

APPENDIX 9D

**Estimation of
Construction
Disturbance on Bird
Communities**

9D. ESTIMATION OF CONSTRUCTION DISTURBANCE ON BIRD COMMUNITIES

9D.1 Methodology

The bird community along the section of Shenzhen River between Ta Sha Lok and Lok Ma Chau was sampled using transect count method. The transect was surveyed 3 times (September – November 1997) during the construction phase of Stage 2 Contract A works of SRRP. Birds seen within 100m on both side of the embankment of Shenzhen River were recorded. Surveys continued along the same transect after the completion of construction works (operation phase). The field data were attached at the end of the monthly progress reports submitted to EPD of Hong Kong and Shenzhen River Regulation Office of Shenzhen.

Bird species of conservation concern or occur regularly in high abundance on inter-tidal mudflat within the Study Area of SWC included Black-faced Spoonbill *Platalea minor*, Grey Heron *Ardea cinerea*, Chinese Pond Heron *Ardeola bacchus*, Great Egret *Casmerodius albus* and Little Egret *Egretta garzetta*. Impact of construction disturbance on these species can be assessed in terms of reduction in density through comparison of observationse during construction and operation phases. Black-faced Spoonbill was not recorded during the SRRP ecological monitoring. Therefore, the assessment of construction disturbance will focus on the four ardeid species.

Since the bird community was only surveyed between September and November during the construction phase, the data was compared to those collected during September – November 1999, and September – December 2000 in order to reduce the effect of seasonality on bird communities. Bird abundance was standardized as birds per unit area (birds ha⁻¹):

Bird density = Total birds / Total area covered (ha)

9D.2 Results

It was found that total density of the four ardeid species during construction phase was higher than in operation phase (Table 1). Except Chinese Pond Herons, the densities of the ardeid species were higher during the construction phase (Table 2). There were increases in densities of some species between construction phase and operation phase (e.g., Common Kingfisher *Alcedo atthis*, White Wagtail *Motacilla alba*) (Table 3). However, these species were not recorded or did not make up significant proportion of the bird communities in the inter-tidal habitats within the Study Area of SWC.

Table 1. Ardeid communities during construction and operation phases

	Construction phase	Operation phase	
	Sep – Nov 97	Sep – Nov 99	Sep – Dec 00
Bird abundance (birds ha ⁻¹)	1.7	1.6	1.6
Species richness	4	4	6

Table 2 Densities of each of the four ardeid species during construction and operation phases

	Construction phase	Operation phase	
	Sep – Nov 97	Sep – Nov 99	Sep – Dec 00
Chinese Pond Heron	0.40	0.90	0.90
Little Egret	0.40	0.33	0.37
Great Egret	0.15	-	0.14
Grey Heron	0.72	0.37	0.23

Table 3. Densities of bird species and number of individuals recorded during construction phase (C: September – November 1997) and operation phase (O1: September – November 1999; O2: September – December 2000). Commonness: CW = common and widespread, CL = common/uncommon and localized, R = rare and localized.

Common names	Latin names	C	O1	O2	Commonness
Little Grebe	<i>Tachybaptus ruficollis</i>	-	0.03	0.14	CL
Cormorant	<i>Phalacrocorax carbo</i>	0.33	0.20	-	CL
Yellow Bittern	<i>Ixobrychus sinensis</i>	-	0.03	-	CL
Night Heron	<i>Nycticorax nycticorax</i>	0.12	-	0.13	CL
Chinese Pond Heron	<i>Ardeola bacchus</i>	0.40	0.90	0.90	CW
Cattle Egret	<i>Bubulcus ibis</i>	-	-	0.02	CW
Little Egret	<i>Egretta garzetta</i>	0.40	0.33	0.37	CW
Great Egret	<i>Casmerodius alba</i>	0.15	-	0.14	CL
Grey Heron	<i>Ardea cinerea</i>	0.72	0.37	0.23	CL
Black-eared Kite	<i>Milvus lineatus</i>	0.04	-	0.12	CW
Bonelli's Eagle	<i>Hieraaetus fasciatus</i>	0.01	-	-	R
Buzzard	<i>Buteo buteo</i>	0.01	0.03	0.01	CL
Imperial Eagle	<i>Aquila heliaca</i>	-	-	0.01	R
Kestrel	<i>Falco tinnunculus</i>	0.01	-	-	CL
Peregrine Falcon	<i>Falco peregrinus</i>	-	-	0.01	R
Teal	<i>Anas crecca</i>	-	-	0.07	CL
Shoveler	<i>Anas clypeata</i>	-	0.03	-	R
White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	0.01	0.07	0.07	CW
Moorhen	<i>Gallinula chloropus</i>	-	0.13	0.04	CL
Coot	<i>Fulica atra</i>	-	-	0.01	CL
Black-winged Stilt	<i>Himantopus himantopus</i>	0.03	-	-	R
Little Ringed Plover	<i>Charadrius dubius</i>	0.88	0.17	0.02	CL
Fantail Snipe	<i>Gallinago gallinago</i>	0.02	0.10	0.02	CL
Pintail Snipe	<i>Gallinago stenura</i>	0.01	-	-	R
Redshank	<i>Tringa stagnatilis</i>	0.04	-	-	CL
Green Sandpiper	<i>Tringa ochropus</i>	0.03	-	0.05	CW
Wood Sandpiper	<i>Tringa glareola</i>	0.12	-	-	CL
Common Sandpiper	<i>Actitis hypoleucos</i>	0.07	0.30	0.13	CW
Black-headed Gull	<i>Larus ridibundus</i>	0.29	-	0.54	CW
Feral Pigeon	<i>Columba livia</i>	0.03	1.07	0.01	CL
Rufous Turtle-dove	<i>Streptopelia orientalis</i>	0.01	-	0.03	CW
Spotted Dove	<i>Streptopelia chinensis</i>	0.08	0.30	0.60	CW
Koel	<i>Eudynamis scolopacea</i>	-	-	0.01	CW
Greater Coucal	<i>Centropus sinensis</i>	-	-	0.01	CW
Eurasian Wryneck	<i>Jynx torquilla</i>	-	0.03	-	R
House Swift	<i>Apus nipalensis</i>	0.01	-	0.01	CW

Common names	Latin names	C	O1	O2	Commonness
White-breasted Kingfisher	<i>Halcyon symrnensis</i>	0.03	0.07	0.01	CW
Common Kingfisher	<i>Alcedo atthis</i>	0.08	0.23	0.07	CW
Pied Kingfisher	<i>Ceryle rudis</i>	-	-	0.02	CL
Barn Swallow	<i>Hirundo rustica</i>	0.05	0.03	-	CW
Richard's Pipit	<i>Anthus richardi</i>	-	-	0.01	CW
Olive-backed Pipit	<i>Anthus hodgsoni</i>	0.01	-	-	CW
Grey Wagtail	<i>Motacilla cinerea</i>	-	-	0.01	CW
Yellow Wagtail	<i>Motacilla flava</i>	0.10	0.03	-	CL
White Wagtail	<i>Motacilla alba</i>	0.43	1.20	0.27	CW
Chinese Bulbul	<i>Pycnonotus sinensis</i>	0.03	0.03	-	CW
Magpie Robin	<i>Copsychus saularis</i>	-	-	0.01	CW
Siberian Stonechat	<i>Saxicola maura</i>	0.09	0.33	0.08	CL
Fantail Warbler	<i>Cisticola exilis</i>	-	-	0.15	CL
Plain Prinia	<i>Prinia inornata</i>	0.06	0.13	0.17	CL
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	0.02	0.13	0.24	CW
Oriental Reed Warbler	<i>Acrocephalus orientalis</i>	0.02	0.37	0.10	CL
Dusky Warbler	<i>Phylloscopus fuscatus</i>	0.01	0.20	0.10	CW
Rufous-backed Shrike	<i>Lanius schach</i>	0.02	0.30	0.03	CW
Black Drongo	<i>Dicrurus macrocercus</i>	0.03	0.03	0.03	CW
Magpie	<i>Pica pica</i>	0.03	0.07	-	CW
Red-billed Starling	<i>Sturnus sericeus</i>	1.22	1.00	0.91	CL
Black-necked Starling	.2.1 Sturnus nigricollis	0.09	0.13	0.25	CW
Crested Myna	<i>Acridotheres cristatellus</i>	0.90	-	0.53	CW
White-backed Munia	<i>Lonchura striata</i>	-	-	0.02	CL
Spotted Munia	<i>Lonchura punctulata</i>	0.12	-	0.24	CL
Tree Sparrow	<i>Passer montanus</i>	-	0.27	0.23	CW
Masked Bunting	<i>Emberiza spodocephala</i>	-	-	0.03	CW
Yellow-fronted Canary	<i>Serinus mozambicus</i>	-	-	0.01	-
Total density (birds ha ⁻¹)		7.2	17.5	7.2	
Number of species		43	34	49	
Total area cover (ha)		156	30	165.6	