



Marine Parks Educational Activities Field Study report

1. Weather Conditions:

Date	(4 days before field study)	(3 days before field study)	(2 days before field study)	(1 day before field study)	(field study)
Weather conditions (Sunny / Cloudy / Rains)					
Air Temperature (Maximum and Minimum)					

2. Tidal Conditions:

Time of Tide	Predicted Tide	Real Time Tide	Remarks

Daily Weather Summary and Radiation Level : <http://www.hko.gov.hk/wxinfo/dailywx/dailywx.shtml>

Predicted Tidal Info: <http://www.hko.gov.hk/tide/eKLWtide.htm>

Real Time Tidal Info: http://www.hko.gov.hk/tide/marine/hko_klv.htm

3. Physical Analysis:

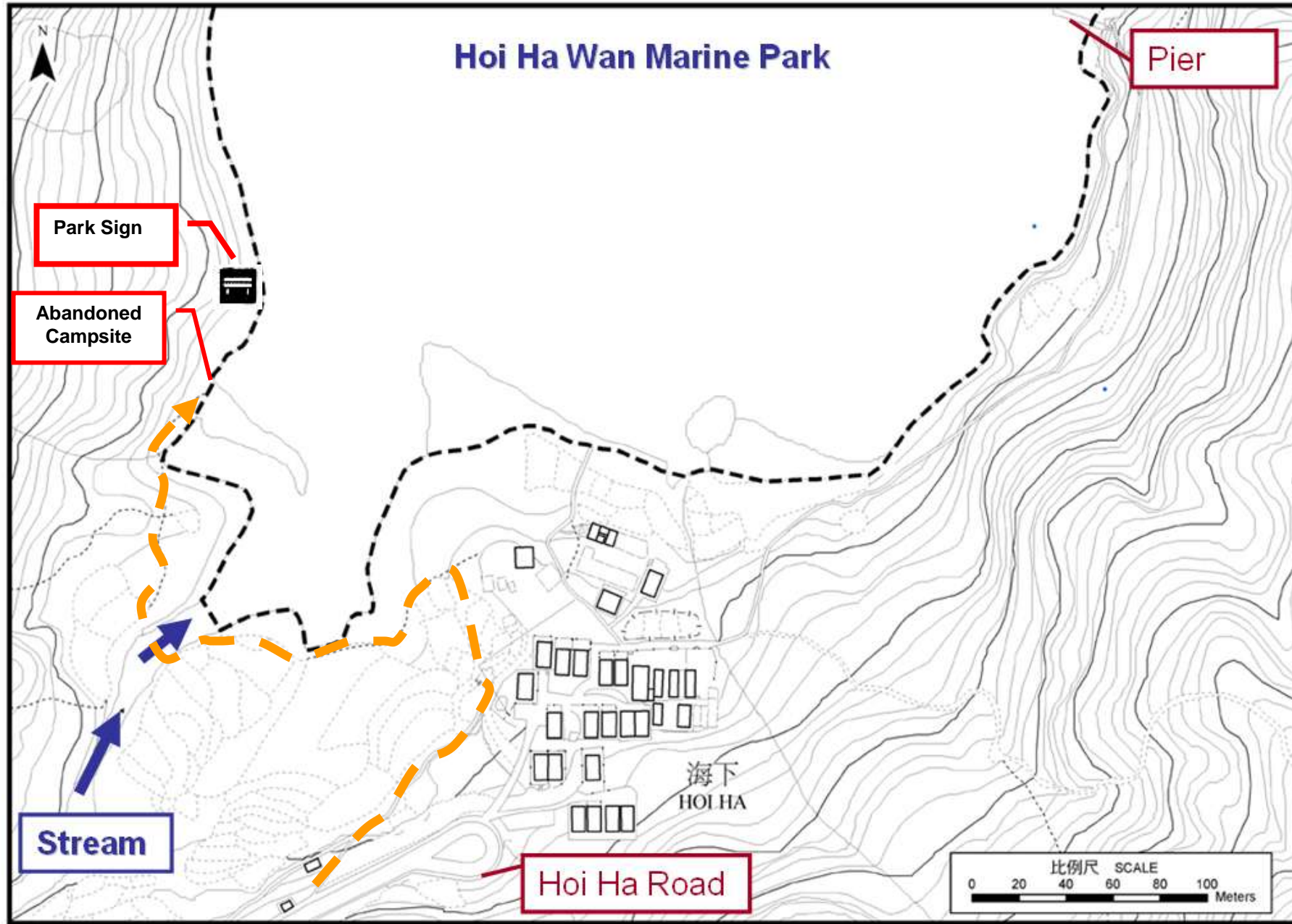
Parameters	Readings (unit)	Meters/Apparatus (model)	Remarks
Water temperature °C			
Concentration of dissolved oxygen (mg L ⁻¹)		<i>Dissolved oxygen meter</i>	
pH		<i>pH meter</i>	
Salinity (‰)		<i>Refractometer</i>	

4. Chemical Analysis

Parameters	Concentration (mg/L)	Remarks
Nitrite (NO ₂)		
Nitrate (NO ₃)		
Ammonia (NH ₃)		
Phosphate (PO ₄)		

Chemical Analysis kit used: Lovibond Tintometer® Checkit

5. Seascape Features: (Please indicate the locations of transects and quadrates)



6. Mangrove Flora Survey

Laid a 8m long transect on the mangrove stand. Record mangrove floral characteristics along the transect continuously.

		Position (m)				Root	Bark	Leaves				Flowers			Fruits		Droppers	
Intercepts ♦ a: seaward, ♦ b: landward		♦ wl : width left (perpendicular to transect) ♦ inl : intercept of transect and width left ♦ wr : width right (perpendicular to transect) ♦ inr : intercept of transect and width right				Adaptations	Color	Arrangement	Color and Shape	Avg. Length (cm)	Salt crystal on leaves	Color	No. of petals	Smell	Color and Shape	Avg. length (cm)	Color and Shape	Avg. Length (cm)
a	b	wl	inl	wr	inr													
1											Yes /No			Yes /No				
2											Yes /No			Yes /No				
3											Yes /No			Yes /No				
4											Yes /No			Yes /No				
5											Yes /No			Yes /No				
6											Yes /No			Yes /No				
7											Yes /No			Yes /No				
8											Yes /No			Yes /No				
9											Yes /No			Yes /No				
10											Yes /No			Yes /No				

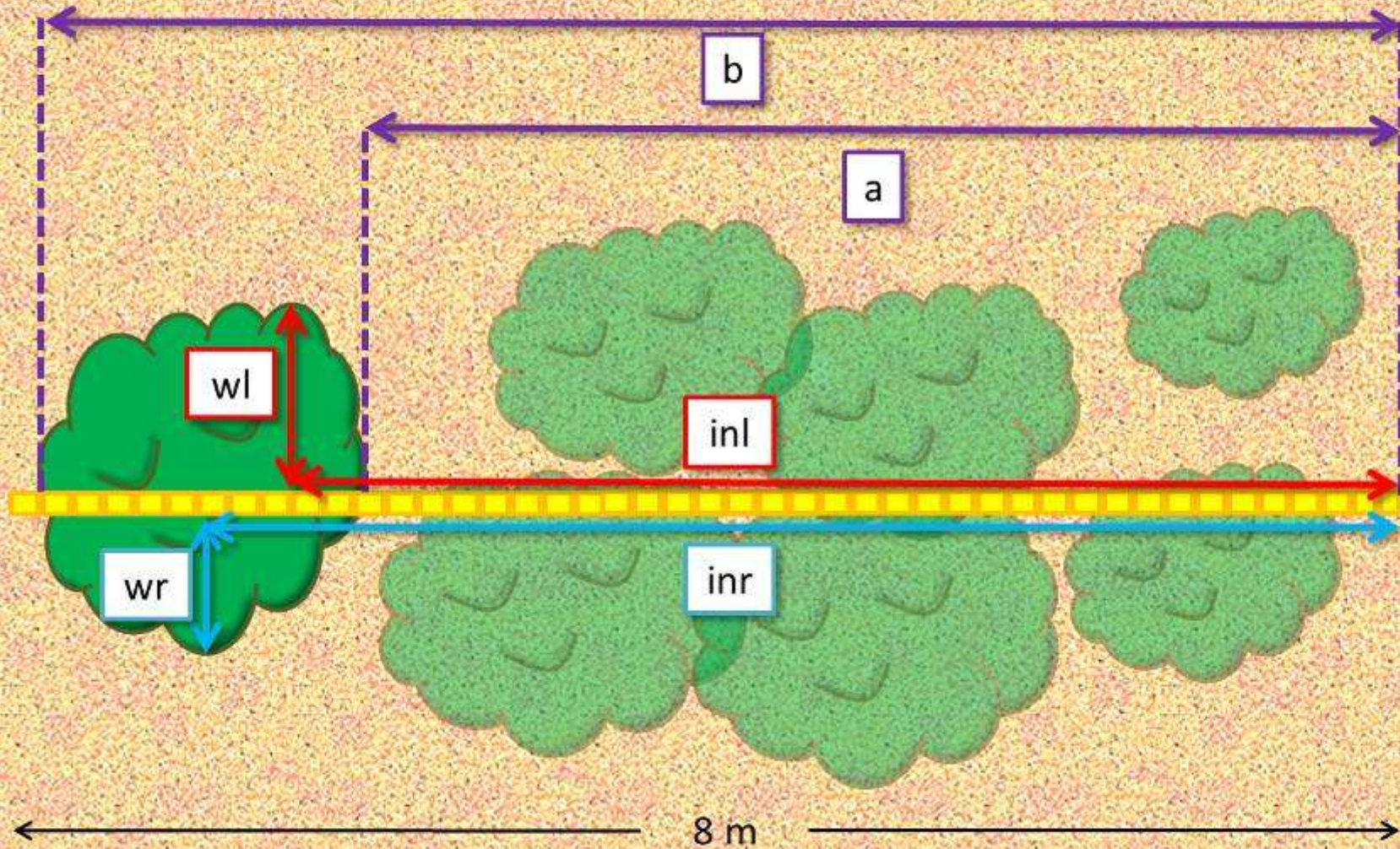
Adaptations of Root: Pneumatophore? Prop roots? Knee joints? Buttress roots? Distinctive lenticels?

Arrangement of leaves: Alternate? Opposite or Spirally arranged?

Shape of leaves: Oval, elongated, apex acute or blunt? Record by taking photo or sketching

Average Length: Record the mean value of 3 mature leaves/ fruiting structure

真紅樹植物調查
Survey on true mangrove



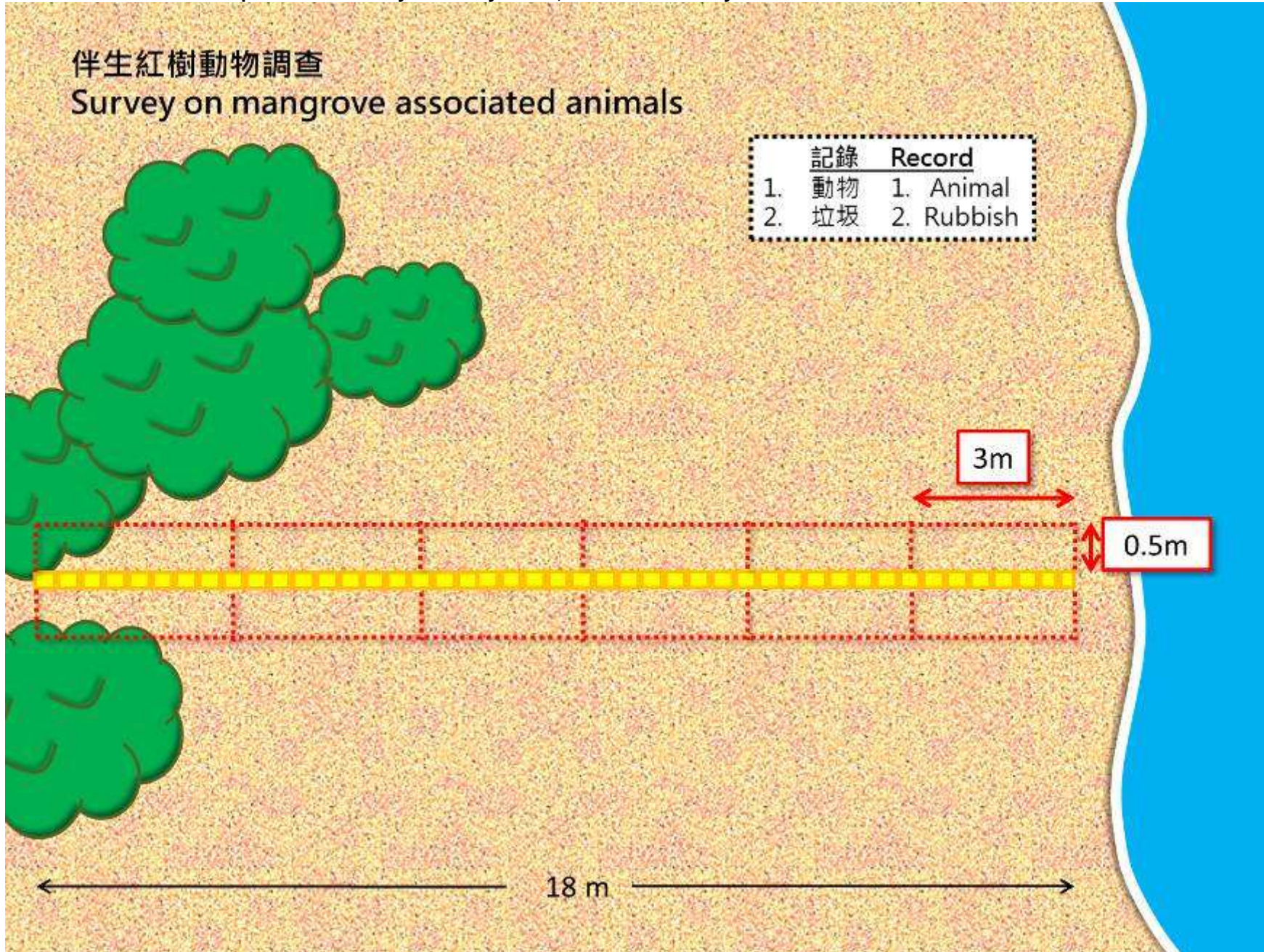
7 Mangroves Fauna Survey

- Laid a 18m transect on the beach extend from the seashore to the backshore mangroves.
- Observe all flora and fauna along transect 0.5m away from transect, i.e. a belt transect with 1 m wide
- Laid three 1m X 1m quadrats randomly on sandy shore, count and identify fauna found.

伴生紅樹動物調查

Survey on mangrove associated animals

記錄	Record
1. 動物	1. Animal
2. 垃圾	2. Rubbish



Cont 7.

Belt transect (Length: 18 m (1800 cm) Width : 1 m (100 cm))

Pls record the number of fauna found in the corresponding Sections of Belt Transect

Sections of Belt Transect (m)		0-3	3-6	6-9	9-12	12-15	15-18
Description:		<input type="checkbox"/> Mangroves / Seaweeds <input type="checkbox"/> Sandy shore <input type="checkbox"/> Rocky shore	<input type="checkbox"/> Mangroves / Seaweeds <input type="checkbox"/> Sandy shore <input type="checkbox"/> Rocky shore	<input type="checkbox"/> Mangroves / Seaweeds <input type="checkbox"/> Sandy shore <input type="checkbox"/> Rocky shore	<input type="checkbox"/> Mangroves / Seaweeds <input type="checkbox"/> Sandy shore <input type="checkbox"/> Rocky shore	<input type="checkbox"/> Mangroves / Seaweeds <input type="checkbox"/> Sandy shore <input type="checkbox"/> Rocky shore	<input type="checkbox"/> Mangroves / Seaweeds <input type="checkbox"/> Sand shore <input type="checkbox"/> Rocky shore
Sessile Animals	Barnacles (藤壺)						
	Stalked barnacles (有柄藤壺)						
	Rock oyster (石蠔)						
	Sea anemone (海葵)						
Gastropods	<i>Batillaria</i> sp (灘棲螺)						
	<i>Cerithidea</i> sp (蟹守螺)						
	<i>Echinolittoraria</i> sp (濱螺)						
	<i>Planaxis</i> sp (平軸螺)						
	<i>Monodonta</i> sp (單齒螺)						
	<i>Nerita</i> sp (蟹螺)						
	<i>Clithon</i> sp (彩螺)						
	<i>Lunella</i> sp (月螺)						
	<i>Thais</i> sp (荔枝螺)						
	Sea Hare (海兔)						
Bivalves	<i>Fulvia</i> sp (薄殼鳥蛤)						
	<i>Geloina erosa</i> (掉地蛤)						
Crustaceans	Buddhist crab (角眼切腹蟹)						
	Ghost crab (角眼沙蟹)						
	Hermit crab (寄居蟹)						
Echinoderms	Sea urchin- <i>Salmacis sphaeroide</i> (雜色角孔海膽)						
	Starfish - <i>Archaster typicus</i> (飛白楓海星)						
Fishes	<i>Terapon jarbua</i> (釘公)						
	Mudskipper – <i>Periophthalmus cantonensis</i> (彈塗魚)						
Others							

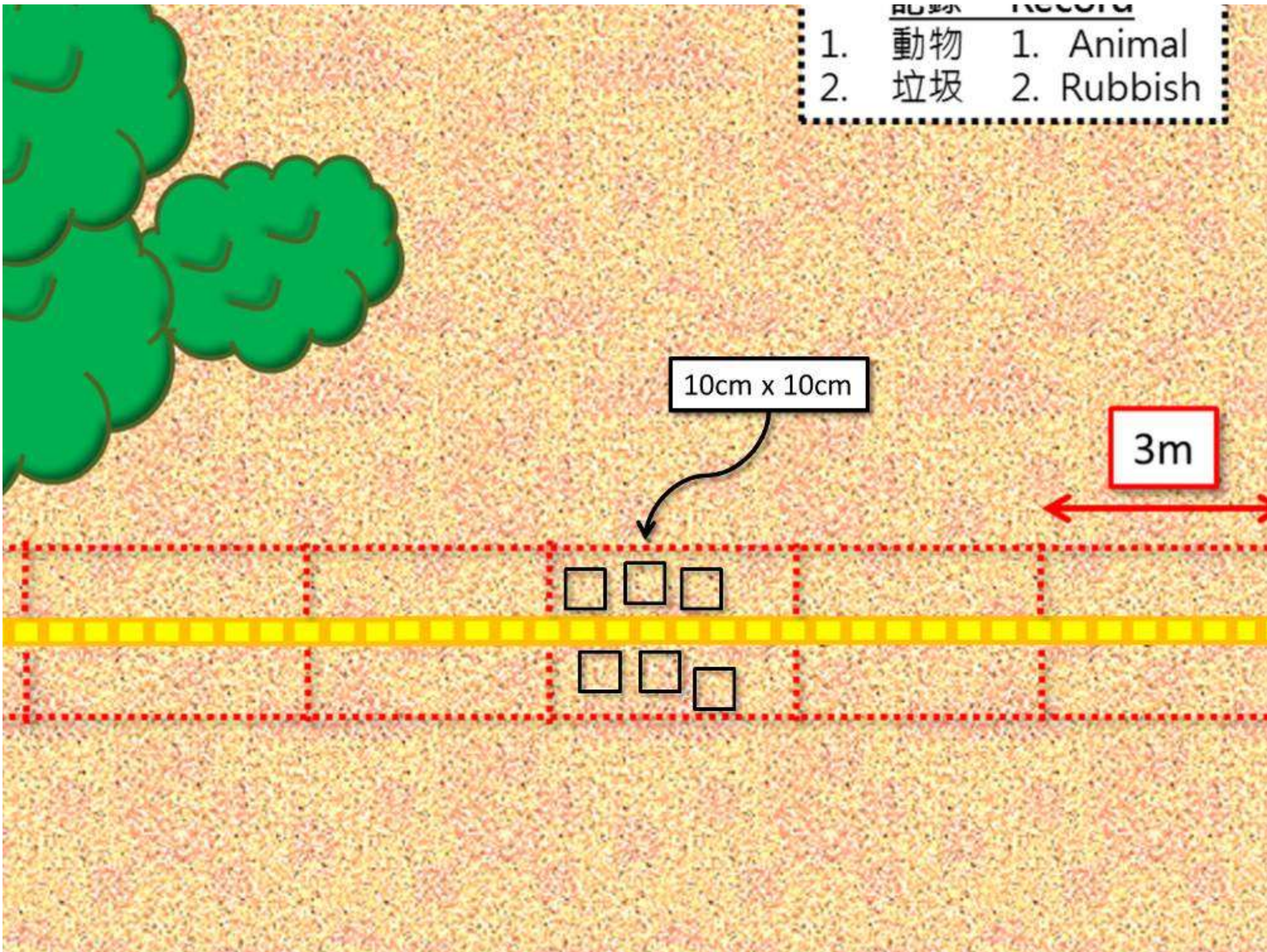
8. Litter Cover:

Sections of Belt Transect (m)		0-3	3-6	6-9	9-12	12-15	15-18
Natural ("✓" : presence)	Leaves						
	Branches						
	Dropper/seeds						
	Dried/detached seaweeds						
	Others						
Artificial ("✓" : presence)	Food packing						
	Aluminum cans						
	Plastic bottles						
	Plastic bags						
	Glass bottle						
	Others						

9 Substrate Characteristics (Roughly determine by hands)

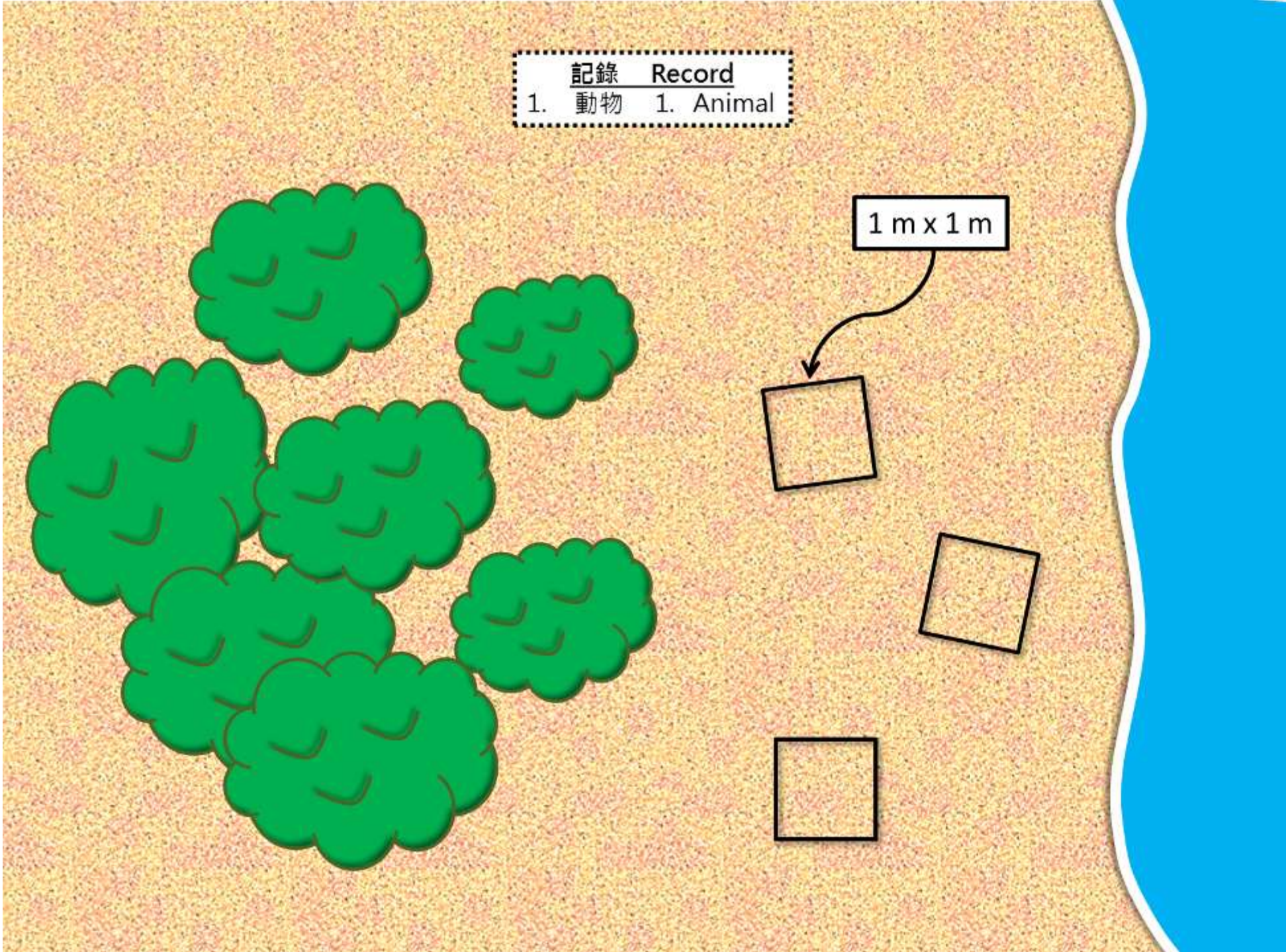
Color	Substrate Type Sand (coarse particles) / Clay (fine particles)	Remarks

動物	RECORD
1. 動物	1. Animal
2. 垃圾	2. Rubbish



	SQ1	SQ2	SQ3	SQ4	SQ5	SQ6	Mean	Total = Mean * (belt section area/ small quadrate area) = Mean * (300cm *100cm / 10cm *10cm) = Mean *300
0 - 300cm								
300 - 600cm								
600 - 900 cm								
900 - 1200 cm								
1200 - 1500 cm								
1500 - 1800 cm								

記錄 Record
1. 動物 1. Animal



Cont. 7

Square Quadrate (1m * 1m)		Q1	Q2	Q3	Others
Description:		<input type="checkbox"/> Mangroves / Seaweeds <input type="checkbox"/> Sandy shore <input type="checkbox"/> Tide Pool	<input type="checkbox"/> Mangroves / Seaweeds <input type="checkbox"/> Sandy shore <input type="checkbox"/> Tide Pool	<input type="checkbox"/> Mangroves / Seaweeds <input type="checkbox"/> Sandy shore <input type="checkbox"/> Tide Pool	
Sessile Animals	Barnacles (藤壺)				
	Stalked barnacles (有柄藤壺)				
	Rock oyster (石蠔)				
	Sea anemone (海葵)				
Gastropods	Batillaria sp (灘棲螺)				
	Cerithidea sp (蟹守螺)				
	Echinolittoraria sp (濱螺)				
	Planaxis sp (平軸螺)				
	Monodonta sp (單齒螺)				
	Nerita sp (蜆螺)				
	Clithon sp (彩螺)				
	Lunera sp (月螺)				
	Thais sp (荔枝螺)				
	Sea Hare (海兔)				
Bivalves	Fulvia sp (薄殼鳥蛤)				
	Geloina erosa (掉地蛤)				
Crustaceans	Buddhist crab (角眼切腹蟹)				
	Ghost crab (角眼沙蟹)				
	Hermit crab (寄居蟹)				
Echinoderms	Sea urchin - <i>Salmacis sphaeroide</i> (雜色角孔海膽)				
	Sea star - <i>Archaster typicus</i> (飛白楓海星)				
Fishes	<i>Terapon jarbua</i> (釘公)				
	Mudskipper – <i>Periophthalmus cantonensis</i> (彈塗魚)				
Others					

Suggested discussion matters:

1. Describe the geographical features of the mangrove stand
2. Discuss the effects of water quality on the mangrove communities and vice versa
3. Study the interactions of mangrove flora and fauna.
4. Compare the diversity of mangrove flora and associates inside and outside Marine Parks
5. Limitations and improvements of the field study

Suggested references:

AFCD (2004), *Tree Lovers' Companion*, AFCD, HKSARG

Chan and Caley (2003), *Sandy Shores (Hong Kong Field Guides)*, The University of Hong Kong

Hill and Phillipps (1981), *Hong Kong Animals*, Government Printer, HK

Tam (1997), *Ecological Study on Mangrove Stands in Hong Kong*, City University of Hong Kong

Tam and Wong (2000), *Field guide to Hong Kong Mangroves*, City University of Hong Kong.

Lee (2002), *Forrest in the Water*, Friends of the Country Parks Hong Kong

Lau (2003), *Knowing Hong Kong Marine Parks*, AFCD, HKSAR

Lun (2003), *Hong Kong Reef Building Corals*, AFCD, HKSAR

Morton (1997), *Hoi Ha Wan*, World Wide Fund for Nature Hong Kong

Williams (2003), *Rocky Shores (Hong Kong Field Guides)*, The University of Hong Kong

<http://www.afcd.gov.hk>

<http://www.epd.gov.hk>

<http://www.hknature.net>

http://www.hktree.com/visit/mangrove_list.htm

<http://www.hko.gov.hk/tide/cKLWtide.htm>