

28 November 2017

Rodent Situation and Control Strategy in Hong Kong

Pest Control Advisory Section
Food and Environmental Hygiene Department

Commensal Rodents in Hong Kong

- ▶ *Rattus norvegicus*
(Sewer rat)



- ▶ *Rattus rattus*
(Roof rat)



- ▶ *Mus musculus*
(House mouse)



Public Health Importance

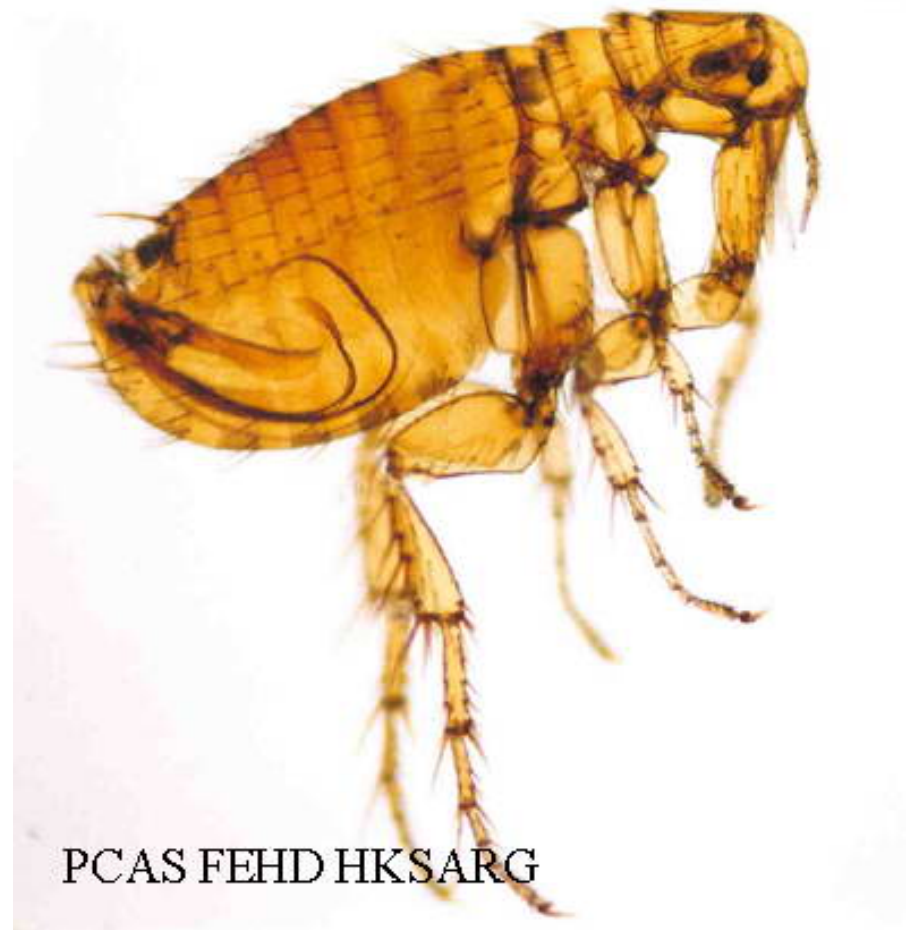
- ▶ Rodents are carriers of viral, rickettsial and bacterial diseases. The causative agents enter our body:
 - through the ectoparasites of rodent (e.g. fleas, ticks and mites)
 - by food or water contaminated by rodent excreta
 - through direct contact with rodent excreta
 - by rat bite

Rodent-borne Diseases

- ▶ **Plague (鼠疫)**
- ▶ Hantaviral infection (漢坦病毒感染)
- ▶ Leptospirosis (鈎端螺旋體病)
- ▶ Rickettsial Diseases (立克次體病)
 - Urban typhus (城市斑疹傷寒)
 - Scrub typhus (叢林斑疹傷寒)
 - Spotted fever (斑疹熱)

Vector of Plague

- ▶ *Xenopsylla cheopis* (oriental rat flea)
 - Worldwide distribution



Vector Survey by FEHD

- ▶ Rat-flea Survey (鼠蚤調查)
- ▶ Rodent Infestation Survey (鼠患調查)

Rat-flea Survey

- ▶ Biotope-based survey
- ▶ Rat-flea Index (RFI) (鼠蚤指數) =

$$\frac{\text{No. of flea collected from examined rodent}}{\text{No. of rodent examined}}$$

Rat-flea Survey

- ▶ A RFI greater than **1** implies the area under survey is susceptible to plague transmission once the plague antigen is introduced into the rodent population.
- ▶ Immediate flea control should be done in the entire biotope.

Rat-flea Survey

► Scope

- All Port Areas: Airport & other ports
- Strategic Biotopes: on yearly basis
 - 2016 & 2017 – Industrial Area

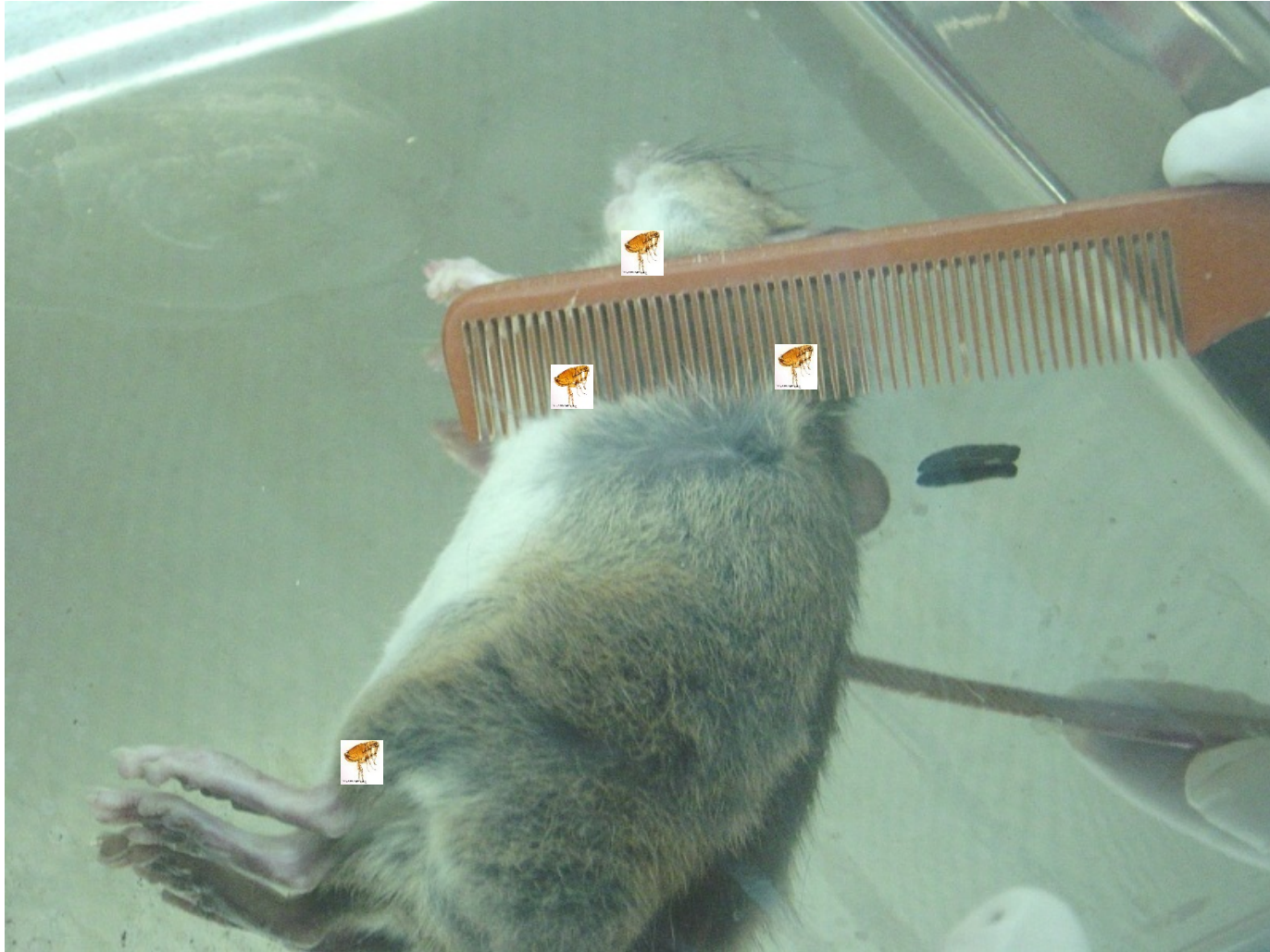
► Capture rodents by rat cages set in selected locations

► Rodents collected

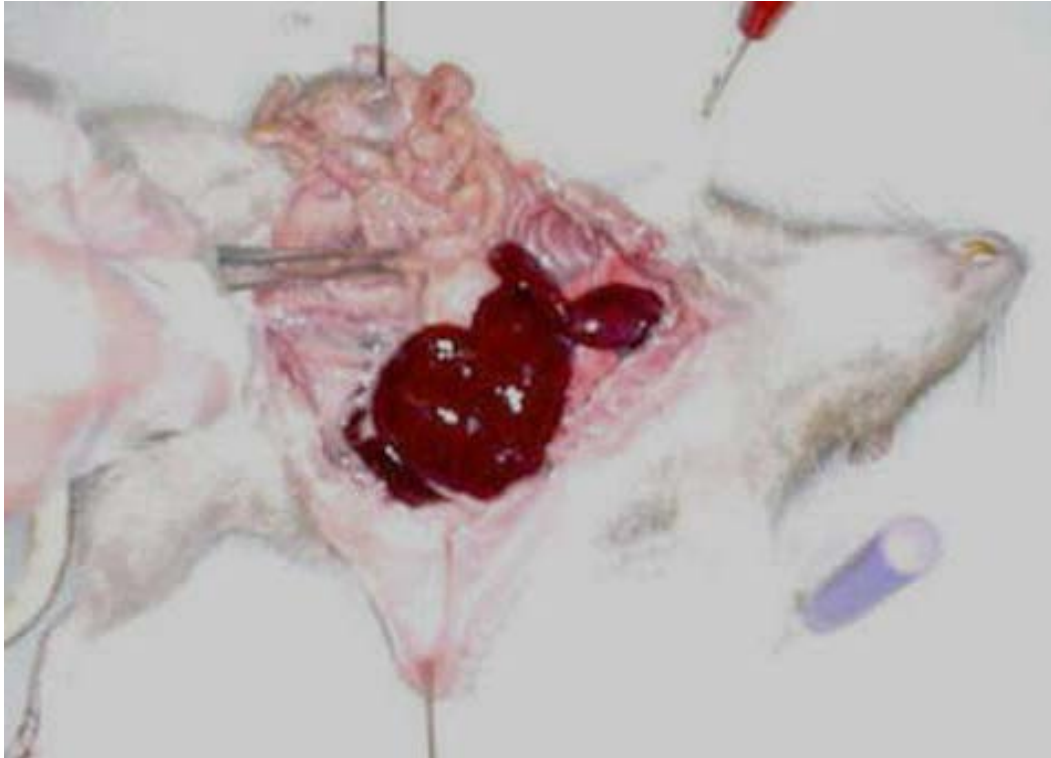
- fleas on body?
- plague-infected symptoms?



Rat-flea Survey



Rat-flea Survey



- Inoculation site
- Buboes
- Capillary infusion
- Partially collapsed lung with nodules
- Few small sites of necrosis on liver
- “Salt and Pepper” spleen

RFI – Port Areas

- ▶ 31 Ports in 6 Groups
 - Hong Kong International Airport
 - Cross Boundary Check Points on Land (7)
 - Private Cargo Working Areas (4)
 - Cross Boundary Ferry Terminals (4)
 - Container Terminals (9)
 - Public Cargo Working Areas (6)

RFI – Strategic Biotoxes

Year	Biotope (生活小區)	Rat-flea Index
2016	Industrial Areas	0.79
2015	Cooked Food Hawker Bazaars/Markets/Centres	0.18
2014	Rural/Semi-rural Villages	0.02
2013	Rear Lanes	0.09
2012	Markets	0.19
	Wholesale Food Markets	0.60
2011	Squatter Areas	0.17
	Fixed Pitch Hawker Stalls	0.64
2010	Typhoon Shelters	0.26
2009	Typhoon Shelters	0.60
2008	Country Parks	0.00
	Reservoirs	0.00
2007	Rural Villages	0.05
	Typhoon Shelters	1.17
2006	Factory Buildings	0.45
	Multi-purpose Buildings	0.00
2005	Rural/Semi-rural Villages	0.05
2004	Fixed Pitch Hawker Stalls	0.09
2003	Shopping Centres	0.27
2002	Rear Lanes	0.57
2001	Wholesale Markets	0.31
2000	Market Buildings	0.89

Rodent Infestation Survey

- ▶ To assess and monitor the rodent situations in 19 districts
- ▶ 41 target areas covering 3 main biotopes
 - Industrial areas
 - Residential areas
 - Rear lanes
- ▶ Hanging baits (non-poisonous food materials) at selected locations



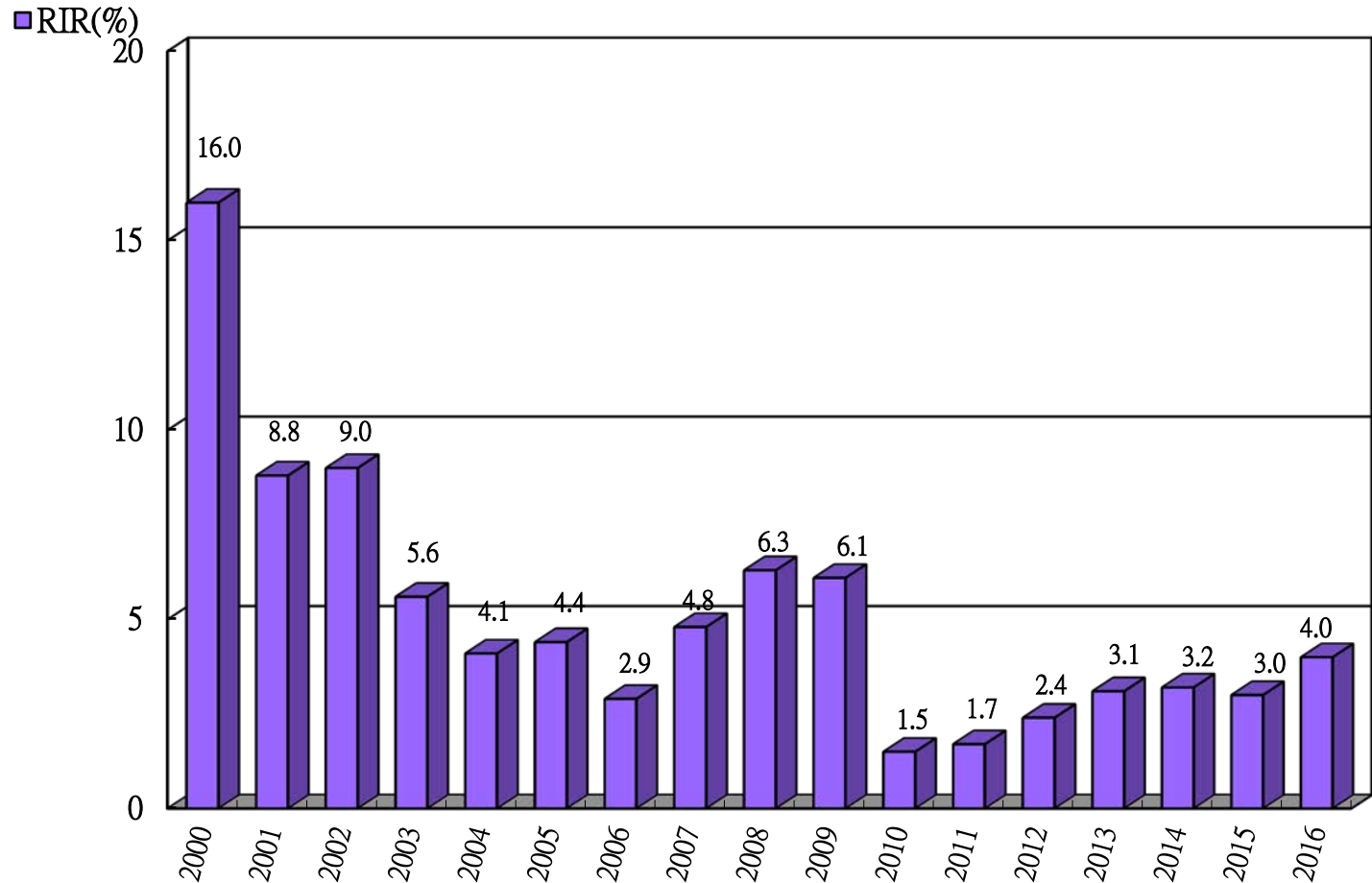
Rodent Infestation Survey

► Rodent Infestation Rate =

$$\frac{\text{No. of positive baiting points} \times 100\%}{\text{No. of baits retrieved}}$$

RIR	Level of Infestation
0% to <10%	Level 1
10% to <20%	Level 2
<u>>20%</u>	Level 3

Rodent Infestation Rate



Rodent Control

- ▶ Environmental hygiene
- ▶ Trapping
- ▶ Rodenticide
 - Chronic anti-coagulant
 - Brodifacoum, Bromadiolone, Coumatetralyl, etc.
- ▶ Proofing
- ▶ Education & Publicity

Rodent Control

防鼠工作做得好 鼠患問題自然冇
Eliminate Rodent Nuisance Take Preventive Measures

妥善處理垃圾及貯存食物
Dispose of rubbish and store food properly

清除雜物
Remove disused articles

封好渠口、門腳和牆窿
Seal or install grating to openings and install metal kicking plate to doors

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防鼠工作做得好 鼠患問題自然冇
Eliminate Rodent Nuisance Take Preventive Measures

食物環境衛生署
Food and Environmental Hygiene Department

防鼠工作做得好 鼠患問題自然冇
Eliminate Rodent Nuisance Take Preventive Measures

食物業處所 防治鼠患須知
Prevention and Control of Rodents in Food Premises

食物環境衛生署
Food and Environmental Hygiene Department

防鼠工作做得好 鼠患問題自然冇
Eliminate Rodent Nuisance Take Preventive Measures

貨物裝卸區 防治鼠患須知
Prevention and Control of Rodents in Cargo Handling Areas

食物環境衛生署
Food and Environmental Hygiene Department

防鼠工作做得好 鼠患問題自然冇
Eliminate Rodent Nuisance Take Preventive Measures

街市/固定小販攤檔/小販市場 防治鼠患須知
Prevention and Control of Rodents in Markets / Fixed Pitch Hawker Stalls / Hawker Bazaars

食物環境衛生署
Food and Environmental Hygiene Department

防鼠工作做得好 鼠患問題自然冇
Prevent Disease Eliminate Rodent Nuisance

本署已印制多款鼠患預防及處理指南，並會在屋宇管理處展覽。Education posters and leaflets on rodent proofing are available for public. Exhibitions will also be held in housing estates.

查詢詳情，請致電
For enquiries or further information, please call 熱線 2868 0000

或瀏覽本署網頁
Or browse our website www.fehd.gov.hk

防鼠工作做得好 鼠患問題自然冇
Prevent Disease Eliminate Rodent Nuisance

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Flea Control

- ▶ Rat Flea Index > 1.0
- ▶ Flea control (+ Rodent control)
- ▶ Residual insecticide
 - Deltamethrin
 - Rodent harbourages, burrows, runways, etc.
 - Effective for 2–3 months

Concerted Efforts

- ▶ FEHD Anti-rodent Campaign (2 phases/year)
- ▶ Inter-departmental Working Group on Pest Prevention and Control
 - FEHD + 23 member bureaux/departments
 - Notified of results of RFS & RIS
 - Follow up on rodent control work in their managed areas

THANK YOU