
SHEUNG SHUI TO LOK MA CHAU SPUR LINE

Environmental Committee

Minutes of Meeting No. 22 held at 2:00pm
On Monday, 16 January 2012,
at Room 709, 8/F, MTR Headquarters Building.

Present:		
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. Paul Leader	Ecological Consultant	Member (consultant)
Ms. Lai Nga-yee	Ecological Consultant	Member (consultant)
Ms. Janice Choi	Works Maintenance Manager	Member (MTR)
Dr. Chan Kam-foon	Environmental Engineering Manager	Member (MTR)
Ms. Catherine Leung	Manager - Environmental Engineer	Member (MTR)
Mr. Peter Choi	Environmental Engineer	Member (MTR)
Absent with apology:		
Mr. Michael Kilburn	The Hong Kong Bird Watching Society	Member (NGO)

	<u>Action By</u>
1. Welcomed Members to the No. 22 EC meeting.	
Item 1 - <u>Confirmation of minutes of Meeting No. 21</u>	
2. There were no comments on the minutes of Meeting No. 21 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 ecological monitoring and management work undertaken between July and December 2011 at the LMC EEA (detailed in Annex A). It was noted that: <ul style="list-style-type: none"> • All management activities comprised routine management practices such as vegetation management, including grass cutting, weeding, and other micro-habitat management practices, pond drain down, fish stocking, and pest control. 	Noted
<ul style="list-style-type: none"> • <u>A Member (NGO)</u> noted that summer fish stocking in 2011 at LMC EEA this year is later than that of the previous years. <u>A Member (MTR)</u> explained that local suppliers refused to supply fish. Alternative, sourcing from the mainland supplier was explored in poor quality. Suitable fish for stocking was available in August 2011. 	Noted
<ul style="list-style-type: none"> • <u>A Member (NGO)</u> queried if there are anything that can be done to prevent the late summer fish stocking from happening again as the late fish stocking in summer could have a negative impact on the target species. <u>A Member (consultant)</u> noted that the late stocking meant fewer ponds were available for draining this winter and the site management would be reviewed to avoid the impact to attract the target species. 	Noted
<ul style="list-style-type: none"> • <u>A Member (consultant)</u> noted that density of large waterbirds at the EEA this year was lower compared with last winter. Detail study will be made in the review report. 	Noted
<ul style="list-style-type: none"> • <u>A Member (NGO)</u> shared that Ospreys were noted perching on the osprey platforms at Mai Po but there were as yet no sign of breeding or nesting. 	Noted
<ul style="list-style-type: none"> • <u>A Member (NGO)</u> queried on the progress of decoy purchasing and placing. <u>A Member (consultant)</u> noted that a few trial decoys have already been purchased and would be delivered very soon. Acquisition of decoys was delayed due to contractor issues. The trail decoys will be placed in the EEA by AEC shortly after Chinese New 	Noted

	<u>Action By</u>
<p>Year,</p> <ul style="list-style-type: none"> • <u>A Member (NGO)</u> reported that a highest count of Great Egret and Little Egret last year at Mai Po Nature Reserve were recorded during <i>gei-wai</i> drain-down in summer and suggested that similar practices at EEA may help achieving the Little Egret target at LMC EEA. <u>A Member (consultant)</u> noted that such practices will be proposed in the coming summer. Ponds with high number of small fish will be drained and fish fingerlings may also be stocked to attract large waterbirds in summer. • <u>A Member (NGO)</u> queried if there are comparisons on the exuvia trap data between years. <u>A Member (consultant)</u> noted that this would address in detail during the 5-yearly review. • <u>A Member (NGO)</u> queried on the collecting location of the rainfall data used for the correlation of amphibian diversity and abundance. <u>A Member (consultant)</u> noted that the rainfall data used were collected at the Hong Kong Observatory as the datasets collected at the nearby locations. <u>A Member (NGO)</u> suggested setting up a mini weather station at EEA for collecting more accurate data for comparison. <p>[PMN: the rainfall data would be kept collecting from the Hong Kong Observatory for reference.]</p>	<p>Noted</p> <p>Noted</p> <p>Noted</p>
<p>4. <u>A Member (NGO)</u> asked what provision had been made with regards to wildlife access during the design of the site boundary fence. <u>A Member (MTR)</u> noted that the concern was identified and discussed with AFCD on this. The proposed fence design along Ponds 1 and 2 and the two streams at EEA will be a gap of 20cm between the fence and the ground to allow mammals (especially Eurasian Otter) to access the site (detailed in Annex B). Wildlife holes will be provided on the other section of the fences to facilitate mammal access, but would be limited the size for dogs to access.</p>	<p>Noted</p>
<p>5. <u>A Member (NGO)</u> noted that construction of site boundary fence could decrease the number of dogs at EEA, and noted that quite a lot of dog-kills of mammals were observed at Mai Po and there was only one record of otter at the nature reserve last year. <u>A Member (consultant)</u> noted that were trapped on occasion.</p>	<p>Noted</p>
<p>6. <u>A Member (NGO)</u> queried if there could be fences across the streams at the EEA, rather than along the length and on both sides as proposed. <u>A Member (MTR)</u> noted that it is suggested by DSD not to build any fences across the stream as stream flow could be obstructed.</p>	<p>Noted</p>
<p>7. <u>A Member (NGO)</u> queried if public can access the ponds between the EEA and the new border fence (on the Shenzhen River side of the site) after the opening of FCA and if these ponds would be fenced up. <u>A Member (consultant)</u> noted that these ponds are government ponds but no longer</p>	<p>Noted</p>

	<u>Action By</u>
managed by AFCD and would be accessible by the public.	
8. EC members queried on the schedule and format of the 5-yearly review and management plan of EEA. <u>A Member (MTR)</u> noted that the draft of the 5-yearly management review would be sent to all EC members, AFCD and EPD for comments. The update 5-yearly HCMP will be then prepared based on the findings in the 5-yearly management review. <u>A Member (consultant)</u> noted that the draft 5-yearly management review would be targeted to complete in mid of 2012.	Noted
9. <u>A Member (NGO)</u> queried on whether the 5-yearly management review would be in the public domain. <u>A Member (consultant)</u> further noted that there is no requirement in the EP for the 5-yearly management review to be made public. The formats and contents of this report were agreed by MTR, AFCD and EPD.	Noted
10. <u>A Member (NGO)</u> was concerned that any changes in monitoring methodologies may result in data sets becoming incomparable. <u>A Member (consultant)</u> noted that any changes on methodology would almost certainly be restricted to less critical aspects of the monitoring and for which there exist sufficient baseline data. However, any changes would only be decided during the 5-yearly management review.	Noted
Item 3 - <u>Any Other Business</u>	
11. None.	Noted
Item 4 - <u>Date of Next Meeting</u>	
12. The date of the next meeting is to be advised.	Noted

Annex A

**Lok Ma Chau Spur Line
22nd Environmental Committee Meeting
16th January 2012**

**Report on Ecological Monitoring
& Management & Works Programme
Jul – Dec 2011**

Asia Ecological Consultants Limited

**Overview of Management Works
Jul - Dec 2011**

Vegetation Management

- Routine grass cutting
- Routine weeding
- Routine removal of unwanted species (*Phragmites*, *Typha*, *Mimosa*, *Mikania* etc.)
- Removal of sedge patches from Pond 17
- Tree pruning at Ponds 2 and 4
- Manual removal of *Nelumbo* & Parrot Feather *Myriophyllum aquaticum* from Pond 21

**Overview of Management Works
Jul - Dec 2011**

General Site Management

- Golden Apple Snail removal at Ponds 14 – 22
- Re-application of Red Fire Ant treatment (Extinguish) after wet season
- Water quality management
- Dog trapping
- Replacement of the Bird Tower at Pond 2

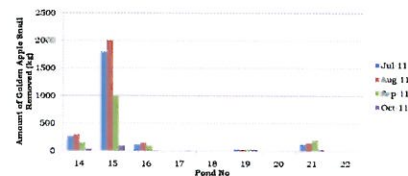
**Overview of Management Works
Jul - Dec 2011**

General Site Management

- Golden Apple Snail removal at Ponds 14 – 22

Quantity (kg) of Apple Snail Removed by Contractor

Month	14	15	16	17	18	19	20	21	22	Total
Jul 11	470	1500	10	10	0	25	10	100	10	2025
Aug 11	300	2000	10	10	0	20	10	150	10	2490
Sep 11	150	1000	10	10	10	20	10	200	10	1330
Oct 11	0	100	10	10	0	20	0	30	0	170



***Nelumbo* Control at Pond 21
Presence of Pheasant-tailed Jacana**



Before clearance

After clearance

Up to 8 Pheasant-tailed Jacanas were recorded in October; which equals the highest count recorded in 2009. One bird is still present in January 2012.

**Overview of Management Works
- Fish Issue (Late Summer Stocking)**

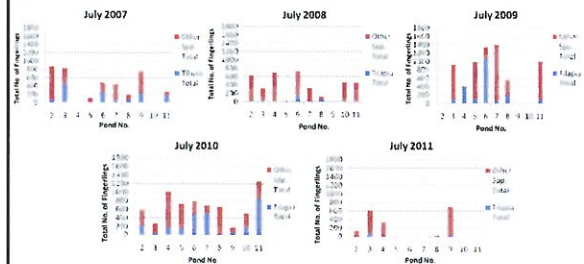
Comparison of Fish Stocked in the Summer Months from 2007 to 2011

Year/Month	Apr	May	Jun	Jul	Aug
2007	4,992		4,450	4,750	1,000
2008			7,407	5,654	3,114
2009		10,343	5,538		
2010			15,546	2,359	
2011		1,394	2,207		9,073

* summer refers to April to August of that year

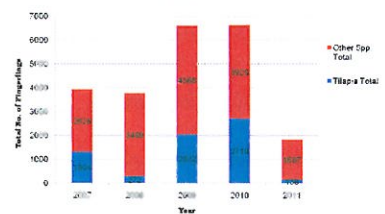
Overview of Management Works - Fish Issue (Late Summer Stocking)

Comparison of Total Number of Fish Fingerling Recorded in The Stocked Ponds in July from 2007 to 2011



Overview of Management Works - Fish Issue (Late Summer Stocking)

Total No. of Fish Fingerlings recorded in Fish Survey (Including drag and throw net) July 2007-2011



Resolution of Fish Issue (Stocking in Winter)

- Issue with sourcing fish – mixed fish (including tilapia)
- Small fish (mainly carp sp.) stocking



Resolution of Fish Issue (Remedial stocking in early winter)

Quantity (kg) of fish stocked in Oct – Dec 2011

Date\Pond	2	3	4	5	6	7	8	9	10	Total
04-Oct-11			780							780
01-Nov-11					514	2,872				3,386
03-Nov-11					781					781
04-Nov-11	1,391			2,298						3,689
18-Nov-11			605							605
19-Nov-11			968		2,419					3,387
21-Nov-11							1,814	1,814	2,721	6,349
22-Nov-11		3,084		2,298						5,382
26-Nov-11			2,565*							2,565
Total										26,924

* Including 1,500kg of small fish

Resolution of Fish Issue (Top-up stocking in late winter)

Tentative Date	Quantity (kg)
	Mixed Fish (Tilapia/Carp sp.)
1 st Jan (Mon)	2,000
1 st Feb (Wed)	1,000
6 th Feb (Mon)	1,000
13 th Feb (Mon)	1,000
20 th Feb (Mon)	1,000
27 th Feb (Mon)	1,000
3 rd Mar (Mon)	1,000
12 th Mar (Mon)	1,000
19 th Mar (Mon)	1,000
26 th Mar (Mon)	500

Scheduled Management Works for 2012 Dry Season (Jan - Mar)

- Timely water level adjustment and fish stocking
- Provision of food for ducks and starlings
- Continue with routine grass cutting and general vegetation management
- Monitoring establishment of *Nymphaea* and control of *Nelumbo*
- Control & monitor of exotic plants
- Control of Apple Snails, Fire Ants and dog trapping
- Control of water quality
- Control of Climbing Perch *Anabas testudineus* in Pond 7
- Provision of an osprey platform between Ponds 4 & 7
- Provision of bird decoys to encourage establishment of an egret

Scheduled Management Works for 2012 Wet Season (Apr - Jun)

- Control of water quality
- Fish stocking for winter
- Routine grass cutting and general vegetation management
- Monitoring establishment of *Nymphaea*
- Monitoring success of herbicide trial and continuing control of *Nelumbo*
- Control & monitor of *Phragmites* in all ponds (except Pond 14)
- Control the spread of Parrot Feather in Pond 21
- Control of Apple Snails, Fire Ants and dog trapping
- Monitor the potential impact of the site boundary fence erection
- Additional planting/screen for viewing

Operational Stage Monitoring

- Required as off August 2007 when Spurline commenced operation (although operational stage monitoring started in January 2006)
- Wildlife targets extended to cover species of conservation importance detailed in the Environmental Impact Assessment:
 - Eurasian Otter
 - 26 bird species (c.f. Table 2.3 of the HCMP)
 - Burmese Python, Chinese Soft-shelled Turtle, Chinese Bullfrog
 - Dragonflies (increased numbers and species diversity)

Monitoring of Target Waterbird Species: protocol

- Counts from towers at LMC at Mai Po San Tsuen (MPST) for larger waterbirds and raptors.
- Transect survey for smaller target species at LMC and MPST and for all species at San Tin.
- Methodology for calculation of targets reviewed in early 2007 (included in HCMP)



26 Bird Target Species (2007-2011)

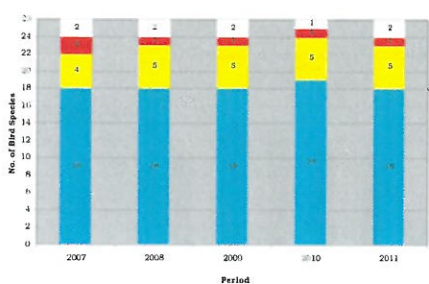
Species Name	2007			2008			2009			2010			2011		
	LCM	CA	Other	LCM	CA	Other	LCM	CA	Other	LCM	CA	Other	LCM	CA	Other
Great Cormorant	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-necked Grebe	0.68	0.65	1.20				0.90	0.45	1.20						
Greater Spotted Eagle	1.14	0.71	1.80	0.70	0.21	1.02	1.19	0.90	1.80	0.93	0.75	1.65			
Imperial Eagle				0.45	0.43	1.04	0.72	0.48	1.52	0.58	0.50	1.37	0.80	0.92	1.60
Collared Crow	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Yellow-breasted Bunting	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-faced Spoonbill	0.00	0.00	nr	0.00	0.00	nr	0.00	0.00	nr				0.00	0.00	nr
Chinese Black Stork	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Greater White Egret	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lesser White Egret	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Wattled Crane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-billed Stork	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-billed Cuckoo	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-winged Stilt	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-billed Woodpecker	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-billed Kingfisher	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-billed Cuckoo	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-billed Kingfisher	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-billed Woodpecker	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-billed Kingfisher	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Black-billed Woodpecker	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

NR - Not recorded within WTA or Control Areas during the period.
 Blue - Target met (i.e. counts in WTA 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.
 * - based on observations only.

Details are provided in [Appendix 1](#)

26 Bird Target Species (2007-2011)

26 Bird Targets Update



NR - Not recorded within WTA or Control Areas during the period.
 Blue - Target met (i.e. counts in WTA 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.
 * - based on observations only.

Endangered Birds Jul - Dec 2011

Species name	Status	Highest Count					
		Jul	Aug	Sep	Oct	Nov	Dec
Black-faced Spoonbill ^	Endangered	0	0	0	0	165	286
Greater Spotted Eagle	Vulnerable	0	0	0	1	1	2
Imperial Eagle	Vulnerable	0	0	0	0	1	3
Collared Crow	Near Threatened	0	0	0	3	0	0
Yellow-breasted Bunting	Vulnerable	0	0	0	6	0	0

Remarks:
 ^ A record count of 286 Black-faced Spoonbill was obtained on 10th January 2012, which is the highest record of this species since the establishment of EEA

Mammal Sightings

- Five records of **Leopard Cat** and regular records of individuals of **Chestnut Spiny Rat** between June and December 2011.
- Leopard Cat photos were examined to identify the number of cats using the site: out of **37 photos** obtained between 31 Mar 2010 and 13 Nov 2011, **at least six Leopard Cat individuals** were identified.



Small Mammal Record (2007-08)

Fieldable Species Common Name	Scientific Name	Number of slides	Number of dates recorded on	Number of ponds recorded at
Mask Shrew	<i>Suncus murinus</i>	1	1	1
Grey Shrew	<i>Crocidura indica</i>	1	1	1
Chestnut Spiny Rat	<i>Neopithecus indochinensis</i>	20	7	5
Indochinese Field Rat	<i>Rattus andamanensis</i>	8	4	3
Roof Rat	<i>Rattus rattus</i>	13	6	4
House House Rat	<i>Rattus norvegicus</i>	5	4	4
Town Rat	<i>Rattus norvegicus</i>	26	5	2
Spiny Mouse	<i>M. everetti</i>	2	2	2
Tree Shrew Field Rat or Asiatic House Rat	<i>Rattus andamanensis</i> or <i>Rattus norvegicus</i>	11	4	2
Roof Rat or Asiatic House Rat	<i>Rattus rattus</i> or <i>Rattus norvegicus</i>	10	7	1
Unidentified Rat	<i>Rattus sp.</i>	3	1	1
Aggregate Total		173		

Note that some identifications are provisional. Further study (trap & release) to elucidate species identification and also small mammal usage of the site is proposed.

Mammal Targets (max recorded):

Species Name/No. of records	2006	2007	2008	2009	2010	2011
Eurasian Otter <i>Lutra lutra</i>	2	2	2	1	3*	0

* Up to 3 individuals recorded between Pond 1 and 2 by AFCD.

Herpetofauna Targets:

Species Name/Maximum Count	2006	2007	2008	2009	2010	2011
Chinese Bullfrog <i>Hoplobatrachus chinensis</i>	0	1	1	2	4	2
Burmese Python <i>Python molurus</i>	1	0	1	0	0	0
Chinese Soft-shelled Turtle <i>Pelodiscus sinensis</i>	1	1	1	1	1	1

Herpetofauna Observations

Amphibians

Maximum Total Number of Individuals recorded in all ponds in LMC EEA		2006	2007	2008	2009	2010	2011
Asian Common Toad	<i>Bufo melanostictus</i>	0	3	3	1	2	4
Asiatic Painted Frog	<i>Kalouala pulchra</i>	0	0	0	0	0	2
Buller's Pigmy Frog	<i>Microlyla bulleri</i>	0	0	0	1	2	0
Ornate Pigmy Frog	<i>Microlyla ornata</i>	0	9	13	46	128	25
Paddy Frog	<i>Ferrivarya limaculata</i>	35	25	23	14	12	7
Chinese Bullfrog	<i>Hoplobatrachus chinensis</i>	0	1	1	2	4	2
Gardner's Frog	<i>Rana guntheri</i>	130	157	145	74	137	86
Two striped Grass Frog	<i>Rana tagetensis</i>	0	0	0	0	2	1
Brown Tree Frog	<i>Polypedates megacephalus</i>	12	16	32	25	27	33
No. of species recorded		8	6	6	7	8	8
Total No. of species recorded		9					

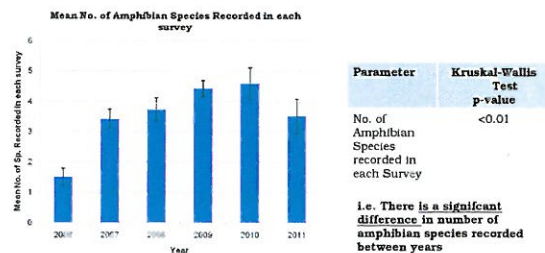
Reptiles

- One Chinese Soft-shelled Turtle was found in November 2011 during fish survey

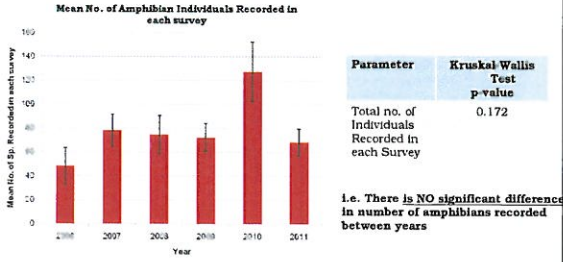
Statistical Analysis of Amphibian Diversity and Abundance at LMC EEA

- Total number of amphibian species and individuals recorded in each amphibian survey at LMC EEA in 2006, 2007, 2008, 2009, 2010 and 2011 were used to conduct statistical analysis
- Compare the differences in number of individuals recorded in a survey among the six years
- As the data are non-parametric, **Kruskal-Wallis Test** was used for the analysis

Statistical Analysis of Amphibian Diversity and Abundance at LMC EEA



Statistical Analysis of Amphibian Diversity and Abundance at LMC EEA



Statistical Analysis of Amphibian Diversity and Abundance at LMC EEA

Species	Kruskal-Wallis Test	
	p-value	Significant differences between years? (p<0.05)
Asian Common Toad	0.207	NO
Asian Painted Frog	0.420	NO
Bahian Pigmy Frog	0.016	YES
Ornate Pigmy Frog	<0.001	YES
Paddy Frog	<0.001	YES
Chinese Bullfrog	0.117	NO
Günther's Frog	0.369	NO
Two striped Grass Frog	0.553	NO
Brown Tree Frog	0.010	YES

Details are provided in [Appendix 2](#)

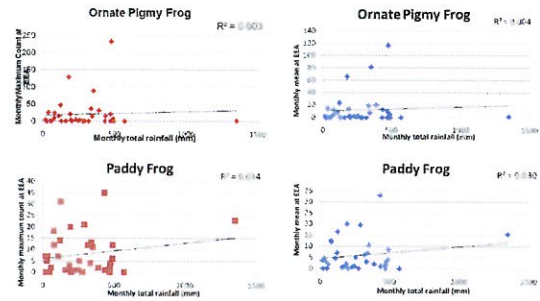
Statistical Analysis of Amphibian Diversity and Abundance at LMC EEA

Relation between Rainfall and Amphibian abundance

- Total monthly rainfall (in mm) was obtained from HK Observatory
- Monthly mean and maximum count of Four most abundant species at EEA (i.e. Ornate Pigmy Frog, Paddy Frog, Günther's Frog and Brown Tree Frog) in wet season from 2006 to 2011 were used for the statistical analysis
- see if there are any significant correlations between rainfall and the abundances of these four species at EEA

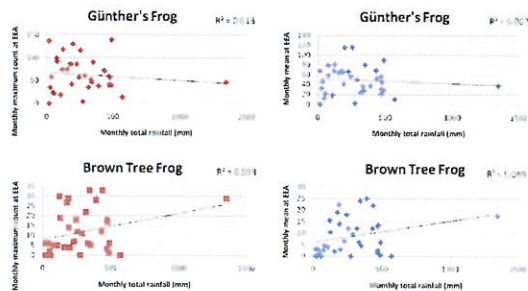
Statistical Analysis of Amphibian Diversity and Abundance at LMC EEA

Results



Statistical Analysis of Amphibian Diversity and Abundance at LMC EEA

Results



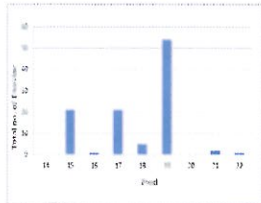
Dragonfly Targets

Species Diversity

Dragonfly recorded as adults at LMC EEA	2006	2007	2008	2009	2010	2011
Orange-tailed Libellule	✓	✓	✓	✓	✓	✓
Wandering Glider	✓	✓	✓	✓	✓	✓
Chinese-tailed Spittle	✓	✓	✓	✓	✓	✓
Common Bluet	✓	✓	✓	✓	✓	✓
Pale-spined Emperor	✓	✓	✓	✓	✓	✓
Lesser Emperor	✓	✓	✓	✓	✓	✓
Common Blue-tail	✓	✓	✓	✓	✓	✓
Golden Flagtail	✓	✓	✓	✓	✓	✓
Regal Pond Skimmer	✓	✓	✓	✓	✓	✓
Asian Flattail	✓	✓	✓	✓	✓	✓
Blue Line	✓	✓	✓	✓	✓	✓
Asian Amberwing	✓	✓	✓	✓	✓	✓
Chinese Darter	✓	✓	✓	✓	✓	✓
Blue Flycatcher	✓	✓	✓	✓	✓	✓
Asiatic Broad Chaser	✓	✓	✓	✓	✓	✓
Crested Glider	✓	✓	✓	✓	✓	✓
Pink Preleer	✓	✓	✓	✓	✓	✓
Common Red Nymph	✓	✓	✓	✓	✓	✓
Green Skimmer	✓	✓	✓	✓	✓	✓
Wandering Glider	✓	✓	✓	✓	✓	✓
Blue Skimmer	✓	✓	✓	✓	✓	✓
Asian Emperor	✓	✓	✓	✓	✓	✓
Unspined Flatwing	✓	✓	✓	✓	✓	✓
Bronze Whisker	✓	✓	✓	✓	✓	✓
Red-tailed Glider	✓	✓	✓	✓	✓	✓
Wandering Dragonfly	✓	✓	✓	✓	✓	✓
Scarlet Darter	✓	✓	✓	✓	✓	✓
No. of Species Recorded		22	23	23	22	21
Total No. of Species Recorded		27				

Dragonfly Record (Exuviae) at Individual Pond 2011

Pond Totals	14	15	16	17	18	19	20	21	22	Total
<i>Belostomatidae</i> (Common Bladder)	0	18	0	0	0	0	0	0	1	19
<i>Anax guttatus</i> (Pal-spotted Emperor)	0	0	0	3	0	0	0	0	0	3
<i>Isomegoplus pernix</i> (Common Flattail)	0	0	0	3	0	0	0	0	0	3
<i>Brachytrichia rotundata</i> (M-hair Amberwing)	0	1	0	0	0	1	0	0	0	2
<i>Leucterium pectinatum</i> (Common Red Skimmer)	0	0	0	0	1	0	0	0	0	1
<i>Coenagrion scitulum</i> (Green Skimmer)	0	1	1	18	2	2	0	1	0	25
<i>Pantala flavescens</i> (Waterwing/Gilder)	0	0	0	0	0	1	0	0	0	1
<i>Rhyothemis variegata</i> (Coppered Flattail)	0	1	0	0	0	0	0	0	1	2
Total Number of Exuviae Recorded	0	21	1	21	3	3	1	0	2	52
Total Number of Species Recorded	0	4	1	2	2	2	0	2	1	8



Pond Habitat No.	Habitat	Note
14	Reed Marsh (exotic)	Notes provided for management purposes
15	Open water with extensive emergent vegetation	
16	Open shallow water with some emergent vegetation	High abundance of <i>Gambusia</i> in Marsh
17	Shallow water with extensive emergent vegetation	
18	Open shallow water with some emergent vegetation	High abundance of <i>Gambusia</i> in Marsh
19	Open shallow water with extensive emergent vegetation	
20	Lotus	High abundance of <i>Gambusia</i> throughout wet season
21	Lotus	High abundance of <i>Gambusia</i> throughout wet season
22	Reefbed	Water level adjusted for management purposes

Update on the Preparation of the 5-yearly Review of HCMP

Meeting with Relevant Government Departments:

1. The review document will be titled **"Wetland Management and Monitoring Review"** and will be a standalone document;
2. Any changes proposed (addition/deletion/modification) should be properly supported, such as detailing initial reason for inclusion as a target species and subsequent change in status etc.,
3. Any changes made in the interim (from the HCMP 2006) should be documented and supported (such as bird count method);
4. The Review should cover 2007 – 2011.

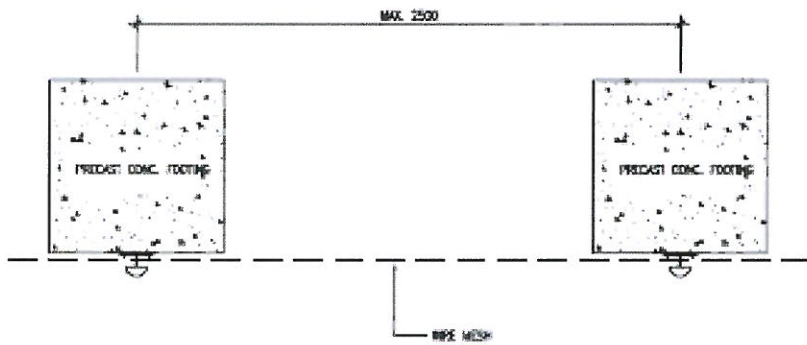
Update on the Preparation of the 5-yearly Review of HCMP

Items to be Reviewed:

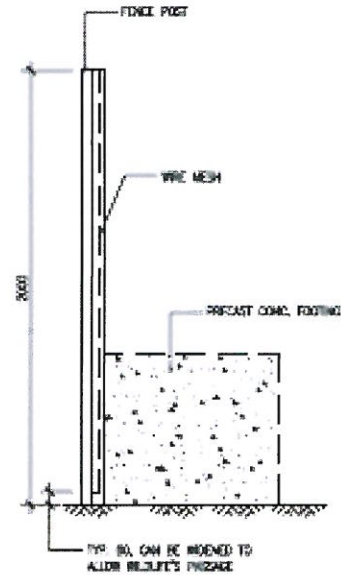
1. Monitoring Parameters;
2. Methodology, including frequency;
3. Target species;
4. Habitat management practices;
5. Habitat areas

Annex B






PLAN
FOOTING OF APPROX. SIZE
800 x 800 x 750 DEPTH



SECTION

DATE: 2011/04/08
DRAWN BY: [Name]
CHECKED BY: [Name]
APPROVED BY: [Name]

DESIGNED	CHK'D	DATE
DRAWN	BY	DATE
CHECKED	BY	DATE
APPROVED	BY	DATE
DATE	2011/04/08	

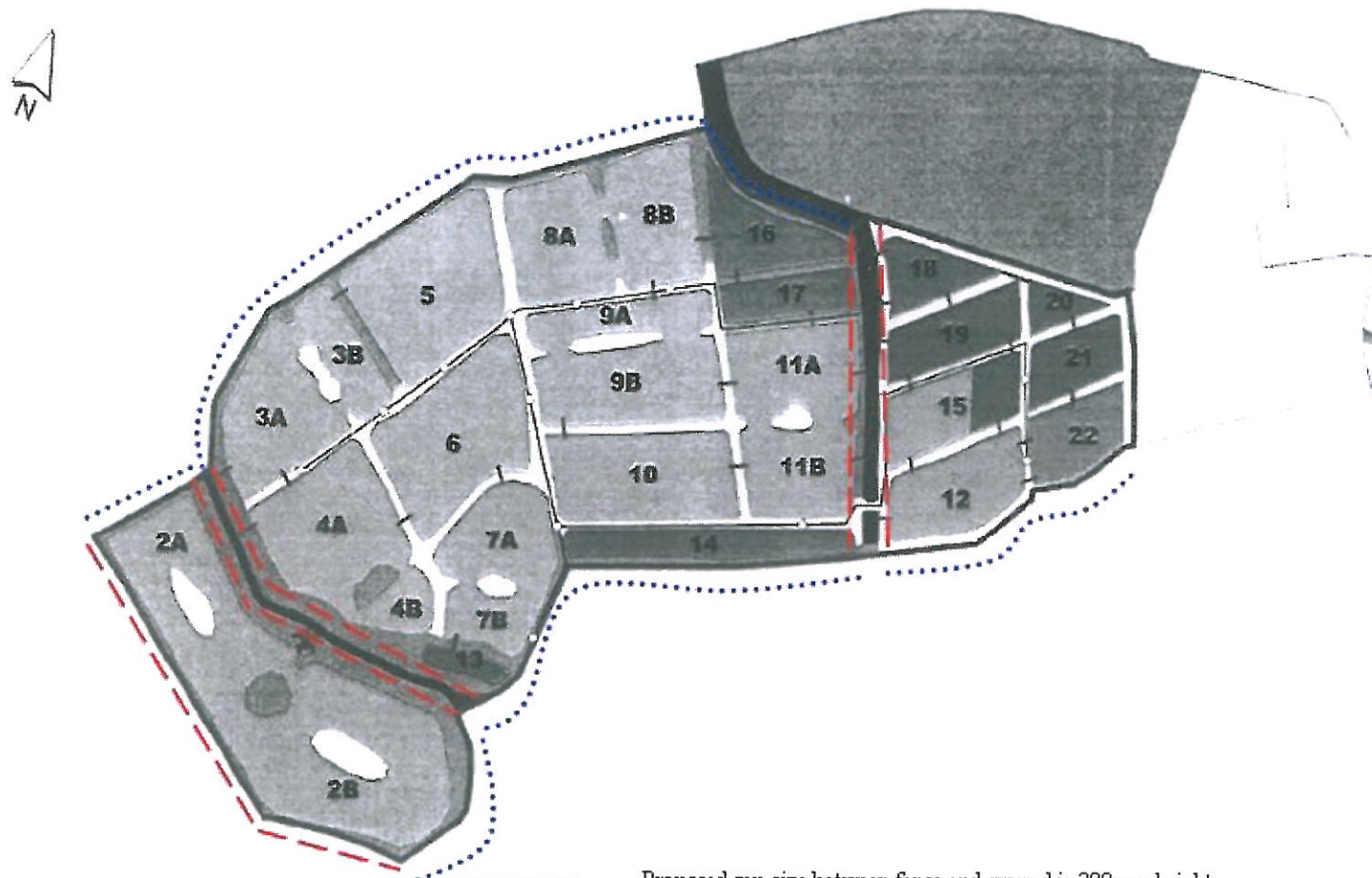


OPERATIONS DIVISION

TECHNICAL & ENGINEERING SERVICES DEPARTMENT

CDR 1. LAC, INC. 2011, 2012 &

TYPICAL DETAILS OF FENCING AT LMC	
REV.	DATE
1/20	02/20/11
2/00	02/01/10
3/00	02/01/10



Proposed gap size between fence and ground is 200mm height

Proposed wildlife hole is 250mm height x 200mm width at each 10 meter