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**SHEUNG SHUI TO LOK MA CHAU SPUR LINE**

**Environmental Committee Meeting**

Minutes of Meeting No. 30 held at 4:00pm

on Tuesday, 19<sup>th</sup> January 2016,

at Room 15A, 15/F, MTR Headquarters Building, Telford Plaza, Kowloon Bay

<b>Present:</b>		
Mr. Bena Smith	WWF Hong Kong	Member (NGO)
Ms. Karen Barretto	Friends of the Earth (Hong Kong)	Member (NGO)
Dr. Ng Cho-nam	The University of Hong Kong	Member (NGO)
Mr. Chan Wai Keung	Maintenance Manager-Civil	Member (MTR)
Ms. Catherine Leung	Environmental Engineering Manager	Member (MTR)
Ms. Kenny Yiu	Manager-Environmental Engineering	Member (MTR)
Mr. Peter Choi	Environmental Engineer	Member (MTR)
Ms. Janice Lao	Senior Manager-Sustainability	Member (MTR)
Mr. Paul Leader	Ecological Consultant	Member (consultant)
Ms. Elizabeth Wu	Ecological Consultant	Member (consultant)
<b>Absent with apology:</b>		
Mr. Michael Kilburn	The Hong Kong Bird Watching Society	Member (NGO)

<b>Attachments</b>	
Annex A	Presentation Material of EC Meeting No. 30

<u>Item/Description</u>	<u>Action By</u>
1. Welcomed Members to the EC Meeting No. 30.	Noted
<b>Item 1 – <u>Confirmation of minutes of Meeting No. 29</u></b>	
2. There were no comments on the minutes of Meeting No. 29 and the minutes were confirmed.	Noted
<b>Item 2 – <u>Ecological Enhancement Works and Monitoring – an Update on Management Works and Look Ahead</u></b>	
3. <i>A Member (consultant)</i> reported on the ecological monitoring and management works undertaken in 2015 at the LMC EEA (detailed in <b>Annex A</b> ). It was noted that:	
3.1 The EC members’ site visit at LMC EEA was held successfully on 20 <sup>th</sup> November 2015.	Noted
3.2 The reprofiling of Ponds 8 and 11 was completed. They were required to be reprofiled due to the bund stability; fine-tuning of the pond profile was also conducted to facilitate draining of pond. Pond 8 will serve as a temporary lily pond after reprofiling. After the reprofiling of Pond 11, the water quality was adjusted by adding lime and peanut residue; peanut residue attracts ducks as shown in the target performance and during the EC site visit.	Noted
3.3 The earth-moving works at Ponds 14 and 17 was also completed. Pond 14 was subdivided into four cells and the internal bunds were raised in Pond 17, both of which will facilitate vegetation and water level management.	Noted
3.4 Some ponds were drained in 2015 to provide foraging areas for waterbirds in the winter or to facilitate the reprofiling works.	Noted
3.5 Fish stocking was conducted, but it was difficult to get small fish in the second winter period of 2015; hence a mixture of sizes was stocked. Larger fish replenishes fish stocks after drain-down and help maintaining water quality. The Wetland Maintenance Contractor was generally helpful in the sourcing of fish, which has been problematic in the past. <i>A Member (NGO)</i> enquired the quantity and species of the fish stocking. <i>A Member (consultant)</i> explained that summer and winter stocking was undertaken. The former happens in April/May and such fish breed over the summer that young individuals will be available in the winter as food for birds. The latter starts in October and 1,000kg are stocked per week and 20,000kg each winter. Fish is usually not available when the weather is too cold (to avoid die-off) and around Chinese New Year. Tilapia is the primary species stocked;	Noted

<u>Item/Description</u>	<u>Action By</u>
other species may be stocked by accident.	
3.6 Grass Carps were also stocked to control vegetation.	Noted
3.7 Vegetation management was undertaken. <u>A Member (consultant)</u> explained that not all <i>Ipomoea aquatica</i> was removed but to control its extent as <i>I. aquatica</i> is favorable to one of the targets, Greater Painted-snipe.	Noted
3.8 Red Fire Ant nests were treated, Apple Snails were removed and dog trap was set as parts of the general site management. <u>A Member (NGO)</u> enquired the trend of Apple Snails removed in the past years. <u>A Member (consultant)</u> reported its number varied between years but the population was not as problematic as in previous years. <u>A Member (NGO)</u> enquired if the Snails were eaten by the coucals. <u>A Member (consultant)</u> reported that they did but only a few.	Noted
<u>A Member (consultant)</u> suggested that the removal of Apple Snails at the beginning of wet season is effective as 140 kg were removed from Pond 19 in April and there were only 3 kg from the same pond was removed in the remaining of 2015.	Noted
3.9 Wildlife refugia were formed from old water pipes. <u>A Member (consultant)</u> reported that these are popular with Small Asian Mongoose.	Noted
3.10 Most of the numerical bird targets were met in 2015, such as Eurasian Teal (with bird density ratio of 170.6), Little Egret (target met for first time in the past five years) and Great Egret (which had the second highest ratio in the last five years). There were few target birds which did not meet the required target, such as, Chinese Pond Heron, Japanese Quail (which is not a fishpond species), Zitting Cisticola and Japanese Yellow Bunting. <u>A Member (NGO)</u> enquired if the fishponds in the Control Areas join the management agreement schemes (“Fishpond Conservation Scheme in Ramsar Site 2013 – 2015” and “Hong Kong Got Fishpond – Eco-fishpond Management Agreement Scheme 2013 – 2015”) organised by the Hong Kong Bird Watching Society and enquired further if this had any impact on the bird number recorded in the LMC EEA. <u>A Member (consultant)</u> was not sure if the fishponds in the Control Areas joined the Scheme. Taking Great Egret as an example, which is a species which would benefit from pond partial drain down, the bird density in the Control Areas remains steady in the past 5 years.	Noted
[Post-meeting note: According to the Nature Conservation Management Agreement Proposal – Fishpond Management Agreement Programmes in Northwest New Territories in 2013 – 2015 (Committee Paper NCSC 1/2013), most fishponds within the two	

<u>Item/Description</u>	<u>Action By</u>
Control Areas joined the Pilot Project of the Schemes.]	
3.11 The year-end ratio of bird density of Chinese Pond Heron did not meet the required target. However, the ratio met the required target at the end of most of the months in 2015. The bird density of the species in LMC EEA was stable, but that in the Control Areas increased and the activities in the Control Areas are out of MTR Corporation/AEC Ltd. control. <u>A Member (NGO)</u> enquired that the calculation included the data in 2016 (see slide 12 in <b>Annex A</b> ). <u>A Member (consultant)</u> explained that the period was expressed in the week ending of a certain date and that week includes most of the dates in 2015.	Noted
3.12 Following the 5-yearly review report, eight bird species were included as non-numerical target. For the bird density of Eurasian Wigeon, it was 1009.9 times higher in LMC EEA than the Control Areas. For Little Grebe and Intermediate Egret, the density is higher in the LMC EEA than the Control Areas but not twice of the Control Areas. <u>A Member (consultant)</u> reminded that they are not numerical target species.	Noted
3.13 Pond 2 was important to winter roosting birds, especially Great Cormorant which had around 2,000 recorded in December 2015. <u>A Member (NGO)</u> enquired if the birds roosted on ground and on the island of Pond 2. <u>A Member (consultant)</u> reported that the birds roosted on the trees on the main access and not on the island.	Noted
3.14 Decoys were installed in the LMC EEA in 2015; however, no egretty was established yet. It is hoped that the birds will stay to build their nests given that a considerable amount of birds roosting over the winter.	Noted.
3.15 The nest boxes continued to attract the nesting of White-shouldered Starlings. With 99 confirmed pairs of the species in the LMC EEA in 2015, the breeding pairs increased significantly from the records made around 2000 (around 50 pairs in Hong Kong by The Avifauna of Hong Kong).	Noted
3.16 Yellow Bittern, Cinnamon Bittern and Little Grebe were recorded/believed to be breeding in the LMC EEA in 2015. While Cinnamon Bittern was also recorded to breed in LMC EEA in 2014, which was the first breeding record in Hong Kong.	Noted
3.17 Five species recorded in 2015 are new to the LMC EEA, including Black-backed Swamphen, Asian Barred Owlet, Common Swift (Hong Kong 3 <sup>rd</sup> record), Forest Wagtail and Water Pipit (Hong Kong 3 <sup>rd</sup>	Noted

<u>Item/Description</u>	<u>Action By</u>
record).	
3.18 Several intra-red cameras were moved as they were recording few mammals.	Noted
3.19 The number of dates with Leopard Cat captured by the cameras increased from previous year. Eurasian Wild Pig was recorded in the second half of the year.	Noted
3.20 No Eurasian Otter was recorded in 2015. It was believed that its absence is not related to the erection of the boundary fence as there was proof that the Eurasian Otter used the mammal underpasses in previous years.	Noted
The higher number of dates of Leopard Cat captured may be because dogs were deterred by the dog-excluding fence. <u>A Member (NGO)</u> enquired if the total number of records is the number of dates recorded by the installed cameras. <u>A Member (consultant)</u> reported that it was the total number of dates recorded by different cameras. <u>A Member (NGO)</u> enquired it may be one individual being captured by different cameras on the same day. <u>A Member (consultant)</u> replied this is possible and enquired if there is a need for a different presentation of the data. <u>A Member (NGO)</u> suggested to make reference to the presentation by AFCD and will send the information to AEC Ltd.	AEC
3.21 Small mammal trapping was conducted in November and December 2015, and 4 Chestnut Spiny Rats trapped. The survey will also be conducted in January and February 2016 and any results will be reported in the next EC meeting. <u>A Member (NGO)</u> enquired about the type of traps and <u>A Member (consultant)</u> replied that Sherman traps were used.	AEC
3.22 A total of nine reptile species was recorded in 2015 and most of the recorded species had been recorded before. Two Reeves' Turtle, which is of Endangered on IUCN RedList (2015), were recorded for the first time on site.	Noted
3.23 There was a drop in the number of amphibian species recorded in 2015. The reasons are unknown, but may be related to the dry wet season. Ornate Pigmy Frog and the target species, Chinese Bullfrog, were not recorded in 2015.	Noted
3.24 2015 had the lowest number of dragonfly species recorded since 2006; again this may be due to the dry wet season. Some species which are regularly recorded were not recorded in 2015. <u>A Member (NGO)</u> enquired if there was any change in the surrounding areas and <u>A Member (consultant)</u> reported that an area to the south of Pond 22 had	Noted

<u>Item/Description</u>	<u>Action By</u>
<p>been converted to a farm with pigs and goats. <u>A Member (NGO)</u> enquired if the fish stocks affected and <u>A Member (consultant)</u> explained that the ponds in Compartment C were not stocked with fish to create conditions beneficial for dragonflies.</p> <p>3.25 Reprofilng of Ponds 20 – 22 will commence in the 1<sup>st</sup> quarter of 2016. The current lily pond is probably too small for the Pheasant-tailed Jacana to breed, and the creation of a large lily pond in Ponds 20 – 22 aims to address this. In addition, lilies are good to many other species e.g. ducks, Chinese Pond Heron. Pond 20 is currently dominated by lotus, Pond 21 by lotus and lily, and Pond 22 by reed. Therefore, during the reprofiling works, removal of regenerated reed and lotus will be required.</p> <p>3.26 The conceptual design of Ponds 20 – 22 was shown in the meeting. <u>A Member (consultant)</u> explained that the internal bunds of the large lily pond will be submerged at operational water level. During the dry season, cells will be divided. Individual cells can be drained to facilitate management works, and deeper areas in each cell are provided to congregate the Apple Snails during low water levels and facilitate removal.</p> <p>Overflow pipes will be installed between cells and to the adjacent ponds to allow water circulation and prevent flooding.</p> <p>3.27 The abundance of Little Grebe between 2006 and 2015 was reported. The weekly mean abundance showed that the species peaked at spring and was lowest in October/November. The abundance in 2015 was nearly double that in 2006. This may be because there was less emergent vegetation in 2006/2007.</p>	<p>Noted</p> <p>Noted</p> <p>Noted</p> <p>Noted</p>
<p><b><u>Item 3 – Any Other Business</u></b></p> <p>4. <u>A Member (NGO)</u> noted that there were a number of weather records broken in 2015 and the bird records of Long Valley dropped last year and enquired if the birds’ migratory pattern changed. <u>A Member (consultant)</u> suggested that it is difficult to interpret and explained that in order to analyse the effect of the climatic changes, long-term bird monitoring data are required. However, Hong Kong does not have many long-term data. <u>A Member (NGO)</u> suggested to investigate the altitude data. <u>A Member (consultant)</u> replied that whilst plant species shows altitudinal variation in response to climate-change, lowland birds are mobile and it is difficult to conclusively link any trends climate change.</p> <p>5. <u>A Member (MTR)</u> thanked the EC members for their time and valuable suggestions.</p>	<p>Noted</p> <p>Noted</p>

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<b><u>Item/Description</u></b>	<b><u>Action By</u></b>
<b>Item 4 – <u>Date of Next Meeting</u></b>  6. The date of the next meeting is to be advised.	MTR

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January – December 2015

19<sup>th</sup> January 2016



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## Environmental Committee Members Visit at LMC EEA

- EC members site visit at LMC EEA was successfully held on 20<sup>th</sup> November 2015



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## Overview of Management Works in 2015: Pond Reprofilng

### Pond Reprofilng

- Ponds 8 (mid-April to mid-August) and 11 (mid-April to September).



Pond 8



Pond 11



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## Overview of Management Works in 2015: Pond Reprofilng

### Pond Reprofilng

- Creation of internal bunds at Pond 14 (August to September);
- Raise the internal bund level at Pond 17 (August).



Pond 14



Pond 17



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## Overview of Management Works in 2015: Water Level Adjustment

### Water Level Adjustment

- To provide foraging areas for waterbirds in the winter: Pond 10 in January, Ponds 3, 4, 5 and 6 during November to December;
- To facilitate reprofiling: Pond 8 during February to August, Pond 11 during February to October, Pond 14 during June to October.



Pond 8



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## Overview of Management Works in 2015: Fish Stocking

### Winter Fish Stocking

- Fish stocked during January to March and October to December, the mean length was generally < 12 cm.



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Overview of Management Works in 2015: Fish Stocking

Spring/ Summer Fish Stocking

- To replenish the fish stock after reprofiling/ winter drain-down and to maintain water quality between June to September and in December;
- Fish stocked was of breeding size (> 15 cm) to produce fingerlings to be consumed by the waterbirds in the winter.

Grass Carp Stocking

- To control emergent vegetation in Pond 2.



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Overview of Management Works in 2015: Vegetation Management

Vegetation Management

- Routine pond bund grass cutting and weeding of climbers;
- Routine removal of unwanted species (e.g. *Ipomoea aquatica*);
- Clearance of vegetation on overgrown floating platforms;
- Transplanting *Polygonum* spp. from Pond 7 to Ponds 17 and 19 (March);
- Transplanting lilies from Pond 15 to Pond 8 (October and December).



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Overview of Management Works in 2015: Pest Management and Dog Trapping

Pest Management

- 1,333 Red Fire Ant nests were treated with the approved pesticide;
- 158kg of Apple Snails were removed (by hand-picking) from Compartment C;
- Dog trapping – 5 dogs were trapped and collected.



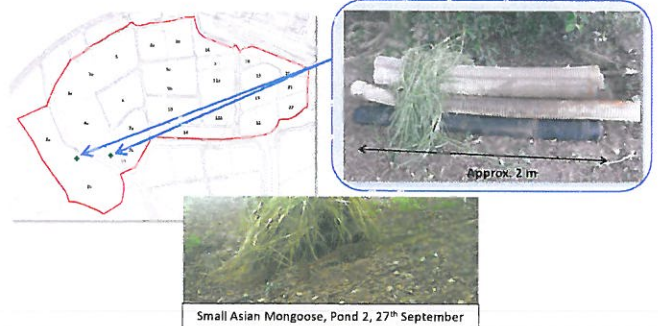
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Overview of Management Works in 2015: Others

Other Site Management – Wildlife Refuge

- Old water pipes were chopped and piled to provide shelter for wildlife;
- Covered by cut vegetation to provide buffer to climatic extremes.



Small Asian Mongoose, Pond 2, 27<sup>th</sup> September



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Numerical Bird Target Performance in the Past 5 Years

Year	2011			2012			2013			2014			2015		
	LMC	CA	Ratio	LMC	CA	Ratio	LMC	CA	Ratio	LMC	CA	Ratio	LMC	CA	Ratio
Great Cormorant	2.9	0.4	7.0	5.5	0.6	9.0	2.8	0.5	5.2	6.8	0.5	13.3	5.2	0.4	13.6
Grey Heron	7.0	0.2	31.2	1.6	0.2	8.0	1.0	0.2	5.8	2.1	0.2	11.7	1.8	0.2	12.2
Great Egret	7.8	0.6	13.0	1.1	0.5	2.5	0.6	0.5	1.2	1.5	0.3	4.9	1.5	0.4	10.0
Little Egret	0.9	0.8	1.1	0.6	0.6	1.1	0.8	0.8	0.9	0.4	1.9	0.8	2.5	2.7	2.0
Chinese Pond Heron	0.8	0.5	1.6	1.0	0.4	2.4	0.7	0.4	2.1	0.9	0.3	3.0	0.9	0.5	1.9
Black-faced Spoonbill	0.9	0.1	14.8	1.2	0.1	84.3	0.4	0.1	12.5	0.4	0.1	5.8	0.5	0.1	14.2
Eurasian Teal	1.1	0.1	151.8	1.8	0.1	261.5	1.0	0.1	22.6	1.2	0.1	10.6	1.6	0.1	170.6
Greater Spotted Eagle	<0.1	0.0	LMC	<0.1	0.0	LMC	<0.1	0.0	40.4	<0.1	<0.1	50.2	<0.1	0.0	LMC
Eastern Imperial Eagle	<0.1	0.0	LMC	<0.1	0.1	30.4	<0.1	<0.1	5.7	<0.1	<0.1	24.5	<0.1	0.0	LMC
Japanese Quail	0.0	0.0	nr	0.0	0.0	nr	<0.1	0.0	LMC	<0.1	0.0	LMC	0.0	0.0	nr
Eurasian Coot	0.1	0.1	168.2	<0.1	<0.1	60.0	<0.1	0.0	LMC	<0.1	<0.1	56.4	<0.1	0.0	LMC
Pheasant-tailed Jacana	<0.1	<0.1	19.6	<0.1	<0.1	66.2	<0.1	0.0	LMC	<0.1	0.0	LMC	<0.1	<0.1	11.3
Greater Painted-snipe	0.1	0.1	70.4	<0.1	0.0	LMC	<0.2	0.0	LMC	<0.1	0.0	LMC	<0.1	<0.1	2.9
Black-winged Stilt	0.3	0.1	4.5	0.4	<0.1	10.0	0.5	0.1	5.2	0.3	0.1	5.3	0.5	0.1	5.6
Pintail/Whistling Snipe	<0.1	<0.1	2.2	<0.1	<0.1	4.3	0.1	<0.1	36.3	<0.1	<0.1	11.0	<0.1	<0.1	36.1
Common Snipe	<0.1	<0.1	2.5	0.1	<0.1	6.6	<0.1	<0.1	3.8	0.1	0.1	17.0	0.1	<0.1	30.0
Bufo toad	<0.1	0.0	LMC	<0.1	0.0	LMC	<0.1	0.0	LMC	<0.1	<0.1	6.1	<0.1	<0.1	22.1
Pallas's Grasshopper Warbler	<0.1	<0.1	2.2	<0.1	<0.1	16.3	<0.1	<0.1	10.2	<0.1	<0.1	4.9	<0.1	<0.1	13.1
Shining Cuckoo	0.1	0.1	1.6	0.1	<0.1	1.3	0.1	0.1	1.1	0.1	0.1	0.1	0.1	0.1	1.0
Japanese Yellow Bunting	0.0	0.0	nr	0.0	0.0	nr	0.0	0.0	CA	0.0	0.0	nr	0.0	<0.1	CA
Red-billed Stilt	1.9	1.1	1.7	1.6	1.0	1.7	0.5	0.5	0.2	0.3	0.8	1.2	0.0	2.0	2.0

nr - Not recorded within LMC/EA 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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Performance of Chinese Pond Heron in Each Month of 2015

Week Ending	LMC EEA	Control Areas	Ratio
1-Feb-15	0.9	0.3	2.9
1-Mar-15	0.8	0.3	2.8
5-Apr-15	1.2	0.4	3.0
3-May-15	0.9	0.3	2.8
31-May-15	0.9	0.3	2.8
28-Jun-15	0.9	0.3	2.7
2-Aug-15	0.9	0.4	2.5
30-Aug-15	0.9	0.4	2.4
4-Oct-15	0.9	0.4	2.2
1-Nov-15	0.9	0.4	2.0
28-Nov-15	0.9	0.4	2.0
8-Jan-16	0.9	0.5	1.9

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



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## Non-numerical Bird Target Performance from 2014 to 2015

Species/Density (mean/ha)	2014			2015		
	LMC	CA	Ratio	LMC	CA	Ratio
SulAsian Wigeon	0.4	<0.1	13.7	1.2	<0.1	1009.9
Little Grebe	0.9	0.5	1.8	1.1	0.9	1.3
Cinnamon Bittern	<0.1	0.0	LMC	<0.1	<0.1	20.8
Black-crowned Night Heron	0.2	<0.1	9.4	0.1	<0.1	2.6
Intermediate Egret	<0.1	<0.1	12.5	<0.1	<0.1	1.4
White-cheeked Staring	0.1	0.1	1.1	0.4	<0.1	21.3
White-shouldered Staring	7.7	0.1	11.5	1.2	0.1	15.8
Yellow-breasted Nunting	0.0	0.0	nr	0.6	<0.1	CA

The above species became target species from October 2014.  
 Species names follows the latest List of Hong Kong Bird from The Hong Kong Bird Watching Society.  
 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.

## Winter Roost Count in 2015

- Winter roost survey was conducted monthly in January to March, November and December;
- Winter roost is mainly located at Pond 2 (the northern bund).

Bird Taxa	Jan-15	Feb-15	Mar-15	Nov-15	Dec-15
Ardeids*	450	251	274	-	278
Black-faced Spoonbill	75	-	13	-	-
Starlings	150	40	202	-	-
Great Cormorant	910	1,270	75	850	1,839
<b>Total</b>	<b>1,585</b>	<b>1,561</b>	<b>564</b>	<b>850</b>	<b>2,117</b>

\* Including Chinese Pond Heron, Eastern Cattle Egret, Grey Heron, Great Egret, Intermediate Egret and Little Egret



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## Egret Decoys Installation in 2015

- A total of 30 decoys were installed on the island of Pond 2 since December 2014;
- All were taken down in August 2015 to avoid the peak period of typhoon;
- All were re-installed in November 2015 on the island of Pond 2 and at Pond 4;
- Some were blown off in late November and removed from the site, they will be installed at the end of the winter to attract the establishment of egretty.



## Nest Boxes Occupation in April to July 2015 and Bird Breeding

- 106 out of 119 bird nest boxes are accessible for survey (the others are too high, outside the boundary fence or on fallen trees);
- Oriental Magpie Robin (1 pair) and White-shouldered Starlings (99 pairs) were found occupying the nest boxes;
- Another 5 with nesting materials;
- The remaining one was empty.



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## Nest Boxes Occupation in April to July 2015 and Bird Breeding

- Two females and one juvenile of Yellow Bittern were sighted in August;
- Cinnamon Bittern probably breeding on site again with up to 3 birds present in June (including a territorial dispute between two males and a male displaying);
- Approximately 20 pairs of Little Grebe were found in May.



## New/ Unusual Bird Species Recorded in 2015

- A total of 260 bird species have now been recorded;
- Black-backed Swamphen, Asian Barred Owllet, Common Swift, Forest Wagtail and Water Pipit are new to LMC EEA.



Black-backed Swamphen *Porphyrio indicus* (May 2015)



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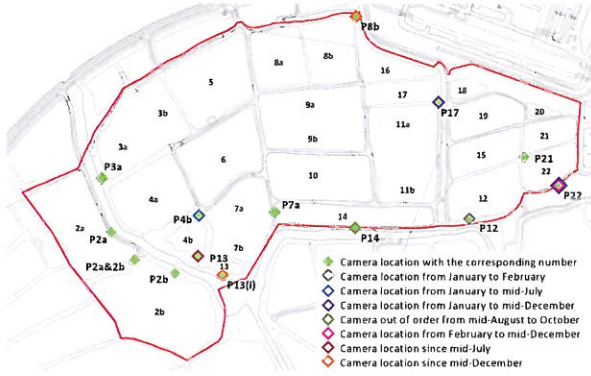


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### Mammal Findings in LMC EEA in 2015

- 10 infra-red cameras in use most of the time during 2015.



### Mammal Findings in LMC EEA in 2015

- No photo of Eurasian Otter was captured in 2015;
- Cameras captured mostly Leopard Cat, followed by, Small Asian Mongoose, 'brown rat', Eurasian Wild Pig and Small Indian Civet.
- Eurasian Wild Pig was firstly recorded in Quarter 3 within the LMC EEA.

Species	Number of Dates Recorded												Total		
	P2a	P2a & 2b	P2b	P3a	P4b	P7a	P8b	P12	P13	P13(I)	P14	P17		P21	P22
'brown rat'	4	11	-	-	-	-	-	-	36	-	-	-	2	-	53
Small Indian Civet	9	-	-	-	-	1	-	-	-	-	2	-	4	4	20
Small Asian Mongoose	10	15	1	-	-	-	-	-	45	-	-	1	-	-	72
Leopard Cat	45	13	12	3	10	17	-	-	1	-	6	2	5	-	114
Eurasian Wild Pig	-	-	-	23	-	4	3	-	5	-	1	3	-	-	39

Key:  
Red - new camera locations (i.e. not installed at the beginning of 2015 but still installed at the end of 2015)  
Blue - old camera locations (i.e. removed during the course of 2015)

### Mammal Targets Recorded since 2006

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>Eurasian Otter <i>Lutra lutra</i></b>										
Maximum Count	1	1	2	1	3*	0	1	1	2	0
No. of Records <sup>1</sup>	2	2	2	1	2	0	1	13 <sup>2</sup>	5 <sup>3</sup>	0
<b>Leopard Cat <i>Prionailurus bengalensis</i></b>										
No. of Records <sup>1</sup>	2	14	5	9	20	12	1	11	87	114 <sup>4</sup>

Note:  
1. Number of dates recorded by all installed cameras plus direct observations.  
Key:  
\* Up to 3 individuals recorded between Ponds 1 and 2 by AFCED  
<sup>2</sup> Including one dead individual found at LMC EEA  
<sup>3</sup> Including direct observation of one individual at Pond 12  
<sup>4</sup> Footprints were recorded.

### Mammal Findings in LMC EEA in 2015



### Small Mammal Trapping in 2015

- 6 traps were set in November and December;
- 4 Chestnut Spiny Rats were trapped in December.



### Reptile Findings since 2006

Species/ Maximum Total Number of Individuals Recorded in All Ponds in LMC EEA	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Red-eared Slider <i>Trachemys scripta</i>	0	0	0	0	1	2	0	2	4	7
Turtle sp.	0	0	0	0	0	0	0	0	0	1*
Reeves' Turtle <i>Mauremys reevesi</i>	0	0	0	0	0	0	0	0	0	1
Chinese Soft-shelled Turtle <i>Pelodiscus sinensis</i>	1	1	1	1	1	1	1	1	1	1
Malayan Snapping Turtle <i>Mydriophaps macropodophila</i>	0	0	0	1	0	0	0	0	0	0
Four-clawed Gecko <i>Gehyra mutilata</i>	0	0	0	0	1	0	0	0	0	0
Chinese Gecko <i>Gekko chinensis</i>	0	0	0	1	0	0	0	0	0	0
Bowling's Gecko <i>Hemidactylus bowringii</i>	4	3	1	2	2	2	1	5	1	2
Chinese Skink <i>Comptosia chinensis</i>	0	0	1	0	0	0	0	1	0	0
Reeves' Smooth Skink <i>Scincella reevesi</i>	0	0	0	0	1	0	0	0	0	1
Common Blind Snake <i>Ramphotyphlops bipartitus</i>	0	0	0	0	1	0	0	0	0	0
Burmese Python <i>Python bivittatus</i>	1	1	1	0	0	0	0	1	1	1
Chinese Water Snake <i>Enhydris chinensis</i>	1	1	0	1	0	1	0	1	0	0
Plumbeous Water Snake <i>Enhydris plumbea</i>	0	0	0	1	1	0	0	0	0	0
Indo-Chinese Rat Snake <i>Ptyas korros</i>	1	1	0	0	0	0	0	0	0	0
Common Rat Snake <i>Ptyas mucrosus</i>	1	1	1	0	1	1	1	1	0	1
Buff-striped Keelback <i>Amphisema stolidum</i>	0	0	0	0	0	0	0	1	0	0
Chinikeril Keelback <i>Xenochrophis piscator</i>	1	2	1	2	6	3	1	2	0	1
Chinese Banded Krait <i>Bungarus multicinctus</i>	0	1	0	0	0	0	1	1	0	0
Chinese Cobra <i>Naja atra</i>	0	0	0	0	1	0	1	1	0	0
<b>Number of species recorded</b>	<b>7</b>	<b>8</b>	<b>6</b>	<b>7</b>	<b>10</b>	<b>6</b>	<b>6</b>	<b>11</b>	<b>4</b>	<b>9</b>
<b>Total number of species recorded</b>	<b>20</b>									

Key:  
\* unknown, probably an captive specimen  
# sighting made by the contractor responsible for reprofiling works.

### Reptile Targets Recorded since 2006

- A sighting of Burmese Python was reported by the contractor responsible for reprofiling works at Pond 8.
- Footprints of Chinese Soft-shelled Turtle were recorded in Pond 7 in January 2015 and an individual was recorded during the night survey in August 2015.



Species	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Burmese Python <i>Python bivittatus</i>	2 (1)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	3 (1)	1* (1)
Chinese Soft-shelled Turtle <i>Pelodiscus sinensis</i>	2 (1)	1 (1)	1* (1)	2* (1)	1 (1)	1 (1)	1 (1)	2 (1)	2 (1)	2* (1)

Total count is indicated in the table, whereas the numbers in bracket, are the maximum count per survey.  
Key:  
@ in period from January to June 2015  
\* Sighting reported by the reprofiling contractor  
\* include one track record



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### New Reptile Species Recorded in 2015

- Two individuals of Reeve's Turtle were recorded in Pond 22.



29<sup>th</sup> October 2015



20<sup>th</sup> November 2015

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### Amphibian Findings since 2006

- No record of Chinese Bullfrog was made in 2015.

Species/ Maximum Total Number of Individuals Recorded in All Ponds in LMC EEA	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Asian Common Toad <i>Bufo melanostictus</i>	0	3	3	1	2	4	3	1	2	7
Asiatic Painted Frog <i>Kaloula pulchra</i>	0	0	0	0	0	2	2	1	0	0
Butler's Pigmy Frog <i>Microhyla butleri</i>	0	0	0	1	2	0	0	2	0	0
Ornate Pigmy Frog <i>Microhyla ornata</i>	0	9	13	46	128	25	5	7	4	0
Marbled Pigmy Frog <i>Microhyla pulchra</i>	0	0	0	0	0	0	0	0	1	0
Paddy Frog <i>Fejervarya limnocharis</i>	35	25	23	14	12	7	20	6	1	10
Chinese Bullfrog <i>Hoplobatrachus chinensis</i>	0	1	1	2 (2)	4 (6)	2 (5)	2 (8)	1 (2)	1 (2)	0 (0)
Günther's Frog <i>Rana guntheri</i>	130	157	145	74	137	86	132	108	293	115
Two-striped Grass Frog <i>Hyla tauohensis</i>	0	0	0	0	2	1	1	1	0	2
Brown Tree Frog <i>Fulvopedates megacephalus</i>	12	16	32	33	27	33	12	14	7	3
<b>No. of species recorded</b>	<b>3</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>9</b>	<b>7</b>	<b>5</b>

Maximum count (per survey) is indicated in the table, for Chinese Bullfrog, from 2009, the numbers in brackets are the total number recorded in the year



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### Dragonfly Findings since 2006

- There is a slight drop in the number of species recorded in 2015; the trend will be monitored.

Dragonfly recorded as adults or exuviae at LMC EEA	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015*
Orange-tailed Midget <i>Agrocnemis femina</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wandering Midget <i>Agrocnemis pygmaea</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Orange-tailed Spine <i>Zygonyx parvicornis</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Common Bluelet <i>Ischnura senegalensis</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blue Sprite <i>Pseudagrion microcephalum</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pale-spotted Emperor <i>Anax guttatus</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lesser Emperor <i>Anax parthenope</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Common Froglet <i>Limnodynastes pernix</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Golden Froglet <i>Pseudagrion chryseum</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Regal Pond Cruiser <i>Epopteryx elegans</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Asian Pintail <i>Acisoma panorpoides</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blue Dasher <i>Brachydiplax chalybea</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Asian Amberwing <i>Brachythemis contaminata</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Crimson Darter <i>Cycothemis senilis</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blue Percher <i>Diplacodes trispinosa</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Amber-winged Glider <i>Hydrobiella croceus</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coastal Glider <i>Macroglyptis cora</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Russet Percher <i>Neurothemis julia</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pied Percher <i>Neurothemis fulva</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Common Red Skimmer <i>Orthetrum prasinum</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Green Skimmer <i>Orthetrum sabina</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wandering Glider <i>Pantala flavescens</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pied Skimmer <i>Pseudothemis conata</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Key: @ in period from January to June 2015; \* A Midget species is also recorded



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Pied Skimmer <i>Pseudothemis conata</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ruby Darter <i>Rhodothemis nifa</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sapphire Flutterer <i>Rhyothemis triangulata</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Winged Flutterer <i>Rhyothemis variegata</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Evening Skimmer <i>Trithemis fulvipes</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Saddlebag Glider <i>Tramea viridis</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Crimson Drogwing <i>Trithemis aurora</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dancing Drogwing <i>Trithemis pallidipes</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Scarlet Basker <i>Trithemis sagitta</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Number of Species Recorded</b>	<b>22</b>	<b>23</b>	<b>23</b>	<b>22</b>	<b>24</b>	<b>21</b>	<b>25</b>	<b>22</b>	<b>21</b>	<b>17</b>
<b>Total Number of Species Recorded</b>	<b>32</b>									

Key: @ in period from January to June 2015; \* A Midget species is also recorded



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### Major Uncoming Events: Reprofiling of Ponds 20 – 22



#### Ponds 20, 21 and 22 - Reprofiling

- To provide a large lily pond;
- Lilies of transplanted from Pond 15 to Pond 8 in October and December 2015;
- Clearance of vegetation and removal of topsoil containing lotus/rhizomes in Ponds 20, 21 and probably 22;
- Once lotus has been eradicated from reprofiled Ponds 20 – 22, lilies will be transplanted from Pond 8.

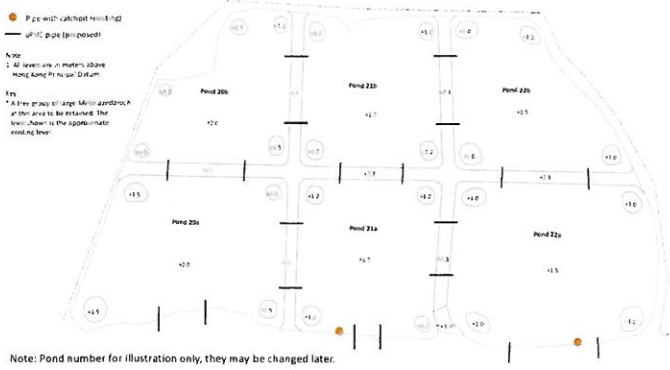


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## Major Upcoming Events: Reprofiling of Ponds 20 – 22

### Conceptual plan:

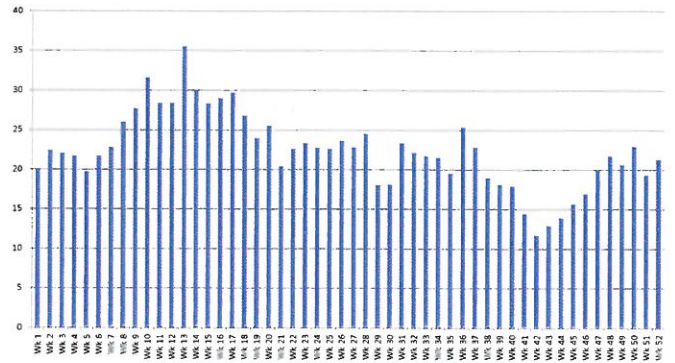


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## Analysis on Abundance of Little Grebe in LMC EEA

Mean of Weekly Abundance of Little Grebe between 2006 and 2015

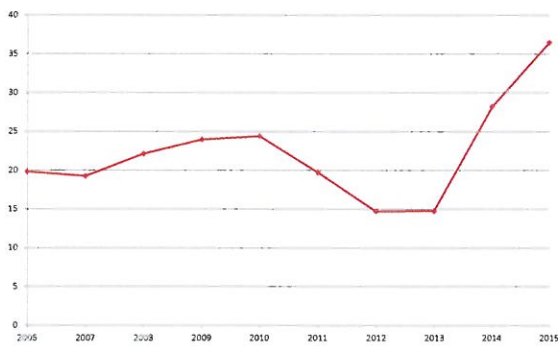


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## Analysis on Abundance of Little Grebe in LMC EEA

Mean Abundance per Week of Little Grebe between 2006 and 2015



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## The End



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## Overview of Management Works: Pest Management

### Pest Management (Red Imported Fire Ant)

- 1,333 Red Fire Ant nests were treated with the approved pesticide in 2015;
- Red Imported Fire Ant nest treatment using the approved pesticide will be continued.

Year	2008	2009	2010	2011	2012	2013	2014	2015
No. of nests treated	170	164	(not available)	315	790	1,760	1,211	1,333



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Overview of Management Works: Pest Management

Pest Management (Apple Snail – hand picking)

- Manual removal of Apple Snails in Compartment C continued.
- Apple Snails removed in 2015:

Month	Apple Snail Removed (kg)								
	Pond 15	Pond 16	Pond 17	Pond 18	Pond 19	Pond 20	Pond 21	Pond 22	Total
January	-	-	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-
April	-	-	-	-	140	-	-	-	140
May	-	-	15	-	-	-	-	-	15
June	-	-	-	-	-	-	-	-	-
July	-	-	-	-	3	-	-	-	3
August	-	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-	-
November	-	-	-	-	-	-	-	-	-
December	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>143</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>158</b>



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