing to repeated contact with people with food as reward. The possibility of human-wild pig conflict increases when more wild pigs associate people as sources of stable food.

13. AFCD has been working closely with relevant departments, especially the Food and Environmental Hygiene Department, to eliminate food attraction at black spots by removing food residue, erecting banners to remind the public not to feed wild

pigs, and improving the public refuse collection facilities to prevent wild pigs' access to food residue in the refuse. If feeding activities lead to hygiene problems, offenders will be liable to a fixed penalty of \$1,500 upon conviction under the Fixed Penalty (Public Cleanliness and Obstruction) Ordinance (Cap. 570).

14. With a view to deterring scavenging of refuse by wild pigs, AFCD has commissioned a consultancy study to develop refuse collection facilities conducive to reducing wildlife's raid and is working with relevant departments on the improvement of refuse collection practices in nuisance hotspots.

Public Education

15. Since the nuisance and threats are strongly related to feeding of wild pigs, AFCD has launched a programme, namely Wildlife Smart, to encourage community participation in reducing undesirable human-wildlife interactions. In addition to stepping up publicity efforts to enhance public awareness, AFCD will continue to intensify its efforts to educate the public on the impact of feeding on wildlife and discourage such actions, through a series of publicity and education programmes, including promotion in the traditional media and social media (e.g. YouTube Channel and Facebook page), as well as organization of fun day, roving exhibitions, lectures and visits, display of banners/posters in areas frequently visited by wild pigs, etc.. AFCD will conduct more publicity on dos and don'ts when the public encounter the wild pigs. AFCD will also formulate technical guidelines on measures to reduce the raid of wild pigs in public facilities and private properties for reference by Government works departments and the property management respectively, and to assist farmers to deal with wild pig nuisance in farms.

Monitoring and Management of Wild Pigs

Monitoring of Population and Movement

16. Wild pigs are usually solitary or in small group, secretive, widespread, and have a wide home range. These features make the monitoring of wild pigs very difficult. AFCD will enhance existing efforts on monitoring the population, distribution and movement of the species using camera traps and GPS tracking technology. AFCD will also undertake a survey to estimate the total population of wild pigs in Hong Kong.

Investigation of Wild Pig Nuisance

17. For complaints on wild pig nuisance, AFCD will interview the complainants and conduct field investigation to ascertain the nature of the incidents. For confirmed nuisance where wild pigs appear regularly to feed or linger in a site, AFCD will consider adopting different management options, as set out in the ensuing paragraphs, to address the problems.

Capture and Contraception/Relocation Programme (CCRP)

18. In response to some animal welfare groups and taking into account the potential risk to passers-by, AFCD suspended the hunting of wild pigs and started exploring CCRP as a new method to address persistent wild pig nuisance in urban areas in 2017. CCRP involves capturing the nuisance-causing wild pigs for contraception and/or relocation to remote countryside areas to alleviate the nuisance with immediate effect. AFCD is conducting a pilot programme to evaluate the effectiveness of CCRP using contraceptive vaccine developed for mammals, GonaConTM, in controlling the fertility of mature female wild pigs in Hong Kong. GonaConTM is a multiyear immuno-contraceptive vaccine that would prevent mammals from entering a reproductive state. It was found to be effective for at least four to six years on captive wild pigs in an overseas study and is safe to pregnant animals. Since GonaConTM is yet to be registered for use on wild pigs, AFCD is co-operating with the Department of Agriculture of the United States and the Department for Environment, Food and Rural Affairs of the United Kingdom to conduct field trials of GonaConTM on wild pigs in Hong Kong. In addition, AFCD has been studying the feasibility of conducting surgical sterilisation on wild pigs.

19. The initial results of the pilot CCRP up to early December 2018 are in **Annex**. A total of 36 operations were conducted with 127 wild pigs captured, among which 52 mature females received contraceptive treatment (including both GonaConTM and surgical treatments). To effectively alleviate the nuisance, 90 wild pigs (some of which had also received contraceptive treatment) were relocated to the remote countryside areas.

20. AFCD will continue the pilot CCRP and work closely with local and overseas experts to refine the capture and contraceptive procedures and evaluate the effectiveness of contraceptive treatments. Since the implementation of pilot CCRP, an average of three wild pigs were captured per operation, indicating a higher capture efficiency than that of hunting where an average of less than one wild pig was hunted

per operation. AFCD is recapturing wild pigs administered with GonaCon™ for pregnancy test and the preliminary result of the effectiveness of GonaCon™ will be available in late 2019. AFCD will also assess the effectiveness of relocation by monitoring the tendency of relocated individuals to return to built-up areas.

Handling of High-risk Individuals

21. While AFCD will continue the pilot CCPR and explore other practical means to address nuisance caused by wild pigs, some wild pigs could still pose imminent risks to public safety. Based on the cases reported in Hong Kong and elsewhere, AFCD considers that three particular situations deserve our priority attention and actions when wild pigs: (1) have attacked people; (2) are accustomed to searching for food around built-up areas but they get easily irritated; and (3) become habitual to approaching and snapping food from people. Given the safety concerns and potentially serious consequences of wild pig attacks, we will not rule out the need for euthanising individual wild pigs which have attacked human beings or posed immediate danger to the community in order to safeguard public safety. Euthanasia will only be considered as the last resort when other management measures to reduce their risks to public safety are unsuccessful or very likely to be unsuccessful. The wild pigs with attacking behavior will be captured by darting and euthanised by established anaesthetic methods by a veterinarian. Having regard to the availability of other management measures and until and unless they have proven to be ineffective, the number of wild pigs that would be subject to euthanasia is expected to be on the low side.

Hunting by Civilian Hunting Teams

22. In the past, if wild pigs caused injury to human beings and/or repeatedly damaged properties and other management measures were found to be ineffective, they might be removed by hunting operations by two civilian hunting teams under the authorisation of both the Police and AFCD. Despite that hunting is by far the most widely adopted and effective wild pig management measure in the world as at today, local hunting operations have been suspended since 2017 owing to the growing public concern on animal welfare and the safety constraints for conducting hunting operations in public or residential areas. Having considered all relevant factors in particular from the public safety perspective, we propose to abandon hunting by the civilian hunting teams as a wild pig management measure.

WAY FORWARD

23. The Government will implement the proposed multipronged management measures in paragraphs 12 to 21 above, and conduct regular reviews on their effectiveness, for enhancing the management strategies and exploring new initiatives to tackle nuisance caused by wild pigs. Members are invited to note and comment on the proposed management measures.

Environmental Protection Department
Agriculture, Fisheries and Conservation Department
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Figure 1 – Wild Pigs recorded in AFCD surveys

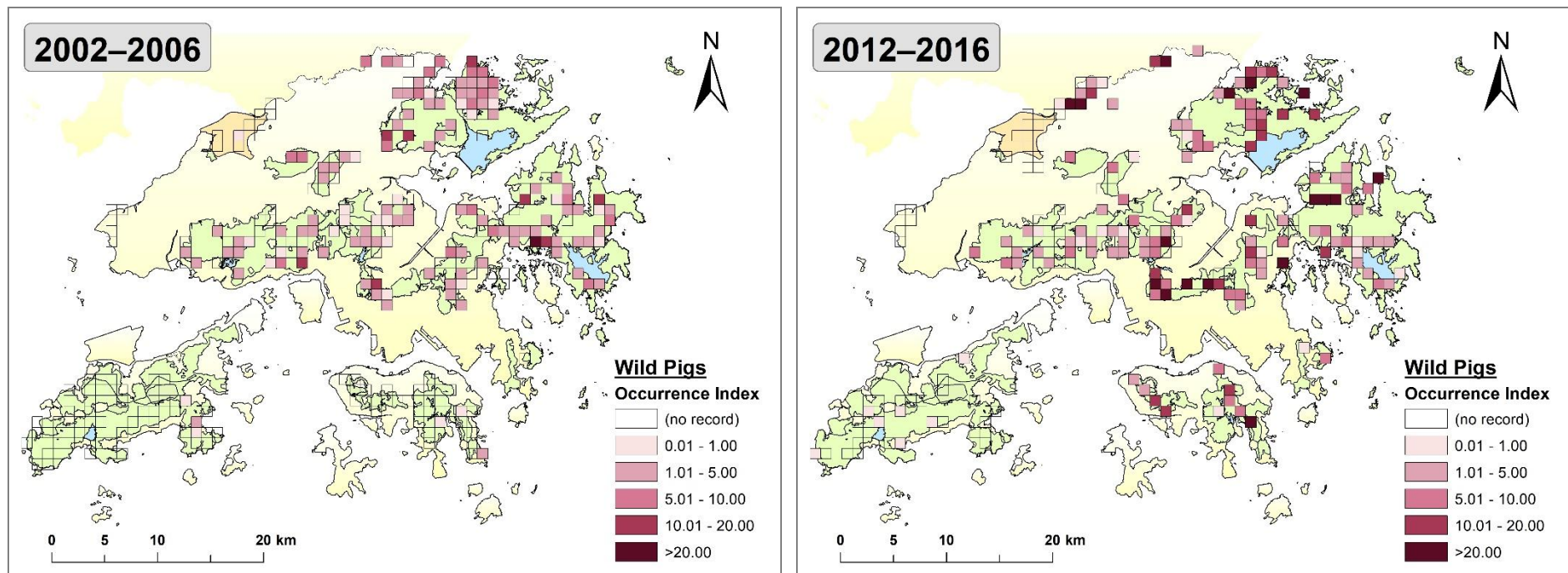
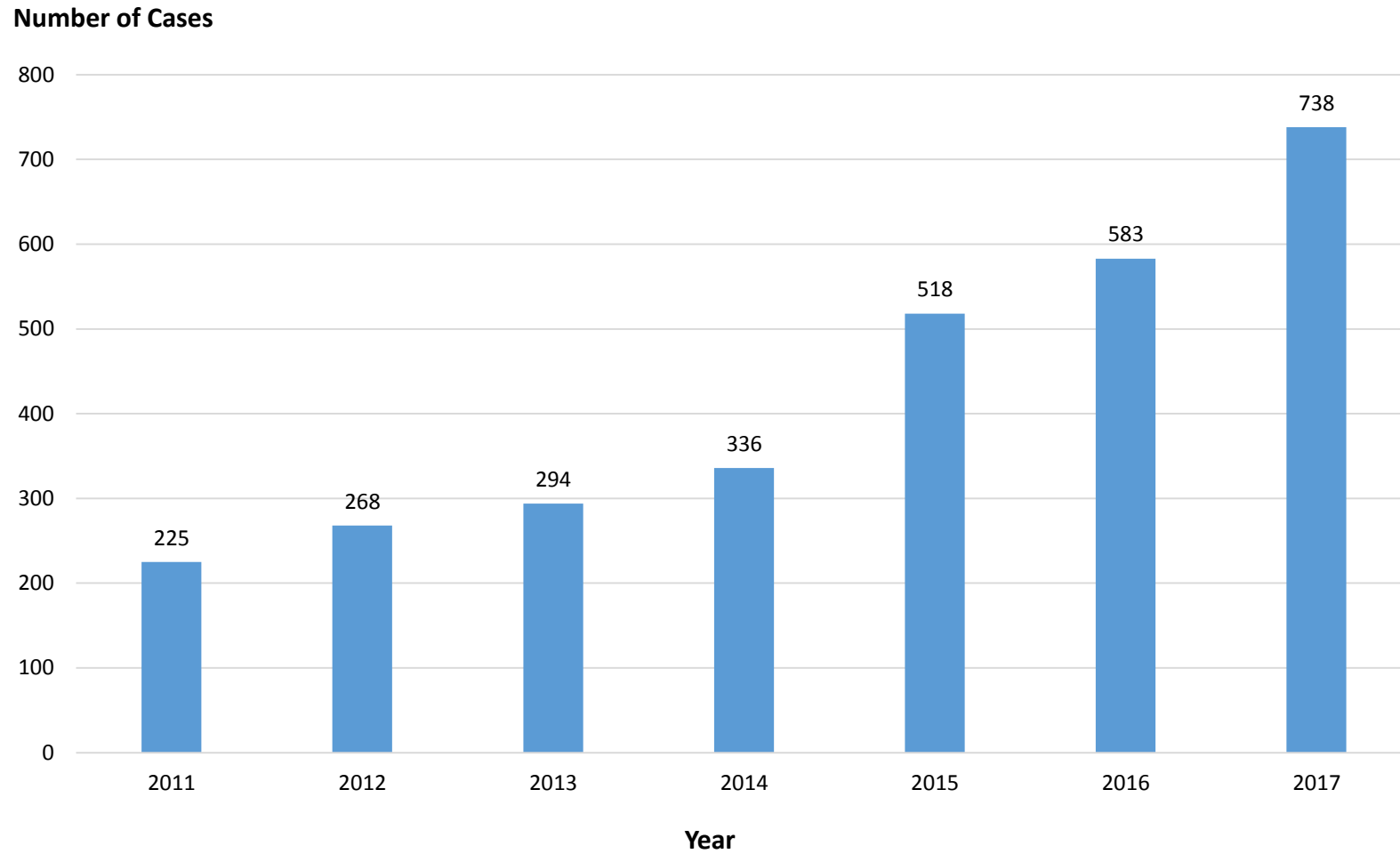


Figure 2 – Number of Wild Pig Complaints/Reports received by AFCD



Annex - Capture and Contraception/Relocation Programme for Wild Pigs (1 October 2017 – 4 December 2018)

Date of capture	Location	District	Number of wild pigs captured	Number of wild pigs received GonaCon™	Number of wild pigs received surgery	Number of wild pigs relocated*
Oct-17	Carmel Road, Ma Hang	Southern	4	2	0	1
	Stanley Plaza	Southern	4	1	0	2
Dec-17	Sassoon Road	Southern	5	0	0	5
	Carmel Road and Stanley Plaza	Southern	4	0	0	4
Jan-18	Shek Pai Wan	Southern	6	0	0	4
	Shek Pai Wan	Southern	3	0	0	3
	Chung Hom Kok	Southern	5	0	0	5
Feb-18	Stanley Plaza	Southern	3	2	0	3
	Chung Hom Kok	Southern	4	2	0	0
	Carmel Road, Ma Hang	Southern	6	3	0	6
Mar-18	Coombe Road	Wan Chai	0	0	0	0
	Carmel Road, Ma Hang	Southern	2	1	0	2
	Coombe Road	Wan Chai	5	3	0	5
Apr-18	Shek Pai Wan	Southern	4	2	0	4
	South Bay Road	Southern	3	1	0	3
	Nam Fung Road	Southern	2	1	0	2

Date of capture	Location	District	Number of wild pigs captured	Number of wild pigs received GonaCon™	Number of wild pigs received surgery	Number of wild pigs relocated*
	Chung Hom Kok	Southern	5	1	0	4
May-18	Dragon Leaping Trail	Eastern	2	0	0	0
	Sham Wan Road	Southern	5	0	3	0
Jun-18	Ocean Park	Southern	1	0	1	0
	Braemar Hill, North Point	Eastern	3	1	0	3
Jul-18	The University of Hong Kong	Central and Western	2	0	0	2
	King San Path	Tuen Mun	3	2	0	3
	Ocean Park	Southern	2	0	0	2
	The University of Hong Kong	Central and Western	1	1	0	1
Aug-18	Ocean Park	Southern	3	1	0	3
	Piper's Hill	Sha Tin	6	2	2	0
	Peel Rise	Central and Western	0	0	0	0
Sep-18	Coombe Road	Wan Chai	3	3	0	0
	Peel Rise	Central and Western	5	4	0	5

Date of capture	Location	District	Number of wild pigs captured	Number of wild pigs received GonaCon™	Number of wild pigs received surgery	Number of wild pigs relocated*
Oct-18	Piper's Hill	Sha Tin	4	3	0	0
	Che Ha	Tai Po	3	2	0	3
Nov-18	Chung Hom Kok	Southern	5	2	0	4
	Carmel Road, Ma Hang	Southern	2	2	0	2
	Aberdeen Country Park	Southern	8	3	0	5
Dec-18 (as at 4 Dec-18)	Pak Fuk Road Park	Eastern	4	1	0	4
Total			127	46	6	90

* Some of them had received contraceptive treatment before relocation.