Information Sheet on EAA Flyway Network Sites (SIS) – 2013 version

Available for download from http://www.eaaflyway.net/information-sites-maps.php

Categories approved by Second Meeting of the Partners of the East Asian-Australasian Flyway Partnership in Beijing, China 13-14 November 2007 - Report (Minutes) Agenda Item 3.13

Notes for compilers:

1. The management body intending to nominate a site for inclusion in the East Asian - Australasian Flyway Site Network is requested to complete a Site Information Sheet. The Site Information Sheet will provide the basic information of the site and detail how the site meets the criteria for inclusion in the Flyway Site Network.

2. The Site Information Sheet is based on the Ramsar Information Sheet. If the site proposed for the Flyway Site Network is an existing Ramsar site then the documentation process can be simplified.

3. Once completed, the Site Information Sheet (and accompanying map(s)) should be submitted to the Flyway Partnership Secretariat. Compilers should provide an electronic (MS Word) copy of the Information Sheet and, where possible, digital versions (e.g. shapefile) of all maps.

---

1. Name and contact details of the compiler of this form:

Full name: Mr Rambli Ahmad

Institution/agency: Sarawak Forestry Corporation

Address : Lot 218, KCLD, Jalan Tapang, Kota Sentosa, 93250 Kuching, Sarawak

Telephone: (+6) 082 610088, (+6) 082 629573

Fax numbers: (+6) 082 610099/629450

E-mail address: rambliahmad@sarawakforestry.com

EAAF SITE CODE FOR OFFICE USE ONLY:

E	A	A	F	1	1	2

2. Date this sheet was completed:

21st January 2013

3. Country:

Malaysia

4. Name of the Flyway Network site:

The most up-to-date available version of the site in digital format. The map should have coordinates and must clearly show the boundary of the site.

Bako-Buntal Bay

5. Map of site:

The most up-to-date available and suitable map of the wetland should be appended to the SIS (in hardcopy and, if possible, also in digital format). The map must clearly show the boundary of the site.

Refer to Attachment A

6. Geographical coordinates (latitude/longitude, in decimal degrees):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

Approximate centre: 1°40’00”N, 110°30’00”E

Most western range: 110°20’00”E
Most eastern range: 110°45’00”E
Most northern range: 1°48’00”N
Most southern range: 1°33’00”N

7. Elevation: (in metres: average and/or maximum & minimum)

-5m to 10m Mean Sea Level

8. Area:

The total area of the site, in hectares. If the areas of discrete site units are known, please also list each of these together with the names (or labels) used to identify and differentiate these units.

2,800 ha

9. General overview of the site:

A brief (two sentences) summary of the site, mentioning principal physical and ecological functions, and its importance for migratory waterbirds.

Bako Buntal Bay is an important non-breeding site for migratory waterbirds. Thirty-two species of shorebirds comprising an estimated 20,000-25,000 individuals winter in the bay and its immediate environs. Several globally threatened and near threatened species such as the Nordmann's Greenshank, Asian Dowitcher and Far Eastern Curlew make their stops here. The area supports more than 10 % of the global population of Chinese Egret while the numbers of Red Knot and Great Knot are among the highest for any site in Malaysia. Several interesting observations were made in the 2009 AWC where sightings of Pied Avocet and Eastern Oystercatcher which were also first records for Borneo and Long-tailed Skua (seabird of temperate seas) first record for Sarawak. All of them makes Bako Buntal Bay globally significant as an important site for waterbirds.

10. Justification of Flyway Site Network criteria:

Please provide waterbird count information (with year of latest count) that demonstrates that the site meets the criteria of the Flyway Site Network (Annex 1). That is:

- it regularly supports > 20 000 migratory waterbirds; or,
- it regularly supports > 1 % of the individuals in a population of one species or subspecies of migratory waterbird; or,
- it supports appreciable numbers of an endangered or vulnerable population of migratory waterbird
- it is a "staging site" supporting > 5 000 waterbirds, or > 0.25% of a population stage at the site.

A listing of the populations of migratory waterbirds covered by the East Asian – Australasian Flyway Partnership and the 1% thresholds is attached (Annex 3).

The "staging site" criterion is particularly difficult to apply and application of this should be discussed with the Secretariat. Also note that some species have several populations that are very difficult to distinguish in the field.

The area supports at least 4 species of more than 1% of the individuals in a population of one species.

1. Nordmann's Greenshank Tringa guttifer (endangered) – 14 individuals in the recent 2011 census in the western portion of Bako Buntal Bay
2. Chinese Egret Egretta eulophotes (vulnerable)- 80 individuals recorded in western portion of Bako Buntal Bay in 2011 census (1% = 26 indv.). In 2006 census, a total of 432 individuals (14.4% of the global population) in the western coast of Sarawak with 286 recorded in Bako Buntal Bay.

3. Greater Sandplover, Charadrius leschenaultii (Least Concern) – 1040 in January 2003 census (1% - 1000)

4. Terek Sandpiper, Xenus cinereus (1% - 500) (Least Concern) – 800 individuals were recorded in the western portion of the Bako Buntal Bay in 2011 census. During the 2006 census, it was recorded as the most numerous with 3,535 birds in the west coast of Sarawak, with 1,647 in Bako Buntal Bay alone.

11. Wetland Types:

List the wetland types present (see Annex 2). List the wetland types in order of their area in the Flyway Network site, starting with the wetland type with the largest area.

Marine/Coastal Wetlands

G --	Intertidal mud, sand or salt flats.
I --	Intertidal forested wetlands; includes mangrove swamps, nipah swamps and tidal freshwater swamp forests.
F --	Estuarine waters; permanent water of estuaries and estuarine systems of deltas.
D --	Rocky marine shores; includes rocky offshore islands, sea cliffs.

Human-made wetlands

1 --	Aquaculture (e.g., fish/shrimp) ponds
2 --	Ponds; includes farm ponds, stock ponds, small tanks; (generally below 8 ha) and ashpond
3 --	Irrigated land; includes irrigation channels and rice fields.
9 --	Canals and drainage channels, ditches.

12. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Ministry of Agriculture/Dept. of Environment, etc.

Territorial:

Sarawak State Government, Malaysia

Functional:

Ministry of Resource Planning and Environment, Sarawak

Forest Department Sarawak

Sarawak Forestry Corporation

13. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland and the title and/or name and email address/phone number of the person or persons in this office with direct responsibility for managing the wetland.

Name	:	Mr Oswald Braken Tisen
Position	:	Acting Deputy General Manager
Division	:	Protected Areas and Biodiversity Conservation Division
Institution/Agency	:	Sarawak Forestry Corporation
Address	:	Lot 218, KCLD, Jalan Tapang, Kota Sentosa, 93250 Kuching, Sarawak
Tel. General Line	:	(+6) 082 629363/629607
Fax. No.	:	(+6) 082 629450
Email	:	oswaldtisen@sarawakforestry.com

14. Bibliographical references:

A list of key technical references relevant to the wetland, including management plans, major scientific reports, and bibliographies, if such exist. Please list Web site addresses dedicated to the site or which prominently feature the site, and include the date that the Web site was most recently updated. When a large body of published material is available about the site, only the most important references need be cited, with priority being given to recent literature containing extensive bibliographies.

Benefits and Expectations of the East Asian Australasian Flyway Site Network – Briefing Paper for Site Managers (unpublished).

Li, Z.W.D. and Ounsted, R. (eds.). 2007. *The Status of Coastal Waterbirds and Wetlands in Southeast Asia: Results of Waterbird Surveys in Malaysia (2004–2006) and Thailand and Myanmar (2006).* Wetlands International, Kuala Lumpur, Malaysia.

Mizutani, A., Kato, K. Tanaka, K., Ichikawa, T., Zaidi, M. and Auby, I, 2006: A Report of the Wintering Waterbirds Status along the West Coast of Sarawak – Results of AWC 2006 – Sarawak Forestry, Kuching, Sarawak.

Partnership for the Conservation of Migratory Waterbirds and the Sustainable Use of their Habitats in the East Asian Australasian Flyway (Partnership for the East Asian Australasian Flyway).

Yeap, C.A., Sebastian, A. C. and Davison, G.W.H. (compilers). 2007: Directory of Important Bird Areas in Malaysia: key sites for conservation, Kuala Lumpur: Malaysian Nature Society, (MNS Conservation Publication No. 8).

15. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The site stretches along the coast from the Santubong peninsula eastwards to the mouth of Sungai Sadong. It encompasses the twin promontories that form the donkey-ears of Kuching. The western promontory is Gunung Santubong, and the eastern promontory the sandstone plateau of Bako NP. Between these is the Bako-Buntal Bay, an expanse of inter-tidal mudflats fringed with mangrove forest. Eastwards, the site follows the coast between the Sarawak, Samarahan and Sadong rivers. The landward boundary follows a long reclamation dyke, opening up the areas behind the mangrove belt for agriculture. The seaward boundary follows 2 km extension from the vast tidal mudflats that line this coast.

16. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

Climate: There is a marked seasonal climate in the area. Annual rainfall of about 4,300 mm is concentrated during the wet season from November-February. The average rainfall during May-September is less than 200 mm per month. Temperature ranges between 20^{o}-30^{o}C

17. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Potential hydrological values are expected to include: shoreline stabilization, flood and erosion control and sediment trapping.

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Flyway Network site, and the ecosystem services of the site and the benefits derived from them.

The Flyway Network site covers the coastlines of Santubong National Park, Bako-Buntal Bay, Bako National Park and Asajaya coastline.

Gunung Santubong: An 810 m sandstone mountain, connected to the mainland by a narrow (not more than 1.5 km) strip of land. The coastline is rocky, with small sandy coves. The western side of the mountain rises steeply, covered with mixed dipterocarp forest. The eastern side has gentler slopes, with tropical heath forest grading into mixed dipterocarp forest higher up. Above 600 m, vertical cliff faces are exposed in areas. The top is narrow and deeply incised in parts, forming crevices. Numerous clearwater streams flow down its slopes, forming cascades. The rocky shoreline shows weathering on the west, exposing rock and boulder beds during low tides. The

eastern side is less weathered, probably a result of the sheltering effect of the bay. Less exposure is evident during low tides. The lower slopes along the western side have been developed into a resort city, with numerous hotels, outdoor recreational facilities, sea-facing golf courses and the world renowned Sarawak Cultural Village are located here. Numerous trails extend into the forest, including a trail to the summit. The eastern side remains undeveloped.

Bako-Buntal Bay: a semi-circular bay bordered by Gunung Santubong to the west and Bako NP to the east. The bay is about 15 km wide between the promontories, narrowing to less than 5 km between the Sungai Bako and Sungai Buntal at its base. Mangrove forest stretches between the two promontories. The bay is shallow, consisting of a sandy substrate overlaid with mud closer to the estuaries. The inter-tidal environment is dynamic, with constantly shifting sandbars. During very low tides, almost a third of the bay is exposed sandflats and mudflats. The October to February monsoon causes rough weather in the bay, and the mangrove shoreline is being seriously affected by erosion. On the eastern side, areas of mangrove have been cleared for aquaculture farms.

Bako NP: Bako is Sarawak's oldest national park to protect rocky coastlines, which are rare in the State, and unusual landscapes with scenery of exceptional beauty. It lies on the Muara Tebas peninsula, which faces the South China Sea.

The national park is formed from a sandstone plateau covering the northern part of the headland. Thick layers of white to pale buff sandstone, which lie in almost horizontal position, build up the plateau. The sandstone is coarse to medium grained and contains scattered pebbles of quartz and chert. Conglomerates, consisting of rounded pebbles and grains in a sandy matrix, are abundantly present. Thin layers of mudstone are occasionally seen between the sandstone beds.

These rocks attain a thickness of at least 290 m and are called the Plateau Sandstone Formation. Several hills are situated on the plateau and the highest is Bukit Gondol (260 m asl). Soils on the plateau range from coarse sand to clay and from thick to thin. The soil composition in the national park depends to a large extent on the type of rocks underlying the soil. Soils on low-lying areas include riverine or alluvial soils, mangrove soils, podsols and red-yellow pozolic soils.
Asajaya coast: a stretch of mangroves (ca. 22 km) with tidal mudflats extending some 2-3km offshore during low tides. The four smaller rivers that flow out from this belt have formed raised levees of sand. The mangrove belt has been cleared in numerous places for aquaculture. Some remain active, but many have been abandoned. The mangroves are accreting, and are possibly the best remaining seaward stands in Sarawak.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*
(Please add here the species which do not come under sec no 14)

Bako-Buntal Bay: Mangrove forest fringing the bay comprises of *Avicennia* and *Sonneratia* interspersed with pockets of Rhizophora. Its western and eastern boundaries are described under Santubong and Bako respectively.

Gunung Santubong: Four major vegetation types occur:

- Mixed dipterocarp forest (MDF). The predominant vegetation covering the lower and middle slopes of the mountain, extending to the rocky coastline.
- Tropical heath forest. Occurs on the eastern side of the mountain where the terrain is level and gently sloping. Lower stature than MDF, this habitat is part of the Riouw pocket vegetation dating back to the Pleistocene, and is characteristic of western Borneo. Many endemic species within a unique floral assemblage.
- Beach vegetation. Characterised by species such as *Dillenia, Callophyllum, Pandanus, Ixora, Hibiscus* and *Barringtonia*. Occurs in narrow strips along the sea front.
- Summit vegetation. Elements of sub-montane vegetation occur on the summits. Subjected to dessicating effects of sea breezes and a rocky substrate, this low stature vegetation occurs on the peaks and highest ridge crests.

Bako NP: Seven types of vegetation have been identified, namely mangrove, beach forest, riparian and freshwater swamp forest, lowland dipterocarp forest, heath forest, open shrubland and fire *padang*, which is one of the characteristic features of Bako.

- Mangrove forest. Three types of mangrove in Bako are identified. The first is *Sonneratia alba* that can be found along the sheltered areas of the coast on saline sands and clays. The second type develops on the heavier clays near the river channels and consists of *Rhizophora mucronata* and *Avicennia officinalis*. Lastly, dense stands of *Nipa fruticans* and *Heritiera globosa* are found on land that is flooded at high tide.
- Beach forest. Vegetation such as *Casuarina equisetifolia, Barringtonia asiatica, Calophyllum inophyllum* and *Hibiscus tiliaceus* dominate the coastal areas of the national park. This mixed forest has been disturbed by human activity in the past and has regenerated as secondary scrub.
- Riparian and freshwater swamp forest. Vegetation such as *Artocarpus* spp., *Salacca conferta, Pandanus, Shorea stenoptera* and *Dipterocarpus* spp. are found in this habitat on alluvial soils.
- Lowland dipterocarp forest. Occurs in Bako on the steeper slopes, which have deeper podsolised soils. Trees from the dipterocarp family dominate this mixed habitat, such as *Shorea* spp., *Dipterocarpus* spp.,*Dryobalanops* spp., *Anisoptera* spp., *Hopea* spp. and *Vatica* sp.

- Tropical heath forest. This is the most widespread forest type in the national park. *Casuarina sumatrana* and *Dacrydium elatum* are common. Ant plants and epiphytes such as *Nepenthes* sp., *Drosera* sp.. and *Burmannia* sp. can be found in this forest type.
- Open shrubland. This habitat has many plant genera that appear to have historic links with Australia. These plants include *Tristania* sp., *Gymnostoma* sp., *Baeckia* sp., *Austrobuxus* sp., *Styphelia* sp., *Podocarpus* sp., and *Dacrydium* sp.
- Fire *padang*. This habitat type is found in the north-west of the national park and is probably the result of burnt heath forest. Vegetation includes *Ploiarium alternifolium, Cratoxylon glaucum, Dacrydium elatum* and *Combretocarpus rotundatus*. Bako NP: Seven types of vegetation has been identified namely mangrove, beach forest, riparian and freshwater swamp forest, lowland dipterocarp forest, heath forest, open shrubland and fire *padang*, which is one of the characteristic features of Bako.
- Mangrove forest. Three types of mangrove in Bako are identified. The first is *Sonneratia alba* that can be found along the sheltered areas of the coast on saline sands and clays. The second type develops on the heavier clays near the river channels and consists of *Rhizophora mucronata* and *Avicennia officinalis*. Lastly, dense stands of *Nipa fruticans* and *Heritiera globosa* are found on land that is flooded at high tide.
- Beach forest. Vegetation such as *Casuarina equisetifolia, Barringtonia asiatica, Calophyllum inophyllum* and *Hibiscus tiliaceus* dominate the coastal areas of the national park. This mixed forest has been disturbed by human activity in the past and has regenerated as secondary scrub.
- Riparian and freshwater swamp forest. Vegetation such as *Artocarpus* spp., *Salacca conferta, Pandanus* spp*., Shorea stenoptera* and *Dipterocarpus* spp. are found in this habitat on alluvial soils.
- Lowland dipterocarp forest. Occurs in Bako on the steeper slopes, which have deeper podsolised soils. Trees from the dipterocarp family dominate this mixed habitat such as *Shorea* spp., *Dipterocarpus* spp.,*Dryobalanops* spp., *Anisoptera* spp., *Hopea* spp. and *Vatica* sp.
- Tropical heath forest. This is the most widespread forest type in the national park. *Casuarina sumatrana* and *Dacrydium elatum* are common. Ant plants and epiphytes such as *Nepenthes* sp., *Drosera* sp. and *Burmannia* sp. can be found in this forest type.
- Open shrubland. This habitat has many plant genera that appear to have historic links with Australia. These plants include *Tristania* sp., *Gymnostoma* sp., *Baeckia* sp., *Austrobuxus* sp., *Styphelia* sp., *Podocarpus* sp., and *Dacrydium* sp.
- Fire *padang*. This habitat type is found in the north-west of the national park and is probably the result of burnt heath forest. Vegetation includes *Ploiarium alternifolium, Cratoxylon glaucum, Dacrydium elatum* and *Combretocarpus rotundatus*.

Asajaya coast: The mangrove forests comprise of:

- Accreting belt, lower stature than the back mangrove stands, and confined to the sandier levees extending out to sea along the four smaller rivers. The predominant species are *Sonneratia* and *Avicennia*.
- Seaward belt, comprising very tall *Avicennia* and *Sonneratia*. These mangroves are almost continuous, forming an intact protective belt.
- Middle zone mangroves, dominated by *Rhizophora*. Tall dense but narrow stands.
- Back mangroves are represented by very small patches, upstream of the four rivers, where typical mangrove vegetation communities are represented by narrow bands along the river channels. *Lumnitzera, Heriteria* and *Excocaria* are all present, including *Oncosperma* and *Nypa*.

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 10. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not come under sec no 14)

Birds:

The Bako-Buntal Bay is of global importance as a wintering site for waterbirds. It is also a historical site, with continuous observations dating back to the early 1900s (From historical records, on February 1913, Nordmann's Greenshanks Tringa guttifer were seen at Buntal, in 1935, Far Eastern Curlews Numenius madagascariensis were described as swarming at Buntal; and on 9 June 1958, a single Eurasian Curlew Numenius arquata was seen at Buntal).

Eleven heron species occur, including a large mixed wintering population of Great Casmerodius albus, Intermediate Mesophoyx intermedia and Little Egrets Egretta garzetta. Thirty-one Chinese Egrets E. eulophotes were counted in the bay in 2003, while in 2006, a total of 432 individuals (14.4% of the global population) was found along the coast of Sarawak. The highest number was 228 individuals (7.6 % at Kuala Samarahan to Kuala Sadong). This number qualifies as 1% of the global population under the Ramsar criteria. This may be the largest number recorded to date on Borneo, the previous totals being 13 in December 1984 and 15-25 in April 1986 in Brunei. BirdLife International (2001) postulates that a small but not insignificant proportion of the world's population is dispersed along the coastline of Borneo and Sulawesi between October and March each year, and that the species may have been a common winter visitor in Sarawak in the 1890s.

Thirty-two shorebird species have been recorded in the bay to date, the most common being Mongolian Plover C. mongolus (1,167), Greater Sand-Plover Charadrius leschenaultii (1,040), Great Knot Calidris tenuirostris (986 individuals), Grey Plover Pluvialis squatarola (467) and Red Knot C. canutus (409). An estimated 20,000 - 25,000 waterbirds winter in the bay and its

immediate surroundings. The most significant species that use the bay regularly are Nordmann's Greenshank, Asian Dowitcher and Far Eastern Curlew, the latter in significant numbers (200 in 2003). Numbers of Red Knot and Great Knot are among the highest for any site in Malaysia. Near-threatened shorebirds identified are the Malaysian Plover Charadrius peronii and Asian Dowitcher Limnodromus semipalmatus.

Eleven species of terns have been recorded, including a historical occurrence of globally threatened Chinese Crested Tern Sterna bernsteini. Two specimens were collected at Buntal, one dated 1890.

One hundred and fifty species of birds have been identified in the Bako NP. Passage migrants and winter visitors have been noted using the coastal areas of the park in surveys such as the Nordmann's Greenshank Tringa guttifer. Bako NP is an important site for biome-restricted birds supporting 57 lowland forest species (three Vulnerable, 25 near-threatened) and one montane forest species. Other near-threatened birds such as the Malaysian Plover and Gould's Frogmouth Batrachostomus stellatus have also been recorded from the national park.

The Asajaya coast is of particular importance to Chinese Egret, with a single maximum count of 419 was obtained at a high-tide roost inside an aquaculture farm at Jaie-Semera in 2004. The count constitutes at least 14% of the estimated world population for the species, making it the single largest winter count of Chinese Egret outside the Philippines.

Mammals:

The area supports a steadily increasing population of Proboscis Monkey Nasalis larvatus. Initially confined to Bako NP, protection has increased the population within the national park to levels beyond its carrying capacity, and the excess is spreading across the bay and into Santubong. Groups can now be easily seen up the mountain and in the mangroves fringing the bay.

The waters within the bay and its immediate surroundings support at least three species of dolphin: Indo-Pacific Humpbacked Dolphin Sousa chinensis, Finless Porpoise Neophocaena phocaenoides and Irrawaddy Dolphin Orcaella brevirostris. Irrawaddy Dolphins are relatively common in the bay, most importantly, it is one of the viable population in Sarawak. They are also increasingly becoming habituated to people, and dolphin-watching activities are increasing. Further offshore in clearer waters, Sousa, and possibly Common Bottlenose dolphin Tursiops truncatus also occur.

The only record for Borneo of Pygmy Sperm Whale Kogia breviceps was that of a stranding at Buntal on 19 February 1958. The type specimen of the Borneo White Dolphin Sotalia borneensis, was collected at Tanjung Sipang, on the eastern side of the Bako promontory (mouth of the

Sarawak river) in 1901, but has subsequently been included as a predominantly pink form of Sousa chinensis.

Twenty-three species of mammals have been recorded in Bako NP. Eight species of small mammals have been recorded from the little-studied Gunung Santubong in 1997.

Reptiles:

The brackish waters of the mangrove delta support a healthy population of Estuarine Crocodile Crocodylus porosus, and larger individuals can be observed basking along exposed mudbanks.

21. Social, economic and cultural values:

a) Describe if the site has any general social, economic and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

Local communities near the area are mainly engaged in fishing and agricultural activities such as collecting bamboo clams, fishes and seafood products. The most important cash crops planted are coconut and local fruits. Bako-Buntal Bay as a Flyway Network Site will provide local communities with tourism related business opportunities such as home-stays, transportations, guiding, food and beverage services and handicrafts.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? (Double-click the checkbox to check and choose “Checked” under “Default Value” from “Check Box Form Field Options” window)

If yes, tick the box ❑ and describe this importance under one or more of the following categories:

I. Sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland: ☐
II. Sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland: ☐
III. Sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples: ☐
IV. Sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland: ☐

22. Land tenure/ownership:

a) Within the Flyway Network site:

The site area includes Totally Protected Areas (TPAs), Sarawak State Government, some areas under private ownership (township, village, etc.) and other areas leased under Temporary Occupancy Titles (e.g. aquaculture farms and stone quarry).

b) In the surrounding area:

Sarawak State Government, some areas under private ownership (township, village, etc.) and other areas leased under Temporary Occupancy Titles (e.g. aquaculture farms and stone quarry) and waterbodies.

23. Current land (including water) use:

a) Within the Flyway Network site:

Habitat protection (national parks), fisheries, tourism, wildlife, agriculture, aquaculture, residential, power plant, and nature observation.

b) In the surroundings/catchment:

Natural forests, secondary forests, wetland, fisheries, tourism, agriculture and aquaculture..

24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) Within the Flyway Network site:

There is no major change caused by the land-use activities and development over the area. The sea and mudflat are extensive compared with what have been developed within or outside the network site like the wave barrier in Buntal. There will be minimal impact to the Network Site from the construction of the wave barrier in Buntal.

The site is protected as part of it comprises of the protected areas of Bako National Park and Santubong National Park. The extensive mudflat is not suitable for development, thus will remain undisturbed. With the inscription of Bako Buntal Bay as network site, the development in this area will adhere to best practices.

b) In the surrounding area:

The coastways and the barrage of the Sarawak River were constructed 2 decades ago to control the river discharge as part of the flood mitigation for Kuching city. Any adverse impact, though not well studied, would have now stabilized and would not be detrimental to the mudflat.

25. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Flyway Network site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

Bako National Park gazetted as Totally Protected Areas under National Parks and Nature Reserves Ordinance, 1998 on 4th May 1957

Santubong National Park gazetted as Totally Protected Areas under National Park and Nature Reserves Ordinance, 1997 on 28th May 2007

Waterbirds and other birds species listed as Totally protected Animals and protected animals are governed under Wild Life Protection Ordinance, 1998

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate, see Annex 3):

Ia ☐; Ib ☐; II ☐; III ☐; IV ☐; V ☐; VI ☐; N/A ☐

c) Does an officially approved management plan exist; and is it being implemented?:

Management plan available for Bako National Park

If yes, is it being implemented?: If no, is one being planned?

d) Describe any other current management practices:

Integrated Coastal Management Zone

26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

NA

27. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Waterbird census, proboscis monkey and crocodile monitoring and marine aquatic research provided by UNIMAS.

28. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

CEPA activity such as Bako-Buntal Bay as An East Asian-Australasian Flyway Site Network (FNS), Stakeholder Awareness Workshop was held in December 2012 to create awareness and gain

participation of the relevant government agencies, NGOs, local communities and public on the Bako-Buntal Bay inception as East Asian-Australasian Flyway Site Network. Other CEPA activities on the pipeline include publish of information booklets and posters, and park guiding training. Through CEPA activities, it will develop conservation's commitment and participation among the local communities and public. This site will attract birdwatchers and enable higher learning students and scientists to gain knowledge and insights of waterbirds first-hand.

29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Tourism attractions at Bako National Park are hiking, camping, landscape viewing and wildlife watching. The number of tourists visiting Bako National Park from 2007 to 2012 as follows:

Bako National Park	No. of Visitors (estimated)
2007	27,932
2008	31,910
2009	34,536
2010	38,254
2011	41,470
2012	44,469

Tourism attractions at Buntal are local delicacies, seafood, birds watching, beaches, attractive landscape, hiking, mountain climbing, boat cruises, nature walk and camping.

Buntal is located in Damai Peninsula Tourism Zones with tourism attractions such as Damai Beach Hotel, Santubong Village, homestays, sea-facing golf courses, Santubong beach, Sarawak Cultural Village and seafood operators will benefit through the influx of tourists and visitors.

30. Threats

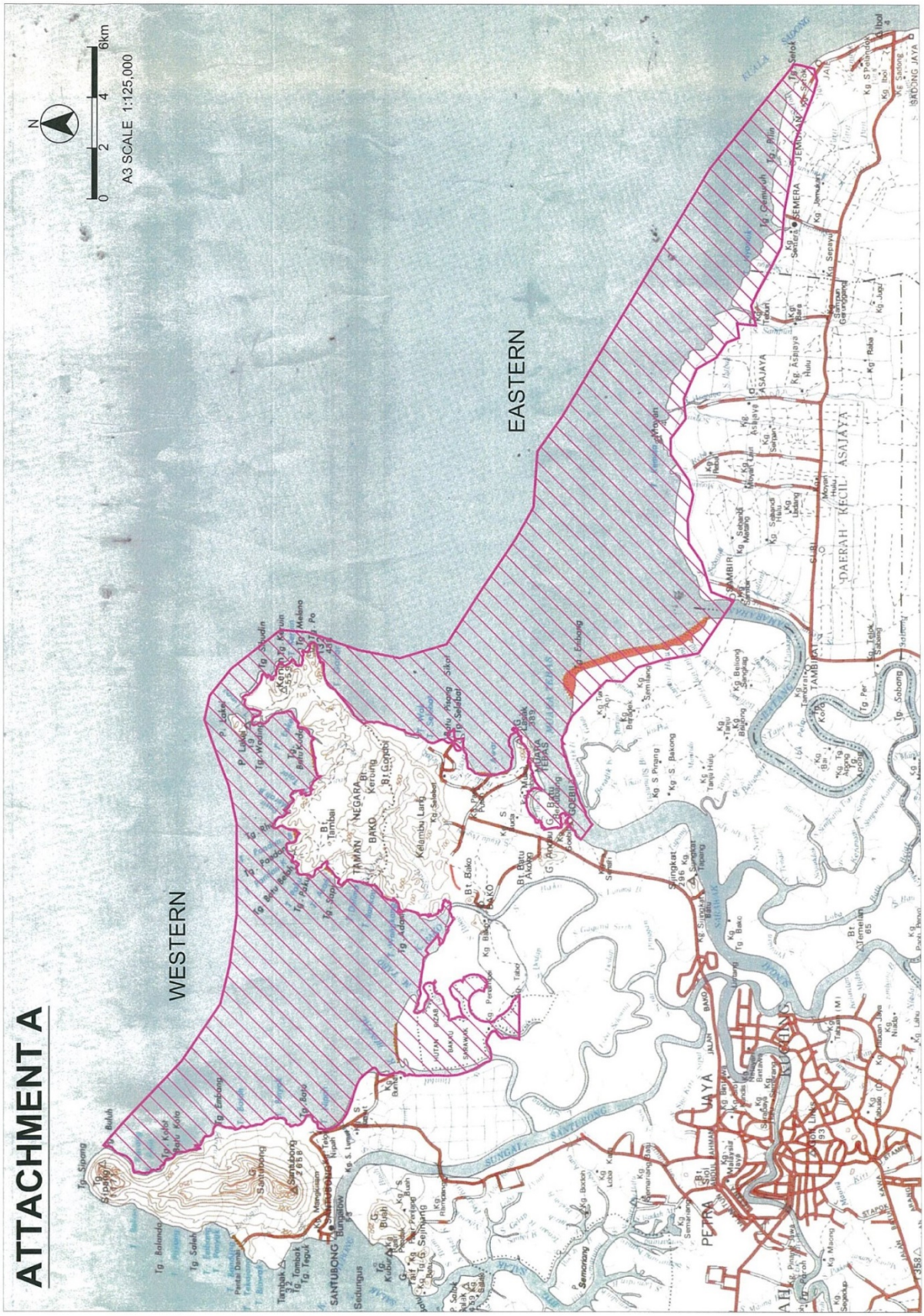
Which of the following threats is present historically – when the threat stopped but the effects are still there (H), currently (C) or potentially (P)?

	Historically	Currently	Potentially
Residential and commercial development			
housing and urban areas	☐	☐	☐
commercial and industrial areas	☐	☐	☐
tourism and recreation areas	☐	☐	☐
Agriculture and aquaculture			

annual and perennial non-timber crops	☐	☐	☐
wood and pulp plantations	☐	☐	☐
livestock farming and ranching	☐	☐	☐
marine and freshwater aquaculture	☐	☐	☐
Energy production and mining			
oil and gas drilling	☐	☐	☐
mining and quarrying	☐	☐	☐
renewable energy	☐	☐	☐
Transportation and service corridors			
roads and railroads	☐	☐	☐
utility and service lines	☐	☐	☐
shipping lanes	☐	☐	☐
flight paths	☐	☐	☐
Biological resource use			
hunting and collecting terrestrial animals	☐	☐	☐
gathering terrestrial plants	☐	☐	☐
logging and wood harvesting	☐	☐	☐
fishing and harvesting aquatic resources	☐	☐	☐
Human intrusions and disturbance			
recreational activities	☐	☐	☐
war, civil unrest and military exercises	☐	☐	☐
work and other activities	☐	☐	☐
Natural system modifications			
fire and fire suppression	☐	☐	☐
dams and water management/use	☐	☒	☐
other ecosystem modifications	☐	☐	☐
Invasive and other problematic species and genes			
invasive non-native/alien species	☐	☐	☐
problematic native species	☐	☐	☐
introduced genetic material	☐	☐	☐

Pollution			
household sewage and urban waste water	☐	☐	☐
industrial and military effluents	☐	☐	☐
agricultural and forestry effluents	☐	☐	☐
garbage and solid waste	☐	☐	☐
air-borne pollutants	☐	☐	☐
excess energy	☐	☐	☐
Geological events			
volcanoes	☐	☐	☐
earthquakes/tsunamis	☐	☐	☐
avalanches/landslides	☐	☐	☐
Climate change and severe weather			
habitat shifting and alteration	☐	☐	☐
droughts	☐	☐	☐
temperature extremes	☐	☐	☐
storms and flooding	☒	☐	☐

Please write here any additional threats and comments/queries you have on the threats.


ATTACHMENT A
WESTERN
EASTERN
N
0 2 4 6km
A3 SCALE 1:125,000

Annex 1: Criteria for the inclusion of sites in the Flyway Site Network

(From the Partnership Text)

To be considered for inclusion in the Flyway Site Network, this Partnership adopts the following criteria:

a. Convention on Wetlands (Ramsar, Iran, 1971) criteria for internationally important sites for migratory waterbirds. That is:

   Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

   Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.

   Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

b. The staging criteria as applied under the Asia - Pacific Migratory Waterbird Conservation Strategy. That is:

   i. A staging site should be considered internationally important if it regularly supports 0.25% of individuals in a population of one species or subspecies of waterbirds on migration.

   ii. A staging site should be considered internationally important if it regularly supports 5,000 or more waterbirds at one time during migration.

c. Under exceptional circumstances a site can be nominated if it supports migratory waterbirds at a level or stage of their life cycle important to the maintenance of flyway populations. Justification of such nominations will be considered by the Partnership on a case by case basis.

Annex 2: Ramsar Classification System for Wetland Type

The codes are based upon the Ramsar Classification System for Wetland Type as approved by Recommendation 4.7 and amended by Resolutions VI.5 and VII.11 of the Conference of the Contracting Parties. The categories listed herein are intended to provide only a very broad framework to aid rapid identification of the main wetland habitats represented at each site.

To assist in identification of the correct Wetland Types to list in section 19 of the RIS, the Secretariat has provided below tabulations for Marine/Coastal Wetlands and Inland Wetlands of some of the characteristics of each Wetland Type.

Marine/Coastal Wetlands

A -- **Permanent shallow marine waters** in most cases less than six metres deep at low tide; includes sea bays and straits.

B -- **Marine subtidal aquatic beds**; includes kelp beds, sea-grass beds, tropical marine meadows.

C -- **Coral reefs**.

D -- **Rocky marine shores**; includes rocky offshore islands, sea cliffs.

E -- **Sand, shingle or pebble shores**; includes sand bars, spits and sandy islets; includes dune systems and humid dune slacks.

F -- **Estuarine waters**; permanent water of estuaries and estuarine systems of deltas.

G -- **Intertidal mud, sand or salt flats**.

H -- **Intertidal marshes**; includes salt marshes, salt meadows, saltings, raised salt marshes; includes tidal brackish and freshwater marshes.

I -- **Intertidal forested wetlands**; includes mangrove swamps, nipah swamps and tidal freshwater swamp forests.

J -- **Coastal brackish/saline lagoons**; brackish to saline lagoons with at least one relatively narrow connection to the sea.

K -- **Coastal freshwater lagoons**; includes freshwater delta lagoons.

Zk(a) – **Karst and other subterranean hydrological systems**, marine/coastal

Inland Wetlands

L -- **Permanent inland deltas**.

M -- **Permanent rivers/streams/creeks**; includes waterfalls.

N -- **Seasonal/intermittent/irregular rivers/streams/creeks**.

O -- **Permanent freshwater lakes** (over 8 ha); includes large oxbow lakes.

P -- **Seasonal/intermittent freshwater lakes** (over 8 ha); includes floodplain lakes.

Q -- **Permanent saline/brackish/alkaline lakes**.

R -- **Seasonal/intermittent saline/brackish/alkaline lakes and flats**.

Sp -- **Permanent saline/brackish/alkaline marshes/pools**.

Ss -- **Seasonal/intermittent saline/brackish/alkaline marshes/pools**.

Tp -- **Permanent freshwater marshes/pools**; ponds (below 8 ha), marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season.

Ts -- **Seasonal/intermittent freshwater marshes/pools on inorganic soils**; includes sloughs, potholes, seasonally flooded meadows, sedge marshes.

U -- **Non-forested peatlands**; includes shrub or open bogs, swamps, fens.

Va -- **Alpine wetlands**; includes alpine meadows, temporary waters from snowmelt.

Vt -- **Tundra wetlands**; includes tundra pools, temporary waters from snowmelt.

W -- **Shrub-dominated wetlands**; shrub swamps, shrub-dominated freshwater marshes, shrub carr, alder thicket on inorganic soils.

Xf -- **Freshwater, tree-dominated wetlands**; includes freshwater swamp forests, seasonally flooded forests, wooded swamps on inorganic soils.

Xp -- **Forested peatlands**; peatswamp forests.

Y -- **Freshwater springs; oases**.

Zg -- **Geothermal wetlands**

Zk(b) – **Karst and other subterranean hydrological systems**, inland

Note: "**floodplain**" is a broad term used to refer to one or more wetland types, which may include examples from the R, Ss, Ts, W, Xf, Xp, or other wetland types. Some examples of floodplain wetlands are seasonally inundated grassland (including natural wet meadows), shrublands, woodlands and forests. Floodplain wetlands are not listed as a specific wetland type herein.

Human-made wetlands

1 -- **Aquaculture** (e.g., fish/shrimp) **ponds**

2 -- **Ponds**; includes farm ponds, stock ponds, small tanks; (generally below 8 ha).

3 -- **Irrigated land**; includes irrigation channels and rice fields.

4 -- **Seasonally flooded agricultural land** (including intensively managed or grazed wet meadow or pasture).

5 -- **Salt exploitation sites**; salt pans, salines, etc.

6 -- **Water storage areas**; reservoirs/barrages/dams/impoundments (generally over 8 ha).

7 -- **Excavations**; gravel/brick/clay pits; borrow pits, mining pools.

8 -- **Wastewater treatment areas**; sewage farms, settling ponds, oxidation basins, etc.

9 -- **Canals and drainage channels, ditches.**

Zk(c) -- **Karst and other subterranean hydrological systems**, human-made

Annex 3: IUCN Protected Areas Categories System

IUCN protected area management categories classify protected areas according to their management objectives. The categories are recognised by international bodies such as the United Nations and by many national governments as the global standard for defining and recording protected areas and as such are increasingly being incorporated into government legislation.

Ia Strict Nature Reserve
Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphical features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values.

Ib Wilderness Area
Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

II National Park
Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.

III Natural Monument or Feature
Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

IV Habitat/Species Management Area
Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

V Protected Landscape/ Seascape
A protected area where the interaction of people and nature over time has produced an area of distinct charcter with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI Protected area with sustainable use of natural resources

Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems.