

SHEUNG SHUI TO LOK MA CHAU SPUR LINE

Environmental Committee Meeting

Minutes of Meeting No. 33 held at 9:00am
on Wednesday, 26th July 2017,
at Room 17B, 17/F, MTR Headquarters Building, Telford Plaza, Kowloon Bay

Present:		
Dr. Xianji Wen	WWF Hong Kong	EC Member
Mr. Michael Kilburn	The Hong Kong Bird Watching Society	EC Member
Dr. Ng Cho-nam	The University of Hong Kong	EC Member
Ms. Karen Barretto	Friends of the Earth (Hong Kong)	EC Member
Mr. Liston Szeto	Maintenance Manager	MTR
Ms. Kenny Yiu	Manager-Environmental Engineering	MTR
Mr. Peter Choi	Environmental Engineer	MTR
Dr. Michael Leven	Ecological Consultant	AEC
Ms. Elizabeth Wu	Ecological Consultant	AEC
Absent with apology:		
Ms. Catherine Leung	Environmental Engineering Manager	MTR

Attachments	
Annex A	Presentation Material of EC Meeting No. 33

<u>Item/Description</u>	<u>Action By</u>
1. Welcomed Members to the EC Meeting No. 33.	Noted
Item 1 – <u>Confirmation of minutes of Meeting No. 32</u>	
2. There were no comments on the minutes of Meeting No. 32 and the minutes were confirmed.	Noted
Item 2 – <u>Ecological Enhancement Works and Monitoring – an Update on Management Works and Look Ahead</u>	
3. <u>A Member (consultant)</u> reported on the major habitat enhancement and modification works, ecological monitoring and management works undertaken during January to July 2017 at the LMC EEA (detailed in Annex A) as follows:	
3.1 <u>A Member (consultant)</u> reported that Pond 19 was reprofiled to form a ridge-and-fallow system and was also transplanted with <i>Persicaria</i> spp. The pond is expected to be beneficial to Greater Painted-snipe.	Noted
3.2 <u>A Member (consultant)</u> reported that Ponds 20 – 22 were reprofiled in 2016 to create a large lily pond, with six cells, when flooded. Lilies regenerated and were also transplanted from another site (with agreement of the owner) in spring 2017. Pheasant-tailed Jacanas, with adult plumage, were recorded this summer. Emergent vegetation invaded the pond and it was planned to control the emergent vegetation by flooding. The pond was found to be leaking, so fine tuning remedial works would be conducted.	Noted
3.3 <u>A Member (consultant)</u> reported on the performance of the numerical bird target species. Chinese Pond Heron, Black-winged Stilt and Bluethroat did not meet the target level; this was considered to be related to the reprofiling of Ponds 19 – 22, which were out of operation in the latter half of 2016. However, the reprofiling of these ponds could provide long-term benefits. Number of Pallas’s Grasshopper Warbler may have suffered from the re-location of reedbed from Ponds 22 to 14; however this is a cryptic species and it is difficult to survey by means of transect counts. <u>A Member (NGO)</u> asked whether there was any effect on Little Egret from the Management Agreement (MA, namely Fishpond and Conservation Scheme in Ramsar Site 2015 – 2017). <u>A Member (consultant)</u> replied that the number of Little Egrets appeared to be roughly stable in the Deep Bay area, but it was not sure if this was related to the MA as the data for the MA were not available to the public.	Noted
3.4 <u>A Member (consultant)</u> further reported on the performance of the non-numerical bird target species. The density of Little Grebe at LMC EEA did not quite reach twice that at the Control Areas, however this species does not have any numerical target to attain.	Noted

Item/Description	Action By
3.5 <u>A Member (consultant)</u> reported on the bird winter roost count results at LMC EEA, and concluded that LMC EEA provided a secure roosting site to large waterbirds. Black-faced Spoonbill did not roost at LMC EEA and presumably this species feeds in day-time in the LMC EEA and roosts at Mai Po Nature Reserve. There were up to around 2,000 Great Cormorant and 500 ardeids roosting at LMC EEA in the last winter.	Noted
3.6 <u>A Member (consultant)</u> reported almost all surveyed nest boxes were occupied by White-shouldered Starlings.	Noted
3.7 <u>A Member (consultant)</u> reported a number of breeding birds were recorded in the LMC EEA, including Greater Painted-snipe, Little Grebe, White-breasted Waterhen, Little Ringed Plover, Common Moorhen, as well as the records of juveniles of some non-wetland dependent bird species (which were believed to be raised within the LMC EEA) – Eurasian Collared Dove, Chinese Blackbird and Black-collared Starling.	Noted
3.8 <u>A Member (consultant)</u> reported that two unusual bird records were made – a male Cotton Pygmy Goose, a scarce summer visitor, was recorded in Pond 22 and a pair of Lesser Whistling Duck was recorded largely in Ponds 20 – 22. As Hong Kong is within the breeding range of Lesser Whistling Duck and this species was recorded in the LMC EEA this summer, researches on suitable design of nest boxes would be undertaken in order to provide nest boxes in next breeding season. <u>A Member (NGO)</u> enquired if the trees within the LMC EEA provide tree holes for the breeding tree ducks. <u>A Member (consultant)</u> replied that trees within the LMC EEA are not old enough.	Noted
3.9 <u>A Member (consultant)</u> reported that one of the target species Eurasian Otter, which occurs in low density in the Deep Bay area, was not recorded in the LMC EEA from January to June 2017. Leopard Cat was continuously recorded in the LMC EEA. A HKU PhD study on Eurasian Otter is on-going, in which cameras were installed and surveys on spraints/evidence were also conducted in the LMC EEA. <u>A Member (NGO)</u> was surprised that the number of Leopard Cat recorded increased as the LMC EEA is not a wooded area. <u>A Member (consultant)</u> replied that the rats in the LMC EEA are the prey items of Leopard Cats and suggested that wooded areas may not be necessary for night-time hunting of Leopard Cats.	Noted
3.10 <u>A Member (consultant)</u> reported Burmese Python was not recorded from January to June 2017. The number of records of another target species, Chinese Soft-shelled Turtle, increased in this reporting period.	Noted
3.11 <u>A Member (consultant)</u> reported the records of Chinese Bullfrog recovered from bad years in 2015 and 2016. <u>A Member (NGO)</u> pointed out that the number of Chinese Bullfrog decreased from 2010 which a maximum of nine individuals recorded. <u>A Member (consultant)</u> added that Compartment C was just reprofiled substantially and it was believed	Noted

Item/Description	Action By
<p>to be beneficial to Chinese Bullfrog. <i>A Member (NGO)</i> enquired if the soil was kept for the reprofiled ponds. <i>A Member (consultant)</i> replied that the solid was kept to form the new profile of the pond.</p> <p>3.12 <i>A Member (consultant)</i> presented the number of dragonfly species recorded and the diversity recorded generally maintained across the monitoring years. A new dragonfly species was recorded in the first half of 2017 – Red-faced Skimmer, which is not a species of conservation concern.</p> <p>3.13 <i>A Member (NGO)</i> enquired the number of dogs occurred in the LMC EEA. <i>A Member (consultant)</i> replied that the number of dogs occurred in the LMC EEA reduced due to the dog-proof fence at Pond 2 and the boundary fence for the rest of the site also deterred the dogs. <i>A Member (NGO)</i> further enquired if there was any advantage of keeping the dogs out. <i>A Member (consultant)</i> pointed out that there was a suspected case of a Eurasian Otter being killed by dogs in 2013, dogs had been seen diving into the marsh ponds and flushing birds, such as White-breasted Waterhen and Yellow Bittern, and disturbance was generated by dogs to the loafing birds (e.g. Black-faced Spoonbills). He further added that as the Eurasian Otter is a globally threatened species; accordingly, it is considered worthwhile to keep the dogs out.</p>	<p>Noted</p> <p>Noted</p>
<p>Item 3 – <u>Any Other Business</u></p> <p>4.1 <i>A Member (MTR)</i> reported the publicity activities of LMC EEA in the past few months and thanked EC members for their continuous support in the wetland management of LMC EEA.</p> <p>4.2 <i>A Member (consultant)</i> highlighted the key findings of the five-yearly review of Management Review Report (2012 – 2016) to the EC members for discussion. <i>A Member (MTR)</i> reported that the draft five-yearly review of Management Review Report (2012-2016) was circulated to EC members for review on 20th July 2017. The draft report will be further revised and re-circulated to members for review by 28th July 2017.</p> <p>4.3 <i>A Member (NGO)</i> suggested to have a site visit to the LMC EEA. <i>A Member (MTR)</i> agreed and would arrange this site visit.</p>	<p>Noted</p> <p>Noted</p> <p>MTR</p>
<p>Item 4 – <u>Date of Next Meeting</u></p> <p>5. The date of the next meeting is to be advised.</p>	<p>MTR</p>

Lok Ma Chau Spur Line 33rd Environmental Committee Meeting

Report on Ecological Monitoring and Management, January to June 2017

26th July 2017



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Management Works from January to June: Pond Reprofilng

Pond Reprofilng

- Ponds 20 - 22 (early July – early December 2016);
- Spring 2017: lilies regenerated and also transplanted from another site
- Wet season 2017: maintained as wet and vegetated
- Positive signs:
 - Up to 4 Pheasant-tailed Jacanas recorded in May
 - Nesting of Greater Painted-snipe
 - Summering of pair of Lesser Whistling Ducks



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Report on Ecological Monitoring and Management, January to June 2017

- The following presentation will focus on:
 - the major habitat enhancement and modification works;
 - the most important results and findings from faunal monitoring undertaken.



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Management Works from January to June: Pond Reprofilng

Pond Reprofilng

- Ponds 20 - 22 (early July – early December 2016).

Pond 21/22, July 2017



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Management Works from January to June: Pond Reprofilng

Pond Reprofilng

- Pond 19 (late November 2016 – January 2017).

Reprofiled Pond 19 (with *Persicaria* spp. transplanted), April 2017



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Numerical Bird Target Performance in the Past 5 Years

Year	Jul 2012 - Jun 2013			Jul 2013 - Jun 2014			Jul 2014 - Jun 2015			Jul 2015 - Jun 2016			Jul 2016 - Jun 2017		
	LMC	CA	Ratio	LMC	CA	Ratio	LMC	CA	Ratio	LMC	CA	Ratio	LMC	CA	Ratio
Density (mean/ha)															
Japanese Quail	0.0	0.0	nr	<0.1	0.0	LMC	<0.1	0.0	LMC	0.0	0.0	nr	0.0	0.0	nr
Furzean Teal	1.4	<0.1	9755.2	0.0	0.1	7.1	1.1	0.1	22.1	1.9	<0.1	719.8	1.9	<0.1	122.8
Black-faced Spoonbill	0.7	<0.1	29.4	0.2	0.1	2.6	0.5	<0.1	15.6	0.8	<0.1	16.8	0.5	0.1	10.3
Chinese Pond Heron	0.9	0.4	2.3	0.7	0.3	2.3	0.9	0.4	2.7	0.8	0.5	1.5	0.9	0.7	1.4
Grey Heron	1.5	0.2	8.8	1.3	0.2	7.2	2.0	0.2	11.0	2.2	0.2	15.0	2.0	0.1	16.4
Great Egret	0.9	0.5	1.7	0.6	0.5	1.3	1.7	0.3	6.0	1.7	0.6	2.9	1.5	0.5	2.9
Little Egret	0.5	0.4	0.9	1.2	0.5	0.5	1.1	0.4	2.7	0.9	0.7	1.3	0.6	0.8	0.6
Great Cormorant	5.4	0.5	11.3	3.4	0.5	6.3	7.3	0.4	17.6	6.2	0.6	11.1	8.1	0.5	16.5
Greater Spotted Eagle	<0.1	0.0	LMC	<0.1	<0.1	50.9	<0.1	<0.1	33.8	<0.1	0.0	LMC	<0.1	0.0	LMC
Eastern Imperial Eagle	<0.1	0.0	LMC	<0.1	<0.1	2.5	<0.1	<0.1	49.3	<0.1	0.0	LMC	<0.1	0.0	LMC
Eurasian Coot	<0.1	<0.1	27.0	<0.1	0.0	LMC	<0.1	<0.1	151.9	0.1	0.0	LMC	0.1	0.0	249.1
Black-winged Stilt	0.9	<0.1	14.9	0.4	0.1	4.5	0.9	0.1	9.1	0.7	<0.1	5.9	0.1	0.1	1.5
Greater Painted-snipe	<0.1	0.0	LMC	<0.1	0.0	LMC	<0.1	nr	LMC	<0.1	0.0	LMC	<0.1	0.0	LMC
Pheasant-tailed Jacana	<0.1	<0.1	7.4	<0.1	0.0	LMC	<0.1	nr	LMC	<0.1	<0.1	11.8	<0.1	<0.1	23.4
Pintail/Avosho's Snipe ¹	<0.1	<0.1	5.8	<0.1	<0.1	37.7	<0.1	<0.1	36.8	<0.1	<0.1	113.4	<0.1	<0.1	27.1
Common Snipe	<0.1	<0.1	4.7	<0.1	<0.1	3.6	0.2	<0.1	13.6	0.1	<0.1	13.8	<0.1	<0.1	4.2
Pallid Grasshopper Warbler	<0.1	<0.1	18.0	<0.1	<0.1	9.4	<0.1	<0.1	5.4	<0.1	<0.1	19.7	<0.1	<0.1	1.6
Bluing Cisticola	0.1	0.1	0.5	0.1	0.1	1.2	<0.1	0.1	0.6	0.1	<0.1	1.6	<0.1	<0.1	0.6
Red-billed Stork	0.7	0.5	1.6	0.5	0.4	1.2	0.6	0.3	1.9	2.9	0.7	4.4	3.2	0.4	5.0
Bluethroat	<0.1	0.0	LMC	<0.1	<0.1	12.3	<0.1	<0.1	8.6	<0.1	0.0	LMC	0.0	<0.1	0.4
Japanese Yellow Bunting	0.0	<0.1	CA	0.0	0.0	nr	<0.1	<0.1	CA	0.0	0.0	nr	0.0	0.0	nr

nr = Not recorded within LMC/EEA or Control Areas during the period
 Blue – Target met (i.e. density in EEA at least twice that in Control Areas)
 Yellow – Target not met, although density higher than in Control Areas
 Red – Target not met and density lower than in Control Areas.



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Non-numerical Bird Target Performance since 2014

Species/Density (mean/ha)	2014			Jul 2014 – Jun 2015			Jul 2015 – Jun 2016			Jul 2016 – Jun 2017		
	LMC	CA	Ratio	LMC	CA	Ratio	LMC	CA	Ratio	LMC	CA	Ratio
Eurasian Wigeon	0.4	<0.1	13.7	0.6	<0.1	44.1	2.0	<0.1	288.1	0.5	<0.1	LMC
Little Grebe	0.9	0.5	1.8	1.2	0.7	1.9	1.1	0.8	1.3	1.3	0.7	1.9
Cinnamon Bittern	<0.1	0.0	LMC	<0.1	0.0	LMC	<0.1	<0.1	13.6	<0.1	0.0	LMC
Black-crowned Night Heron	0.2	<0.1	9.4	0.2	<0.1	11.7	0.1	<0.1	2.1	0.2	<0.1	10.5
Intermediate Egret	<0.1	<0.1	12.5	<0.1	<0.1	1.4	0.1	<0.1	17.0	0.1	<0.1	9.7
White-cheeked Starling	0.1	0.1	1.1	0.3	<0.1	15.3	0.6	<0.1	30.4	0.3	<0.1	9.0
White-shouldered Staring	0.7	0.1	11.5	1.1	0.1	16.9	1.3	0.1	16.2	1.1	0.1	14.8
Yellow-breasted Bunting	0.0	0.0	nr	0.0	<0.1	CA	7.0	<0.1	CA	<0.1	<0.1	17.1

The above species became target species from October 2014.
 nr – Not recorded within LMC EEA or Control Areas during the period.
 Blue – Density in LMC EEA at least twice that in Control Areas
 Yellow – Density higher in LMC EEA than in Control Areas
 Red – Density in LMC EEA lower than in Control Areas

Breeding Birds

- A nest of Greater Painted-snipe was found in Pond 20a in April (but flooded by unexpected heavy rain);
- Chicks of Little Grebe were recorded in 5 ponds (Ponds 2, 5, 7, 12 and 17), with a maximum of 12 chicks recorded on one date;
- Chicks of White-breasted Waterhen were recorded in 8 ponds (Ponds 2, 3, 4, 7, 11, 13, 14 and 16), with a maximum of 12 chicks recorded on one date;
- 2 juveniles of Little Ringed Plover sighted at Pond 19 in May;
- A chick of Common Moorhen was recorded at Pond 14 in June;
- Other juveniles recorded include Eurasian Collared Dove, Chinese Blackbird and Black-collared Starling, and are probably raised in the LMC EEA.

Winter Roost Count in the Winter 2016/2017

- Winter roost survey was conducted between November and March;
- Winter roost is mainly located at Pond 2, including the island and the northern bund.

Bird Taxa	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
Black-faced Spoonbill	3	0	0	0	0
Ardeids*	502	337	571	538	404
Great Cormorant	1,105	1,526	2,170	1,251	1,226
Starlings/Mynas	170	270	154	0	10
Total of Large Waterbirds^A	1,610	1,863	2,741	1,789	1,630

* Including Chinese Pond Heron, Grey Heron, Great Egret, Intermediate Egret and Little Egret.
^A Excluding starlings/mynas.

Unusual Bird Species Recorded

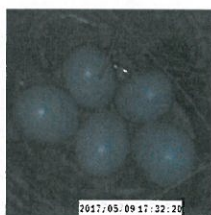
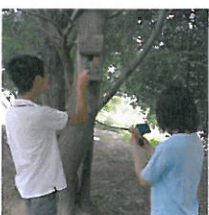
- Unusual records:
 - Cotton Pygmy Goose (♂, May in Pond 22)
 - Lesser Whistling Duck (a pair, May and June largely in Ponds 20 - 22)

Lesser Whistling Duck (Pond 12 on 17th May 2017)



Nest Boxes Occupation in April to July 2017

- 103 out of 119 bird nest boxes are accessible for survey (the others are too high, outside the boundary fence etc.) and one was fallen;
- All of these 102 nest boxes were occupied by White shouldered Starling: 86 with eggs and/or chicks recorded, 15 with nesting materials only and one being vacant.



Mammal Targets Recorded in the Past 10 Years

- Eurasian Otter was not recorded in this reporting period;
- Leopard Cat was recorded on 27 days with an OI of 23.3;
- A PhD study on Eurasian Otter is on-going.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 [@]
Eurasian Otter <i>Lutra lutra</i>										
Maximum Count	2	1	3*	0	1	1	2	0	1	0
No. of Records ¹	2	1	2	0	1	13 [#]	5 ^A	0	1	0
Leopard Cat <i>Prionailurus bengalensis</i>										
No. of Records ^{1/OI²}	51	91	201	121	111	111	871	114 ^{1,N}	65 ¹ 25.2 ²	27 ¹ 23.3 ²

Note:
 1. Number of dates recorded by all installed cameras plus direct observations.
 2. Occurrence index.

Key:
 * Up to 3 individuals recorded between Ponds 1 and 2 by AFCD
 # Including one dead individual found at LMC EEA
^A Including direct observation of one individual at Pond 12
^N Footprints were recorded
 @ Include data from January to June

Other species in appendix for reference.

Reptile Targets Recorded in the past 10 years

- Burmese Python was not recorded from January to June 2017.
- Three records of Chinese Soft-shelled Turtle were made from January to June 2017 :
 - 3rd April at Pond 7
 - 8th May at Pond 3a (by infra-red cameras)
 - 18th May at Pond 19



Species	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 ^e
Burmese Python <i>Python bivittatus</i>	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	3 (1)	1* (1)	1 (1)	0 (0)
Chinese Soft-shelled Turtle <i>Pelodiscus sinensis</i>	1* (1)	2* (1)	1 (1)	1 (1)	1 (1)	2 (1)	2 (1)	2* (1)	*	3 (1)

Number of surveys recorded is indicated in the table, whereas the numbers in brackets are the maximum count per survey.
 Key:
 * Sighting reported by the reprofiling contractor
 * Include one record of track

Other species in appendix for reference.



Thank You



Amphibian Findings since 2006

- Chinese Bullfrog was recorded in 3 occasions from January to June 2017 with a maximum of 4 individuals recorded.

Species/ Maximum Total Number of Individuals Recorded in All Ponds in LMC EEA	2006 - 2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 ^a
Asian Common Toad <i>Bufo melanostictus</i>	3	1	2	4	3	1	2	7	1	4
Asiatic Painted Frog <i>Kaloula pulchra</i>	0	0	0	2	2	1	0	0	0	0
Butler's Pigmy Frog <i>Micrhylya butleri</i>	0	1	2	0	0	2	0	0	0	0
Ornate Pigmy Frog <i>Micrhylya ornata</i>	13	46	128	25	5	7	4	0	0	0
Marbled Pigmy Frog <i>Micrhylya pulchra</i>	0	0	0	0	0	0	1	0	0	0
Paddy Frog <i>Fejervarya limnacharis</i>	35	14	12	7	20	6	1	10	35	19
Chinese Bullfrog <i>Hoplobatrachus chinensis</i>	1	2 (2)	4 (9)	2 (5)	2 (8)	1 (2)	1 (2)	0 (0)	0 (0)	4 (7)
Günther's Frog <i>Rana guentheri</i>	157	74	137	86	132	108	293	115	82	83
Two-striped Grass Frog <i>Rana taipehensis</i>	0	0	2	1	1	1	0	2	0	0
Brown Tree Frog <i>Polydactylus megocephalus</i>	32	33	27	33	12	14	7	3	6	6
No. of species recorded	6	7	8	8	8	9	7	5	4	5

Maximum count (per survey) is indicated in the table, for Chinese Bullfrog, from 2009, the numbers in brackets are the total number of individuals recorded in the year.
 @ include data from January to June.



Appendix

Dragonfly Findings since 2006

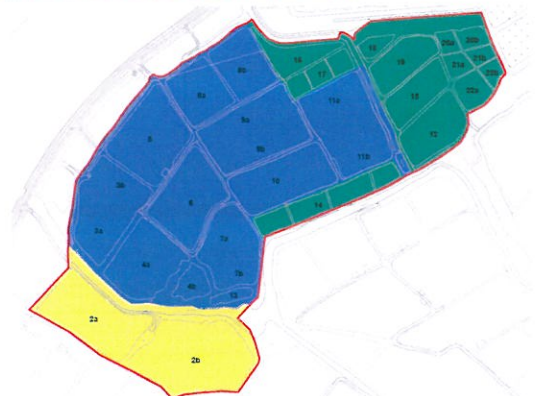
- Red-faced Skimmer was newly recorded.

Dragonfly recorded as adults or exuviae at LMC EEA	2006 - 2008	2009	2010	2011	2012	2013	2014	2015 ^a	2016 ^a	2017 ^a ^b
Number of Species Recorded	22	22	24	21	25	22	21	17	21	24
Total Number of Species Recorded	34									

Key: * A Midgill species was also recorded.
 @ include data from January to June.

Other species in Appendix for reference.

Pond Numbers and Management Compartments



Management Works from January to June: Fish Stocking

Winter Fish Stocking

- A total of 19,064 kg of fish was stocked during January to March.

Spring/ Summer Fish Stocking

- To replenish the fish stock after reprofiling/ winter drain-down and to maintain water quality;
- Fish stocked was of breeding size (> 15 cm) to produce fingerlings to be consumed by the waterbirds in the winter;
- Fish was fed to encourage breeding and avoid eating the young fish;
- A total of 3,631 kg of fish was stocked during April to May.

Grass Carp Stocking

- 600 individuals were stocked to control emergent vegetation in Ponds 3 – 6 and 11 in May.

Management Works: Pest Management

Pest Management (Apple Snail – hand picking)

- Manual removal of Apple Snails in Compartment C continued;
- 104kg of Apple Snails were removed (by hand-picking) from Compartment C;
- Apple Snails removed in Compartment C between January and June:

Month	Apple Snail Removed (kg)							Total	
	Pond 15	Pond 16	Pond 17	Pond 18	Pond 19	Pond 20	Pond 21		Pond 22
January	-	-	-	-	-	-	-	-	0
February	-	-	-	-	-	-	-	-	0
March	30	-	-	-	-	-	-	-	30
April	25	-	-	-	-	-	1	-	26
May	25	-	-	-	-	23	-	-	48
June	-	-	-	-	-	-	-	-	0
Total	80	0	0	0	0	23	1	0	104

Management Works from January to June: Vegetation Management

Vegetation Management

- Routine pond bund grass cutting and weeding of climbers;
- Routine removal of unwanted species (e.g. *Typha angustifolia*);
- Routine removal of non-lily vegetation in Ponds 20 – 22;
- Transplanting *Persicaria* spp. to Pond 19 from Ponds 7 and 9 ;
- Transplanting lily to Ponds 21 and 22.

Water Level Adjustment

- Routine adjustment to provide foraging opportunities for waterbirds;
- For vegetation management and pest control.

Egret Decoys Installation

- A total of 29 decoys were installed on the island of Pond 2 and a tree at Pond 4 in late December 2016;
- 26 decoys were taken down (and 3 were missing) in July 2017 to avoid the peak period of typhoons.



Management Works: Pest Management

Dog Trapping

- Dog trapping – No dogs were trapped.

Pest Management (Red Imported Fire Ant)

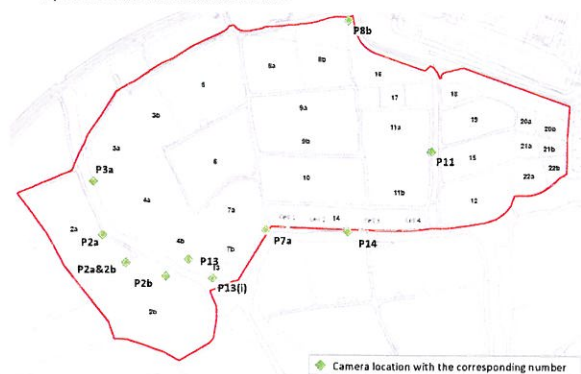
- 549 Red Imported Fire Ant nests were treated with the approved pesticide;
- Red Imported Fire Ant nest treatment using the approved pesticide will be continued;
- Ants are being studied on site by a HKU research student.

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 [@]
No. of Nests Treated	170	164	(n.a.)	315	790	1,760	1,211	1,333	939	549

@ include data from January to June

Mammal Findings in LMC EEA from January to June 2017

- Up to 10 infra-red cameras in use.



Mammal Findings in LMC EEA from January to June 2017

- Eurasian Otter was not captured from January to June 2017;
- Cameras captured mostly 'brown rat', followed by, Small Asian Mongoose, Leopard Cat, Small Indian Civet and Eurasian Wild Pig.

Species	Number of Photographs per 100 Camera Working Days												
	AFCD*	Total	P2a	P2a & 2b	P2b	P3a	P7a	P8b	P11	P13	P13 (I)	P14	
'brown rat'	?	88.1	12.7	4.5	10.5	0.0	0.0	0.7	3.4	56.3	0.0	0.0	
Small Indian Civet	216.0	3.2	0.6	0.0	0.0	0.0	0.0	1.4	0.7	0.0	0.6	0.0	
Small Asian Mongoose	53.2	55.0	4.8	6.5	2.8	0.0	0.0	0.7	0.7	35.9	1.1	2.6	
Leopard Cat	54.2	23.3	11.5	0.6	3.9	0.6	0.6	0.0	0.7	1.2	0.0	4.3	
Eurasian Wild Pig	171.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	

* Occurrence index extracted from AFCD newsletter "Hong Kong Biodiversity" issue no. 15 (December 2007) and adjusted by the proportion of area of LMC EEA in relation to the 1 km² grid used in the newsletter.

Key: Red - new camera locations (i.e. not installed at the beginning of the year but still installed at the end of the year)
Blue - old camera locations (i.e. removed during the course of the year)



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Reptile Findings since 2006

- Snapping Turtle (*Chelydra* sp.) was newly recorded in 2017.

Species/ Maximum Total Number of Individuals Recorded in All Ponds in LMC EEA	2006 - 2008	2009	2010	2011	2012	2013	2014	2015	2016*	2017**
Red-eared Slider*	-	-	1	2	-	2	4	7	2*	9
Reeves' Turtle	-	-	-	-	-	-	-	1	2	2
Chinese Soft-shelled Turtle	1	3	1	1	1	1	1	1	1	1
Malayan Snail-eating Turtle*	-	1	-	-	-	-	-	-	-	-
Four-clawed Gecko	-	-	1	-	-	-	-	-	-	-
Chinese Gecko	-	1	-	-	-	-	-	-	-	-
Bowling's Gecko	4	2	2	2	1	5	1	2	3	5
Chinese Skink	1	-	-	-	-	1	-	-	-	-
Reeves' Smooth Skink	-	-	1	-	-	-	-	-	1	-
Common Blind Snake	-	-	1	-	-	-	-	-	-	-
Burmese Python	1	-	-	-	-	1	1	6	1	-
Chinese Water Snake	1	1	-	1	-	1	-	-	-	-
Rubaceous Water Snake	-	1	1	-	-	-	-	-	-	-
Copperhead Racer	-	-	-	-	-	-	-	-	1	-
Taiwan Kukri Snake	-	-	-	-	-	-	-	-	1	-
Indo-Chinese Rat Snake	1	-	-	-	-	-	-	-	-	-
Common Rat Snake	1	-	1	1	1	1	-	1	1	1
Bull-striped Keelback	-	-	-	-	-	1	-	-	-	-
Checkered Keelback	2	2	6	3	1	2	-	1	2	1
Many-banded Krait	1	-	-	-	1	1	-	-	1	1
Chinese Cobra	-	-	1	-	1	1	-	-	1	1
Snapping Turtle* (New!)	-	-	-	-	-	-	-	-	-	1
Total number of species recorded	9	7	10	6	6	11	4	9	11	9

Key: * include an unidentified non-native box turtle (*Cuora* spp.)
* one individual was recorded laying eggs.
non-native species.
sighting made by the contractor responsible for reprofiling works.
* only footprints were recorded.
include data from January to June.



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Dragonfly Findings since 2006

- Red-faced Skimmer was newly recorded.

Dragonfly Recorded as Adults or Exuviae at LMC EEA	2006 - 2008	2009	2010	2011	2012	2013	2014	2015*	2016*	2017**
Wandering Glider	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pied Skimmer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ruby Darter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sapphire Flutterer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Variagated Flutterer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Evening Skimmer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Saddlebag Glider	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Crimson Darter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dancing Drowner	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Scarlet Basker	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dinky Dusk-darter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Total Number of Species Recorded	22	22	24	21	25	22	21	17	21	24

Key: * A Midget species is also recorded.
include data from January to June.

Dragonfly Findings since 2006

- Red-faced Skimmer was newly recorded.

Dragonfly Recorded as Adults or Exuviae at LMC EEA	2006 - 2008	2009	2010	2011	2012	2013	2014	2015*	2016*	2017**
Orange-tailed Midget	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wandering Midget	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Orange-tailed Sprite	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Common Bluetail	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blue Spinn	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pale-spotted Emperor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lesser Emperor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Common Flangetail	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Golden Flangetail	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Regal Pond Cruiser	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Flusive Aduflant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Asian Pintail	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blue Lasher	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Asian Amberwing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Crimson Darter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blue Percher	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Amber-winged Glider	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coastal Glider	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Russet Percher	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pied Percher	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Red-faced Skimmer (New!)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Common Red Skimmer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Green Skimmer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Key: * A Midget species is also recorded.
include data from January to June.



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