

Bai Boi

Criteria: A1 & A4i

Province(s): Ca Mau
PA Status: None

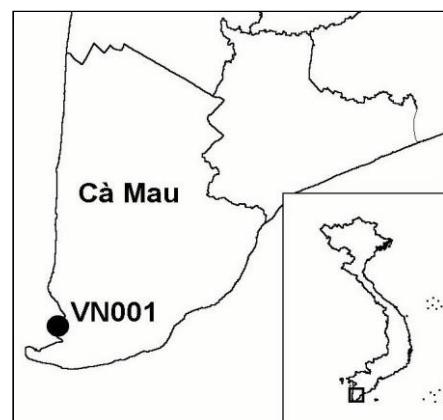
Latitude: 8°42'N
Longitude: 104°50'E
Area: 5,525 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

None



General Description

Bai Boi is situated on the west coast of the Ca Mau peninsular, in the southernmost part of the Mekong Delta. The IBA supports a number of coastal habitats, including abandoned aquacultural ponds, which are being re-colonised by mangrove, and extensive areas of accreting mudflats, the landward side of which supports naturally colonising mangrove. The IBA is bisected by the Lon river, in the mouth of which are two islands formed by the accretion of sediment: Con Trong and Con Ngoai. Bai Boi is designated as a coastal protection forest, and is bounded by the Bai Hap estuary to the north and by Dat Mui IBA to the south.

Bird Fauna: Key Features

Bai Boi forms part of an important staging area for shorebirds on the East Asian-Australasian flyway before they cross the Gulf of Thailand to Peninsular Malaysia and Indonesia². The complex of mudflats and areas of open regenerating mangrove at the site provide excellent habitats for migratory shorebirds, herons, egrets, gulls and terns¹. To date, four globally threatened and near-threatened species have been recorded at Bai Boi, together with numerous other species of congregatory waterbirds, including good numbers of Whiskered Terns *Chlidonias hybridus* and Caspian Terns *Sterna caspia*¹. A roost of egrets *Egretta* spp. and Little Cormorants *Phalacrocorax niger*, comprising over 1,000 birds, was recorded at the site 1999, although no breeding activity was observed¹. Given the relatively limited amount of survey effort expended at the site so far, it is possible that the low numbers of birds recorded so far do not accurately reflect the importance of the site¹.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Chinese Egret <i>Egretta eulophotes</i>	A1, A4i	VU	6	Five individuals were recorded in 1999 ¹ . A total of 83 birds were recorded at this site and Dat Mui IBA in March 2000 and six birds were recorded Bai Boi in December 2000 ³ .
Far Eastern Curlew <i>Numenius madagascariensis</i>	A1	NT	4	Four individuals were recorded in March 1999 ¹ . A single individual was recorded in December 2000 ³ .
Asian Dowitcher <i>Limnodromus semipalmatus</i>	A1	NT	5	Sixteen individuals were recorded in March 1999 ¹ . A total of 23 individuals were recorded at this site and Dat Mui IBA in March 2000 ³ .
Painted Stork <i>Mycteria leucocephala</i>	A1	NT	10	A single individual was recorded in August 1999 ¹ .

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

Current levels of human use of the site are thought to be low¹. However, illegal fishing involving the use of electricity, traps and trawled nets has been documented as widespread at the site, and is thought to cause significant

disturbance to the avifauna³. These activities, if not regulated, could also potentially lead to declines in abundance of local marine life³. One potentially severe threat to Bai Boi is that, while the site remains designated as a coastal protection forest, the intertidal mudflats may be afforested with mangrove with the objective of coastal protection. This activity would be incompatible with biodiversity conservation, because it would destroy the key habitat for migratory waterbirds². Typhoons are another potential threat to biodiversity at the site.

Threat	Severity
Afforestation	● ● ●
Aquaculture/ fisheries	● ●
Disturbance to birds	● ●
Natural events	● ●

Conservation Actions

- Bai Boi has been identified by the Vietnam Man and the Biosphere (MAB) National Committee as a candidate site for designation as an MAB Reserve.

Recommendations

- Bai Boi should be combined with Dat Mui Nature Reserve as a single protected area, which should be nominated as a Ramsar site^{1,3}.
- Bai Boi should be nominated under the East Asian-Australasian Shorebird Network^{1,3}.
- No further development of aquaculture should be permitted within the boundaries of the site¹.
- Fishing activities at the site should be strictly controlled to minimise potential disturbance to migratory waterbirds¹.
- No mangrove afforestation should be carried out on areas of accreting mudflats¹.
- A monitoring programme to further assess the importance of the site for migratory waterbirds should be initiated¹.
- Awareness-raising activities should be conducted among local communities to promote understanding of the importance and fragility of the biodiversity of the site and stimulate interest and motivation towards sustainable use of local natural resources³.
- The potential for ecotourism at the site should be investigated³.

References

1. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: BirdLife International Vietnam Programme.
2. BirdLife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi, Vietnam: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.
3. Moores, N. and Nguyen Phuc Bao Hoa (2001) *Vietnam Mekong shorebird site survey 2000*. Unpublished report to Wetlands International Asia-Pacific and Can Tho University.



Asian Dowitcher *Limnodromus semipalmatus*

Dat Mui

Criteria: A1 & A4i

Province(s): Ca Mau
PA Status: Nature Reserve

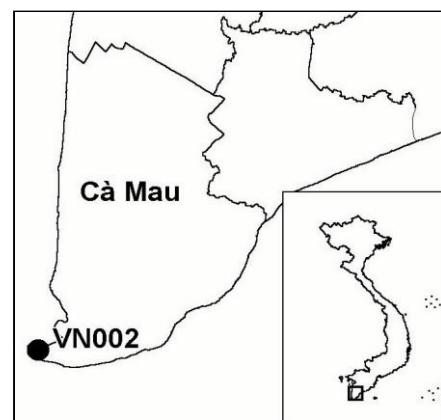
Latitude: 8°38'N
Longitude: 104°45'E
Area: 4,388 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

None



General Description

This IBA comprises Dat Mui Nature Reserve, which is situated on the Ca Mau peninsula, the southernmost tip of Vietnam. In the first half of the 20th century, the site was covered in natural mangrove forest dominated by *Rhizophora apiculata*. However, as a result of the effects of the Second Indochina War and expansion of aquaculture and agriculture, much of the original mangrove forest was lost. In recent years, most of the aquacultural ponds have been abandoned, allowing recolonisation by mangrove. Dat Mui also supports extensive, continually accreting mudflats, which are being colonised naturally by mangrove¹. Dat Mui borders Bai Boi IBA to the north.

Bird Fauna: Key Features

Dat Mui IBA is an important staging area for migratory shorebirds, egrets, gulls and terns². Surveys to date have confirmed the occurrence of six globally threatened and near-threatened bird species at the site. In addition, the site supports significant concentrations of three congregatory waterbird species: Chinese Egret *Egretta eulophotes*, Asian Dowitcher *Limnodromus semipalmatus* and Eurasian Curlew *Numenius arquata*. While only one of these species is currently confirmed to exceed the 1% population threshold required to meet the A4i criteria, taking into account bird turnover and the limited survey coverage to date, the other two species are also likely to exceed the 1% population threshold¹. Large concentrations of Whiskered Tern *Chlidonias hybridus* and Caspian Tern *Sterna caspia* have also been recorded at the site, with one single count of the latter species constituting up to 2.1% of the East and South-East Asian population of the nominate subspecies *caspia*¹.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Chinese Egret <i>Egretta eulophotes</i>	A1, A4i	VU	6	Nine birds were recorded in March 1999 ¹ . A total of 83 birds were recorded at this site and Bai Boi IBA in March 2000 ³ . At least 30 birds were recorded in December 2000 ³ .
Spot-billed Pelican <i>Pelecanus philippensis</i>	A1	VU	6	Twenty six birds were observed feeding inshore in September 1993 ⁴ . A single individual was recorded in August 1999 ¹ .
Far Eastern Curlew <i>Numenius madagascariensis</i>	A1	NT	4	Two birds were recorded in March 1999 and one in August 1999 ¹ . Six birds were recorded in December 2000 ³ .
Asian Dowitcher <i>Limnodromus semipalmatus</i>	A1, A4i	NT	5	A maximum count of 144 birds was made in August 1999 ¹ . The site probably meets the 1% threshold for this species.
Black-headed Ibis <i>Threskiornis melanocephalus</i>	A1	NT	8	'Substantial numbers' were recorded in August 1999 ¹ . At least 30 individuals were recorded in December 2000 ³ .
Painted Stork <i>Mycteria leucocephala</i>	A1	NT	10	'Substantial numbers' were recorded in August 1999 ¹ .
Eurasian Curlew <i>Numenius arquata</i>	A4i		1	A maximum count of 322 birds was made in August 1999 ¹ . The site probably meets the 1% threshold for this species.

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

The mangrove forests of Dat Mui have been severely degraded in the last 10 years, largely as a result of illegal encroachment and conversion to aquacultural ponds. Considerable effort has been made to restore the site and many illegal settlers have been evicted. However, there are substantial numbers of people living in or around the site, who frequently encroach it and exploit the remaining mangrove¹. In addition, illegal fishing, which has been documented as being widespread at the site, is thought to cause significant disturbance to the avifauna³. If unregulated, this activity could also potentially lead to declines in abundance of local marine life³. The largest potential threat to biodiversity at Dat Mui is afforestation of the intertidal mudflats with mangrove or of areas of disused agricultural land (which is also an important habitat for migratory birds) with tree species.

Threat	Severity
Afforestation	• • •
Aquaculture/ fisheries	• •
Disturbance to birds	• •
Natural events	• •
Selective logging/ cutting	• •

Conservation Actions

- Since 1999, the national 661 Programme has provided budgetary support to Dat Mui Nature Reserve².

Recommendations

- Dat Mui should be combined with Bai Boi Coastal Protection Forest as a single protected area, which should be nominated as a Ramsar site^{1,3}.
- Dat Mui should be nominated under the East Asian-Australasian Shorebird Network^{1,3}.
- The boundaries of the nature reserve should be clearly demarcated so that local people are aware of its presence and nature reserve staff can manage it accordingly^{1,3}.
- Human activities at the site should be strictly controlled to minimise disturbance to migratory waterbirds¹.
- No afforestation should be carried out on accreting mudflats or disused agricultural land, as these provide important habitats for migratory waterbirds^{1,3}.
- No further development of aquaculture should be permitted within the boundaries of the nature reserve¹.
- Awareness-raising activities should be conducted among local communities to promote understanding of the importance and fragility of the biodiversity of the site and stimulate interest and motivation towards sustainable use of local natural resources³.
- The potential for ecotourism at the site should be investigated³.

References

1. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: BirdLife International Vietnam Programme.
2. BirdLife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi, Vietnam: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.
3. Moores, N. and Nguyen Phuc Bao Hoa (2001) *Vietnam Mekong shorebird site survey 2000*. Unpublished report to Wetlands International Asia-Pacific and Can Tho University.
4. Eames, J. C. and Tordoff, A. W. (in prep.) *Recent records and a conservation status review of some threatened and near-threatened bird species in Vietnam*.

Ha Tien

Criteria: A1 & A3

Province(s): Kien Giang
PA Status: None

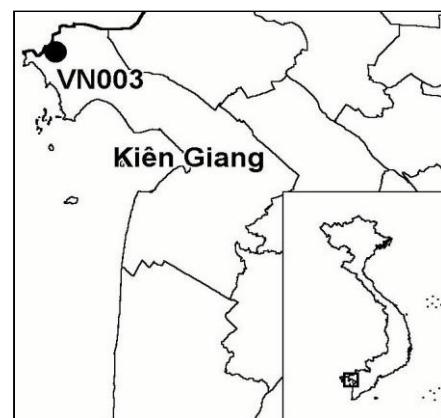
Latitude: 10°25'N
Longitude: 104°35'E
Area: 6,981 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

LMF2 - North-western Mekong Delta Wetlands



General Description

Ha Tien IBA is situated in the north-west of the flat, coastal Ha Tien plain, which is one of the last remaining extensive areas of seasonally inundated grassland in the Mekong Delta¹. The IBA is located to the north-west of Ha Tien town and supports a mixture of grassland communities and naturally regenerating *Melaleuca* scrub on acid sulphate soil and old alluvial sediments². Species-poor *Eleocharis dulcis* grassland forms the most extensive grassland community at the site, although several other more species-rich communities are also present. *Melaleuca* scrub generally consists of trees between 2 and 6 m tall, but locally reaching up to 12 m, and possesses a ground flora of varied species composition depending upon soil and water conditions². Swamp vegetation, dominated by the aquatic palm *Nypa fruticans* also occurs at the site, in areas of brackish water².

Bird Fauna: Key Features

Based on feathers and reports from local people^{2,3,4}, the presence of Bengal Florican *Houbaropsis bengalensis* has been confirmed at Ha Tien IBA. As such, the IBA constitutes one of only two sites in Vietnam where relict populations of this species are currently known to occur, the other being Tram Chim IBA in Dong Thap province¹. Although the precise status of the species at Ha Tien is not yet known, the IBA may support one of the last remaining viable populations of the species in Vietnam². In addition, reports from local people indicate that the IBA is a stop-over area for Sarus Crane *Grus antigone* migrating between the Mekong Delta and northern Cambodia⁵.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
†Bengal Florican <i>Houbaropsis bengalensis</i>	A1	EN	1	In 1997, a hunter produced feathers of a bird killed two or three years previously ³ . Local people reported the presence of the species during a visit in 1999 ² .
[Sarus Crane <i>Grus antigone</i>]	A1	VU	5	In March 2002, local people reported the presence of a flock of around 20 birds at the site ⁵ .

Notes: [] = unconfirmed; † = not confirmed to regularly occur in significant numbers.

Biome Restricted Species: The site qualifies under criterion A3 because it supports one species restricted to the Indo-Gangetic Plains (Biome 12). See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

At Ha Tien IBA, the seasonally inundated grassland is under severe and immediate threat of conversion to rice agriculture, shrimp aquaculture and forestry. This is a particular problem as this is the preferred dry season habitat of Bengal Florican. In addition, most of the remaining large areas of grassland are

Threat	Severity
Afforestation	• •
Agricultural intensification / expansion	• • •
Aquaculture / fisheries	• • •
Hunting	• •

currently earmarked for resettlement and agricultural conversion. However, the acid-sulphate soils of the area render the majority of it unsuitable for rice cultivation, and there is a real risk, therefore, that the last remaining areas of extensive seasonally inundated grassland in the Mekong Delta will be converted to marginal agricultural land².

Conservation Actions

- In 1999, BirdLife International and the Institute of Ecology and Biological Resources proposed the establishment of a national protected area at the site².
- In June 2001, Kien Giang Provincial Department of Agriculture and Rural Development and Vietnam National University, Ho Chi Minh City, hosted a workshop in Kien Giang province to discuss the conservation and utilisation of natural resources in the Ha Tien plain, at which the provincial authorities announced a plan to establish a protected area in the Ha Tien plain, which would not necessarily include the IBA.
- Ha Tien IBA is not under any form of conservation management, and there are currently no on-the-ground conservation activities being implemented¹.

Recommendations

- Ha Tien IBA should be included within a national protected area².
- Human resettlement, conversion of grassland to agriculture, and afforestation of grassland with *Melaleuca* and *Eucalyptus* should cease with immediate effect².
- Effective controls on hunting of Bengal Florican should be introduced.
- Surveys should be conducted to assess the precise status of Bengal Florican at the IBA and identify other sites for this species within the Ha Tien plain.

References

1. Birdlife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.
2. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: Birdlife International Vietnam Programme.
3. Nguyen Duc Tu, Nguyen Cu and Buckton, S. T. (2001) Wetlands and waterbirds in the Mekong Delta. *OBC Bulletin* 33: 30-33.
4. R. Safford *in litt.* 1997.
5. Tran Triet *in litt.* 2002.



Bengal Florican *Houbaropsis bengalensis*

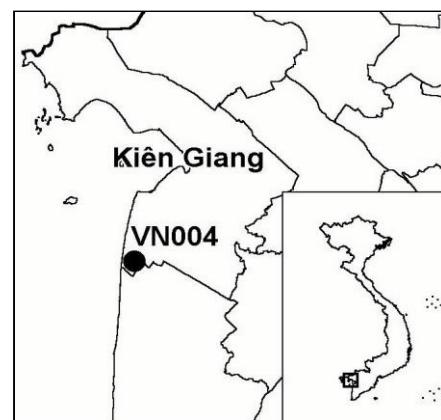
U Minh Thuong

Criteria: A1, A3 & A4i

Province(s): Kien Giang
PA Status: National Park

Latitude: 9°35'N
Longitude: 105°05'E
Area: 22,918 ha
Altitude Range: 0-2 m asl

EBA / SA:
 None
Priority Landscape:
 LMF1 - U Minh Peat Swamp Forests



General Description

This IBA is centred on U Minh Thuong (UMT) National Park, which supports a range of wetland habitats, including semi-natural *Melaleuca* forest, seasonally inundated grassland and open swamp. The IBA also includes the buffer zone of the national park, most of which consists of paddyfields with small patches of *Melaleuca* plantation. Finally, the IBA includes the so-called "prison forest", a large *Melaleuca* plantation to the north-west of the national park, currently under the management of a prison, which supports an important breeding colony of waterbirds¹. In addition to its importance for waterbirds, UMT has a number of other biodiversity values, including being one of only three sites in the world known to support a population of Hairy-nosed Otter *Lutra sumatrana*.

Bird Fauna: Key Features

UMT supports one of the last two significant areas of peat swamp forest remaining in Vietnam (the other one being U Minh Ha), and is recognised as one of the three highest priority sites for wetland conservation in the Mekong Delta¹. The avifauna of UMT has been relatively well studied with initial surveys carried out in 1997², and, since April 1999, monthly bird surveys have been conducted at the site³. Surveys to date have confirmed the presence of 185 bird species², including nine species of global conservation concern, many of which occur as non-breeding visitors. In 1999, a survey of 10 key wetland sites in the Mekong Delta found that UMT supported the highest bird species richness and, possibly, the largest waterbird breeding colony of all sites visited¹. UMT fulfils several criteria under the Ramsar Convention and, as such, has been recommended for notification as a Ramsar site¹. In addition to the key species listed below, several other species of national conservation importance in Vietnam have also been recorded at UMT, including Asian Openbill *Anastomus oscitans* and Woolly-necked Stork *Ciconia episcopus*^{1,2}.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
[Sarus Crane <i>Grus antigone</i>]	A1	VU	5	There are unconfirmed reports from local people that the species is a non-breeding visitor in small numbers ² . However, there have been no field records or anecdotal reports since regular ornithological studies began at the site in April 1999 ⁴ .
†Greater Spotted Eagle <i>Aquila clanga</i>	A1	VU	2	Single birds were observed in February 1997, and in April and August 2000 ^{3,5} . The site may not regularly support a significant population.
Spot-billed Pelican <i>Pelecanus philippensis</i>	A1	VU	6	The species is thought to be a rare non-breeding visitor according to local reports ² . A single bird was seen in August 2000 and a group of six was seen in October 2000 ³ . A juvenile bird, believed to have been captured in the "prison forest", was found in the possession of local people in July 2001 ³ .
Lesser Adjutant <i>Leptoptilos javanicus</i>	A1	VU	7	The species breeds in <i>Melaleuca</i> forest in the core zone of the national park ³ . The maximum count of this species was eight in April 2000, although this is thought to be an underestimate of the total population ³ .

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Grey-headed Fish Eagle <i>Ichthyophaga ichyaetus</i>	A1	NT	8	The species has been recorded on several occasions but most records come from the same perching site and are thought to be of the same adult bird. A juvenile was observed in October 2000, indicating that the species may breed at the IBA ³ .
Oriental Darter <i>Anhinga melanogaster</i>	A1	NT	9	Two individuals were recorded nearby in 1997 ² . Single birds were observed on three occasions during 1999-2000 ³ . A pair was observed in the "prison forest" breeding colony on two occasions in the breeding season of 2001 ³ .
Black-headed Ibis <i>Threskiornis melanocephalus</i>	A1	NT	8	The species is thought to be a breeding visitor ³ . The species is regularly observed in April-May 1999, with a highest single count of 44 birds in April. However, the highest counts in 2000 and 2001 were of only four and five birds respectively ³ .
Painted Stork <i>Mycteria leucocephala</i>	A1,A4i	NT	10	The species is thought to be a non-breeding visitor. Most records come from the between October and January, with a maximum count of 380 birds in October 2000 ³ .
Asian Golden Weaver <i>Ploceus hypoxanthus</i>	A1	NT	3	A single bird was recorded in 1997 ² . Four individuals were observed in June 2000 ³ .
Purple Swamphen <i>Porphyrio porphyrio</i>	A4i		0	A maximum daily count of 2,000 birds was made in 1997 ² . An estimate of the density of this species based on the point counts over a period of two years, extrapolated across the total area of <i>Phragmites</i> reedbed, gives a total estimate of 16,000 birds at the IBA ⁴ .
Bronze-winged Jacana <i>Metopidius indicus</i>	A4i		0	A maximum daily count of 1,000 birds was made in 1997 ² . An estimate of the density of this species based on the point counts over a period of two years, extrapolated across the total area of <i>Phragmites</i> reedbed, gives a total estimate of 18,000 birds at the IBA ⁴ .
Oriental Pratincole <i>Glareola maldivarum</i>	A4i		0	The species is a passage migrant that uses UMT as a stop over on both its northward and southward migration. The maximum count to date was 1,790 individuals in September 2001 ³ .
Little Cormorant <i>Phalacrocorax niger</i>	A4i		1	The species breeds in the "prison forest", with maximum counts of 1,348 individuals in May 1999, 1,696 individuals in May 2000 and 1,541 individuals in June 2001 ³ .
Purple Heron <i>Ardea purpurea</i>	A4i		0	The species is a resident, which breeds between April and August, with maximum counts of 413 individuals in August 1999, 277 in May 2000 and 1,006 in May 2001 ³ .
Great Egret <i>Casmerodius albus</i>	A4i		1	Maximum counts of 2,030, 1,406 and 1,310 were made in September, October and November 2001 respectively ⁴ .
Glossy Ibis <i>Plegadis falcinellus</i>	A4i		0	There is a breeding colony in the "prison forest", where a maximum of 1,368 birds were recorded in May 1999 ¹ . However, the highest count in 2000 was of only 527 birds in April ³ .

Notes: [] = unconfirmed record; † = not confirmed to regularly occur in significant numbers.

Biome Restricted Species: The site qualifies under criterion A3 because it supports 10 species restricted to the Indo-Malayan Tropical Dry Zone (Biome 11). See Appendix 4 for details.

Secondary Criteria

Species	Status	Species	Status
*Long-tailed Macaque <i>Macaca fascicularis</i> ^{2,3}	NT	Malayan Snail-eating Turtle <i>Malayemys subtrijuga</i> ^{2,3}	
Asian Box Turtle <i>Cuora amboinensis</i> ³	VU		VU
Yellow-headed Temple Turtle <i>Hieremys annandalii</i> ^{2,3}	EN		

Notes: * = introduced species.

Threats to Biodiversity

The *Melaleuca* forest is an essential habitat for a significant component of the key bird species known to occur at the IBA. However, this key bird habitat is being lost at an increasing rate, as a result of forest fires⁶. While fire is a natural part of the ecology of *Melaleuca* forest, an inappropriate hydrological management regime at the national park has led to low water levels during the dry season and drying out of the peat layer, thereby increasing the frequency and severity of fires, several of which occurred in 2002.

Additional threats to the biodiversity of the site include illegal hunting, by both local people and organised groups of outsiders, and disturbance and easy access caused by the development of tourism infrastructure in the core zone of the national park, including the construction of a surfaced road into the centre of the core zone and the erection of a monument there⁶.

Threat	Severity
Fire	• • •
Hunting	• •
Infrastructure development	• • •
Recreation, tourism	• • •
Other	• • •

Conservation Actions

- Since 1998, Care International and Kien Giang Provincial Department of Agriculture and Rural Development have been working in partnership to implement a Danida-funded integrated conservation and development project, the main aim of which is to conserve the existing biodiversity of UMT by strengthening local management capacity and improving the livelihood security of local communities, thereby reducing their dependency upon natural resources⁶.
- The government of Vietnam upgraded UMT to national park status in January 2002.

Recommendations

- The "prison forest", which supports one of the largest waterbird colonies in the Mekong Delta, should be incorporated into the national park, to ensure its long-term conservation¹.
- UMT meets the criteria for designation as a site of international importance for wetland conservation under the Ramsar Convention, and should, therefore, be designated as a Ramsar site.
- All planned infrastructure developments at the site should be carefully assessed for their potential impact upon the flora and fauna. Large-scale activities potentially affecting key species or breeding waterbird colonies should be considered very difficult to either mitigate or justify and should, therefore, be wholly avoided.
- No new canals should be constructed in the national park, as these will cause will further drying out of the peat swamp, increasing the risk of fire at the site, and facilitate better access by poachers.
- A hydrological management regime that avoids drying out of the peat layer and maintains the hydrological value of the site as a source of freshwater for local agriculture should be introduced.
- Existing controls on illegal hunting and trapping of animals should be strengthened.
- Confiscated wildlife should not be released into the national park, unless it can be established that the animals originated from UMT.

References

1. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: Birdlife International Vietnam Programme.
2. Safford, R. J., Tran Triet, Maltby, E. and Duong Van Ni (1998) Status, biodiversity and management of the U Minh wetlands, Vietnam. *Tropical Biodiversity* 5(3): 217-244.
3. CARE Vietnam and Kien Giang DARD (in press) *Biodiversity survey report of U Minh Thuong Nature Reserve*. Unpublished report of the U Minh Thuong Nature Reserve Conservation and Community Development Project.
4. Nguyen Phuc Bao Hoa *in litt.* 2002.
5. Robson, C. R. (1997) From the field. *OBC Bulletin* 26: 60-66.
6. Birdlife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.

Kien Luong

Criteria: A1 & A4i

Province(s): Kien Giang
PA Status: None

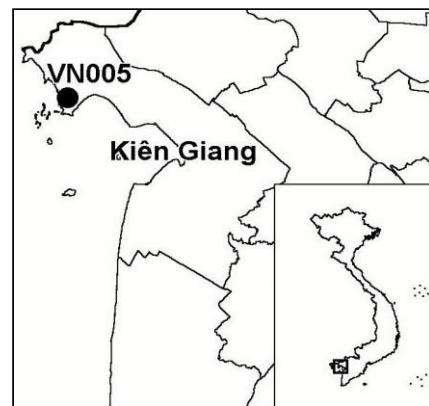
Latitude: 10°13'N
Longitude: 104°38'E
Area: 7,624 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

LMF2 - North-western Mekong Delta Wetlands



General Description

Kien Luong IBA is situated in the south of the Ha Tien plain, one of the last remaining extensive areas of seasonally inundated grassland in the Mekong Delta. The natural vegetation at the site is seasonally inundated grassland with some brackish water characteristics, much of which is dominated by *Eleocharis dulcis* and *E. ochrostachys*. A small area of *Melaleuca* plantation is also present in the south-west part of the site¹. As at Ha Tien IBA, the soil at Kien Luong is predominantly acid-sulphate and susceptible to acidification if allowed to dry out and oxidise¹. In recent years, the site has been bisected by a series of canals, facilitating the conversion of large areas into agricultural land (principally wet rice) and aquacultural ponds.

Bird Fauna: Key Features

Kien Luong is one of the most important sites for the conservation of large waterbirds in the Mekong Delta². In particular, the IBA is an important non-breeding site for the eastern subspecies of Sarus Crane *Grus antigone sharpii*, and supported up to 45% of the total population of this subspecies in 2002³. Records of White-shouldered Ibis *Pseudibis davisoni* at the site during 1999 are also particularly noteworthy, as they indicate that a small breeding population may exist at the site¹. In Vietnam, White-shouldered Ibis has an extremely small and rapidly declining population, and it is currently only otherwise known from Nam Cat Tien IBA. Aside from the key species listed below, the site also supports Woolly-necked Stork *Ciconia episcopus*, which is of national conservation concern¹.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
White-shouldered Ibis <i>Pseudibis davisoni</i>	A1	CR	1	One bird was seen in April and a pair in August 1999; with possibly only two birds in total ¹ .
Sarus Crane <i>Grus antigone</i>	A1, A4i	VU	4	Large flocks visit the site each dry season. Local people reported flocks of over 100 each dry season up to 1997 ⁴ . A count of at least 135 individuals was made in April 1999 ¹ , a maximum count of 336 was made in March 2001 ⁶ , and a maximum count of 377 individuals was made in March 2002 ⁶ .
Spot-billed Pelican <i>Pelecanus philippensis</i>	A1	VU	6	A single individual was seen in July 1999 ¹ .
Painted Stork <i>Mycteria leucocephala</i>	A1	NT	10	A single individual was seen between April and August 1999 ¹ .

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

Species	Status
Silver Langur <i>Trachypithecus villosus</i> ⁵	DD

Threats to Biodiversity

As with Ha Tien IBA, the seasonally inundated grassland at the site is under severe and immediate threat of conversion to aquacultural ponds, agricultural land and *Melaleuca* plantations¹. Unfortunately, during 2001 and 2002, the integrity of Kien Luong was severely compromised by the construction of a series of canals causing significant habitat fragmentation and changes in flooding regimes. The construction of these canals was followed by conversion of large areas of seasonally inundated grassland into aquacultural ponds and, to a lesser extent, agricultural land, a problem further exacerbated by the establishment of *Melaleuca* plantations in remaining areas of natural grassland habitat. As a result of this rapid and extensive loss of natural habitat, it seems likely that the importance of the site for key bird species, particular Sarus Crane, will decrease significantly in coming years. Another threat to biodiversity at the IBA is quarrying of limestone karst for cement production, which threatens the habitat of Silver Langur *Trachypithecus villosum*.

Threat	Severity
Afforestation	● ● ●
Agricultural intensification / expansion	● ● ●
Aquaculture / fisheries	● ● ●
Disturbance to birds	● ●
Dredging and canalization	● ● ●
Extraction industry (mining)	● ●

Conservation Actions

- In 1999, the BirdLife International Vietnam Programme and IEBR proposed the establishment of a national protected area at the site¹.
- In 2001, Kien Luong was included on a list of proposed protected areas submitted to the national government, with a proposed area of 14,605 ha.
- In June 2001, Kien Giang Provincial Department of Agriculture and Rural Development and Vietnam National University, Ho Chi Minh City, hosted a workshop in Kien Giang province to discuss the conservation and utilisation of natural resources in the Ha Tien plain, at which the provincial authorities announced a plan to establish a protected area in the Ha Tien plain, which would not necessarily include the IBA.
- A coalition of interested parties - including BirdLife International - are currently developing a project to promote conservation of the biodiversity values within the IBA.

Recommendations

- Kien Luong meets the criteria for designation as a site of international importance for wetland conservation under the Ramsar Convention, and should, therefore, be designated as a Ramsar site.
- Conversion of natural habitats at the site and canal construction should cease immediately.
- All remaining viable areas of natural habitat should be placed under conservation management, with an appropriate land-use designation that prohibits further agricultural, aquacultural and forestry developments.
- Surveys should be conducted in other areas of the Ha Tien plain to identify alternative sites for the conservation of seasonally inundated grassland and the associated large waterbird species.

References

1. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: Birdlife International Vietnam Programme.
2. BirdLife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.
3. Anon. (2002) Sarus Crane census in Indochina. *Cambodia Bird News* 9: 60.
4. Robson, C. R. (1997) From the field. *OBC Bulletin* 26: 60-66.
5. Tran Triet ed. (2001) *Proceedings of the workshop: Conservation and utilization of biodiversity resources of the Ha Tien-Kien Luong wetlands, Kien Giang province. Rach Gia 17-19 June 2001*. Ho Chi Minh City: College of Natural Sciences, Vietnam National University.
6. Eames, J. C. and Tordoff, A. W. (in prep) Recent records and a conservation status review of some threatened and near-threatened bird species in Vietnam.

Tram Chim

Criteria: A1, A3 & A4i

Province(s): Dong Thap
PA Status: National Park

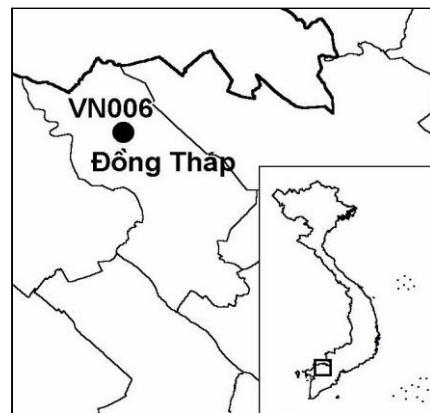
Latitude: 10°44'N
Longitude: 105°31'E
Area: 7,588 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

LMF2 - North-western Mekong Delta Wetlands



General Description

The IBA comprises Tram Chim National Park and adjacent areas of natural habitat, located in the Mekong Delta, 25 km to the north of Cao Lanh, the capital of Dong Thap province. The site supports one of the last remnants of the Plain of Reeds wetland ecosystem, which previously covered some 700,000 ha of the Mekong Delta in Vietnam¹. The topography of the site is a shallow basin, which slopes to the south-east, parallel to the Mekong River, to the north-east, perpendicular to the Mekong River, and to the south-west, perpendicular to the Vai Co river². The vegetation of the site includes large areas of seasonally inundated grassland, regenerating *Melaleuca* forest and open swamp. *Melaleuca* forest is distributed throughout the site, both as plantations and as scattered, natural patches in areas of grassland or open swamp. Large populations of waterbirds are found at the site, particularly in the dry season, when thousands of waterfowl visit¹.

Bird Fauna: Key Features

Tram Chim is famous for the population of Sarus Crane *Grus antigone* which inhabits the national park during the dry season¹, although numbers of birds observed annually have declined over the last few years³. The number of cranes at Tram Chim has fluctuated in relation to water management at the national park. When drawdowns that mimic the natural hydrology of the wetland are conducted, crane numbers increase. When water levels are maintained artificially high, crane numbers decline, as the vegetation that serves as their food base collapses⁴. The avifauna of the site has been the subject of many surveys, including a monitoring scheme for key waterbird species, which has been operated by the park staff since 1988⁵. To date, survey work has confirmed the presence of 10 globally threatened and near-threatened bird species, although many of these species do not occur regularly or in significant numbers. In addition, large concentrations of two waterfowl species have been recorded at the site: Garganey *Anas querquedula* and Common Teal *A. crecca*. A survey of wetland sites in the Mekong Delta found that Tram Chim supported the second highest bird species richness of the sites visited¹. The occurrence of the secretive and seldom-recorded grassland specialist Bengal Florican *Houbaropsis bengalensis* at the site is especially significant in the national context, as the species is currently known from only one other site in Vietnam: Ha Tien IBA. Other wetland species of note at the site include Comb Duck *Sarkidiornis melanotus*, Cotton Pygmy Goose *Nettapus coromandelianus*, Greater Painted-snipe *Rostratula benghalensis* and Pheasant-tailed Jacana *Hydrophasianus chirurgus*¹.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Bengal Florican <i>Houbaropsis bengalensis</i>	A1, A3	EN	1	The species was recorded in small numbers throughout the 1990s, with a maximum count of four birds in February-March 1990 ^{6,7} . During a survey in 1999, local people reported breeding at the site, and, claimed to have found eggs and chicks. Some people were also familiar with the characteristic display of the species ¹ . A member of national park staff also claims to have seen the eggs of this species ⁴ .
†Black-faced Spoonbill <i>Platalea minor</i>	A1	EN	8	A single individual was observed and photographed in January 1994, just outside the IBA ³ . The site does not regularly support a significant population.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
†Greater Adjutant <i>Leptoptilos dubius</i>	A1	EN	0	The species was recorded in March 1988 ³ , and one individual was recorded feeding along a stream in December 1992 ⁸ . There have been no confirmed records since this time, and the site does not regularly support a significant population.
Sarus Crane <i>Grus antigone</i>	A1, A4i	VU	4	Regular counts have been made since 1988, with maximum counts of 1,052 in 1988, 665 in 1989, 741 in 1990, 814 in 1991, 365 in 1992, 187 in 1993, 271 in 1994, 302 in 1995, 631 in 1996, 511 in 1997, 503 in 1998 and 469 in 1999 ⁷ . In recent years, however, numbers seem to be declining. The maximum count in 2001 was around 48 birds, while the total count in May 2002 was around 150 ⁴ .
†Greater Spotted Eagle <i>Aquila clanga</i>	A1	VU	2	Single individuals were observed most years from 1988 to 1994, and in February 1997 ^{3,4} . The site may not regularly support a significant population.
[Spot-billed Pelican <i>Pelecanus philippensis</i>]	A1	VU	7	Pelican records from January 1989 probably refer to this species ⁷ . If the species does occur, it is as a vagrant or rare non-breeding visitor.
Lesser Adjutant <i>Leptoptilos javanicus</i>	A1	VU	7	The species is a non-breeding visitor to the site. The species has been recorded most years since 1988, with a maximum of 51 birds in 1999 ⁴ .
Oriental Darter <i>Anhinga melanogaster</i>	A1	NT	9	The species breeds at the site ⁴ . In 1999, the maximum count was 141 birds ⁴ .
Black-headed Ibis <i>Threskiornis melanocephalus</i>	A1	NT	8	The species is an uncommon visitor to the site ¹ .
Painted Stork <i>Mycteria leucocephala</i>	A1	NT	10	The species is a non-breeding visitor to the site. In January 1994, at least 92 individuals, and perhaps as many as 150 (including many juveniles), were observed just outside the IBA ³ . A maximum count of 207 was made in 1999, while a maximum count of over 140 was made in 2000 ⁴ .
Asian Golden Weaver <i>Ploceus hypoxanthus</i>	A1	NT	3	A single flock of c.20 individuals was observed in 1999 ¹ ; which was the first year in which the species was recorded at the site ⁴ . Following 1999, the species established a breeding colony, which has been increasing in size every year ⁴ .
Garganey <i>Anas querquedula</i>	A4i		0	In winter 1992/93, 20,000 individuals were recorded ⁹ .
Common Teal <i>Anas crecca</i>	A4i		0	In winter 1989/90, 10,000 birds were recorded ⁹ .

Notes: [] = unconfirmed record; † = not confirmed to regularly occur in significant numbers.

Biome Restricted Species: The site qualifies under criterion A3 because it supports one species restricted to the Indo-Gangetic Plains (Biome 12). See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

Tram Chim is surrounded by agricultural land, and human pressure on the IBA is high. Despite its status as a national park, hunting, poisoning and disturbance to birds have been identified as major conservation issues at Tram Chim^{1,10}. In 2000, the management board of the park began building six canals inside the national park, the construction of which could have fragmented the natural habitat and altered the water regime. Fortunately, construction was halted after only two canals were completed.

Threat	Severity
Agricultural intensification / expansion	• •
Construction of dykes / dams	• •
Disturbance to birds	• •
Dredging and canalization	• •
Hunting	• •
Infrastructure development	• •
Introduction of exotic plant species	• •
Other	• • •

The most important factor in maintaining suitable habitat for Sarus Crane at the IBA is appropriate hydrological management. During the 1990s, water levels at the site were allowed to remain high for unnaturally long periods

each year, leading to changes in the vegetation, especially die-back of *Eleocharis ochrostachys*, the main food plant of Sarus Crane. However, following implementation of a new water management regime in 2000 and 2001, evidence of natural vegetation recovery was observed. It is hoped that such appropriate water-level management will result in an increase of the Sarus Crane population at Tram Chim.

Finally, the invasion of the exotic plant species *Mimosa pigra* is a major threat to biodiversity at Tram Chim. The area of *M. pigra* at the IBA has doubled each year for the last three years, and now covers more than 2,000 ha of what was once seasonally inundated grassland¹¹.

Conservation Actions

- Tram Chim was declared a national park on 29 December 1998 by the government of Vietnam¹⁰.
- The International Crane Foundation have been active at Tram Chim since 1988, during which time they have built sluice gates and developed a management plan for the site in collaboration with the national park management board¹⁰.
- Tram Chim National Park is one of the demonstration sites for a full-scale GEF project entitled the Mekong River Basin Wetland Biodiversity Conservation and Sustainable Use Project, which is currently being implemented by IUCN¹⁰.

Recommendations

- Tram Chim meets the criteria for designation as a site of international importance for wetland conservation under the Ramsar Convention, and should, therefore, be designated as a Ramsar site¹.
- Water levels at the site should be managed in a way consistent with increasing the availability of food plants for Sarus Crane, and restoration of a representative example of the Plain of Reeds ecosystem.
- Hunting and fuelwood collection within the national park should be effectively controlled.
- Further spread of *Mimosa pigra* at the site should be prevented, and areas already invaded should be cleared of the species.

References

1. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: Birdlife International Vietnam Programme.
2. Beilfuss, R. and Barzen, J. (1994) Hydrological wetland restoration in the Mekong Delta, Vietnam. Pp: 453-468 in W. J. Mitsch ed. *Global wetlands: old world and new*. Amsterdam: Elsevier Science.
3. Eames, J. C. and Tordoff, A. W. (in prep) Recent records and a conservation status review of some threatened and near-threatened bird species in Vietnam.
4. J. Barzen *in litt.* 2002.
5. Baltzer, M. C., Nguyen Thi Dao, and Shore, R. G. eds (2001) *Towards a vision for biodiversity conservation in the forests of the lower Mekong Ecoregion complex – Technical Annex*. WWF Indochina/ WWF US, Hanoi and Washington D.C.
6. Eames, J. C. (1995) The Bengal Florican *Eupodotis bengalensis* in Indochina. *Forktail* 11:36-46.
7. Birdlife International (2001) *Threatened birds of Asia: the Birdlife International Red Data Book*. Cambridge, UK: Birdlife International.
8. Robson, C. R. (1993) From the field. *OBC Bulletin* 17: 49-53.
9. Miyabayashi, Y. and Mundkur, T. (1999) *Atlas of key sites for Anatidae in the East Asian Flyway*. Tokyo and Kuala Lumpur: Wetlands International.
10. Birdlife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.
11. Tran Triet *in litt.* 2002.



Sarus Crane *Grus antigone*

Lang Sen

Criteria: A1

Province(s): Long An
PA Status: None

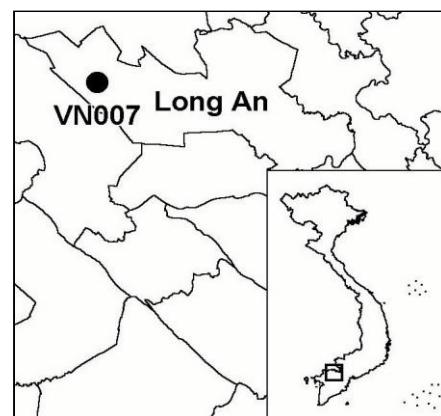
Latitude: 10°47'N
Longitude: 105°47'E
Area: 3,280 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

LMF2 - North-western Mekong Delta Wetlands



General Description

Lang Sen IBA is situated in the Plain of Reeds, a large plain in the Mekong Delta, which was once dominated by seasonally inundated grasslands but has now been largely converted to agricultural land. Lang Sen is one of the few sites in the Mekong Delta where semi-natural *Melaleuca* forest occurs along a natural river channel¹. The dominant habitats at the site are paddy fields and *Melaleuca* plantations but there also exist smaller areas of semi-natural *Melaleuca* forest and lotus swamp¹.

Bird Fauna: Key Features

Although a survey in 1999 documented low levels of bird species richness and abundance and, in particular, a scarcity of wetland-dependent species at Lang Sen², reports were received in 2002 of significant numbers of large waterbirds, including Sarus Crane *Grus antigone* and Painted Stork *Mycteria leucocephala*, using the site each year for short periods³. These reports indicate that Lang Sen may be an important stop-over area for large waterbirds en route between their breeding areas in Cambodia and their non-breeding areas in the Mekong Delta of Vietnam. Further bird surveys are required to assess the status of these species at the site. The commonest waterbird species at the site include Little Cormorant *Phalacrocorax niger*, Chinese Pond Heron *Ardeola bacchus*, Cinnamon Bittern *Ixobrychus cinnamomeus*, Yellow Bittern *I. sinensis*, Black Bittern *Dupetor flavicollis* and Spot-billed Duck *Anas poecilorhyncha*².

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
[Sarus Crane <i>Grus antigone</i>]	A1	VU	5	According to local reports, significant numbers visit the site for a short period every year ³ .
Painted Stork <i>Mycteria leucocephala</i>	A1	NT	10	According to local reports, flocks visit the site every year. Four captive birds, captured at the site, were observed during March 2002 ³ .

Notes: [] = unconfirmed record.

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

As with most remaining natural wetlands in the Mekong Delta, the biggest threat to biodiversity at Lang Sen is habitat loss. The area of habitat at Lang Sen with a relatively high biodiversity value is quite small and large areas of the site have already been converted to wet rice agriculture². In addition, most of the remaining areas of *Melaleuca* plantation are currently managed by the Tan Hung Forest Enterprise, whose primary objective is timber exploitation.

Currently the management status of the semi-natural *Melaleuca* forest is unclear, as a result of which it does not receive adequate protection². Consequently, further encroachment into these areas and unsustainable exploitation of fuelwood and other forest products are occurring². High levels of boat traffic on the main river channel and adjacent canals present an additional concern for the bird fauna of the site.

Threat	Severity
Agricultural intensification / expansion	● ● ●
Disturbance to birds	● ●
Hunting	● ●
Selective logging/ cutting	● ●
Unsustainable exploitation of NTFPs	● ●

The low diversity and abundance of waterbirds suggests that factors other than habitat loss may be important. Hunting pressure is likely to be high at the IBA. In addition, as throughout the Mekong Delta, the effects of high pesticide use in adjacent areas of rice agriculture on bird populations are unknown but possibly significant.

Conservation Actions

- Long An Provincial People's Committee proposed the establishment of a nature reserve at the site in 1994. To date, however, a protected area has not been established¹.
- Lang Sen is one of the demonstration sites for a full-scale GEF project entitled the Mekong River Basin Wetland Biodiversity Conservation and Sustainable Use Project, which is currently being implemented by IUCN¹.

Recommendations

- Lang Sen should be designated as a national protected area, and a management board should be established.
- The protected area boundary should be clearly designated².
- All harvesting of *Melaleuca* within the protected area boundary should cease².
- Measures should be introduced to control unsustainable levels of natural resource exploitation at the site².
- Additional bird surveys should be conducted at appropriate times of the year to clarify the importance of the site for large waterbird species, particularly Sarus Crane.

References

1. Birdlife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.
2. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: Birdlife International Vietnam Programme.
3. Nguyen Duc Tu (2002) *Report on a visit to Long An province, 26 to 29 March 2002*. Unpublished report to the BirdLife International Vietnam Programme.



Painted Stork *Mycteria leucocephala*

Bac Lieu

Criteria: A1 & A4i

Province(s): Bac Lieu
PA Status: Nature Reserve

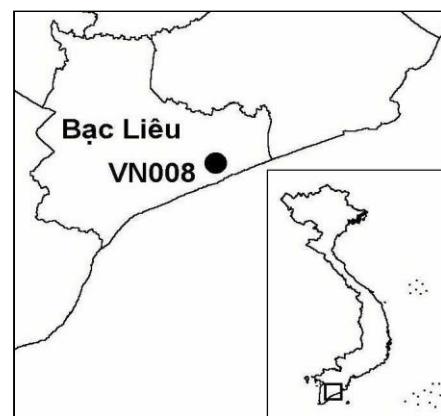
Latitude: 9°15'N
Longitude: 105°43'E
Area: 127 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

None



General Description

The IBA comprises the last remnant of an elevated mangrove forest that once covered the coastline of Bac Lieu province. During the 1970s, after most of the mangrove that had survived the Second Indochina War intact was converted to agriculture, a 30 ha fragment was designated as a bird sanctuary by the local authorities and later expanded to 127 ha. In terms of area, Bac Lieu is now the largest bird sanctuary within the Mekong Delta¹. The vegetation at the site is dominated by the mangrove *Lumnitzera racemosa* and the palm species *Phoenix paludosa*². Other habitats present include *Thespesia populnea* and *Acacia auriculiformis* plantations and small areas of seasonally inundated grassland². The site is surrounded by agricultural land.

Bird Fauna: Key Features

Bac Lieu IBA supports one of the most important colonies of breeding waterbirds in the Mekong Delta¹. The site supports significant numbers of Little Cormorant *Phalacrocorax niger*, Black-crowned Night Heron *Nycticorax nycticorax* and Glossy Ibis *Plegadis falcinellus*¹. Of greatest importance, however, is the population of Indian Cormorant *P. fuscicollis*, which accounts for over 3% of the global population of this species¹. In addition, two globally near-threatened species occur at the site: Black-headed Ibis *Threskiornis melanocephalus* and Oriental Darter *Anhinga melanogaster*¹.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Oriental Darter <i>Anhinga melanogaster</i>	A1	NT	9	A single individual was recorded in August 1999 ¹ .
Black-headed Ibis <i>Threskiornis melanocephalus</i>	A1	NT	8	Four juveniles were recorded in August 1999 ¹ .
Indian Cormorant <i>Phalacrocorax fuscicollis</i>	A4i		0	A count of 930 birds was made in August 1999 ¹ .

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

Bac Lieu IBA is situated in an area of high human population density, and many of the threats at the site derive from the local population. Hunting and poisoning of birds, together with the collection of eggs and fishing still occur on a huge scale at the site, despite its protected status. As a result of over-exploitation, the number of the birds at the site was estimated to have declined by approximately 90% between

Threat	Severity
Agricultural intensification / expansion	●
Aquaculture / fisheries	● ● ●
Disturbance to birds	● ●
Hunting	● ● ●
Recreation and tourism	● ●

1980 and 1992². Another threat is the spread of unsustainable aquaculture within the buffer zone. Over 300 households are currently leasing land in the 258 ha buffer zone for aquaculture, and the widespread practice of intensive methods is resulting in a loss of key habitat for waterbirds. One potential threat to the site is the development of tourism, as the site is located close to Bac Lieu provincial town and already attracts high numbers of visitors².

Conservation Actions

- An investment plan for Bac Lieu Bird Sanctuary was approved by the provincial people's committee in 1997².

Recommendations

- Effective measures to control bird poaching and disturbance to bird populations at the site should be introduced.
- There should be no further expansion of aquacultural ponds within the buffer zone of the site, and sustainable, extensive aquacultural methods should be introduced to existing ponds.
- No tourism infrastructure should be constructed within the boundary of the site.
- Management actions to reduce human pressures on the site should include conservation awareness raising activities and promotion of alternative sources of income for the local community².

References

1. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: Birdlife International Vietnam Programme.
2. Birdlife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.

Tra Cu

Criteria: A1 & A4i

Province(s): Tra Vinh
PA Status: None

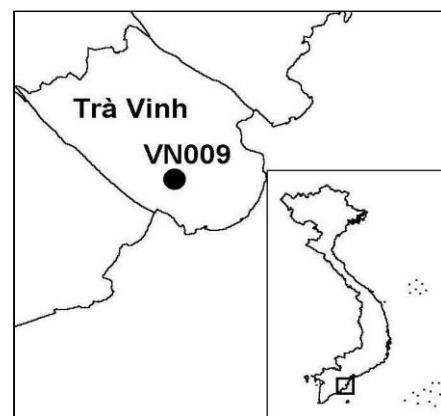
Latitude: 9°41'N
Longitude: 106°21'E
Area: 2 ha
Altitude Range: 0-1 m asl

EBA / SA:

None

Priority Landscape:

None



General Description

Tra Cu is a small bird sanctuary situated in the grounds of a pagoda. The site is protected and managed by the monks at the pagoda. The breeding birds nest in coconut palms, large broadleaf trees and clumps of bamboo. The surrounding area is dominated by wet rice cultivation¹.

Bird Fauna: Key Features

Despite its small size, in terms of numbers, Tra Cu is one of the largest breeding colonies of waterbirds in the Mekong Delta¹. Currently, knowledge regarding the site is restricted to findings of two short visits to the site in 1999. These visits confirmed the presence of the globally near-threatened Black-headed Ibis *Threskiornis melanocephalus* and over 1% of the Asian biogeographic population of Black-crowned Night Heron *Nycticorax nycticorax*¹. In addition, Tra Cu is known to support significant numbers of Little Cormorant *Phalacrocorax niger*, Little Egret *Egretta garzetta*, Cattle Egret *Bubulcus ibis* and Glossy Ibis *Plegadis falcinellus*¹.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Black-headed Ibis <i>Threskiornis melanocephalus</i>	A1	NT	8	At least 50 individuals, including a number of juveniles, were observed in February and July 1999 ¹ .
Black-crowned Night Heron <i>Nycticorax nycticorax</i>	A4i		1	300 individuals were recorded in February and 1,600 individuals in July 1999 ¹ .

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

Due to the level of protection afforded by the monks, no hunting takes place within the temple grounds. However, birds feeding or flying to and from roost are exposed to hunting pressure. The potential negative impact of hunting and other forms of disturbance are quite high, because the breeding birds are concentrated in an extremely small area.

Threat	Severity
Disturbance to birds	●
Hunting	● ●

Conservation Actions

- Tra Cu IBA is not under any formal protected area designation.

Recommendations

- Activities to raise awareness of the importance and fragility of the bird fauna of Tra Cu IBA should be implemented among the local community.

References

1. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: Birdlife International Vietnam Programme.

Chua Hang

Criteria: A1 & A4i

Province(s): Tra Vinh
PA Status: None

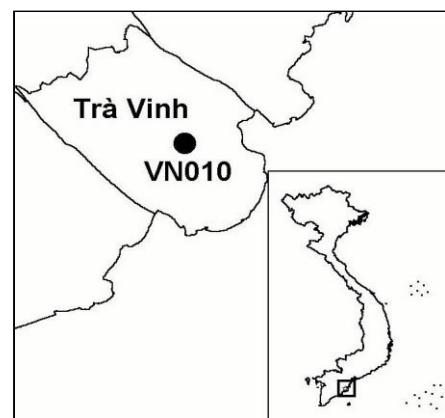
Latitude: 9°57'N
Longitude: 106°19'E
Area: 2 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

None



General Description

The IBA comprises Chua Hang Bird Sanctuary, which is located in the grounds of a pagoda, close to Tra Vinh town. The monks at the pagoda protect and manage the bird sanctuary, which comprises a grove of tall, broadleaf trees¹.

Bird Fauna: Key Features

The IBA supports large breeding colonies of several common waterbird species, including Little Egret *Egretta garzetta*, Cattle Egret *Bubulcus ibis* and, most significantly, Black-crowned Night Heron *Nycticorax nycticorax*. The site is also used by smaller numbers of Glossy Ibis *Plegadis falcinellus* and Oriental Darter *Anhinga melanogaster* but it is not known whether they breed or only roost at the site¹.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Oriental Darter <i>Anhinga melanogaster</i>	A1	NT	9	Five individuals were observed in July 1999 ¹ .
Black-crowned Night Heron <i>Nycticorax nycticorax</i>	A4i		1	A total of 1,200 individuals were observed in July 1999 ¹ .

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

Detailed information on threats to biodiversity at the IBA is not available. However, it is assumed that the bird populations are threatened by hunting and disturbance, at least potentially, particularly as they are concentrated in a very small area.

Threat	Severity
Disturbance to birds	•
Hunting	•

Conservation Actions

- The site is not under any formal protected area designation.

Recommendations

- Activities to raise awareness of the importance and fragility of the bird fauna of Chua Hang IBA should be conducted among the local community.

References

1. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: Birdlife International Vietnam Programme.

Ca Mau

Criteria: A1 & A4i

Province(s): Ca Mau
PA Status: None

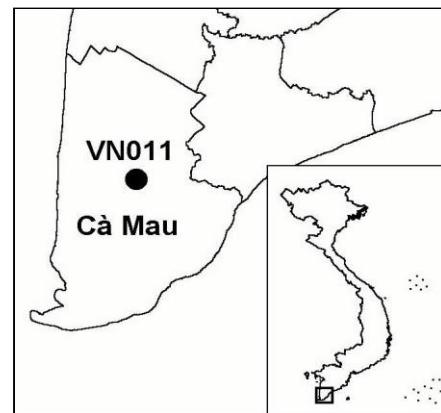
Latitude: 9°06'N
Longitude: 105°05'E
Area: 2 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

None



General Description

The IBA comprises Ca Mau Bird Sanctuary, which is located within a 'culture park' in the suburbs of Ca Mau town. The bird sanctuary was established and is managed by the town people's committee. The vegetation at the site is a mixture of mangrove and bamboo, which supports breeding colonies of a number of common waterbirds¹.

Bird Fauna: Key Features

During a survey in August 1999, maximum counts of 1,500 Little Egrets *Egretta garzetta*, 1,000 Cattle Egrets *Bubulcus ibis* and 150 Black-crowned Night Herons *Nycticorax nycticorax* were made¹. Of most significance was the count of 1,500 Little Cormorants *Phalacrocorax niger*, which represents over 1% of the biogeographic population of this species. However, anecdotal reports indicate that bird numbers at the IBA have declined severely in recent years.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Oriental Darter <i>Anhinga melanogaster</i>	A1	NT	9	A single individual was recorded in August 1999 ¹ .
Little Cormorant <i>Phalacrocorax niger</i>	A4i		1	A total of 1,500 individuals were recorded in August 1999 ¹ .

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

The breeding colonies at Ca Mau IBA are under severe threat, as a result of the site's location within an urban area. Conversion of adjacent areas of natural and semi-natural habitat have led to hydrological changes at the site, with the result that bird numbers have, reportedly, declined significantly in recent years. Another threat is disturbance caused by the large numbers of visitors to the culture park in which the bird sanctuary is situated.

Threat	Severity
Disturbance to birds	• •
Industrial / urban development	• • •
Recreation / tourism	• •

Conservation Actions

- The site is not under any formal protected area designation.

Recommendations

- The IBA should be incorporated into local planning processes for land-use and development activities, in order that potentially negative impacts on the site can be mitigated.
- The activities of visitors to the site should be carefully controlled, particularly during the breeding season, to minimise disturbance to breeding birds.
- Awareness raising activities should be implemented to promote understanding of the values and fragility of the IBA among the local community and visitors to the site.

References

1. Buckton, S. T., Nguyen Cu, Nguyen Duc Tu and Ha Quy Quynh (1999) *The conservation of key wetland sites in the Mekong Delta*. Hanoi: Birdlife International Vietnam Programme.

Can Gio

Criteria: A1

Province(s): Ho Chi Minh City
PA Status: Man and the Biosphere Reserve

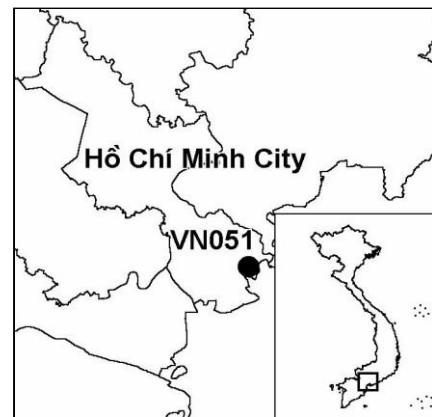
Latitude: 10°31'N
Longitude: 106°54'E
Area: 75,740 ha
Altitude Range: 0-4 m asl

EBA / SA:

None

Priority Landscape:

None



General Description

The IBA comprises Can Gio Man and the Biosphere Reserve, which is situated on the coastline of southern Vietnam, at the point where the Dong Nai, Vam Co and Sai Gon rivers discharge into the sea. Sediment deposited by these rivers has formed a dynamic complex of intertidal flats, which, prior to the Second Indochina War, supported extensive areas of natural mangrove forest. However, most of the natural mangrove was destroyed by wartime spraying of defoliants, and the main habitat types at the site are now plantation mangrove and naturally recolonising mangrove. In recent years, some areas of mangrove have been enclosed within aquacultural ponds. In addition, there are significant areas of intertidal mudflats and sandbanks at the IBA¹.

Bird Fauna: Key Features

While dominant habitat type at Can Gio IBA, plantation mangrove, is of relatively low importance for key bird species, the intertidal mudflats and sandbanks at the IBA are important habitats for migratory waterbirds. Several globally threatened and near-threatened waterbird species have been recorded at the IBA, including Spotted Greenshank *Tringa guttifer*, Asian Dowitcher *Limnodromus semipalmatus*, Spot-billed Pelican *Pelecanus philippensis* and Painted Stork *Mycteria leucocephala*. In addition, the globally endangered Black-faced Spoonbill *Platalea minor* has been recorded at the IBA, although it is not believed to regularly occur in significant numbers².

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Spotted Greenshank <i>Tringa guttifer</i>	A1	EN	3	A single bird was observed in July 1996 ¹ .
†Black-faced Spoonbill <i>Platalea minor</i>	A1	EN	8	A single adult was observed in March 1996 ¹ . The site probably does not regularly support a significant population of this species.
Spot-billed Pelican <i>Pelecanus philippensis</i>	A1	VU	6	Five birds were observed in September 1993 and six were observed in July 1996 ¹ .
Asian Dowitcher <i>Limnodromus semipalmatus</i>	A1	NT	5	Eight birds were observed in September 1993, 89 were observed in July 1996 and 2 were observed in September 2000 ¹ .
Painted Stork <i>Mycteria leucocephala</i>	A1	NT	10	This species has been observed on a number of occasions, including 20 birds in September 1993, 22 in December 1993, 169 in July 1996 and 37 in September 2000 ¹ .

Notes: † = not confirmed to regularly occur in significant numbers.

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

Species	Status
Long-tailed Macaque <i>Macaca fascicularis</i> ¹	NT

Threats to Biodiversity

While the human population in and around Can Gio IBA is relatively low, it is the major source of threats to biodiversity. The major threats are cutting mangrove for timber and firewood, and unsustainable aquaculture development, which is resulting in the enclosure of mangrove within aquacultural ponds. Other threats include unsustainable fishing techniques, and pollution, in the form of oil spills and sewage discharge from Ho Chi Minh City¹. Although the scale and impacts have not been assessed, afforestation of intertidal flats with mangrove is presumably also a threat, as it threatens to destroy the key habitat for migratory waterbird species.

Threat	Severity
Afforestation	●
Aquaculture / fisheries	● ●
Industrial / urban development	●
Recreation / tourism	●
Selective logging / cutting	● ●

Conservation Actions

- A number of organisations have funded projects to research or support mangrove rehabilitation activities at Can Gio including, Action for Mangrove Reforestation Japan (ACTMANG), the European Union, the MacArthur Foundation, Oxfam America and UNESCO/UNDP¹.

Recommendations

- There should be no further mangrove afforestation on intertidal mudflats or enclosure of mangrove within aquacultural ponds.
- Enforcement of regulations prohibiting unsustainable exploitation of mangrove and destructive fishing techniques should be strengthened.

References

1. BirdLife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.
2. Eames, J. C. and Tordoff, A. W. (in prep.) Recent records and a conservation status review of some threatened and near-threatened bird species in Vietnam.
3. Anon. (1998) *Draft biosphere reserve nomination form: Can Gio Mangrove Biosphere Reserve*. Draft submission to UNESCO.



Spot-billed Pelican *Pelecanus philippensis*

Nam Cat Tien

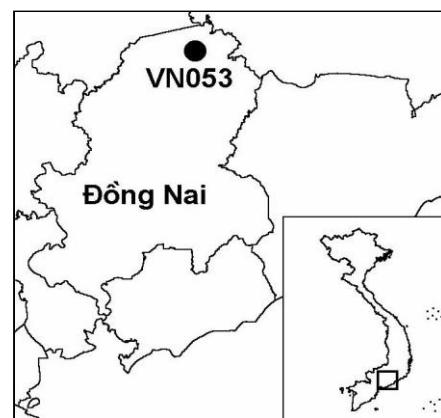
Criteria: A1, A2 & A3

Province(s): Dong Nai
PA Status: National Park

Latitude: 11°27'N
Longitude: 107°20'E
Area: 38,302 ha
Altitude Range: 100-372 m asl

EBA / SA:
 South Vietnamese Lowlands EBA

Priority Landscape:
 SA 5 - Lowland Dong Nai Watershed



General Description

The IBA comprises the Nam Cat Tien sector of Cat Tien National Park, which is situated in the lowlands of southern Vietnam. The topography of the IBA is characterised by a flat plain in the east, and low, gentle hills in the west. The lowlands in the north of the IBA are poorly drained, and support a network of seasonal swamps and permanent lakes. To the east, the IBA is bordered by the Dong Nai river, which floods each wet season, inundating low-lying areas within the IBA. The major vegetation types at the IBA are lowland semi-evergreen forest and lowland evergreen forest. As well as of being of the highest importance for bird conservation, Nam Cat Tien IBA is of international importance for mammal conservation, as it supports populations of Asian Elephant *Elephas maximus*, Gaur *Bos gaurus*, Black-shanked Douc *Pygathrix nigripes* and Buff-cheeked Gibbon *Nomascus gabriellae*¹.

Bird Fauna: Key Features

Nam Cat Tien supports one of the most intact lowland forest avifaunas in Vietnam. Most notably, there are confirmed records of 16 globally threatened and near-threatened bird species from Nam Cat Tien, the highest total for any IBA in Vietnam. These species include the globally critical White-shouldered Ibis *Pseudibis davisoni*, which is only known to occur at one other site in Vietnam, and the globally endangered White-winged Duck *Cairina scutulata*, which is known from only two other sites in Vietnam. Unfortunately, both species are very rare at the IBA, and the latter may no longer regularly occur in significant numbers. In addition to its importance for the conservation of globally threatened and near-threatened species, Nam Cat Tien IBA supports all three species that define the South Vietnamese Lowlands Endemic Bird Area (EBA): Orange-necked Partridge *Arborophila davidi*, Germain's Peacock Pheasant *Polyplectron germaini* and Grey-faced Tit Babbler *Macronous kelleyi*. Of these species, perhaps the most important is Orange-necked Partridge, a globally endangered species whose global range is confined to the EBA. This species is known to occur at only two other sites in the world: Cat Loc IBA in Vietnam and Snoul/Keo Sema/O Reang IBA in Cambodia.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
White-shouldered Ibis <i>Pseudibis davisoni</i>	A1	CR	1	Up to three birds were observed in the Dak Lua wetlands in June 1991 ² , and perhaps the same birds were regularly seen until at least March 1999 ³ .
Orange-necked Partridge <i>Arborophila davidi</i>	A1, A2	EN	1	The species has a localised distribution within the IBA, and is only found at elevations above 140 m asl ⁴ .
†White-winged Duck <i>Cairina scutulata</i>	A1	EN	2	One bird was observed at the Bau Sau wetlands in January 1990 ⁵ and local people reported the presence of two birds in the north-east of the IBA in early 1991 ⁶ . Given the paucity of records despite the high level of survey effort, it is unlikely that the site regularly supports a significant population of this species.
Germain's Peacock Pheasant <i>Polyplectron germaini</i>	A1, A2	VU	4	The species was commonly recorded during the 1990s ³ . The species was frequently recorded during two surveys conducted between January and May 2000 and between April and June 2001 ⁴ .

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Green Peafowl <i>Pavo muticus</i>	A1, A3	VU	8	There were many records of the species during the 1990s, including up to 17 birds between December 1989 and January 1990 ⁵ , 16 birds in June 1991 ² and five birds in April 1998 ⁷ . During two surveys conducted between January and May 2000 and between April and June 2001, the species was recorded on at least 18 occasions ⁴ .
†Sarus Crane <i>Grus antigone</i>	A1	VU	4	Two birds were observed in flight over the IBA in February 2000 ⁸ . Given that these are the only records at the site, despite intensive observer effort, it is unlikely that the site regularly supports a significant population.
Lesser Adjutant <i>Leptoptilos javanicus</i>	A1	VU	7	The species has been regularly recorded in recent years, and is thought to breed ³ .
†Fairy Pitta <i>Pitta nympha</i>	A1, A3	VU	2	A single passage migrant was seen and photographed in October 2000 ⁸ . It is unlikely however, that the site regularly supports a significant population.
Siamese Fireback <i>Lophura diardi</i>	A1, A3	NT	13	The species is common and widespread, with many records during recent years ^{2,4,5,8,9} .
Great Hornbill <i>Buceros bicornis</i>	A1	NT	13	The species has been recorded on number of occasions. For example, a flock of 31 individuals was observed in February 2000 ⁸ .
Lesser Fish Eagle <i>Ichthyaetus humilis</i>	A1	NT	6	Two birds were recorded between January and February 2001 ¹⁰ .
Grey-headed Fish Eagle <i>Ichthyaetus ichthyaetus</i>	A1	NT	8	Single birds and small groups have been recorded on a number of occasions ^{5,10,11,12} .
White-rumped Falcon <i>Polihierax insignis</i>	A1, A3	NT	4	A single individual was observed on two occasions between March and April 1996 ¹³ . The species was also recorded on several occasions in March 1999 ¹⁴ .
Oriental Darter <i>Anhinga melanogaster</i>	A1	NT	9	The species has been recorded on a number of occasions, with a maximum of 13 birds in October 1993 ^{5,8} .
Painted Stork <i>Mycteria leucocephala</i>	A1	NT	10	There are a number of records of this species, including a maximum of 14 birds in January 1990 ⁵ , 36 birds in December 1991 and between 29 and 38 birds in January 1998 ⁸ .
Asian Golden Weaver <i>Ploceus hypoxanthus</i>	A1	NT	3	There have been a number of records of this species, including 14 birds seen at the Bau Sau wetlands in March 2000 ⁸ .
Grey-faced Tit Babbler <i>Macronous kelleyi</i>	A2		12	The species is regularly recorded at the site ^{5,7} .

Notes: † = not confirmed to regularly occur in significant numbers.

Biome Restricted Species: The site qualifies under criterion A3 because it supports 15 species restricted to the Indochinese Tropical Moist Forests (Biome 09) and 14 species restricted to the Indo-Malayan Tropical Dry Zone (Biome 11). See Appendix 4 for details.

Secondary Criteria

Species	Status	Species	Status
Pygmy Loris <i>Nycticebus pygmaeus</i> ^{15,16}	VU	[Giant Asian Pond Turtle <i>Heosemys grandis</i>] ¹⁶	VU
Northern Pigtail Macaque <i>Macaca leonina</i> ^{15,16,17}	VU	[Yellow-headed Temple Turtle <i>Hieremys annandalii</i>] ¹⁶	EN
*Rhesus Macaque <i>Macaca mulatta</i> ^{16,17}	NT	[Malayan Snail-eating Turtle <i>Malayemys subtrijuga</i>] ¹⁶	VU
Long-tailed Macaque <i>Macaca fascicularis</i> ^{15,16,17}	NT	Black Marsh Turtle <i>Siebenrockiella crassicollis</i> ¹⁶	VU
Stump-tailed Macaque <i>Macaca arctoides</i> ^{15,16,17}	VU	Elongated Tortoise <i>Indotestudo elongata</i> ¹⁶	EN
Silver Langur <i>Trachypithecus villoso</i> ^{15,16}	DD	Asiatic Softshell Turtle <i>Amyda cartilaginea</i> ¹⁶	VU
Black-shanked Douc <i>Pygathrix nigripes</i> ^{15,16,17}	EN	Asian Elephant <i>Elephas maximus</i> ^{16,17}	EN
Buff-cheeked Gibbon <i>Nomascus gabriellae</i> ^{15,16,17}	VU	Gaur <i>Bos gaurus</i> ^{15,16}	VU
*Siamese Crocodile <i>Crocodylus siamensis</i> ^{17,18}	CR	[Banteng <i>Bos javanicus</i>] ^{15,16}	EN
[Asian Box Turtle <i>Cuora amboinensis</i>] ¹⁶	VU	[Southern Serow <i>Naemorhedus sumatraensis</i>] ¹⁶	VU

Notes: [] = unconfirmed record; * = reintroduced population.

Threats to Biodiversity

The human population within Nam Cat Tien IBA is very low but that in the surrounding area is very high and mainly composed of in-migrants from other areas of Vietnam. Despite the high human population density in

surrounding areas, human pressure on the natural resources of the IBA is relatively low, in part because of the effective enforcement of protected area management regulations by the national park staff.

Threats to biodiversity at the IBA include hunting, timber extraction, NTFP collection and agricultural expansion. Parts of the IBA are designated as agricultural land and are not, therefore, under the management of the national park. Poor coordination among different local government agencies is resulting in an emphasis on agricultural development instead of biodiversity conservation in these areas¹.

Perhaps the biggest threat is infrastructure development. There exist plans to upgrade the road through the east of the IBA and to build a bridge across the Dong Nai river, which currently represents a natural barrier to access into the IBA. These developments may facilitate illegal exploitation of natural resources within the IBA, and increased road traffic may result in increased disturbance to mammal and bird populations. Another potential threat is posed by the planned construction of hydroelectric dams on the Dong Nai river, upstream of the IBA. These dams may change the flow regime of the river, and leading to changes in flooding patterns within the IBA, with impacts on the wetlands and seasonally flooded forest.

A final potential threat is tourism development, which could lead to increased levels of disturbance to wildlife populations within the IBA, or act as an incentive for infrastructure developments incompatible with the objective of biodiversity conservation in the national park.

Threat	Severity
Agricultural intensification / expansion	●
Construction of dykes / dams	● ●
Disturbance to birds	●
Hunting	●
Infrastructure development	● ●
Recreation / tourism	●
Selective logging / cutting	●
Unsustainable exploitation of NTFPs	●

Conservation Actions

- In 1978, the government of Vietnam decreed the establishment of a protected forest at Nam Cat Tien, and, in 1992, Nam Cat Tien was upgraded to national park status.
- In 1998, the national park was expanded to include the Cat Loc sector in Lam Dong province and the Tay Cat Tien sector in Binh Phuoc province¹.
- In 1998, WWF and the Ministry of Agriculture and Rural Development initiated a five-year project, entitled the *Cat Tien National Park Conservation Project*, with funding from the governments of the Netherlands and Vietnam¹. In 2002, this project was extended for a further two years.
- In 1999, Dong Nai Provincial People's Committee and the Ministry of Agriculture and Rural Development began implementation of a four-year project, entitled the *Forest Protection and Rural Development Project*, with funding from the World Bank and the Netherlands government¹.
- Between 1999 and 2000, the U.S. Fish and Wildlife Service funded a smaller WWF-implemented project at Cat Tien National Park, which comprised scientific studies and awareness raising activities related to Asian Elephant¹.

Recommendations

- Existing controls on hunting, extraction of forest products, and conversion of forest into agricultural land, should be maintained and strengthened.
- An Environmental Impact Assessment should be conducted prior to the upgrading of the road through the IBA, and appropriate mitigation measures should be implemented.
- An Environmental Impact Assessment should be conducted prior to the construction of any dam on the Dong Nai river upstream of the IBA, with a particular emphasis on its likely impacts on the wetlands and seasonally flooded forest at the IBA, and appropriate mitigation measures should be implemented which may include cancelling the planned dam.
- Existing environmental awareness activities in communities around the IBA should be continued.
- The feasibility of extending protected area status, or another appropriate land-use designation, to contiguous areas of natural habitat outside of the IBA should be assessed.

References

1. BirdLife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.
2. Eames, J. C., Robson, C. R., Nguyen Cu and Truong Van La (1992) *Forest bird surveys in Vietnam 1991*. Unpublished report to the International Council for Bird Preservation.

3. Birdlife International (2001) *Threatened birds of Asia: the Birdlife International Red Data Book*. Cambridge, U.K.: Birdlife International.
4. Nguyen Tran Vy, Nguyen Hoang Hao, Le Van Tinh, Tran Dinh Hung and Nguyen Viet Su (2001) *Pheasant survey in Cat Tien National Park, Vietnam, 2001*. Cat Tien: WWF Cat Tien National Park Conservation Project.
5. Robson, C. R., Eames, J. C., Newman, M., Nguyen Cu and Truong Van La (1991) *Forest bird surveys in Vietnam 1989/90*. Unpublished final report to the International Council for Bird Preservation.
6. Robson, C. R., Eames, J. C., Nguyen Cu and Truong Van La (1993) Birds recorded during the third BirdLife/Forest Birds Working Group expedition in Vietnam. *Forktail* 9: 89-119.
7. Hornbuckle, J. (1998) Vietnam trip report 24 March to 14 April 1998. Unpublished report posted on the WorldTwitch Website.
8. Eames, J. C. and Tordoff, A. W. (in prep.) Recent records and a conservation status review of some threatened and near-threatened bird species in Vietnam.
9. Atkins, R. A. and Tentij, M. (1998) *The Orange-necked Partridge Arborophila davidi and five other galliformes in two protected areas in southern Vietnam*. Amsterdam: Institute of Systematics and Population Biology, University of Amsterdam.
10. Nguyen Tran Vy, Nguyen Hoang Hao, Le Van Tinh, Tran Dinh Hung and Nguyen Viet Su (2001) *Water-related birds survey in Cat Tien National Park, Vietnam, 2001*. Cat Tien: WWF Cat Tien National Park Conservation Project.
11. Nguyen Tran Vy, Tran Van Mui and Polet, G. (1999) *The 1999 survey on water-related birds in Cat Tien National Park, Vietnam*. Cat Tien: WWF Cat Tien National Park Conservation Project.
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14. Chia, A., Lee, K., Owyong, A. and Leng, S. (1999) Unpublished list of birds recorded in southern Vietnam.
15. Murphy, D. (2001) *Mammal observations in Cat Tien National Park, Vietnam*. Cat Tien: WWF Cat Tien National Park Conservation Project.
16. Wuytack, J. (2000) *The wetlands of Cat Tien National Park, Vietnam: feasibility study for the nomination of the Bau Sau wetland complex as a Ramsar site*. Cat Tien: WWF Cat Tien National Park Conservation Project.
17. Ling, S. (2000) *A survey of wild cattle and other mammals, Cat Tien National Park, Vietnam*. Cat Tien: WWF Cat Tien National Park Conservation Project.
18. Bembrick, J. and Cannon, Z. (1999) *A report on the Siamese Crocodile Crocodylus siamensis in Cat Tien National Park*. Cat Tien: WWF Cat Tien National Park Conservation Project.



Germain's Peacock Pheasant *Polyplectron germaini*

Lo Go Xa Mat

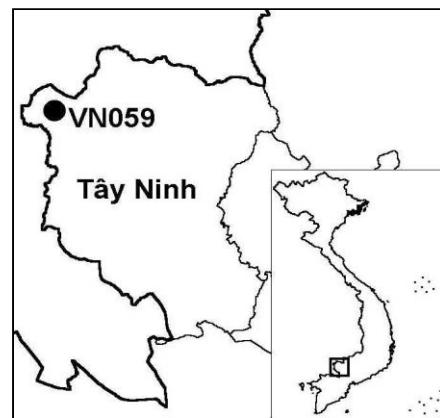
Criteria: A1, A2 & A3

Province(s): Tay Ninh
PA Status: National Park

Latitude: 11°35'N
Longitude: 105°54'E
Area: 16,754 ha
Altitude Range: 5-20 m asl

EBA / SA:
 Southern Vietnamese Lowlands EBA

Priority Landscape:
 None



General Description

The IBA comprises Lo Go Xa Mat (LGXM) National Park, which is located in the north-western corner of Tay Ninh province, adjacent to the international border and contains the single largest area of forest within the province, accounting for roughly 25% of its total natural forest cover¹. The site supports a mosaic of lowland semi-evergreen forest and lowland deciduous forest, with smaller areas of lowland evergreen forest along watercourses and *Melaleuca* forest. A variety of wetland habitats, including seasonally inundated grasslands and forests, permanent lakes and watercourses, are also present².

Bird Fauna: Key Features

Given the available habitat at the site, it is probable that LGXM supports significant populations of Germain's Peacock Pheasant *Polyplectron germaini* and Siamese Fireback *Lophura diardi*². The site qualifies for inclusion within the Southern Vietnamese Lowlands EBA, due to the occurrence of two of the three restricted-range species that define this EBA. LGXM appears to be a stop-over area for Sarus Cranes *Grus antigone* migrating between the Mekong Delta and northern Cambodia. Although there have been no records to date, the available habitats indicate that LGXM may support populations of several other globally threatened species, including Lesser Adjutant *Leptoptilos javanicus*, White-shouldered Ibis *Pseudibis davisoni* and Spot-billed Pelican *Pelecanus philippensis*^{1,2}. Aside from the key species considered above, several species that are regarded of national conservation concern in Vietnam have also been recorded at LGXM, including Stork-billed Kingfisher *Halcyon capensis*, Asian Openbill *Anastomus oscitans*, Woolly-necked Stork *Ciconia episcopus* and Bar-bellied Pitta *Pitta elliotii*².

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Germain's Peacock Pheasant <i>Polyplectron germaini</i>	A1, A2	VU	4	Vocalisations of a single individual were heard in semi-evergreen forest in October 2001 ² .
†Sarus Crane <i>Grus antigone</i>	A1	VU	4	Five individuals were reportedly observed in wetland habitat in 1999 ² . A single individual was satellite-tracked to LGXM by the International Crane Foundation in 2001 ² .
Siamese Fireback <i>Lophura diardi</i>	A1, A3	NT	13	A single male and three females were observed in semi-evergreen forest in October 2001 ² . Also separately recorded between October and November 2001 ² .
[Great Hornbill <i>Buceros bicornis</i>]	A1	NT	14	Recorded at interview during October 2001 ² .
Grey-faced Tit Babbler <i>Macronous kelleyi</i>	A2		12	A single individual was observed in semi-evergreen forest in October 2001 ² .

Notes: [] = unconfirmed record; † = not confirmed to regularly occur in significant numbers.

Biome Restricted Species: The site qualifies under criterion A3 because it supports 10 species restricted to the Indochinese Tropical Moist Forests (Biome 09) and 10 species restricted to the Indo-Malayan Tropical Dry Zone (Biome 11). See Appendix 4 for details.

Secondary Criteria

Species	Status	Species	Status
[Northern Slow Loris <i>Nycticebus bengalensis</i>] ²	DD	[Silver Langur <i>Trachypithecus villosovittatus</i>] ^{2,3}	DD
Pygmy Loris <i>Nycticebus pygmaeus</i> ^{2,3}	VU	[Black-shanked Douc <i>Pygathrix nigripes</i>] ^{2,3}	EN
Northern Pigtail Macaque <i>Macaca leonina</i> ²	VU	[Siamese Crocodile <i>Crocodylus siamensis</i>] ^{2,3}	CR
[Rhesus Macaque <i>Macaca mulatta</i>] ³	NT	[Elongated Tortoise <i>Indotestudo elongata</i>] ²	EN
Long-tailed Macaque <i>Macaca fascicularis</i> ²	NT	[Wattle-necked Soft-shelled Turtle <i>Palea steindachneri</i>] ³	EN
[Stump-tailed Macaque <i>Macaca arctoides</i>] ³	VU	[Chinese Soft-shelled Turtle <i>Pelodiscus sinensis</i>] ³	VU

Notes: [] = unconfirmed record.

Threats to Biodiversity

Of the various habitats present at LGXM, wetlands are particularly important for bird conservation as they support a number of key bird species not found in other habitats². These are also the most fragile habitat present, due to their easy accessibility and high susceptibility to changes in the hydrological regime, tree planting activities and conversion to agricultural land².

Currently, the greatest threat to the integrity of the IBA is posed by human settlement¹. During early 2001, a network of roads and drainage canals were constructed within the largest wetlands, as part of a planned resettlement project. Fortunately, following realisation of the biodiversity values of the IBA among the provincial authorities, this project was halted. However, the canals that were completed may already be affecting the hydrological regime at the wetlands, with serious implications for biodiversity.

Threat	Severity
Afforestation	• •
Disturbance to birds	• •
Drainage	• • •
Hunting	• •
Infrastructure development	• • •
Selective logging / cutting	• •
Unsustainable exploitation of NTFPs	•

Conservation Actions

- A management board for LGXM was established in 1997, and currently employs 60 members of staff based at 14 guard stations².
- During 2001, a series of workshops were held to raise awareness of the values of the site among the provincial authorities.
- LGXM was decreed as a national park on 12 July 2002.
- During 2002-2003, the national park management board and BirdLife International will implement an SNV/WWF-funded project to build local capacity for wetland management.

Recommendations

- An investment plan should be prepared for the national park².
- All wetlands within the IBA should be strictly protected against any activities or forms of development that could prove detrimental to their integrity².
- Important wetlands located outside the current boundaries of the national park should be afforded adequate management and protection to safeguard their biodiversity value².
- Current controls on all forms of hunting at the site should be maintained and strengthened².
- Measures should be implemented to raise awareness of the biodiversity and socio-economic values of the site among all stakeholders².
- Cross-border trade should be restricted to the border crossing at Xa Mat, and not take place through the IBA.
- Further bird survey work should be conducted to clarify the status of key species predicted to occur at the site.

References

1. Birdlife International and the Forest Inventory and Planning Institute (2001) *Sourcebook of existing and proposed protected areas in Vietnam*. Hanoi, Vietnam: BirdLife International Vietnam Programme and the Forest Inventory and Planning Institute.
2. Tordoff, A.W., Pham Trong Anh, Le Manh Hung, Nguyen Dinh Xuan and Tran Khac Phuc (2002) *A rapid bird and mammal survey of Lo Go Sa Mat special-use forest and Chang Riec protection forest, Tay Ninh province, Vietnam*. Unpublished report to the BirdLife International Vietnam Programme and the Institute of Ecology and Biological Resources.

3. Le Trong Trai and Tran Hieu Minh (2000) *A rapid field survey of the Kalon Song Mao Nature Reserve (Binh Thuan province) and Lo Go Sa Mat Nature Reserve (Tay Ninh province), Vietnam*. Hanoi: Birdlife International Vietnam Programme and the Forest Inventory and Planning Institute.



Asian Openbill *Anastomus oscitans*

Binh Dai

Criteria: A1, A4i & A4iii

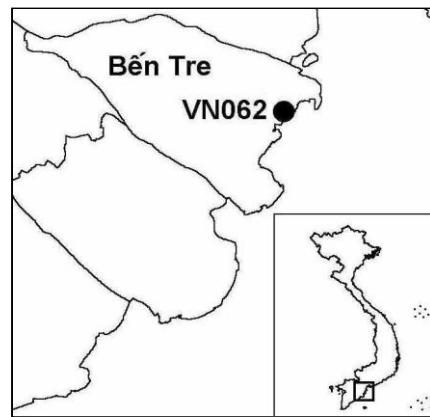
Province(s): Ben Tre
PA Status: None
Latitude: 10°08'N
Longitude: 106°45'E
Area: 30,000 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

None



General Description

The IBA is situated in the Mekong Delta, and comprises the coastal zone of Binh Dai district and the Dai estuary to the north. The IBA is situated within a formerly extensive area of flood-prone marshlands and mangrove. From the 1980s onwards, much of the original vegetation was converted into a series of anthropogenic habitats, including paddyfields, aquacultural ponds and salt pans. The remaining natural vegetation comprises intertidal sand and mudflats, sea grass beds and remnant stands of mangrove¹. To the north, the site is bounded by the Dai estuary, while, to the south-west, it is bounded by the Ba Lai estuary. To the south-west, Binh Dai IBA is contiguous with Ba Tri IBA.

Bird Fauna: Key Features

Binh Dai IBA is the most important known site for migratory shorebirds in the Mekong Delta. Despite the predominantly anthropogenic habitats at the site, several factors contribute to the suitability of the site for shorebirds, including the widespread use of integrated pest management in place of insecticides in paddy fields, the coincidence of fallow periods with the peak migration periods, and the presence of mangrove within aquacultural ponds¹.

Although Binh Dai IBA has received only a relatively small amount of survey effort to date, the results indicate that the site supports at least eight globally threatened and near-threatened species, including Malaysian Plover *Charadrius peronii*, a species known from only one other IBA in Vietnam, and the globally endangered Spotted Greenshank *Tringa guttifer*. Binh Dai supports five species that meet the 1% population threshold for the Asian biogeographic population: Chinese Egret *Egretta eulophotes*, Black-tailed Godwit *Limosa limosa*, Kentish Plover *Charadrius alexandrinus*, Greater Sand Plover *Charadrius leschenaulti* and Great Egret *Casmerodius albus*. In addition, the IBA supports significant concentrations of Caspian Tern *Sterna caspia* and Whiskered Tern *Chlidonias hybridus*, which may also meet the 1% population threshold, although this has not been confirmed to date. Furthermore, based upon the results of a survey conducted in 2000, the site is also believed to qualify under criterion A4iii.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Spotted Greenshank <i>Tringa guttifer</i>	A1	EN	3	Between one and three birds were observed on intertidal flats in December 2000 ¹ .
Chinese Egret <i>Egretta eulophotes</i>	A1	VU	6	Eleven individuals were observed in April 2000 and 13 individuals were observed in December 2000, on intertidal flats ¹ . This species probably meets the 1% population threshold.
Lesser Adjutant <i>Leptoptilos javanicus</i>	A1	VU	7	Three individuals were seen in an area of salt-pans and shrimp ponds in December 2000 ¹ .
Far Eastern Curlew <i>Numenius madagascariensis</i>	A1	NT	4	A single bird was observed in April 2000 and two birds were observed in December 2000 ¹ .
Asian Dowitcher <i>Limnodromus semipalmatus</i>	A1	NT	5	Three individuals were observed in April 2000 ¹ . Around eight birds were observed on intertidal flats in December 2000 ¹ .

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Malaysian Plover <i>Charadrius peronii</i>	A1	NT	1	Four individuals were observed on separate occasions on intertidal flats in April and December 2000 ¹ .
Oriental Darter <i>Anhinga melanogaster</i>	A1	NT	9	A single bird was observed in an area of salt pans and shrimp ponds December 2000 ¹ .
Painted Stork <i>Mycteria leucocephala</i>	A1	NT	10	Two individuals were observed on intertidal flats, and a single bird was observed in an area of salt pans and shrimp ponds in December 2000 ¹ .
Black-tailed Godwit <i>Limosa limosa</i>	A4i		1	A maximum count of c.3,000 individuals was made in an area of salt pans and shrimp ponds in December 2000 ¹ .
Kentish Plover <i>Charadrius alexandrinus</i>	A4i		0	A count of 1,300 individuals was made in December 2000 ¹ .
Greater Sand Plover <i>Charadrius leschenaulti</i>	A4i		1	A maximum count of c.3,000 individuals was made on intertidal flats in December 2000 ¹ .
Great Egret <i>Casmerodius albus</i>	A4i		1	A count of c.400 individuals was made in December 2000 ¹ . The site probably meets the 1% threshold for this species.

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

One of the major threats to biodiversity at Binh Dai IBA is enclosure of remaining areas of mangrove within aquacultural ponds. Another major threat is hunting, which includes both mist-netting and, less commonly, hunting with guns. Over-exploitation of invertebrates in intertidal areas threatens the food source of certain migratory bird species. In addition, this activity is a potential source of disturbance to birds¹. Finally, agricultural intensification, particularly the abandonment of integrated pest management, is a potential threat, although there is no evidence of this at the current time.

Threat	Severity
Agricultural intensification / expansion	• •
Aquaculture / fisheries	• •
Disturbance to birds	• •
Hunting	• • •

Conservation Actions

- None to date.

Recommendations

- Binh Dai should be decreed as a protected area, and nominated under the East Asian-Australasian Shorebird Network.
- Binh Dai meets the criteria for designation as a site of international importance for wetland conservation under the Ramsar Convention, and should, therefore, be designated as a Ramsar site.
- A programme of conservation awareness activities should be implemented to increase understanding of the biodiversity and economic values of the IBA, and promote sustainable natural resource use.
- The existing use of integrated pest management within the IBA should be continued and extended to areas outside of the IBA.
- There should be no further enclosure of mangrove within aquacultural ponds.
- Use of mist nets and hunting with guns should be strictly prohibited at the IBA.
- Further research is required to assess the sustainability of current levels of harvesting in fisheries and intertidal areas, and to determine whether these activities are detrimental to the bird fauna of the site¹.

References

1. Moores, N. and Nguyen Phuc Bao Hoa (2001) *Vietnam Mekong shorebird site survey 2000*. Unpublished report to Wetlands International Asia-Pacific and Can Tho University.

Ba Tri

Criteria: A1 & A4i

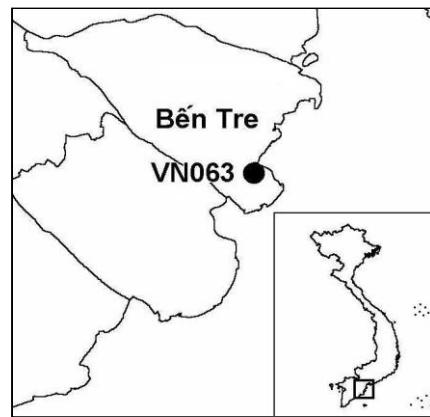
Province(s): Ben Tre
PA Status: None
Latitude: 10°01'N
Longitude: 106°40'E
Area: 6,000 ha
Altitude Range: 0-2 m asl

EBA / SA:

None

Priority Landscape:

None



General Description

The IBA is located in the Mekong Delta and comprises the coastal zone of Ba Tri district. At the north of the IBA is the Bai Lai estuary, the north-eastern side of which is included in Binh Dai IBA. The Bai Lai estuary contains significant areas of sandflats and shallows, backed by sand ridges and recently established aquacultural ponds, in what were formerly extensive areas of unenclosed mangrove. The IBA also includes the mouth of the Con Nhan river, which supports a significant high-tide roost of shorebirds¹. The IBA is bounded to the south-west by the Ham Luong estuary.

Bird Fauna: Key Features

Although Ba Tri IBA has only been the focus of two brief surveys, the findings indicate that the site is of high importance for migratory waterbirds. During December 2000, over 3,000 shorebirds were counted at the IBA, including over 1% of the Asian biogeographic population of Greater Sand Plover *Charadrius leschenaultii*. In addition, the IBA supports four globally threatened and near-threatened species, including Malaysian Plover *C. peronii*, a species known from only one other IBA in Vietnam¹.

Species	IBA Criteria	Global Threat Status	Other IBAs	Notes
Spoon-billed Sandpiper <i>Eurynorhynchus pygmaeus</i>	A1	VU	3	Up to five individuals were observed at the site in December 2000 ¹ .
Chinese Egret <i>Egretta eulophotes</i>	A1	VU	6	Two individuals were recorded in April 2000 and three birds were recorded in December 2000 ¹ .
Malaysian Plover <i>Charadrius peronii</i>	A1	NT	1	Thirteen individuals were recorded in intertidal habitats in December 2000 ¹ .
Painted Stork <i>Mycteria leucocephala</i>	A1	NT	10	Nine individuals were observed in mangrove areas in the Bai Lai river mouth in December 2000 ¹ .
Greater Sand Plover <i>Charadrius leschenaultii</i>	A4i		1	Counts of 140 and 1,425 individuals were made in April and December 2000 respectively ¹ .

Biome Restricted Species: The site does not qualify under criterion A3. See Appendix 4 for details.

Secondary Criteria

The site does not qualify under any secondary criterion.

Threats to Biodiversity

The major threats to biodiversity at the site include hunting, disturbance to birds, unsustainable exploitation of marine products and unsustainable aquacultural development. Hunting with mist nets reportedly takes place between December and March each year. Areas of mangrove are being enclosed within aquacultural ponds.

Threat	Severity
Aquaculture / fisheries	• •
Disturbance to birds	• •
Hunting	• • •

In addition, the large numbers of people harvesting invertebrates on the intertidal flats threaten the food supply of a number of migratory birds, as well as cause disturbance¹.

Conservation Actions

- None to date.

Recommendations

- Ba Tri should be decreed as a protected area, and nominated under the East Asian-Australasian Shorebird Network.
- Ba Tri meets the criteria for designation as a site of international importance for wetland conservation under the Ramsar Convention, and should, therefore, be designated as a Ramsar site.
- A programme of conservation awareness activities should be implemented to increase understanding of the biodiversity and economic values of the IBA, and promote sustainable natural resource use.
- Effective controls on hunting should be introduced at the IBA, and should include intensive site patrols during the main bird migration periods¹.
- Further expansion of intensive aquaculture at the IBA should be prohibited.
- Further research is required to assess the sustainability of current levels of harvesting in fisheries and intertidal areas, and to determine whether these activities are detrimental to the bird fauna of the site¹.

References

1. Moores, N. and Nguyen Phuc Bao Hoa (2001) *Vietnam Mekong shorebird site survey 2000*. Unpublished report to Wetlands International Asia-Pacific and Can Tho University.



Chinese Egret *Egretta eulophotes*