



Asian Waterbird Census 2004 Country Report (Malaysia)

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Department of Wildlife and National Park, Peninsular Malaysia

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Cover photo: Nordmann's Greenshanks *Tringa guttifer* on the Penaga-Bagan Belat mudflats (MNS/Chan Ah Lak 2003).

TABLE OF CONTENTS

REPORT

Executive Summary.....	1
Introduction.....	2
Important Bird Areas (IBA) in Malaysia.....	2
Methods.....	2
Results	3
Survey Locations.....	3
Major Waterbird Groups.....	4
Darters	4
Hérons and Egrets.....	4
Storks.....	4
Grebes.....	5
Geese and Ducks.....	5
Rails and Gallinules.....	5
Jacanas.....	5
Shorebirds – Waders.....	5
Gulls and Terns.....	6
Other Wetland-related Species.....	6
Raptors (Family Pandionidae and Accipitridae).....	6
Kingfishers (Family Alcedinidae).....	6
East Asian-Australasian Flyway (EAAF) Population.....	6
Globally Threatened and Near-Threatened Waterbirds.....	7
Acknowledgements.....	8
References.....	8

TABLES

Table 1. Sites surveyed according to their wetland type in the AWC 2004 (Malaysia)...	3
Table 2. Waterbird species recorded in flyway/regional important numbers during the AWC 2004 in Malaysia.	6
Table 3. Globally threatened and near-threatened species recorded and its location during the AWC 2004 (Malaysia).	7

APPENDICES

Appendix 1. Wetland-related Important Bird Areas (IBA) and its globally threatened bird species in Malaysia.	9
Appendix 2. Survey locations during the AWC 2004 (Malaysia).....	10
Appendix 3. Summary of the waterbirds and wetlands surveyed during the AWC 2004 (Malaysia).	11
Appendix 4. Summary of other wetland-related birds surveyed during the AWC 2004 (Malaysia).	18

EXECUTIVE SUMMARY

For the AWC 2004 (Malaysia), a total of 43 sites covering 28,254 waterbirds of 77 species nationwide by various volunteers from Peninsular Malaysia, Sabah and Sarawak. The number of sites and total number of waterbirds covered were slightly lower compared to last year's survey. Most States were surveyed with the exception of Kelantan, Terengganu and Negeri Sembilan. Nine major waterbird groups were noted; Darters (1 species: 48 individuals), Herons and Egrets (14: 6,831), Storks (3: 52), Grebes (1: 142), Geese and Ducks (3: 61), Rails and Gallinules (7: 400), Jacanas (1: 2), Shorebirds-Waders (36: 18,223), Gulls and Terns (10: 2,495).

Despite the lower count, several key sites e.g. Important Bird Areas (IBA) were covered which highlighted some interesting findings. A count of 31 Nordmann's Greenshank *Tringa guttifer* (globally threatened) was seen at the Penaga-Bagan Belat mudflats accompanied by 21 Asian Dowitcher *Limnodromus semipalmatus* (near-threatened). In Sarawak, 419 Chinese Egrets *Egretta eulophotes* were observed at Kg. Jaie-Semera, further confirming the importance of coastal Sarawak for waterbirds. The sighting represents 12% of the estimated global population of this globally threatened species. Monitoring is necessary to ascertain the extent of site usage by these species.

The success of AWC 2004 once again underscored one important fact: birdwatchers can indeed play an crucial role in bird monitoring and **MUST** be part of bird conservation efforts in any country. The information generated by birdwatchers is useful, from the grassroot to international level, and particularly in addressing limitations of government departments (i.e. wildlife, forestry etc.) and local higher institutions of learning. The census also continue to highlight the importance of committed collaborative efforts from all quarters in conserving waterbirds and their habitats.

INTRODUCTION

Waterbirds are useful indicators of the conservation status and health of wetland habitats. The Asian Waterbird Census (AWC) is a coordinated international scheme for the collection and dissemination of information on waterbirds and wetlands. It forms a part of the International Waterfowl Census, a global effort coordinated by Wetlands International and conducted once a year, during the 2nd and 3rd week of January. Information is gathered on standardised forms by network of national/regional coordinators and volunteer participations.

The **major objectives** of the Asian Waterbird Census are (Lopez and Mundkur 1997):

1. **To obtain information on an annual basis of waterbird population at wetlands in the region during the non-breeding period of most species (January), as a basis for evaluation of sites and monitoring of populations;**
2. **To monitor on an annual basis the status and conditions of wetlands; and**
3. **To encourage greater popular interest in waterbirds and wetlands, and thereby promote their conservation.**

The results of the census and associated information are widely used to promote regional and national waterbird and wetland conservation initiatives. These include the identification of internationally important wetlands under the Ramsar Convention and as support for the development of draft agreement on the conservation of migratory waterbirds.

The involvement of the Malaysian Nature Society (MNS) in this programme as one of the Country Coordinator (the other is the Department of Wildlife and National Park, Peninsular Malaysia) can be traced back to 1999, working in collaboration with Wetlands International –Asia Pacific (based in Kelana Jaya). Through its participation over the years, the census has seen a moderate growth in terms of volunteers involvement and locations surveyed. It is hoped that the AWC will be able to generate concern for waterbird and habitat conservation in Malaysia amongst Malaysians and government agencies leading to the achievements of the AWC objectives.

IMPORTANT BIRD AREAS (IBA) IN MALAYSIA

The IBA programme of BirdLife International aims to identify, monitor and protect a global network of IBAs for the conservation of the world's birds and other biodiversity. Important Bird Areas, in short, are places of international significance for the conservation of birds at the global, regional or sub-regional level chosen using standardised criteria.

As BirdLife Partner in Malaysia, MNS has identified national 55 IBAs according to the BirdLife's site selection criteria (Appendix 1). Twenty-two of those IBAs are wetlands or wetland-related sites. These sites hold significant numbers of one or more globally threatened waterbird or/and have exceptionally large numbers of migratory or congregatory waterbirds. During the census, volunteers are encouraged to survey any of the 22 IBAs closest and convenient to him/her.

METHODS

Standardised survey forms were sent out to volunteers via electronically or snail mail from MNS Head Office in Kuala Lumpur. Volunteers were encouraged to cover as many sites as possible and also to survey previous sites. Completed forms were then returned to MNS for collation and preparation of a country report. However, an extension of survey

period was accepted to allow volunteers greater flexibility in conducting surveys. Counts from the last week of December till early February are accepted.

RESULTS

Survey Locations

A total of 43 sites were covered nationwide resulting in 28, 117 waterbirds of 77 species counted (Appendix 2). Selangor and Johor have the most sites surveyed with 11 and eight sites respectively. The number of sites covered in other States was between one to five sites. Almost 84% (36 sites) of the total sites covered have been surveyed previously. Seven new sites were added into this year's survey site list.

Sites with the highest waterbird counts (above 1,000 individuals) were Kapar Power Station (7,707; 34), Sekinchan-Sg. Nibong stretch (3,897; 26), Bako-Buntal Bay (Kg. Buntal) (2,722; 26), Jaie-Semera stretch (1,449; 22), Yong Peng (1,329; five species), Bagan Tambang-Kuala Muda stretch (1,296; 27), Matang (1,015; 14).

The sites surveyed are classified under the following wetland types in Table 1 and are accompanied by the number of locations involved. The majority of sites surveyed were (1) mangrove and nipah, (2) estuaries and tidal mudflats, and (3) former mining pools.

Table 1. Sites surveyed according to their wetland type in the AWC 2004 (Malaysia).

Wetland Type	Number of Sites Surveyed
1. Open seas, bays, straits	3
2. Estuaries, tidal mudflats, salt pans	14
3. Brackish or saline lakes, lagoons, salt pans	4
4. Rivers, streams, canals, drains	12
5. Freshwater marshes, flooded areas	10
6. Freshwater lakes, ponds	8
7. Reservoirs, barrages, tanks	2
8. Gravel pits, mineral workings, mining pools	10
9. Fish ponds, shrimp ponds	5
10. Grassland, arable land	9
11. Mangrove, nipah	15
12. Freshwater swamp forest, peat swamp forest	2
13. Beaches	5
14. Ricefields	5

Seven Important Bird Areas (IBAs) in Malaysia were covered this year. Sites surveyed within the IBAs are indicated in italics below;

Peninsular Malaysia

1. North-central Selangor coast IBA (*Kapar Power Station, Kuala Selangor Nature Park, Pulau Tengah islands*)
2. Teluk Air Tawar-Kuala Muda coast IBA (*Bagan Tambang-Kuala Muda*)
3. Matang coast IBA (*Matang coast, Pulau Kalumpang*)
4. South-west Johor coast IBA (*Parit Jawa*)
5. Nakawan Range IBA (*Timah-Tasoh Dam*)

Sarawak

6. Bako-Buntal Bay IBA (*Kg. Buntal*)

Sabah

7. Kinabatangan floodplain IBA (*Terusan Kinabatangan, Lower Kinabatangan*)

Kapar Power Station, currently Malaysia's most important shorebird site, recently joined the East Asian-Australasian Shorebird Site Network in July 2003.

Major Waterbird Groups

The breakdown according to major waterbird groups is as follows: Darters (1 species: 48 individuals), Herons and Egrets (14: 6,832), Storks (3: 52), Grebes (1: 142), Geese and Ducks (3: 61), Rails and Gallinules (7: 427), Jacanas (1: 2), Shorebirds-Waders (36: 18,426), and Gulls and Terns (10: 2,127) (Appendix 3).

Two waterbird groups; the Herons and Egrets and Shorebirds-Waders, dominated the census with several species counted were over 1,000 individuals. The highest individual counts are, in descending order; Mongolian Plovers *Charadrius mongolus* (3,183), Common Redshanks *Tringa totanus* (2,557), Black-crowned Night-herons *Nycticorax nycticorax* (1,362), Black-tailed Godwits *Limosa limosa* (1,347), Pacific Golden Plovers *Pluvialis fulva* (1,238), Little Egrets *Egretta garzetta* (1,134) and Cattle Egrets *Bubulcus ibis* (1,028).

Darters

A total of 48 individuals were seen in two primary sites; the Terusan Kinabatangan and Kg. Mumiang. The sites remain as one of the strongholds in the country for this uncommon resident.

Herons and Egrets

A total of 14 species were recorded throughout the country which were represented by the following genera; *Ixobrychus* (two species), *Nycticorax* (one), *Ardeola* (one), *Bubulcus* (one), *Butorides* (one), *Egretta* (four), *Casmerodius* (one) and *Ardea* (three). The surveys this year proved very fruitful for ardeids. Several key breeding sites were covered and one new site discovered in Selangor.

Two well-known heronry sites; Yong Peng and Kinta Nature Park, were investigated. In Yong Peng, 660 and 656 individuals of Black-crowned Night-herons and Purple Herons *Ardea purpurea* respectively. Five species of ardeids were observed roosting at Pulau Burung at Kinta Nature Park with three breeding residents; the Black-crowned Night-herons (50), Purple Herons (155) and Grey Herons *Ardea cinerea* (150). In the outskirts of Kuala Lumpur, a new heronry was discovered in Bandar Tasik Puteri, Rawang. The heronry was dominated by night-herons and Purple Herons. Preliminary survey during its height of breeding season estimated about 600 individuals of night-herons. Ninety-four Cattle Egrets were also observed roosting in the area. This is the only known Black-crowned Night-heron colony in Selangor known to date (Siti Hawa Yatim pers. comm.).

In Sarawak, consistent monitoring of two locations, the Kg Jaie-Semera stretch and Bako-Buntal Bay (Kg Buntal) produced fruitful results with counts of 419 and 10 Chinese Egrets *Egretta eulophotes* were recorded respectively. The former count is the highest recorded to date for this species in Malaysia (Davison 1999; Wells 1999). A possible single Great-billed Heron *Ardea sumatrana* was seen at Terusan Kinabatangan. The species is considered an uncommon resident in Sabah and has been recorded in several localities including the Kinabatangan region (Sheldon et al. 2001). Over 100 Little Egrets *Egretta garzetta* was recorded in four locations nationwide.

Storks

Reports of the three globally threatened storks namely the Milky Stork *Mycteria cinerea*, Storm's Stork *Ciconia stormi* and Lesser Adjutant *Leptoptilos javanicus* were gathered from some of its stronghold locations. A survey to its breeding site at Pulau Kalumpang, Matang revealed the presence of only eight birds. This marked decline since the last

decade, unless arrested within this decade, will result in the extinction of the wild population [Note: *There are currently over 60 Milky Storks in Zoo Negara*]. Thirteen individuals of Storm's Stork were counted its stronghold within the Kinabatangan region. Thirty-one Lesser Adjutants were counted throughout the country.

Grebes

A total of 142 individuals were counted, with a single count of 55 individuals at Chikus.

Geese and Ducks

Three species of ducks were reported. Twenty-two Wandering Whistling Ducks *Dendrocygna arcuata* were reported from Sejingkat landfill. This also constitutes as a first record for the country (Jeyarajasingam 2003). Thirty-seven Lesser Treeducks *D. javanica* were counted with high counts from man-made wetlands of Taman Wetlands (13) and Chikus (14). Two Cotton Pygmy Goose *Nettapus coromandelianus* were also seen in Chikus.

Rails and Gallinules

The White-breasted Waterhen *Amaurornis phoenicurus* continues to dominate the count for this group with 218 individuals seen nationwide. Other species include Common Moorhen *Gallinula chloropus* (99 individuals), Purple Swampphen *Porphyrio porphyrio* (82), Slaty-breasted Rail *Rallus striatus* (15), White-browed Crake *Porzana cinereus* (6), Watercock *Gallicrex cinerea* (5) and Ruddy Crake *Porzana fusca* (2).

Jacanas

Two Pheasant-tailed Jacanas *Hydrophasianus chirurgus* were reported from Chikus.

Shorebirds-Waders

About 66% of the total waterbirds counted were shorebirds. Thirty-six species was recorded nationwide. Amongst the highlights for this group was the sighting of 31 Nordmann's Greenshanks *Tringa guttifer* at the Bagan Tambang-Kuala Muda mudflats. The figure represents 3% of the global population (Wetlands International 2002). The highest count for the species in Malaysia was 90 plus on tideflats at Belanak headland (Perak) in 1964, and no double digit counts since 1988 (Wells 1999). Twenty-one Asian Dowitchers *Limnodromus semipalmatus* were also recorded in the survey. The area warrants continuous monitoring to ascertain the importance of the mudflats to the two species. Over in Sarawak, two individuals were seen at Kg. Buntal in the Bako-Buntal Bay area.

Counts at Kapar Power Station were slightly lower compared to 2003. However, several species were present in large numbers i.e. Grey Plover *Pluvialis squatarola* (491 individuals), Mongolian Plover *Charadrius mongolus* (1,940), Greater Sand-Plover *C. leschenaultii* (470), Bar-tailed Godwit *Limosa lapponica* (535), Eurasian Curlew *Numenius arquata* (750), Common Redshank *Tringa totanus* (1,053), Great Knot *Calidris tenuirostris* (616) and Rufous-necked Stint *C. ruficollis* (450). Six Nordmann's Greenshanks were also present.

Malaysian Plovers *Charadrius peronii*, a Near-Threatened species, were recorded in two locations, Kg. Punggai and Kuala Sedili, on the east coast. The latter site produced 20 individuals. Twenty Far Eastern Curlews *Numenius madagascariensis* were seen at four survey sites, with the highest single concentration of 16 individuals at Kg. Buntal. Two Asian Dowitchers were also observed in the area.

Other notable shorebird figures include 474 Pacific Golden Plovers *Pluvialis fulva* and 1,315 Black-tailed Godwits *Limosa limosa* at the Batu Uban FTZ, 490 Whimbrels

Numenius phaeopus at Pulau Tengah and 17 Black-winged Stilts *Himantopus himantopus* at Chikus.

Gulls and Terns

Two gull and eight tern species were recorded. High concentrations of Brown-headed Gulls *Larus brunnicephalus* (150 individuals) were reported from Matang, almost rivaling the 176 individuals counted in 2002 (Yeap 2002). Based on historical records, this winter visitor can be seen in small concentrations with the exception in December 1964, where over 200 birds were counted on mudflats of Belanak point, Matang (Wells 1999). Current count figures point to the coastal areas of Matang as an important staging and/or wintering site for the gulls. Kg. Buntal reported the presence of 29 Black-headed Gulls *L. ridibundus*, an uncommon winter visitor. The count may be highest single concentration seen in East Malaysia to date, as another observation on 23 February 2000 in Likas Bay (Sabah) produced 27 birds.

In Peninsular Malaysia, Kapar Power Station attracted 182 and 167 White-winged and Gull-billed Terns *Gelochelidon nilotica* respectively. On the east coast, concentrations of Common (75 individuals) and Black-naped Terns (80) were reported from Kg. Punggai. In Sarawak, over 100 Gull-billed and Little Terns *Sterna albifrons* were counted at Kg. Buntal. A total of 879 terns remained unidentified.

Other Wetland-related Species

Raptors and other wetland-related species such as kingfishers were also noted during the surveys (Appendix 4).

Raptors (Family Pandionidae and Accipitridae)

Six wetland-related raptor species were reported. The resident Brahminy Kite *Haliastur indus* and White-bellied Sea-Eagle *Haliaeetus leucogaster* were encountered frequently with a total of 143 and 20 individuals reported respectively. Batang Tiga hosts three migratory raptors, the Greater Spotted Eagle *Aquila clanga*, Pied Harrier *Circus melanoleucos* and Eastern Marsh-Harrier *Circus spilonotus*. A single Osprey *Pandion haliaetus* was spotted at Malim Nawar.

Kingfishers (Family Alcedinidae)

Similarly, four species of kingfishers were reported; Common *Alcedo atthis*, Black-capped *Halcyon pileata*, Collared *H. chloris*, Stork-billed Kingfishers *H. capensis*. The latter two were the most frequently recorded.

East Asian-Australasian Flyway (EAAF) Population

Table 2 shows estimates on known waterbird population sizes that utilises the East Asian-Australasian Flyway (EAAF). As one of the staging/wintering sites, several waterbird species are recorded in significant proportions of the EAAF population. Table 2 further illustrates those significant species and their percentages.

Table 2. Waterbird species recorded in flyway/regional important numbers during the AWC 2004 in Malaysia.

Species	Flyway/regional population	Number recorded	Percentage
Chinese Egret <i>Egretta eulophotes</i>	2,600 - 3,400	443	13 - 17%
Pacific Golden Plover <i>Pluvialis fulva</i>	100,000	1,238	1.2%
Mongolian Plover <i>Charadrius mongolus</i>	?	3,183	?
Whimbrel <i>Numenius phaeopus</i>	55,000	931	1.7%
Eurasian Curlew <i>Numenius arquata</i>	35,000	866	2.5%
Common Redshank <i>Tringa totanus</i>	25,000 - 100,000	2,557	2.6 - 10.2%
Nordmann's Greenshank <i>Tringa guttifer</i>	250-1,000	39	3.9 - 15.6%

Globally Threatened and Near-Threatened Waterbirds

Several globally threatened and near-threatened waterbirds were also recorded; **ENDANGERED**: Storm's Stork (13 individuals); **VULNERABLE**: Chinese Egret (508), Milky Stork (8), Lesser Adjutant (31), Nordmann's Greenshank (39); **NEAR-THREATENED**: Oriental Darter (48), Malaysian Plover (29), Far Eastern Curlew (20) and Asian Dowitcher (23) (Table 3).

Table 3. Globally threatened and near-threatened species recorded and its location during the AWC 2004 (Malaysia).

Species	Date	Location	No. of Individuals
Status: ENDANGERED			
Storm's Stork	16, 18 Jan	Terusan Kinabatangan	7
	17 Jan	Lower Kinabatangan	4
	10-11, 15, 19-20 Jan	Kg Mumiang	2
Status: VULNERABLE			
Chinese Egret	8 & 10 Jan	Pulau Tengah	4
	29 Jan	Bako-Buntal Bay (Kg Buntal)	10
	12 Jan	Jaie-Semera	419
	16, 18 Jan	Terusan Kinabatangan	5
	10-11, 15, 19-20 Jan	Kg Mumiang	4
Milky Stork	18 Jan	Sungai Balang	1
	7 Feb	Matang	8
Lesser Adjutant	22 Jan	Pekan	7
	11 Jan	Kapar Power Station	3
	8 & 10 Jan	Pulau Tengah	6
	13-14 Jan	Matang	3
	16, 18 Jan	Terusan Kinabatangan	1
	10-11, 15, 19-20 Jan	Kg Mumiang	1
	18 Jan	Sungai Balang	7
	18 Jan	Parit Jawa	3
	11 Jan	Kapar Power Station	6
	6 & 9 Jan	Bagan Tambang-Kuala Muda	31
Nordmann's Greenshank	29 Jan	Bako-Buntal Bay (Kg Buntal)	2
Status: NEAR-THREATENED			
Oriental Darter	16, 18 Jan	Terusan Kinabatangan	5
	17 January	Lower Kinabatangan	26
	10-11, 15, 19-20 Jan	Kg Mumiang	17
Malaysian Plover	23 Jan	Kg. Punggai	9
	22 Jan	Kuala Sedili	20
Far Eastern Curlew	11 Jan	Kapar Power Station	1
	6 & 9 Jan	Bagan Tambang-Kuala Muda	2
	29 Jan	Bako-Buntal Bay (Kg Buntal)	16
	12 Jan	Jaie-Semera	1
Asian Dowitcher	6 & 9 Jan	Bagan Tambang-Kuala Muda	21
	29 Jan	Bako-Buntal Bay (Kg Buntal)	2

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Appendix 1. Wetland-related Important Bird Areas (IBA) and its globally threatened bird species in Malaysia.

Site	Globally Threatened Species											≥ 1% of the biogeographic population of a congregatory waterbird species and global population of a congregatory seabird																																							
	<i>Sterna bersteini</i>	<i>Pelecanus philippensis</i>	<i>Fregata andrewsi</i>	<i>Ciconia stormi</i>	<i>Tringa guttifer</i>	<i>Egretta eulophotes</i>	<i>Mycteria cinerea</i>	<i>Leptoptilos javanicus</i>	<i>Heliopais personata</i>	<i>Eurynorhynchus pygmeus</i>	<i>Alcedo euryzona</i>	<i>Fregata andrewsi</i>	<i>Fregata ariel</i>	<i>Leptoptilos javanicus</i>	<i>Ardeola bacchus</i>	<i>Ciconia stormi</i>	<i>Tringa totanus</i>	<i>Tringa nebularia</i>	<i>Tringa guttifer</i>	<i>Tringa stagnatilis</i>	<i>Tringa cinerea</i>	<i>Arenaria interpres</i>	<i>Numenius arquata</i>	<i>Numenius phaeopus</i>	<i>Numenius madagascariensis</i>	<i>Limosa limosa</i>	<i>Limosa lapponica</i>	<i>Nycticorax nycticorax</i>	<i>Egretta eulophotes</i>	<i>Charadrius leschenaultii</i>	<i>Charadrius mongolus</i>	<i>Xenus cinereus</i>	<i>Pluvialis fulva</i>	<i>Calidris ferruginea</i>	<i>Calidris canutus</i>	<i>Calidris tenuirostris</i>	<i>Limicola falcinellus</i>	<i>Chlidonias leucopterus</i>	<i>Chlidonias hybridus</i>	<i>Sterna nilotica</i>	<i>Sterna hirundo</i>	<i>Sterna albifrons</i>	<i>Sterna bengalensis</i>	<i>Sterna bergii</i>							
Peninsular Malaysia																																																			
1. Nakawan Range (including Timah-Tasoh Dam)										X																																									
2. Teluk Air Tawar-Kuala Muda coast					X			X							X																																				
3. Matang coast					X	X	X	X	X								X							X	X			X																							
4. Pondok Tanjung Forest Reserve								X									X																																		
5. North-central Selangor coast		X			X	X	X	X	X	X							X	X	X					X	X		X	X		X	X	X	X						X		X	X		X							
6. South-west Johor coast						X	X	X						X			X																							X											
7. South-east Pahang peat swamp forest				X				X	X																																										
Sarawak																																																			
8. Tanjung Datu-Samunsam Protected Area			X	X		X					X																																								
9. Bako-Buntal Bay	X		X		X	X		X																		X					X	X	X																		
10. Sadong-Saribas coast				X	X	X		X												X			X	X		X	X				X				X	X	X	X													
11. Pulau Bruit				X		X		X													X																		X	X	X	X									
12. Similajau National Park				X							X															X																									
13. Loagan Bunut National Park				X				X																																											
14. Brunei Bay				X	X	X		X																							X																				
Sabah																																																			
15. Kinabatangan floodplain				X		X		X		X						X																																		X	
16. Klias peninsula				X		X		X								X																																			
17. Kabili-Sepilok				X							X																																								
18. Kulamba Wildlife Reserve				X				X																																											
19. Sipadan islands			X																																																
20. Mantanani islands			X									X	X																																						
21. Tempasuk plains			X	X				X																																											
22. Pulau Layang-Layang																																																			X

Appendix 2. Survey locations during the AWC 2004 (Malaysia).

State/ Federal Territory	Location	Survey Date
Perlis	1. Kuala Perlis	21 Jan
	2. Timah-Tasoh Dam	21 Jan
Pulau Pinang	3. Gurney Drive coast	5-6 Jan
	4. Teluk Air Tawar-Kuala Muda (Bagan Tambang-Kuala Muda stretch)	6 & 9 Jan
	5. Batu Uban FTZ	22 Jan
Perak	6. Kamunting	11 Jan
	7. Malim Nawar	18 Jan
	8. Chikus	18 Jan
	9. Kinta Nature Park	11 Jan
	10. Matang	13-14 Jan, 7 Feb
Selangor	11. Bandar Tasik Puteri	14 Feb
	12. Pantai Remis	4 Jan
	13. Tanjung Karang (Jln Parit 3-Sungai Burung)	4 Jan
	14. Rasa	18 Jan
	15. Berjantai Tin ex-mining area	4 Jan
	16. Ulu Yam Lama & Baru	18 Jan
	17. Pulau Tengah (inc. Pulau Klang channel)	8 & 10 Jan
	18. Sekinchan-Sungai Nibong	18 Jan
	19. Kuala Selangor Nature Park (KSNP)	18 Jan
	20. Kapar Power Station	11 Jan
	21. Tanjung Tumbuk	14 Jan
Kuala Lumpur	22. Taman Desa Oxidation Pond	3 Feb
Putrajaya	23. Putrajaya Wetlands	Betw. 10-25 Jan
Melaka	24. Batang Tiga	24 Jan
Johor	25. Parit Jawa	18 Jan
	26. Sungai Balang	18 Jan
	27. Kuala Sedili	22 Jan
	28. Kampung Punggai	23 Jan
	29. Pasir Gogok	23 Jan
	30. Institut Jabatan Haiwan Kluang	24 Jan
	31. Mersing	22 Jan
	32. Yong Peng	24 Jan
Pahang	33. Sungai Galing	5 Jan
	34. Kuala Rompin	22 Jan
	35. Pekan	22 Jan
	36. Laka padifields	22 Jan
Sarawak	37. Jaie-Semera	12 Jan
	38. Sejingkat landfill	16 Jan
	39. Kampung Chupak	17 Jan
	40. Bako-Buntal Bay (Kg Buntal)	29 Jan
Sabah	41. Terusan Kinabatangan	16, 18 Jan
	42. Lower Kinabatangan	17 Jan
	43. Kampung Mumiang	10-11, 15, 19-20 Jan

Note: Locations **IN BOLD** are new survey sites.

Appendix 3. Summary of the waterbirds and wetlands surveyed during the AWC 2004 (Malaysia).

GROUP/SPECIES		SITES												TOTAL
		JHK	KP	PG	MR	KS	KR	LR	PK	YP	KNP	CK	TDP	
DARTERS														
Oriental Darter	Anhinga melanogaster													0
HERONS & EGRETS														
Yellow Bittern	Ixobrychus sinensis	2						3	2	5	1	5		18
Cinnamon Bittern	Ixobrychus cinnamomeus											1		1
Black-crowned Night-Heron	Nycticorax nycticorax									660	50	25		735
Chinese Pond-Heron	Ardeola bacchus							13	34			5		52
Cattle Egret	Bubulcus ibis	114					28	250	104		4	27		527
Little Heron	Butorides striatus			4			2			4		2		12
Pacific Reef Egret	Egretta sacra													0
Chinese Egret	Egretta eulophotes													0
Little Egret	Egretta garzetta			6		2					11	8	173	200
Intermediate Egret	Egretta intermedia				4			4				5	2	15
Great Egret	Casmerodius alba													0
Purple Heron	Ardea purpurea	4		3						656	155	36		854
Grey Heron	Ardea cinerea										150			150
Great-billed Heron	Ardea sumatrana													0
Unidentified herons and/or egret					12									12
STORKS														
Milky Stork	Mycteria cinerea													0
Storm's Stork	Ciconia stormi													0
Lesser Adjutant	Leptoptilos javanicus								7					7
GREBES														
Little Grebe	Tachybaptus ruficollis											55	15	70
GEESE & DUCKS														
Wandering Whistling Duck	Dendrocygna arcuata													0
Lesser Treeduck	Dendrocygna javanica							3				14		17
Cotton Pygmy Goose	Nettapus coromandelianus											2		2
RAILS & GALLINULES														
Slaty-breasted Rail	Rallus striatus													0
Ruddy Crake	Porzana fusca													0
White-browed Crake	Porzana cinereus											2		2
White-breasted Waterhen	Amauornis phoenicurus	10						7	5	4		19	1	46
Watercock	Gallicrex cinerea													0
Common Moorhen	Gallinula chloropus										4	31		35
Purple Swamphen	Porphyrio porphyrio										6	27		33
FINFOOT & JACANAS														
Pheasant-tailed Jacana	Hydrophasianus chirurgus											2		2
SHOREBIRDS-WADERS														
Painted Snipe	Rostratula benghalensis													0
Black-winged Stilt	Himantopus himantopus											17		17
Oriental Pratincole	Glareola maldivarum													0
Grey-headed Lapwing	Vanellus cinereus											8		8
Red-wattled Lapwing	Vanellus indicus	8							21			7		36
Pacific Golden Plover	Pluvialis fulva		2		3							33		38

GROUP/SPECIES		SITES													TOTAL
		JHK	KP	PG	MR	KS	KR	LR	PK	YP	KNP	CK	TDP	TT	
Grey Plover	<i>Pluvialis squatarola</i>														0
Little Ringed Plover	<i>Charadrius dubius</i>		4		7	16					7				34
Kentish Plover	<i>Charadrius alexandrinus</i>														0
Malaysian Plover	<i>Charadrius peronii</i>		9			20									29
Mongolian Plover	<i>Charadrius mongolus</i>		12	4	13	95									124
Greater Sand-Plover	<i>Charadrius leschenaultii</i>		39		4	19									62
Black-tailed Godwit	<i>Limosa limosa</i>														0
Bar-tailed Godwit	<i>Limosa lapponica</i>														0
Whimbrel	<i>Numenius phaeopus</i>														0
Eurasian Curlew	<i>Numenius arquata</i>				2										2
Far Eastern Curlew	<i>Numenius madagascariensis</i>														0
Common Redshank	<i>Tringa totanus</i>			5	5	2								500	512
Marsh Sandpiper	<i>Tringa stagnatilis</i>				4							4			8
Common Greenshank	<i>Tringa nebularia</i>													12	12
Nordmann's Greenshank	<i>Tringa guttifer</i>														0
Wood Sandpiper	<i>Tringa glareola</i>								3		2	4			9
Terek Sandpiper	<i>Xenus cinereus</i>				12	31									43
Common Sandpiper	<i>Actitis hypoleucos</i>			2		6	2					13	1	1	25
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>														0
Ruddy Turnstone	<i>Arenaria interpres</i>														0
Asian Dowitcher	<i>Limnodromus semipalmatus</i>														0
Red Knot	<i>Calidris canutus</i>														0
Great Knot	<i>Calidris tenuirostris</i>														0
Sanderling	<i>Calidris alba</i>														0
Rufous-necked Stint	<i>Calidris ruficollis</i>				5										5
Long-toed Stint	<i>Calidris subminuta</i>														0
Curlew Sandpiper	<i>Calidris ferruginea</i>				4										4
Broad-billed Sandpiper	<i>Limicola falcinellus</i>														0
Common Snipe	<i>Gallinago gallinago</i>											2			2
Pintail/Swinhoe Snipe	<i>Gallinago stenura/megala</i>											1			1
Unidentified shorebirds															0
Unidentified snipe												4			4
GULLS & TERNS															
Brown-headed Gull	<i>Larus brunnicephalus</i>														0
Black-headed Gull	<i>Larus bindirulus</i>														0
Whiskered Tern	<i>Chlidonias hybridus</i>											15			15
White-winged Tern	<i>Chlidonias leucopterus</i>														0
Gull-billed Tern	<i>Gelochelidon nilotica</i>														0
Caspian Tern	<i>Hydroprogne caspia</i>														0
Common Tern	<i>Sterna hirundo</i>		75												75
Black-naped Tern	<i>Sterna sumatrana</i>		80			25									105
Little Tern	<i>Sterna albifrons</i>					12									12
Lesser Crested Tern	<i>Sterna bengalensis</i>														0
Unidentified terns															0
TOTAL (Number of Individuals)		138	221	24	75	228	32	280	176	1329	390	374	192	513	3972
TOTAL (Number of Species)*		5	7	6	12	10	3	6	7	5	10	27	6	3	77

Note: * The total number of species does not include unidentified species.

Appendix 3. Summary of the waterbirds and wetlands surveyed during the AWC 2004 (Malaysia). (Continued)

GROUP/SPECIES		SITE													TOTAL
		KPS	MN	KM	KSNP	BT	SG	GD	UY	PT	SSN	BTM	RS	TK	
DARTERS															
Oriental Darter	Anhinga melanogaster														0
HERONS & EGRETS															
Yellow Bittern	Ixobrychus sinensis		7						3			5			15
Cinnamon Bittern	Ixobrychus cinnamomeus		4	1					1						6
Black-crowned Night-Heron	Nycticorax nycticorax		22	4											26
Chinese Pond-Heron	Ardeola bacchus	1	12	52		1	217		20		4				307
Cattle Egret	Bubulcus ibis		84	37		43	4	10	100				30		308
Little Heron	Butorides striatus	11	6	17				9		2	30			1	76
Pacific Reef Egret	Egretta sacra														0
Chinese Egret	Egretta eulophotes									4					4
Little Egret	Egretta garzetta	138	94	7		2	8	37			30			3	319
Intermediate Egret	Egretta intermedia	4				1					1	1			7
Great Egret	Casmerodius alba	36	10	2				19			22				89
Purple Heron	Ardea purpurea	3	63	3		3			6			7			85
Grey Heron	Ardea cinerea	40	56	1	6					1	13				117
Great-billed Heron	Ardea sumatrana														0
Unidentified herons and/or egrets										53					53
STORKS															
Milky Stork	Mycteria cinerea														0
Storm's Stork	Ciconia stormi														0
Lesser Adjutant	Leptoptilos javanicus	3								6					9
GREBES															
Little Grebe	Tachybaptus ruficollis		32	5								22			59
GEESE & DUCKS															
Wandering Whistling Duck	Dendrocygna arcuata														0
Lesser Treeduck	Dendrocygna javanica		2												2
Cotton Pygmy Goose	Nettapus coromandelianus														0
RAILS & GALLINULES															
Slaty-breasted Rail	Rallus striatus														0
Ruddy Crake	Porzana fusca														0
White-browed Crake	Porzana cinereus		1												1
White-breasted Waterhen	Amaurornis phoenicurus	1	24	30	1		10		40			3	2		111
Watercock	Gallicrex cinerea		2	1											3
Common Moorhen	Gallinula chloropus		34						5			9			48
Purple Swamphen	Porphyrio porphyrio		32						3			5			40
FINFOOT & JACANAS															
Pheasant-tailed Jacana	Hydrophasianus chirurgus														0
SHOREBIRDS-WADERS															
Painted Snipe	Rostratula benghalensis								2				2		4
Black-winged Stilt	Himantopus himantopus		5												5
Oriental Pratincole	Glareola maldivarum		8									6			14
Grey-headed Lapwing	Vanellus cinereus		7												7
Red-wattled Lapwing	Vanellus indicus											4			4
Pacific Golden Plover	Pluvialis fulva		50	3					4		102				159

GROUP/SPECIES		SITE													TOTAL
		KPS	MN	KM	KSNP		SG	GD	UY	PT	SSN	BTM	RS	TK	
Grey Plover	<i>Pluvialis squatarola</i>	491													491
Little Ringed Plover	<i>Charadrius dubius</i>		15	16					1			3			35
Kentish Plover	<i>Charadrius alexandrinus</i>	3													3
Malaysian Plover	<i>Charadrius peronii</i>														0
Mongolian Plover	<i>Charadrius mongolus</i>	1940								30	386				2356
Greater Sand-Plover	<i>Charadrius leschenaultii</i>	470									168				638
Black-tailed Godwit	<i>Limosa limosa</i>	18									1315				1333
Bar-tailed Godwit	<i>Limosa lapponica</i>	535													535
Whimbrel	<i>Numenius phaeopus</i>	171								490	17				678
Eurasian Curlew	<i>Numenius arquata</i>	950								2	8				960
Far Eastern Curlew	<i>Numenius madagascariensis</i>	1													1
Common Redshank	<i>Tringa totanus</i>	1053						110		35	505				1703
Marsh Sandpiper	<i>Tringa stagnatilis</i>	176	4								4				184
Common Greenshank	<i>Tringa nebularia</i>	70	2					5			33				110
Nordmann's Greenshank	<i>Tringa guttifer</i>	6													6
Wood Sandpiper	<i>Tringa glareola</i>		30	3										22	55
Terek Sandpiper	<i>Xenus cinereus</i>	9								20	117				146
Common Sandpiper	<i>Actitis hypoleucos</i>	8	13	5	1			1	3	1	2	3			37
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>														0
Ruddy Turnstone	<i>Arenaria interpres</i>	4									1				5
Asian Dowitcher	<i>Limnodromus semipalmatus</i>														0
Red Knot	<i>Calidris canutus</i>	4													4
Great Knot	<i>Calidris tenuirostris</i>	616													616
Sanderling	<i>Calidris alba</i>														0
Rufous-necked Stint	<i>Calidris ruficollis</i>	450									113				563
Long-toed Stint	<i>Calidris subminuta</i>		3												3
Curlew Sandpiper	<i>Calidris ferruginea</i>	251									36				287
Broad-billed Sandpiper	<i>Limicola falcinellus</i>	14									8				22
Common Snipe	<i>Gallinago gallinago</i>		13						4						17
Pintail/Swinhoe Snipe	<i>Gallinago stenura/megala</i>				1										1
Unidentified shorebirds				3							150	1			154
Unidentified snipe															0
GULLS & TERNS															
Brown-headed Gull	<i>Larus brunnicephalus</i>														0
Black-headed Gull	<i>Larus bindirulus</i>														0
Whiskered Tern	<i>Chlidonias hybridus</i>										2				2
White-winged Tern	<i>Chlidonias leucopterus</i>	182	90									25			297
Gull-billed Tern	<i>Gelochelidon nilotica</i>	167									3				170
Caspian Tern	<i>Hydroprogne caspia</i>	22													22
Common Tern	<i>Sterna hirundo</i>										2				2
Black-naped Tern	<i>Sterna sumatrana</i>														0
Little Tern	<i>Sterna albifrons</i>	59								1	8				68
Lesser Crested Tern	<i>Sterna bengalensis</i>														0
Unidentified terns											820				820
TOTAL (Number of Individuals)		7907	725	190	8	51	239	191	192	645	3900	94	34	26	14202
TOTAL (Number of Species)*		34	29	16	3	6	4	7	13	11	26	12	3	3	77

Note: * The total number of species does not include unidentified species.

Appendix 3. Summary of the waterbirds and wetlands surveyed during the AWC 2004 (Malaysia). (Continued)

GROUP/SPECIES		SITE																	TOTAL
		PR	PBB	PW	MT	BTP	BKB	KC	TTD	KuP	JS	SL	TeK	LK	KgM	PJ	BU	SB	
DARTERS																			
Oriental Darter	<i>Anhinga melanogaster</i>												5	26	17				48
HERONS & EGRETS																			
Yellow Bittern	<i>Ixobrychus sinensis</i>			6				12											18
Cinnamon Bittern	<i>Ixobrychus cinnamomeus</i>		1	1		1		9				1					2		15
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>			1		600													601
Chinese Pond-Heron	<i>Ardeola bacchus</i>		94			1			11	33						16	6	6	167
Cattle Egret	<i>Bubulcus ibis</i>		41	1		94					5	8						44	193
Little Heron	<i>Butorides striatus</i>	4	3		21					3	4		3		8	4	27		77
Pacific Reef Egret	<i>Egretta sacra</i>															1			1
Chinese Egret	<i>Egretta eulophotes</i>						10				419		5		4	1			439
Little Egret	<i>Egretta garzetta</i>		19	3	185		9	24		7	90	7	97	46	102	14	11	1	615
Intermediate Egret	<i>Egretta intermedia</i>					1		3		9	1	1	22		12		1	3	53
Great Egret	<i>Casmerodius alba</i>		19		21		10	5			15	3	20	6	17	3	26		145
Purple Heron	<i>Ardea purpurea</i>			6		4						1			4		1	5	21
Grey Heron	<i>Ardea cinerea</i>				1	1						3				5			10
Great-billed Heron	<i>Ardea sumatrana</i>												1						1
Unidentified herons and/or egrets					353		8	1			61		11	5	49				488
STORKS																			
Milky Stork	<i>Mycteria cinerea</i>				8														8
Storm's Stork	<i>Ciconia stormi</i>												7	4	2				13
Lesser Adjutant	<i>Leptoptilos javanicus</i>				3								1		1	7		3	15
GREBES																			
Little Grebe	<i>Tachybaptus ruficollis</i>					4			9										13
GEESE & DUCKS																			
Wandering Whistling Duck	<i>Dendrocygna arcuata</i>											22							22
Lesser Treeduck	<i>Dendrocygna javanica</i>			13		3											2		18
Cotton Pygmy Goose	<i>Nettapus coromandelianus</i>																		0
RAILS & GALLINULES																			
Slaty-breasted Rail	<i>Rallus striatus</i>		2					1			8						4		15
Ruddy Crake	<i>Porzana fusca</i>							2											2
White-browed Crake	<i>Porzana cinereus</i>							3											3
White-breasted Waterhen	<i>Amaurornis phoenicurus</i>		3	6		4		14	1		17					1	3	12	61
Watercock	<i>Gallicrex cinerea</i>		2																2
Common Moorhen	<i>Gallinula chloropus</i>			5				6	1			1						3	16
Purple Swampphen	<i>Porphyrio porphyrio</i>			8		1													9
FINFOOT & JACANAS																			
Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>																		0
SHOREBIRDS-WADERS																			
Painted Snipe	<i>Rostratula benghalensis</i>							2									1		3
Black-winged Stilt	<i>Himantopus himantopus</i>										2								2
Oriental Pratincole	<i>Glareola maldivarum</i>																1		1
Grey-headed Lapwing	<i>Vanellus cinereus</i>																1		1
Red-wattled Lapwing	<i>Vanellus indicus</i>																	4	4
Pacific Golden Plover	<i>Pluvialis fulva</i>		285				1	10			98	173					474		1041

GROUP/SPECIES		SITE																	TOTAL
		PR	PBB	PW	MT		BKB	KC	TTD	KuP	JS	SL	TeK	LK	KgM	PJ	BU	SB	
Grey Plover	<i>Pluvialis squatarola</i>		1				28									2	1		32
Little Ringed Plover	<i>Charadrius dubius</i>											38					40		78
Kentish Plover	<i>Charadrius alexandrinus</i>						17												17
Malaysian Plover	<i>Charadrius peronii</i>																		0
Mongolian Plover	<i>Charadrius mongolus</i>	6	10		4		375				281					25	2		703
Greater Sand-Plover	<i>Charadrius leschenaultii</i>		15				14									7			36
Black-tailed Godwit	<i>Limosa limosa</i>		12				2												14
Bar-tailed Godwit	<i>Limosa lapponica</i>		120				128									4			252
Whimbrel	<i>Numenius phaeopus</i>	2	110		24		113									2	2		253
Eurasian Curlew	<i>Numenius arquata</i>	17	18				58								10	1			104
Far Eastern Curlew	<i>Numenius madagascariensis</i>		2				16				1								19
Common Redshank	<i>Tringa totanus</i>	7			69		60				67		1		6	52	80		342
Marsh Sandpiper	<i>Tringa stagnatilis</i>		10				35				71	21				11	25		173
Common Greenshank	<i>Tringa nebularia</i>	4	22		1		7				17					1	13		65
Nordmann's Greenshank	<i>Tringa guttifer</i>		31				2												33
Wood Sandpiper	<i>Tringa glareola</i>							73			1	31					13	5	123
Terek Sandpiper	<i>Xenus cinereus</i>	4			2		147				4					26			183
Common Sandpiper	<i>Actitis hypoleucos</i>				6		13	1			8	4	4	8	53	15	25	2	139
Grey-tailed Tattler	<i>Heteroscelus brevipes</i>						2												2
Ruddy Turnstone	<i>Arenaria interpres</i>		1								2								3
Asian Dowitcher	<i>Limnodromus semipalmatus</i>		21				2												23
Red Knot	<i>Calidris canutus</i>		10																10
Great Knot	<i>Calidris tenuirostris</i>		40																40
Sanderling	<i>Calidris alba</i>						2						1						3
Rufous-necked Stint	<i>Calidris ruficollis</i>		200													3	15		218
Long-toed Stint	<i>Calidris subminuta</i>											243					29		272
Curlew Sandpiper	<i>Calidris ferruginea</i>		4								274	2				40	8		328
Broad-billed Sandpiper	<i>Limicola falcinellus</i>																		0
Common Snipe	<i>Gallinago gallinago</i>											1							1
Pintail/Swinhoe Snipe	<i>Gallinago stenura/megala</i>							22									5		27
Unidentified shorebirds			200		100		1358						19	5	84			4	1770
Unidentified snipe																			0
GULLS & TERNS																			
Brown-headed Gull	<i>Larus brunnicephalus</i>				150														150
Black-headed Gull	<i>Larus bindirulus</i>						29												29
Whiskered Tern	<i>Chlidonias hybridus</i>				8						3								11
White-winged Tern	<i>Chlidonias leucopterus</i>															14			14
Gull-billed Tern	<i>Gelochelidon nilotica</i>						104												104
Caspian Tern	<i>Hydroprogne caspia</i>																		0
Common Tern	<i>Sterna hirundo</i>																		0
Black-naped Tern	<i>Sterna sumatrana</i>																		0
Little Tern	<i>Sterna albifrons</i>						154												154
Lesser Crested Tern	<i>Sterna bengalensis</i>						18												18
Unidentified terns					59														59
TOTAL (Number of Individuals)		44	1296	50	1015	714	2722	188	22	52		560	197	100	369	255	814	96	9943
TOTAL (Number of Species)*		7	27	10	14	11	26			4	4	22	17	10	5	15	23	13	77

Note: * The total number of species does not include unidentified species.

ABBREVIATIONS:

BKB	Bako-Buntal Bay (Kg Buntal)
BT	Batang Tiga
BTM	Berjantai Tin Ex-Mining Area
BTP	Bandar Tasik Puteri
BU	Batu Uban FTZ
CK	Chikus
GD	Gurney Drive coast
JS	Jaie-Semera
JHK	Institut Jabatan Haiwan Kluang
KC	Kg Chupak
KgM	Kg Mumiang
KM	Kamunting
KNP	Kinta Nature Park
KP	Kampung Punggai
KPS	Kapar Powerstation
KR	Kuala Rompin
KS	Kuala Sedili
KSNP	Kuala Selangor Nature Park
KuP	Kuala Perlis
LK	Lower Kinabatangan
LR	Laka ricefields
MN	Malim Nawar
MR	Mersing
MT	Matang
PBB	Bagan Tambang-Kuala Muda
PG	Pasir Gogok
PJ	Parit Jawa
PK	Pekan
PR	Pantai Remis
PT	Pulau Tengah
PW	Putrajaya Wetlands
RS	Rasa Ex-Mining Ponds
SB	Sungai Balang
SG	Sungai Galing
SL	Sejingkat landfills
SSN	Sekinchau-Sg Nibong
TDP	Taman Desa Oxidation Pond
TeK	Terusan Kinabatangan
TK	Tanjung Karang
TT	Tanjung Tumbuk
TTD	Timah-Tasoh Dam
UY	Ulu Yam Lama & Baru
YP	Yong Peng

Appendix 4. Summary of other wetland-related birds surveyed during the AWC 2004 (Malaysia).

FAMILY/SPECIES		SURVEY SITES													TOTAL	
		MN	KSNP		PT	SSN	BKB	KC	JS	SL	SB	BU	LK	TeK		KgM
PANDIONIDAE																
Osprey	<i>Pandion haliaetus</i>	1													1	
ACCIPITRIDAE																
Greater Spotted Eagle	<i>Aquila clanga</i>			1							2				3	
Pied Harrier	<i>Circus melanoleucos</i>			11											11	
Eastern Marsh-Harrier	<i>Circus spilonotus</i>			20											20	
Black-shouldered Kite	<i>Elanus caeruleus</i>			10											10	
Brahminy Kite	<i>Haliastur indus</i>				35	2						P	3	63	40	143
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>				1		1		1			P	1	5	11	20
ALCEDINIDAE																
Black-capped Kingfisher	<i>Halcyon pileata</i>		P			1						P				1
Collared Kingfisher	<i>Halcyon chloris</i>				4	9	3		24	1			2	6	19	68
Common Kingfisher	<i>Alcedo atthis</i>							2		3		P				5
Stork-billed Kingfisher	<i>Halcyon capensis</i>												6	6	22	34

Note: P = Present

ABBREVIATIONS:

BT	Batang Tiga
BU	Batu Uban FTZ
BKB	Bako-Buntal Bay (Kg Buntal)
KC	Kg Chupak
KgM	Kg Mumiang
JS	Jaie-Semera
KSNP	Kuala Selangor Nature Park
LK	Lower Kinabatangan
MN	Malim Nawar
PT	Pulau Tengah
SB	Sungai Balang
SL	Sejingkat landfills
SSN	Sekinchang-Sg Nibong
TeK	Terusan Kinabatangan