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**Mai Po Inner Deep Bay Ramsar Site
Waterbird Monitoring Programme
2005 - 06**

**Egretty Counts in Hong Kong,
with particular reference to the Mai Po
Inner Deep Bay Ramsar Site**

Summer 2005 Report



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The Hong Kong Bird Watching Society Ltd.
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To
Agriculture, Fisheries and Conservation Department,
Hong Kong SAR Government

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Waterbird Monitoring Programme at the Mai Po Inner Deep Bay Ramsar Site

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Summer 2005 Report: Egretty Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site

Report



The Hong Kong Bird Watching Society Limited



Agriculture, Fisheries and Conservation Department

EGRETRY COUNTS IN HONG KONG, WITH PARTICULAR REFERENCE TO THE MAI PO INNER DEEP BAY RAMSAR SITE

SUMMER 2005 REPORT

Summary

In the 2005 breeding season, a total of 333 nests of three ardeid species in six egrettries (thereafter colonies) were recorded in the Deep Bay area. Chinese Pond Herons (*Ardeola bacchus* 203 nests) and Little Egrets (*Egretta garzetta* 126 nests) were the dominant species in the Deep Bay area (61% and 38% of the total number of nests in the Deep Bay area, respectively). These two species comprised 58% and 40% of their total number of nests in Hong Kong respectively. Number of nests in the Deep Bay area accounted for 32% of the total number of nests in Hong Kong in 2005. The total number of nests in Hong Kong in 2005 was 1030 nests of five species in 20 colonies. New colonies at Lantau and Shuen Wan were reported, while those at Ho Pui and Ngau Hom Shek were abandoned. Compared with 242 nests in Deep Bay and 888 nests in Hong Kong in 2004, there is an increase of 38% and 16% in number of nests in the Deep Bay area and Hong Kong, respectively. A training workshop of the egrettry count techniques will be conducted in the 2006 breeding season for sharing such techniques among interested individuals.

1 INTRODUCTION

Breeding activity is an important aspect of population dynamics. Nesting populations of colonial waterbirds are counted as part of long-term monitoring studies in Mediterranean Europe (Tourenq *et al.* 2000), Australia (McKilligan 2001) and the United States (Gawlik *et al.* 1998). In East and Southeast Asia long-term records of breeding populations of colonial nesting ardeids only exist in Hong Kong and Vietnam (Lansdown *et al.* 2000). Reporting of the number of nesting pairs in Hong Kong, organized by the Hong Kong Bird Watching Society, started as early as 1958. This kind of record submission was suspended between 1975 and 1989 (Young and Cha 1995). Recording was far from complete, and on many occasions only breeding species were recorded with no count of nesting pairs made. In addition, not all colonies were counted each year. The recording of number of nests in the Deep Bay area, as part of the long-term monitoring of waterbird abundance in the Mai Po

Inner Deep Bay Ramsar Site, started in 1998. Both breeding species and the number of nesting pairs, in the Deep Bay area are recorded.

2 METHODS

Active and abandoned egretries (thereafter colonies) in 2003 and 2004 were surveyed between March and August 2005 (Tables 1 and 2, Figure 1). In addition, potential new nesting sites were also visited. New colonies were located by personal observations, and information from birdwatchers and environmentalists. Active nests determined by the presence of incubating adults or chicks, were counted directly from vantage points or by the walk-and-count method at all colonies. As nearly all nests on Little Green Island were built inside bushes, each landing location of returned adults is considered as one possible nest as all nests were hidden in vegetation. Repeated landings around the same location were considered as one nest, and these locations were marked on a sketch outline of the appearance of Little Green Island. As in previous years between 1998 and 2004, the small colony of Chinese Pond Herons (*Ardeola bacchus*), which is located about 200 m northeast to the Mai Po Village colony, was included in that the total number of nests of the Mai Po Village colony. Apart from the number of nests, the nesting substratum was also identified. The number of nests in colonies surveyed more than once was taken to be the sum of the highest count of the number of nests of each species. A nesting colony is defined as a locality where egrets and herons nest colonially. However, as nesting egrets and herons around a locality may have similar foraging range and pattern, for instance those at Ha Che, therefore, those nesting places within 2 km is considered as one colony. The 2 km range is based on the foraging flight of nesting egrets and herons in a colony are within this distance (Wong *et al.* 1999, Wong 2001). Exception is made to the Mai Po Village and Mai Po Lung Village colonies as the feeding area in Deep Bay is great enough for birds in different colonies nesting in a closer distance.

Table 1. Dates of surveys by the Hong Kong Bird Watching Society in the 2005 breeding season.

Colony	Date
Mai Po Village*	17 April, 22 May
Tam Kon Chau*	17 April, 22 May

Pak Nai*	3 May
Ngau Hom Shek*	3 May
Ho Sheung Heung	17 April, 22 May
Tai Po Market	11 August
Centre Island	1 May
Penfold Park	18 May, 8 June
A Chau	19 March, 10 April, 8 May
Lam Tsuen	20 May, 3 July
Tai O	2 May
Ho Pui	22 May, 6 June
Ma On Kong	22 May, 6 June
Mai Po Lung Village*	17 April, 22 May
Tung Shing Lane*	17 April, 22 May
Ha Che	12 May
Tai Tong	17 April, 22 May
Ha Mei San Tsuen*	17 April, 22 May
Tuen Mun	17 April, 22 May
Chim Uk, Shuen Wan	24 July [^] , 27 July
Little Green Island	7 May, 24 May
Ocean Park	15 May
San Po Tsui, Lantau	14 May

Remarks:

[^]: Surveyed by the Agriculture, Fisheries and Conservation Department

*: Deep Bay colonies

3 RESULTS and DISCUSSION

3.1 Breeding population in the 2005 breeding season

A total of 1030 nests were recorded at 20 colonies between March and August 2005 in Hong Kong (Table 2, Figure 1, Appendices 1 - 20). Underestimation of number of nests at A Chau, Centre Island, Little Green Island and San Po Tsui colonies may occur as some nests were built in dense vegetation. The number of nests increased from 888 in 2004 to 1030 in 2005, i.e. a 16% increase. The population increase cannot be explained due to the absence of quantitative data of the abundance of preys, nor productivity of wetland habitats in Hong Kong. Colonies at San Po Tsui (Lantau Island) and Shuen Wan were first noted but the Ho Pui and Ngau Hom Shek colonies were abandoned. The colony at Shuen Wan was located in 2004 but nest count was conducted in this year. The small colony at Lam Tsuen was split into two: one at Lam Tsuen San Tsuen and one at Sha Pa. Underestimation of nests at Chim Uk (Shuen Wan) and Tai Po Market should be considered as surveys of these two colonies were carried out in late breeding season (July and August). Apart from the confirmed colonies, a roosting site of Black-crowned Night Herons (*Nycticorax nycticorax*) at Tai Shue Wan, Ocean Park was also visited in May 2005 but no nest was found (Table 1).

The highest number of nests was recorded at the A Chau colony (268 nests, 26% of total nests in Hong Kong), while the smallest was at the Shuen Wan colony (6 nests, 0.6% of total nests in Hong Kong) (Table 2). A Chau contained the highest number of nests of Great Egrets (*Egretta alba*) (79 nests, 67% of the total number of nests), Black-crowned Night Herons (111 nests, 65% of the total number of nests), and Cattle Egrets (*Bubulcus ibis*) (49 nests, 61% the total number of nests) in Hong Kong. With regard to Little Egrets (*Egretta garzetta*), the Pak Nai colony (40 nests, 13% of total Little Egret nests in Hong Kong) is the most important site, while the Ho Sheung Heung colony is the main nesting site of Chinese Pond Herons (73 nests, 21% of the total Chinese Pond Heron nests in Hong Kong).

In considering the number of nests of each species, the Chinese Pond Heron (350 nests, 34% of the total number of nests) was the most while the Cattle Egret was the least numerous (80 nests, 8% of the total number of nests numerous, Table 2). Little Egrets and Chinese Pond Herons are the most widespread species. Little Egrets bred at 16 colonies, while Chinese Pond Herons bred at 13 colonies.

Table 2. The number of nests at surveyed colonies in the Hong Kong in 2005
 (*: Deep Bay colonies).

	Great Egret	Little Egret	Black-crowned Night Heron	Chinese Pond Heron	Cattle Egret	Total	%
1. Mai Po Village*		37		51		88	8.5
2. Tam Kon Chau*				23		23	2.2
3. Pak Nai*		40		11	1	52	5.0
4. Ho Sheung Heung		17		73	12	102	9.9
5. Tai Po Market		5	3			8	0.8
6. Centre Island	39	17	15		3	74	7.2
7. Penfold Park		17		5	2	24	2.3
8. A Chau	79	29	111		49	268	26.0
9. Little Green Island		15	8			23	2.2
10. Lam Tsuen				11		11	1.1
11. Tai O		30	8			38	3.7
12. Chim Uk, Shuen Wan				6		6	0.6
13. Ma On Kong				11		11	1.1
14. Mai Po Lung Village*		5		56		61	5.9
15. Tung Shing Lane*		36		36	3	75	7.3
16. Ha Che		3		24		27	2.6
17. Tai Tong		1		17	10	28	2.7
18. Ha Mei San Tsuen*		8		26		34	3.3
19. Tuen Mun		27				27	2.6
20. San Po Tsui, Lantau		25	25		+	50	4.9

Total	118	312	170	350	80	1030	100.0
%	11.5	30.3	16.5	34.0	7.8	100.0	
No. of colonies that the particular confirmed nesting ardeid was found	2	16	6	13	7		

3.2 Colonies in the Deep Bay area

A total of 333 nests of three species were recorded in six colonies in the Deep Bay area during the 2005 breeding season (Table 3). Tam Kon Chau is the only colony inside the Mai Po Inner Deep Bay Ramsar Site. The Chinese Pond Heron was the dominant ardeid in the Deep Bay area (61% of the total nests in the Deep Bay area), while the least one was the Cattle Egret (1%). The total number of nests in colonies in the Deep Bay area comprised 32% of the total number of nests in Hong Kong (Table 3). Chinese Pond Herons and Little Egrets were the two most abundant species in the Deep Bay area, and comprised 58% and 40% of their local nesting populations, respectively

No Great Egret and Black-crowned Night Heron was recorded breeding in the Deep Bay area. These two ardeids bred in the Deep Bay area previously. As the number of nests of Great Egret in Hong Kong reached the highest count since the monitoring in 1998, the absence of breeding of this species in Deep Bay should not led to the decline in the number of nests in Hong Kong. However, a decline in the number of Black-crowned Night Heron nests was found in Hong Kong since this monitoring in 1998 (from 260 in 1998 to 170 in 2005), the absence of this nesting ardeid in Deep Bay may contribute to the decline in Hong Kong. Possible explanation of the absence of these two nesting ardeids in Deep Bay may be due to change of prey availability in the Deep Bay fishponds, which may indirectly relate to the fish farming practices. In recent years, industrialized fish farming has been noted and the farming practices may not be friendly to all waterbirds.

Table 3. The relative importance of Deep Bay colonies to the others in Hong Kong in 2005 (Deep Bay colonies are Mai Po Village, Tam Kon Chau, Pak Nai, Mai Po Lung Village, Tung Shing Lane, and Ha Mei San Tsuen).

Species	No. of nests in Deep Bay	Total no. of nests in Hong Kong	Deep Bay nests as % of all nests in Hong Kong
Great Egret		118	
Little Egret	126	312	40
Black-crowned Night Heron		170	
Chinese Pond Heron	203	350	58
Cattle Egret	4	80	5
Total	333	1030	32

3.3 Nesting habitats

Bamboo was the main nesting habitat of ardeids nesting in Tai O, North and Northwest New Territories including colonies at Ho Sheung Heung and Mai Po Lung Village (Table 4). All nests at the Tam Kon Chau colonies were built on Banyan trees (*Ficus microcarpa*). Exotic trees including *Melaleuca leucadendron* and *Lagerstroemia speciosa* were made use by ardeids nesting in the Mai Po Village and Tuen Mun colonies, respectively. The majority of nests on the A Chau colony were built on Cuban Bast (*Hibiscus tiliaceus*), while unidentified coastal plants were used by birds nesting in Centre Island and Little Green Island.

3.4 Counting difficulty at the A Chau colony

Counting the nests of this colony from two vantage points outside A Chau has become more difficult in recent years due to vegetation overgrown, causing heavy screening of the nests. Difficulty in counting the Great and Little Egret nests could be overcome by the presence of adults or juveniles, which are contrast enough from the surrounding to indicate the presence of a nest. However, this technique could not be applied to Black-crowned Night Herons as their body colour is dull and blend with the background. Thus, an underestimation of this species may be resulted. It is recommended that a survey of nests could be made in the colony by qualified researchers for more accurate estimation of nest abundance.

Table 4. Plants used by ardeids as nesting habitats in 2005

	Bamboo	<i>Ficus microcarpa</i>	Exotic trees	Other plants	Remarks
1. Mai Po Village	+	+	+		
2. Tam Kon Chau		+			
3. Pak Nai	+				
4. Ho Sheung Heung	+				

5. Tai Po Market				No detailed plant survey was conducted
6. Centre Island				No detailed plant survey was conducted
7. Penfold Park		+	+	<i>Acacia confusa</i>
8. A Chau				Mainly on <i>Hibiscus titiaces</i> , <i>Mallotus mamiculatus</i>
9. Little Green Island				No detailed plant survey was conducted
10. Lam Tsuen		+		
11. Tai O		+		
12. Chim Uk, Shuen Wan				No detailed plant survey was conducted
13. Ma On Kong				Lychee and Longgan trees
14. Mai Po Lung Village*		+		
15. Tung Shing Lane*		+		
16. Ha Che			+	
17. Tai Tong		+		
18. Ha Mei San Tsuen*		+		
19. Tuen Mun			+	<i>Lagerstroemia speciosa</i>
20. San Po Tsui, Lantau				No detailed plant survey was conducted

3.5 Protection of colonies against minor construction and maintenance works

In considering the disturbances due to inappropriate developments and public facilities maintenance at colonies, it is recommended that a list of colony locations should be circulated within relevant government departments to increase the awareness of their existence. Disturbance to these colonies could be minimized when better planning for impact avoidance could be made in earlier phase. Recommended government departments on the circulation list are Planning Department, in particular Central Enforcement and Prosecution Section, Lands Department, Environmental Protection Department, Drainage Services Department, Civil Engineering and Development Department and Highways Department.

3.6 Training workshop for ardeid nesting colony monitoring

A training workshop has been scheduled in April / May 2006 for introducing basic technique of locating a new nesting colony and estimate the nesting pairs in a colony. This workshop will be opened to the public, in particular interested birdwatchers and environmentalists.

4. ACKNOWLEDGEMENTS

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Figures

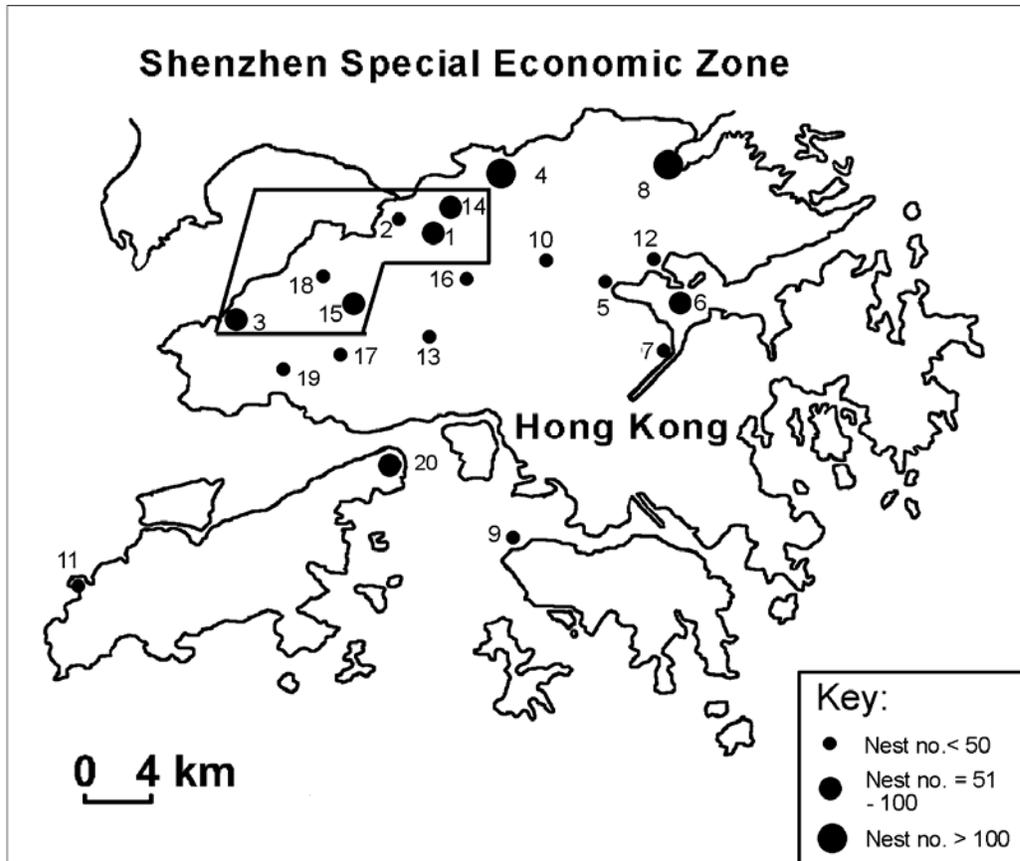


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Figure 1. Locations of colonies in Hong Kong in 2005. Nesting colonies in the Deep Bay area are enclosed. (1: Mai Po Village, 2: Tam Kon Chau, 3: Pak Nai, 4: Ho Sheung Heung, 5: Tai Po Market, 6: Centre Island, 7: Penfold Park, 8: A Chau, 9: Little Green Island, 10: Lam Tsuen, 11: Tai O, 12: Shuen Wan, 13: Ma On Kong, 14: Mai Po Lung Tsuen, 15: Tung Shing Lane, 16: Ha Che, 17: Tai Tong, 18: Ha Mei San Tsuen, 19: Tuen Mun and 20: San Po Tsui).



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Appendices



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APPENDICES. The number of nests recorded in each survey in the 20 colonies in 2005.

Appendix 1. Number of nests at Mai Po Village

	17 Apr	22 May	Max
Little Egret	30	37	37
Chinese Pond Heron*	26	51	51
Total	26	88	88

*: Chinese Pond Heron nests were found at a nearby colony

Appendix 2. Number of nests at Tam Kon Chau

	17 Apr	22 May	Max
Chinese Pond Heron	5	23	23
Total	5	23	23

Appendix 3. Number of nests at Pak Nai

	3 May
Little Egret	40
Cattle Egret	1
Chinese Pond Heron	11
Total	52

Appendix 4. Number of nests at Ho Sheung Heung

	17 Apr	22 May	Max
Little Egret	17	17	17
Cattle Egret	7	12	12
Chinese Pond Heron	26	73	73
Total	50	102	102

Appendix 5. Number of nests at Tai Po Market (Wan Tau Kok Lane)

	11 Aug
Little Egret	5
Black-crowned Night Heron	3
Total	8

Appendix 6. Number of nests at Centre Island

	1 May
Great Egret	39
Little Egret	17
Cattle Egret	3
Black-crowned Night Heron	15
Total	74

Appendix 7. Number of nests at Penfold Park

	18 May	8 Jun	Max
Little Egret	10	17	17
Cattle Egret	1	2	2
Chinese Pond Heron	5	5	5
Total	16	24	24

Appendix 8. Number of nests at A Chau

	19 Mar	10 Apr	8 May	Max
Great Egret	65	79	59	79
Little Egret	3	29	11	29
Cattle Egret		18	49	49
Black-crowned Night Heron	16	83	111	111
Total	84	149	230	268

Appendix 9. Number of nests at Little Green Island

	7 May	24 May	Max
Little Egret	7	15	15
Black-crowned Night Heron	2	8	8
Total	9	23	23

Appendix 10. Number of nests at Lam Tsuen

	20 May	3 Jul	Max
Chinese Pond Heron	11	11	11
Total	11	11	11

Appendix 11. Number of nests at Tai O

	15 May
Little Egret	30
Black-crowned Night Heron	8
Total	38

Appendix 12. Number of nests at Chim Uk, Shuen Wan

	24 Jul	27 Jul	Total
Chinese Pond Heron	6	Not Count	6
Total	6	-	6

Appendix 13. Number of nests at Ma On Kong

	22 May	6 Jun	Max
Chinese Pond Heron	9	11	11
Total	9	11	11

Appendix 14. Number of nests at Mai Po Lung Village

	17 Apr	22 May	Max
Little Egret	2	5	5
Chinese Pond Heron	15	56	56
Total	17	61	61

Appendix 15. Number of nests at Tung Shing Lane

	17 Apr	23 May	Max
Little Egret	36	24	36
Cattle Egret	3	1	3
Chinese Pond Heron	5	36	36
Total	44	61	75

Appendix 16. Number of nests at Ha Che

	8 May
Little Egret	3
Chinese Pond Heron	24
Total	27

Appendix 17. Number of nests at Tai Tong

	<u>17 Apr</u>	<u>22 May</u>	<u>Max</u>
Little Egret	1		1
Cattle Egret	10	8	10
Chinese Pond Heron	5	17	17
Total	16	25	28

Appendix 18. Number of nests at Ha Mei San Tsuen

	<u>17 Apr</u>	<u>22 May</u>	<u>Max</u>
Little Egret	4	8	8
Chinese Pond Heron	17	26	26
Total	21	34	34

Appendix 19. Number of nests at Tuen Mun

	<u>17 Apr</u>	<u>22 May</u>	<u>Max</u>
Little Egret	35	27	35
Total	35	27	35

Appendix 20. Number of nests at San Po Tsui, Lantau (+ = presence but no breeding activities were noted)

	<u>14 May</u>
Little Egret	25
Cattle Egret	+
Black-crowned Night Heron	25
Total	50