Vector Prevention and Control for Chikungunya

Food and Envronmental Hygiene Department

28 July 2025

Aedes Group

- Egg:
  - Water-proofed egg shell, able to resist desiccation
  - Singly on soil or in container

- Larval habitat:
  - Floodwater, natural or artificial container

Aedes albopictus 白紋伊蚊

- Wide distribution in Hong Kong
- Also known as Asian tiger mosquito
- Eggs
  - Laid singly on ground or above water line
  - Resist periods of desiccation
- All small water collections
  - Tree-holes, empty cans, bamboo stumps, tyres, saucers, etc.

Aedes albopictus

- Mesonotum(中胸背板) marked with a longitudinal white line; legs with white strips
- Day biter (2 hours after sunrise and 2 hours before sunset)
- Exophilic. Rest in shady undergrowth, sometimes enter houses
- Limited flight range: ~100m
- Seldom laid all eggs in a single oviposition. Moving from place to place and only leaving behind a few eggs each time

Aedes albopictus

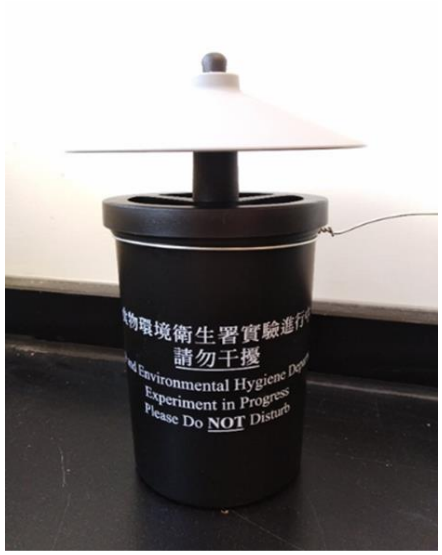
Common breeding places

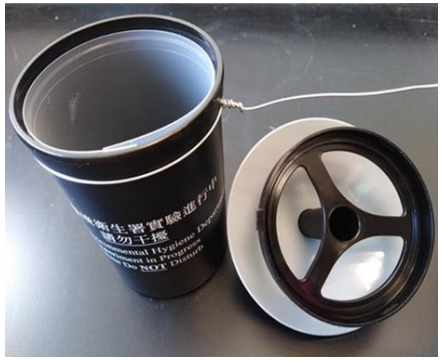
Common breeding places

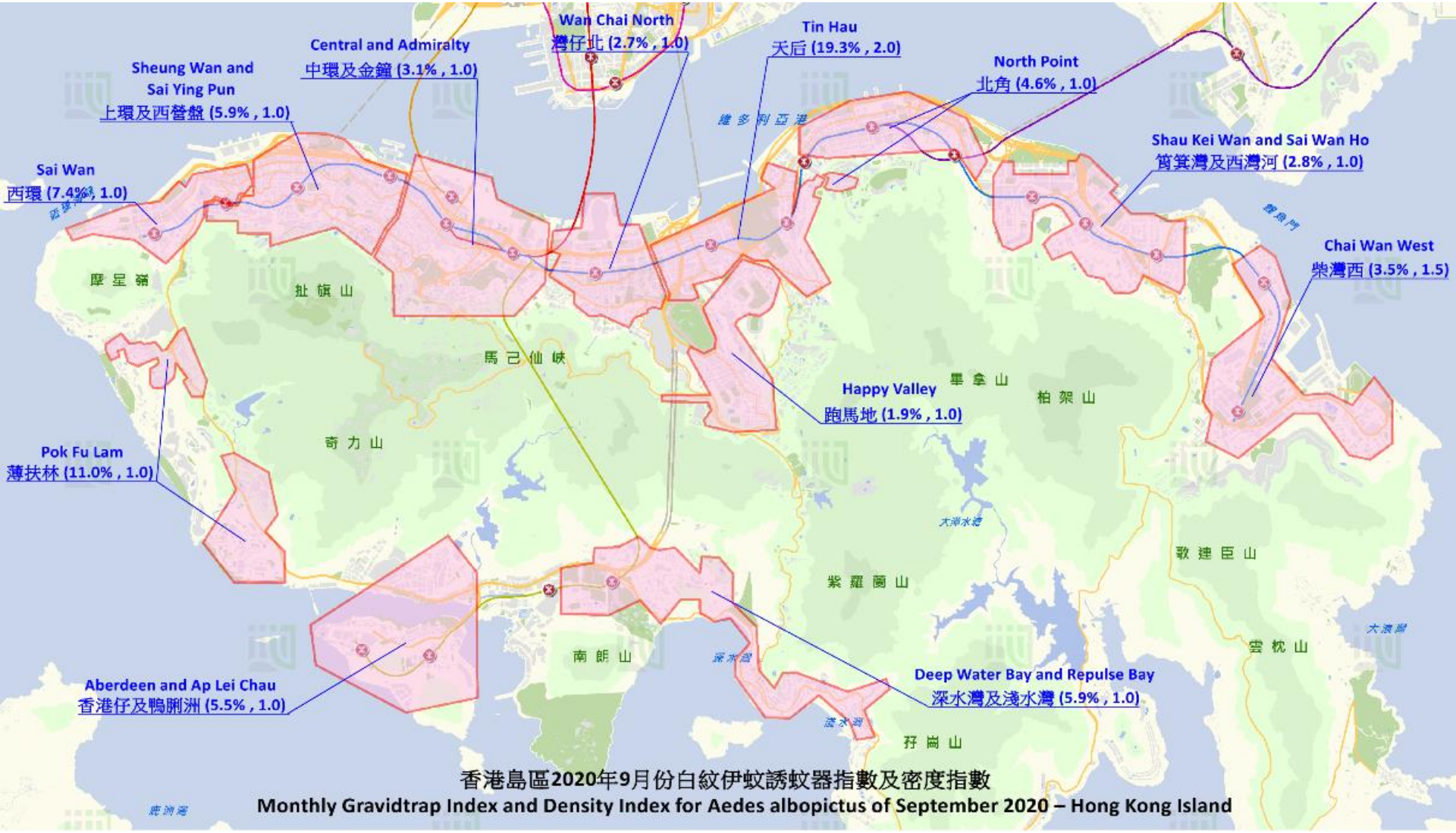
Common breeding places

Surveillance by Gravidtrap

- Deployed as a surveillance tool to replace ovitrap since April 2020
  - Community
    - 64 areas (since Jan 2021)
    - About 55 gravidtraps in each area
  - Port areas – 31 ports in 6 groups
  - Each of 100 m apart

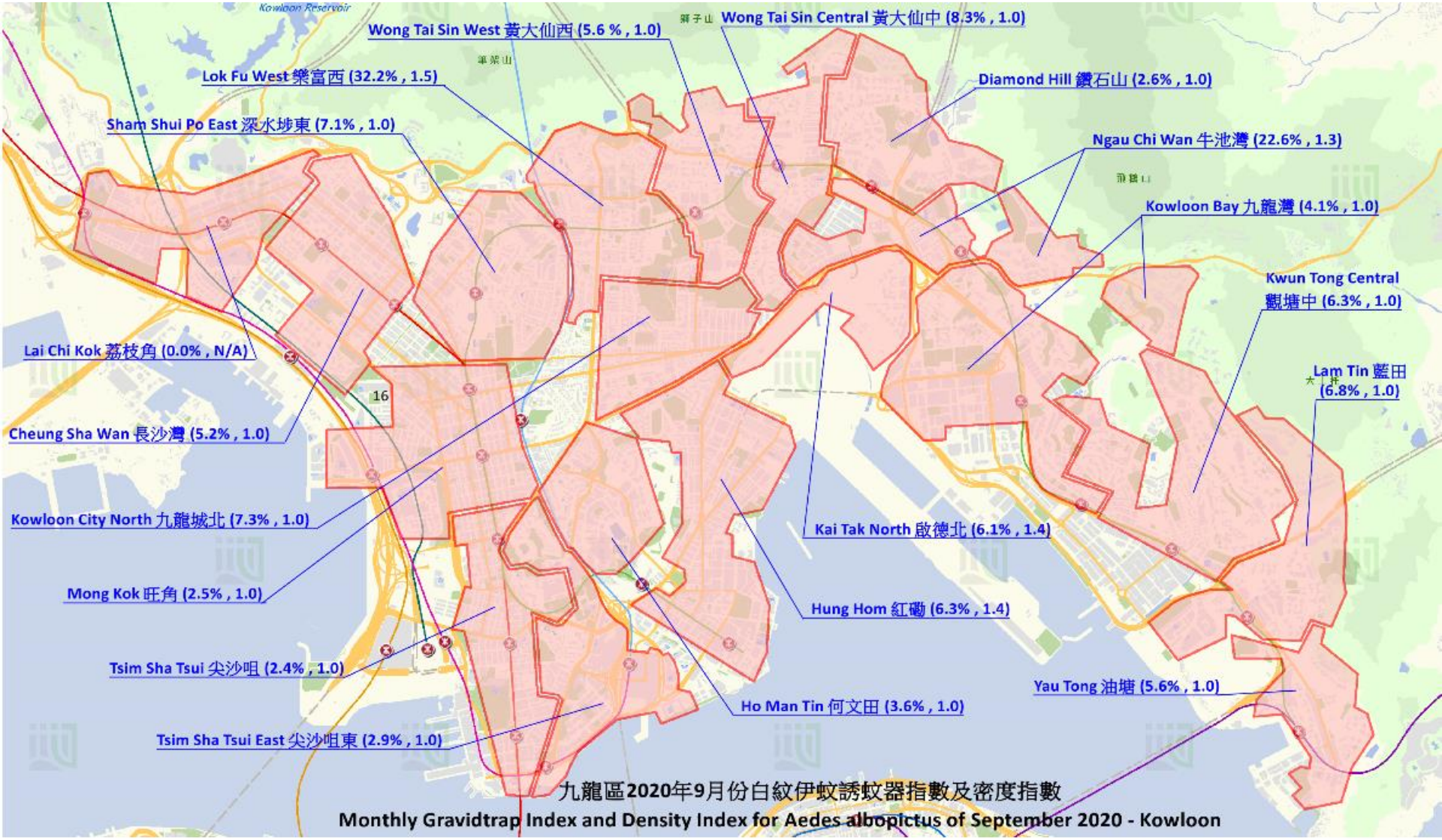


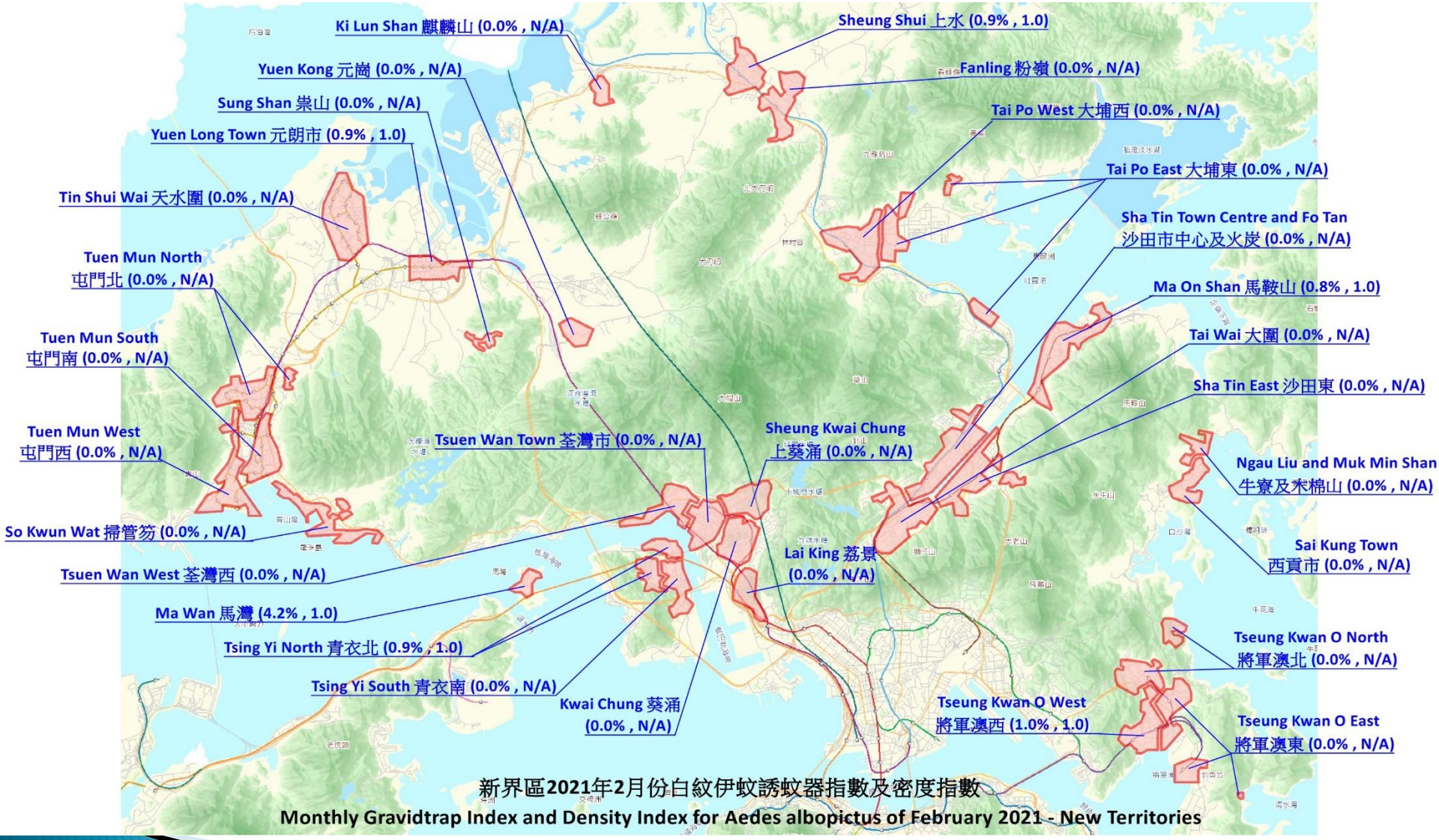



Wan Chai North
灣仔北 (2.7% , 1.0)
Central and Admiralty
中環及金鐘 (3.1% , 1.0)
Tin Hau
天后 (19.3% , 2.0)
North Point
北角 (4.6% , 1.0)
Sheung Wan and
Sai Ying Pun
上環及西營盤 (5.9% , 1.0)
Shau Kei Wan and Sai Wan Ho
筲箕灣及西灣河 (2.8% , 1.0)
Sai Wan
西環 (7.4% , 1.0)
Chai Wan West
柴灣西 (3.5% , 1.5)
摩星嶺
扯旗山
馬己仙峽
畢拿山
柏架山
Happy Valley
跑馬地 (1.9% , 1.0)
Pok Fu Lam
薄扶林 (11.0% , 1.0)
奇力山
大潭水塘
敦建臣山
紫羅蘭山
雲枕山
南朗山
Aberdeen and Ap Lei Chau
香港仔及鴨脷洲 (5.5% , 1.0)
Deep Water Bay and Repulse Bay
深水灣及淺水灣 (5.9% , 1.0)
孖崗山
香港島區2020年9月份白紋伊蚊誘蚊器指數及密度指數
Monthly Gravidtrap Index and Density Index for Aedes albopictus of September 2020 – Hong Kong Island

離島區2020年9月份白紋伊蚊誘蚊器指數及密度指數

Monthly Gravidtrap Index and Density Index for Aedes albopictus of September 2020 - Islands


Kowloon Reservoir
Wong Tai Sin West 黃大仙西 (5.6 % , 1.0)
Wong Tai Sin Central 黃大仙中 (8.3% , 1.0)
Lok Fu West 樂富西 (32.2% , 1.5)
Diamond Hill 鑽石山 (2.6% , 1.0)
Sham Shui Po East 深水埗東 (7.1% , 1.0)
Ngau Chi Wan 牛池灣 (22.6% , 1.3)
Kowloon Bay 九龍灣 (4.1% , 1.0)
Kwun Tong Central
觀塘中 (6.3% , 1.0)
Lai Chi Kok 荔枝角 (0.0% , N/A)
Lam Tin 藍田
(6.8% , 1.0)
16
Cheung Sha Wan 長沙灣 (5.2% , 1.0)
Kowloon City North 九龍城北 (7.3% , 1.0)
Kai Tak North 啟德北 (6.1% , 1.4)
Mong Kok 旺角 (2.5% , 1.0)
Hung Hom 紅磡 (6.3% , 1.4)
Tsim Sha Tsui 尖沙咀 (2.4% , 1.0)
Yau Tong 油塘 (5.6% , 1.0)
Ho Man Tin 何文田 (3.6% , 1.0)
Tsim Sha Tsui East 尖沙咀東 (2.9% , 1.0)
九龍區2020年9月份白紋伊蚊誘蚊器指數及密度指數
Monthly Gravidtrap Index and Density Index for Aedes albopictus of September 2020 - Kowloon


Ki Lun Shan 麒麟山 (0.0% , N/A)
Sheung Shui 上水 (0.9% , 1.0)
Yuen Kong 元崗 (0.0% , N/A)
Fanling 粉嶺 (0.0% , N/A)
Sung Shan 崇山 (0.0% , N/A)
Tai Po West 大埔西 (0.0% , N/A)
Yuen Long Town 元朗市 (0.9% , 1.0)
Tai Po East 大埔東 (0.0% , N/A)
Tin Shui Wai 天水圍 (0.0% , N/A)
Sha Tin Town Centre and Fo Tan
沙田市中心及火炭 (0.0% , N/A)
Tuen Mun North
屯門北 (0.0% , N/A)
Ma On Shan 馬鞍山 (0.8% , 1.0)
Tai Wai 大圍 (0.0% , N/A)
Tuen Mun South
屯門南 (0.0% , N/A)
Sha Tin East 沙田東 (0.0% , N/A)
Tuen Mun West
屯門西 (0.0% , N/A)
Tsuen Wan Town 荃灣市 (0.0% , N/A)
Sheung Kwai Chung
上葵涌 (0.0% , N/A)
Ngau Liu and Muk Min Shan
牛寮及木棉山 (0.0% , N/A)
So Kwun Wat 掃管笏 (0.0% , N/A)
Lai King 荔景
(0.0% , N/A)
Sai Kung Town
西貢市 (0.0% , N/A)
Tsuen Wan West 荃灣西 (0.0% , N/A)
Ma Wan 馬灣 (4.2% , 1.0)
Tseung Kwan O North
將軍澳北 (0.0% , N/A)
Tsing Yi North 青衣北 (0.9% , 1.0)
Tsing Yi South 青衣南 (0.0% , N/A)
Kwai Chung 葵涌
(0.0% , N/A)
Tseung Kwan O West
將軍澳西 (1.0% , 1.0)
Tseung Kwan O East
將軍澳東 (0.0% , N/A)
新界區2021年2月份白紋伊蚊誘蚊器指數及密度指數
Monthly Gravidtrap Index and Density Index for Aedes albopictus of February 2021 - New Territories

Four Indices will be enumerated

1. **Area Gravidtrap Index** for *Aedes albopictus*
2. **Area Density Index** for *Aedes albopictus*
3. **Monthly Gravidtrap Index** for *Aedes albopictus*
4. **Monthly Density Index** for *Aedes albopictus*

- The **AGI** and **ADI** indicate the extensiveness of the distribution and density of Aedine mosquitoes respectively in that particular survey area
- The **MGI** and **MDI** are enumerated by pooling together all AGIs and ADIs of the same month reflecting the territory-wide situation of *Aedes albopictus*.

Mosquito Control

Source Reduction

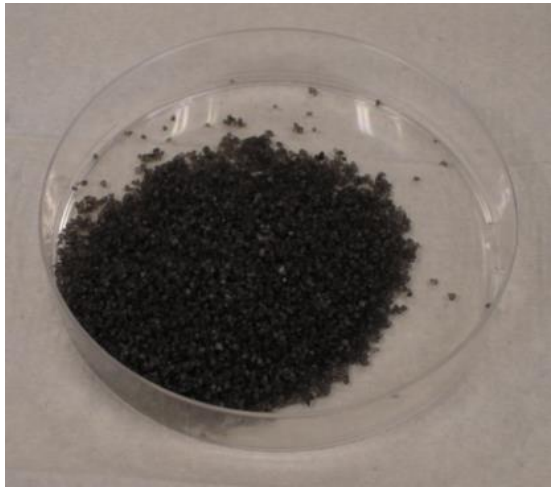
- Both mosquito larvae and pupae are aquatic
- Eliminate breeding places
- Stagnant water management
- Make environment less favourable to mosquito breeding
- Most effective and long-term control method

Mosquito Control

Larval Control

- Larvicidal oil（蚊油）
  - Hinder respiration of larvae and pupae causing suffocation
  - Evenly spread on water surface
  - Apply weekly

- Temephos（雙硫磷）
  - 1% S.G.
  - Organophosphate（有機磷類）
  - Contact poison
  - Apply weekly



- Insect Growth Regulators（昆蟲生長調節劑）
  - Juvenile hormone analogs / developmental inhibitors
  - Interference of moulting at larval / pupal stage
  - Pyriproxyfen

- *Bacillus thuringiensis israelensis H14 (B.t.i)*
  - Pro-toxin becomes effective after ingestion
  - Susceptibility depends on larval stage / dosage of ingestion
  - Biological safety: Specific, no effect on other non-target organisms
  - Environmentally friendly
  - Affected by concentration of organic matters in water
  - Higher cost

Mosquito Control

Adulticide

- Knock-down fogging
  - Immediate killing
  - Target area: Outdoor resting places
    - e.g. Dense vegetation areas, parks, dark and sheltered places, abandoned structures
  - Last < 2 days
  - Fogging machine
    - Ultra Low Volume (ULV)
  - S-bioallethrin + permethrin (e.g. Biogen™ / Topigen™ / Resigen™)

Mosquito Control

In2Care Mosquito trap

- A commercial **mosquito trapping device** that controls breeding of *Aedes albopictus* mosquitoes through the combined use of a chemical **insect growth regulator (Pyriproxyfen)** and a **biological control agent** (***Beauveria bassiana***, a fungus that parasitizes and kills insects).

- As a supplementary mosquito control measure in environments with dense vegetation, where potential mosquito breeding places may be numerous and/or difficult to be accessed.

In2Care Mosquito trap

Thank You