Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

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1. Name and address of the compiler of this form:

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DD MM YY

Designation date

Site Reference Number

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2. Date this sheet was completed/updated:

11 November 2011

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3. Country:

Vietnam

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4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Tram Chim National Park

In Vietnamese language: Vuon Quoc gia Tram Chim

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5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only)**:**

a) Designation of a new Ramsar site ☑; or

b) Updated information on an existing Ramsar site ❑

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6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged: ❑

or
If the site boundary has changed:
i) the boundary has been delineated more accurately ❑; or
ii) the boundary has been extended ❑; or
iii) the boundary has been restricted** ❑

and/or

If the site area has changed:
i) the area has been measured more accurately ❑; or
ii) the area has been extended ❑; or
iii) the area has been reduced** ❑

** **Important note**: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

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7. Map of site:
Refer to Annex III of the Explanatory Note and Guidelines, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:
i**) a hard copy** (required for inclusion of site in the Ramsar List): ☑;

ii**) an electronic format** (e.g. a JPEG or ArcView image) ☑; JPEG and MapInfo

iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** ☑ .

b) Describe briefly the type of boundary delineation applied:
e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The boundary of the site is the boundary of the Tram Chim National Park, as shown on the map, which is a periphery dyke system of 53 km in length.

The site is devided into five separated zones and an Administration Zone outside the park, namely:

- **Zone A1** is bordered to the east by Phu Hiep cannal, to the west by Phu Thanh cannal, to the south by Dong Tien cannal and to the north by An Hoa cannal.
- **Zone A2** is bordered to the east by Phu Duc cannal, to the south by Ca Dam cannal, to the north by Nong Truong cannal, and contiguous with Zone A3 to the west.
- **Zone A3** is bordered to the west by Phu Thanh cannal, to the south by Ca Dam cannal, to the north by Nong Truong cannal, and contiguous with Zone A2 to the east.
- **Zone A4** is bordered to the east by Lung Bong cannal, to the west by Phu Duc cannal, to the south by Ca Dam cannal and to the north by Nong Truong cannal.
- **Zone A5** is bordered to the east by Phu Hiep cannal, to the west by cannal No. 5, to the south by An Binh cannal and to the north by cannal No. 2.
- **Zone C** (Addministrative and Service) is situated outside the park's boundary.

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8. Geographical coordinates (latitude/longitude, in degrees and minutes):
Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

Approximate center coordinate of the largest zone: 10°42'49"N 105°30'12"E

From the Park's Headquarters in **Zone C** (Center: 10°41'05"N 105°33'22"E) in the south, Tram Chim National Park is devided into 5 discrete zones:
Zone A1 (northwest): Center: 10°42'49"N 105°30'12"E
Zone A2 (northeast): Center: 10°42'06"N 105°35'10"E
Zone A3 (northeast): Center: 10°41'11"N 105°33'48"E
Zone A4 (northeast): Center: 10°33'48"N 105°35'44"E
Zone A5 (north): Center: 10°45'44"N 105°29'54"E

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9. General location:
Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.
Tram Chim National Park is situated within Tam Nong District, Dong Thap Province, in the Mekong Delta which is in the south-western part of Vietnam. The site is 40 km from Cao Lanh City, the provincial capital of Dong Thap Province. Cao Lanh is located 120 km west and slightly south of Ho Chi Minh City (former Saigon).

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

The site is generally plain with an average elevation of 1.2 m above mean sea level.
Minimum: 1.0 m above mean sea level
Maximum: 1.4 m above mean sea level

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11. Area: (in hectares)

Tram Chim National Park with a total area of 7,313 hectares is comprised of 6 discrete zones with areas as follows (Information on the coordinates is already presented in section 8):

Zone A1: 4,939.8 hectares
Zone A2: 1,120.8 hectares
Zone A3: 41.8 hectares
Zone A4: 730.5 hectares
Zone A5: 434.1 hectares
Zone C: Administration 46 hectares (outside the protected area but within the Ramsar Site)

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Tram Chim National Park is located 19 km from the Mekong River main channel. 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 Vietnam encompassing Dong Thap, Tien Giang, and Long An provinces and parts of Cambodia. Agricultural expansion over 40 years led to most large areas of the Plain of Reeds being converted for rice production.

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 Vam Co River.

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. Annually the park is inundated for approximately 6 months at a maximum depth of 2.5 meters. Large populations of waterbirds are found at the site, particularly in the dry season.

Tram Chim is the one of largest remnant areas of natural inland wetland habitats remained in the Mekong Delta. The site supports typical samples for a combination of grasslands, swampy forests and open water surfaces. The site provides most important roosting and breeding habitats for a number of congratory waterbirds, and the most famous is populations of Eastern Sarus Crane *Grus antigone sharpii*, which are using the park in dry seasons from October to April.

The park is divided into 3 types of zones: the Core zone, Integrated use and Ecological Rehabilitation zone, and the Administrative and Tourist zone. Specific functional and management activities have been clearly defined for each zone.

13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the Explanatory Notes and Guidelines for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1	2	3	4	5	6	7	8	9
☑	☑	☐	☐	☑	☑	☐	☑	☐

14. Justification for the application of each Criterion listed in 13 above:
Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criteria 1:
Almost all of the original 700,000 hectares of the wetland landscape of the Plain of Reed has been converted to agriculture making this ecosystem rare in the Tropical & Subtropical Moist Broadleaf Forests of Indo-Malayan biogeographic region. Tram Chim - with an area of 7,313 hectares - has the largest area of what remains of the Plain of Reed.

The landscape of the park comprises of grasslands, open water, channels, and *Melaleuca* forest. These vegetation types, especially the wet grasslands in Tram Chim contain some typical vegetation communities of the Plain of Reeds. They are best sample for the rare floodplain components of the bioregion that are not likely to be found elsewhere in Indochina. Tram Chim is one of the very few places in the region where the Brownbeard Rice (*Oryza rufipogon*) communities are likely to survive to any extent and, therefore, one of the most important sites for the conservation of wild rice in Vietnam.

Criteria 2:
Tram Chim is famous for the population of Sarus Crane *Grus antigone sharpii* (VU) which inhabits the national park during the dry season. In addition, the occurrence of the secretive and seldom-recorded grassland specialist Bengal Florican *Houbaropsis bengalensis* (CR) 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 Plain in Kien Giang Province. Other globally threatened bird species recorded for the site include: Black-faced Spoonbill *Platalea minor* (EN) (A single individual was observed and photographed in January 1994, just outside the national park. The site does not regularly support a significant population); Greater Adjutant *Leptoptilos dubius* (EN) (The species was recorded in March 1988 and one individual was recorded feeding along a stream in December 1992. There have been no confirmed records since this time, and the site does not regularly support a significant population); Greater Spotted Eagle *Aquila clanga* (VU) (Single individuals were observed most years from 1988 to 1994, and in February 1997. The site may not regularly support a significant population); and Lesser Adjutant *Leptoptilos javanicus* (VU) (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) (Tordoff, A. W. ed. 2002).

	Scientific name	English name	IUCN Red List	CITES	CMS	Vietnam Redlist
Birds						
1	*Houbaropsis bengalensis*	Bengal Florican	CR	I	-	V
2	*Cairina scutulata*	White-winged Duck	EN	-	-	V
3	*Platalea minor*	Black-faced Spoonbill	EN	II	I	R
4	*Leptoptilos dubius*	Greater Adjutant	EN	-	-	E
5	*Grus antigone*	Sarus Crane	VU	II	-	V
6	*Aquila clanga*	Greater Spotted Eagle	VU	II	I	-
7	*Egretta eulophotes*	Chinese Egret	VU	-	I	-
8	*Leptoptilos javanicus*	Lesser Adjutant	VU	-	-	R
9	*Emberiza aureola*	Yellow-breasted Bunting	VU	-	-	-
Fishes						
10	*Catlocarpio siamensis*	Giant Barb	CR	-	-	-
11	*Amblypharyngodon chulabhornae*	-	VU	-	-	-

12	*Cirrhinus microlepis*	Small Scale Mud Carp	VU	-	-	-
13	*Monotrete cambodgiensis*	-	VU	-	-	-
14	*Heterobagrus bocourti*	-	VU	-	-	-

National Status (Vietnam's Red List): E-Endangered, V-Vulnarable, and R-Rare

Criteria 5:

The site regularly supports more than 20,000 waterbirds in the dry season. A recently count under Global Avian Influenza Network for Surveillance (GAINS) programme and Asian Waterbirds Census reported more than 38,000 waterbirds for the site in February 2007 (Nguyen Duc Tu, pers. comm.). Following Tram Chim NP Census Data (Tram Chim National Park Management Board, unbublished data), the maximum number of waterbirds recorded in recent dry seasons always exceeds 20,000. For example:

English name	**Scientific name**	**Count**			
		Jan 2008	**Jan 2009**	**Nov 2009**	**Dec 2010**
Little Egret	*Egretta garzetta*	23,664	23,818	10,929	10,987
Pond Herons	*Ardeola* spp.	6,732	5,594	3,299	2,959
Little Cormorant	*Phalacrocorax niger*	1,740	2,014	8,219	8,695
Oriental Darter	*Anhinga melanogaster*	482	240	417	1790
Others		210	303	18,524	706
	Total	**32,828**	**31,969**	**41,388**	**25,137**

Criteria 6:

The site regularly supports >1% of the individuals in the populations of several species or subspecies of waterbirds.

Common name	**Scientific name**	**Count**	**Year**	**Season/Reference**	**1% level***
Eastern Sarus Crane	*Grus antigone sharpii*	89	2006	Dry season (van Zalinge at al. 2010) Regular counts have been made since 1988. In recent years, numbers seem to be declining	9
		125	2007		
		103	2008		
		78	2009		
		85	2010		
Garganey	*Anas querquedula*	20,000	1992/1993	Winter (Miyabayashi and Mundkur 1999)	1,500
		18,000	2005	Tram Chim NP census data	
		2,000	Feb 2007	Nguyen Duc Tu pers. comm	
Common Teal	*Anas crecca*	10,000	1989/90	Winter (Miyabayashi and Mundkur 1999)	8,000
Little Cormorant	*Phalacrocorax niger*	4,805	2007	Tram Chim NP census data and Nguyen Duc Tu pers. comm	1,000
		6,823	2008		
		8,219	2009		
		6,579	2010		
Oriental Darter	*Anhinga melanogaster*	250	Feb 2007	Nguyen Duc Tu pers. comm Tram Chim NP Census Data	100
		3,289	2008		
		2,704	2009		
		2,813	2010		
Painted Stork	*Mycteria leucocephala*	583	2007	Regular Winter Visitor Tram Chim NP census data	100
		279	2008		
		582	2009		
		243	2010		

* Li and Mundkur 2007 and Water Bird Population Estimates 2006

Criteria 8:
A 5-day monitoring of fish movement through the sluice gates of Tram Chim conducted by the Mekong Wetlands Biodiversity Program in September 2006 found that 62 species of fish and 7 species of crustacean were moving into the park at one of the upstream water gate while 41 fish species were moving out the a downstream gate. Small immature fish of 2-5 cm long accounted for 3/4 of the total individuals of the catches. Most of the big size fish were carrying eggs.

There are three groups of fish: white fish (species that prefers deep river and only moves to shallow wetlands or paddifields in breeding season such as members of Cyprinidae or Notopteridae families) with 39 species recorded; black fish (species that prefers shallow wetlands or paddifields such as members of Channidae or Anabantidae families) with 8 species; and 15 other species. Most of white fish reproduce in upstream tributaries of Mekong River in the beginning of rainy season. Their eggs or fingerlings then drift along the current to the inundated floodplains to find more food. During high water level periods some fish reproduce in floodplain, so that fingerlings can find food right after birth. In the water samples collected using fine-mesh nets, many fish eggs were found indicating that some fish species spawn in and around the park area and their eggs then drift through the current and grow up in the inundated floodplain. Most of these species live in rivers in the dry seasons and migrate into inundated areas for foraging or breeding grounds in the rainy season when water level raised.

Furthermore, in the early dry season of 2006, a 4 day survey conducted by Mekong Wetland Biodiversity Programme using the same method recorded 49 fish species and 2 crustacean species were moving out of the park through the sluice gates.

The wetlands of Tram Chim National Park are an important source of food, spawning grounds, nursery and migration paths on which fish stocks, within and outside the wetlands, depend (Duong Van Ni *et al.* 2006).

Unfortunately, after 2008, with the completion of WWF's study, no more data on the movement of fish species in Tram Chim were collected.

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):
Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:
This area falls within IM0164 (Tonle Sap Freshwater Swamp Forests) and IM0165 (Tonle Sap-Mekong Peatswamp Forests), both within Tropical & Subtropical Moist Broadleaf Forests of Indo-Malayan

b) biogeographic regionalisation scheme (include reference citation):
Terrestrial Ecoregions of the World (National Geographic & WWF)

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

Geology and geomorphology:
Sediment Deposits
The geology of Tram Chim National Park is formed of Pleistocene and Holocene deposits, with 5 subunits as follows:

Pleistocene Deposit:

- Beach Ridge: Deposits containing coarse materials (quartz) that forms ridges in the park.
- Marine Deposit: Total area of marine deposit and beach ridges account for 1,158 hectares of the park.

Holocene Deposit:

- Salt Marine Deposit accounts for 3,565 hectares, containing pyretic minerals (FeS^2) which formed potential acid soils (sulfaquents).
- Abandoned Course Deposit accounts for 717 hectares. The abandoned courses are the dead rivers filled with new deposits containing organic, loam, and clay.
- Proluvi Deposit accounts for 1,835 hectares comprising mainly of deposits of suspended materials from erosion.

Soils

The diversity of soil types in the Plain of Reeds enables the formation of the diverse landscape and biodiversity. Soil types include:

- Older Sand Soil (aeric Tropaquults), accounting for 154 hectares of the park, was formed during Pleistocene weathering processes of deposits.
- Typical Grey Soil (Typic Tropaquults), accounts for 476 ha.
- Humic Grey Soil (humic Tropaquults), accounts for 274 ha.
- Proluvial Soils accounts for 1.559 ha.
- Sulfudic Alluvial Soils: riverine and marine deposits (amQiv2-3) on top of the swamp-marine deposit forming alluvial soil patches with sulfidic (sulfic Tropaquents, sulfic Tropaquepts, sulfic Hydraquents) layers and alluvial soil containing jarositic minerals.
- Actual Acid Soils (Sulfaquepts) accounting for 355 hectares, distributed mainly in A5 zone of the park, formed from the swamp-marine deposit bed (bmQiv2-3), with pH ranging from 2.0 to 3.2.

Hydrology:

The hydrology of the park is influenced by the hydrology of the Mekong Delta. Located 19 km from the main channel of the Mekong River (in the upper stream of the Vietnamese section of the river), water follows into the park draining into the main canal that connects with the Mekong.

The extensive network of man-made canals, led to a change in hydrology in the entire Plain of Reeds. As such, the park managers have been forced to build a periphery dyke system to control the water level, to imitate/maintain the historic water regime of the Plain of Reeds. With the construction of the dyke system, water inside the park is regulated by a sluice gate system. At the beginning of the rainy season in May/June, water from the Mekong River is allowed to enter this area through the canals. By August, the water level in the Park is between 2.0 and 2.5 meters. Peak flooding occurs in October (the highest water level is 4 meters). In November, flood waters begin to recede. Under the present water management system, the park is flooded from July/August to December and dry between January and April.

Hydrological Processes: Dikes surrounding the Park management zones have reduced sheet flow and the exchange of floodwater into and out of the Park. Similarly, dikes alongside canals constructed within the Park limit the exchange of water between canals and surrounding areas whilst higher flow velocities occur within the canals. These changes to historical hydrological processes result in reduced mixing of dissolved nutrients and detritus from the Mekong with the wetland and a reduction in the export of decomposition by-products from the Park. The dikes also fragment habitat in particular for fish (Duong Van Ni *et al.* 2006).

Water Quality: Although the dikes around the Park are successful in reducing the influx of acid water which is washed into canals in the surround area at the start of the wet season, construction of canals and water storage ponds within the Park has altered water quality by releasing acidities due to the oxidation of exposed pyretic materials leading to increased acidity of surface water. The canal network facilitates the transport of acid water to areas that were previously less influenced by this low pH (Duong Van Ni *et al.* 2006).

Climate

The site enjoys a tropical monsoon climate with two distinct seasons: a rainy season from May to October, and dry season in the remaining months. The two dominant monsoons are the northeast and southwest monsoon. The southwest monsoon coincides with the rainy season. This is a period of frequent and heavy precipitation, high humidity and maximum cloud cover. The northeast monsoon coincides with the dry season and produces light, infrequent precipitation, low humidity and less cloud cover. Annual rainfall is approximately 1,400 mm, 85% of this falls in the rainy season. The number of rainy days in Tram Chim varies from 110 to 160 an year.

The average monthly temperature is 27°C (with a deviation of between 3 and 4°C). Highest and lowest temperatures are recorded at the beginning of December and January (37 - 38°C) and in April and May (24 - 25°C), respectively. Average annual humidity is approximately 80%. In the rainy season humidity is 85% while in the dry season it sometimes falls below 30%.

Evapotranspiration rates differ throughout the park and are dependent on the interaction between wetland hydrology, geomorphology, and the dominant species and structure of vegetation communities. Annual total evaporation is about 1,397mm. In March and April evaporation can be as high as 5.3 mm/day

17. Physical features of the catchment area:

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

Prior to sustained human impacts and canalization, the Plain of Reeds, which once covered some 700,000 hectares, was seasonally flooded with standing water for continuous period of up to seven months per year and in the dry season the water was still near the ground surface. In the flooding season, the Mekong floodwater spilled over the natural levees and combined with the sheet-flow from the Cambodian fields in the northwest to inundate the entire region.

18. Hydrological values:

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

The existence of the park in the Plain, its location in the upper reach of the Vietnamese section of the Mekong, and its capacity to regulate water, helps to mitigate the negative impacts of floods and droughts for the entire plain as well as the downstream part of the Mekong Delta as the park stores water during flood season and releases slowly as flood recedes.

The vast plain then was acting as a natural reservoir that helped water regulation and maintained the hydrological rhythm of the entire Mekong Delta. Water in the park also contributes to the recharge of the local and regional aquifers benefiting the surrounding agricultural lands and agricultural communities. The near natural landscape of the park serves to break wave energy during flood season, helping to protect houses of about 20,000 people along its eastern and southern dykes. Releasing water from the park in the dry season to the Mekong River also helps to reduce saline intrusion in the downstream area.

The wetland maintains groundwater levels in the area and is an important source of freshwater during the dry season. It is also an important source of seed and larvae stock for the farming activities in the surrounding area. In the rainy season it mitigates the impact of flooding in the agricultural lands.

19. Wetland Types

a) presence:
Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the Explanatory Notes & Guidelines.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va • Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:
List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

(Ts): Inland wetlands: Freshwater, Marshes on inorganic soils, seasonal/intermittent, herb-dominant,

(Xf): Followed by Freshwater, tree-dominated wetlands.

20. General ecological features:

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

Tram Chim National Park is a wetland complex comprises a mosaic of seasonally inundated grassland, regenerated *Melaleuca* forest and open swamp. The site is a largest remnant natural habitat area of the Plain of Reeds. It provides habitat for a wide diversity of wetland birds, and suports the second highest species richness site in the Mekong Delta (Buckton *et al.* 1999), and is also highly important for a number of fish species (WWF 2007).

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS

The major grassland communities can be identified in Tram Chim include *Oriza rufipogon* – Torpedo Grass (*Panicum repens*) meadows (c. 900 ha), Chinese Water Chestnut (*Eleocharis dulcis*) – *Panicum repens* – *Oriza rufipogon* meadows (c. 450 ha), and *Oriza rufipogon* – Southern Cutgrass (*Leersia*

hexandra) meadow (c. 160 ha). The other grassland communities are dominated by Purple Spikerush (*Eleocharis atropurporea*), which provides important food for Sarus Crane in the national park, *Panicum repens*, Muraina Grass (*Ischaemum rugosum*) and Hippo Grass (*Vossia cuspidata*) (Le Phat Quoi 2006). Other vegetation types also found at Tram Chim are swampy forest dominated by Cajuput *Melaleuca cajuputi*, and open swamps dominated by Indian Lotus (*Nelumbo nucifera*), along with Star Lotus (*Nymphaea nouchali*), Pink Water-lily (*N. pubescens*) and Pygmy Water-lily (*N. tetragona*).

Seasonally inundated grassland is an endangered type of habitat of the Mekong Basin. Natural grasslands once occurred in vast areas in the Mekong Delta, but have been mostly converted into farmlands in the last century (Tran Triet *et al.*, 2002). Tram Chim is one of the few places in the Plain of Reeds where Brownbeard Rice are likely to survive to any extent and therefore is one of the most important sites for the conservation of wild rice in Vietnam (Buckton *et al.* 1999).

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

Tram Chim is one of the 8 freshwater IBAs of Vietnam (all located in the Mekong Delta) (Tordoff, A. W. ed. 2002). 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 level is maintained artificially high, the number of cranes decline, as the vegetation that serves as their food base collapses.

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 1988. To date, of 231 species of birds were recorded for the park (see Annex 1), survey work has confirmed the presence of 14 globally threatened and near-threatened bird species, although it is unlikely that all of these regularly occur in significant numbers. Apart from the species mentioned in criterion 2, the following globally near-threatened species also listed: Malaysian Plover (*Charadrius peronii*), Oriental Darter (*Anhinga melanogaster*), Black-headed Ibis (*Threskiornis melanocephalus*), Painted Stork (*Mycteria leucocephala*), and Asian Golden Weaver (*Ploceus hypoxanthus*). In addition, large concentrations of some waterfowl species have been recorded at the site such as Pond Herons (*Ardeola* spp.), Little Egret (*Egretta garzetta*), Little Cormorant (*Phalacrocorax niger)*, and Garganey (*Anas querquedula*). A survey of wetland sites in the Mekong Delta found that Tram Chim supported the second highest bird species richness of the sites visited (Buckton *et al.* 1999). Other wetland species of note at the site include Cotton Pygmy Goose (*Nettapus coromandelianus*), Greater Painted-snipe (*Rostratula benghalensis*) and Pheasant-tailed Jacana (*Hydrophasianus chirurgus*) (Tordoff, A. W. ed. 2002).

Of the 128 fish species identified in Tram Chim (WWF 2007[1], sea also Annex 2), in addition to 5 globally threatened species as mentioned above (See Section 14, Criterion 2), the site also supports 2 globally near-threatened (Mekong Flying Barb *Esomus longimanus* and Wallago *Wallago attu*), 2 data sufficient (Yellow Eyed Silver Barb *Hypsibarbus pierrei* and Climbing Perch *Anabas testudineus*) species. Furthermore, 20 species in the list are ranked as high or very high vulnerability by fishbase (Froese, R. and Pauly, D. (Eds.) 2011).

[1] The WWF (2007) report includes a list of 130 fish species, however, based on new taxonomic work of Froese, R. and Pauly, D. (Eds.) (2011) 2 species were removed, namely *Labiobarbus spilopleura* is now combined with *L. siamensis*, and *Channa limbata* is not valided.

23. Social and cultural values:

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

The beautiful landscape of the park has attracted visitors from within the country and internationally and has inspired the composition of poem, music, writing, and film. The lotus flowers that grow in the park are also a symbol of the Plain of Reeds.

The site also has historical values as during the American-Vietnam war, this area was a stronghold of the guerrilla force thus many battles took place in the plain.

The crane, the flagship species of the park, is worshipped in Vietnamese culture. Every Vietnamese pagoda has a statue of a crane standing on a turtle back. The crane is believed to carry the souls of good people to heaven upon death. The Vietnamese culture also believes that birds land "only on prosperous lands".

The park is rich in resources, providing a variety of products such as grass which could be used for fodder, trees for fuel woods, for the communities living along its boundaries. The most important of these is fish which provide the most important source of protein diet for local inhabitants. Resource use systems in Tram Chim help to maintain a picture of traditional parterns of life that subsides in harvesting of natural resources. The park is surrounded by 40,000 people, 14% of whom are poor and 80% depend on aquatic resources for their protein diets. Whilst the natural resources outside the park are being depleted, the park contributes significantly to the livelihoods of the poorest of the poor of the community living around the park.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

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

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
With support from IUCN and CARE from 2005, the poor farmers in the park were organised under the Sustainable Resource Users Groups to demonstrate wise-use of natural resources at site. The park authorities negotiated and agreed with the group on wise-use practices that is also acknowledged and incorporated traditional uses of local communities. (See more about Groups in Section 25).

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

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24. Land tenure/ownership:

a) within the Ramsar site:

100% of the park area is owned by the government.

b) in the surrounding area:
Land in the surrounding area is privately owned by individual farmers.

25. Current land (including water) use:

a) within the Ramsar site:
100% area of the site is a state-owned National Park. It is a protected area that serves for biodiveristy conservation and ecotourism. Resource user groups are organised and supervised by the park authority harvest resources (fishery, grass, trees) on a limited basis.

b) in the surroundings/catchment:
The entire Plain of Reeds outside the park has been converted to agriculture land and is privately owned by individual farmers. Among them, the poorest of the poor in the community around the park are most dependants on the wetland natural resources. In 2005, a pilot project has been implemented by a sub-project by CARE in Vietnam as part of the Mekong Biodiversity Program to organise the poors into Sustainable Resource Users Groups (SRUGs). The members of the SRUGs are trained to conduct assessments of resource stocks. Based on the results of the assessment and traditional knowledge, the SRUGs formulate Sustainable Resource Use Plans (SRUPs) to negotiate and get approval from the park authority. The SRUGs then enter "green contracts" with park authority for using resources according to the approved SRUPs under supervision of park authority. The initial pilot efforts have brought promising results in demonstrating wise use of resources in a controlled way to ensure sustainability. New SRUPs are being formed to include more resource users.

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

a) within the Ramsar site:
Tram Chim is surrounded by agricultural land, and human pressure on the site 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. The park faces a number of factors affecting its ecological character, including:

- The invasion of the exotic plant species Giant Sensitive Tree (*Mimosa pigra*) is a major threat to biodiversity at Tram Chim. The area of *M. pigra* has doubled each year for the last three years, and now covers more than 2,000 ha of what was once seasonally inundated grassland. The invation of *M. pigra* is threatening to remove and fragmentate habitats for species of conservation concerns in the park, especially for the grassland-dependent birds such as Begal Floricant and Sarus Crane. At present, manual techniques are employed to eradicate this species but this is proving to be time and labour-intensive. A plan to control the spread of this species has been in place since 1999, but its implementation is limited by a lack of financial resources and capacity among the park staff.
- As the main management problem for the park is fire caused by careless poachers and regular arson attacks (Van Der Schans 2006). The objectives of the water management plan drive decisions relating to maintaining high water levels as a tool for fire exclusion. This has an impact on all ecological processes within the park and conflicts with other management objectives integral to the viability of the park's ecosystem and species.
- Awareness of wetland values and functions is poor among all levels of stakeholders. There is limited capacity among the park staff and members of the Management Board in wetland management and conservation. Their efforts are also hampered by a lack of funds and

equipment.

b) in the surrounding area:
A number of issues in the wider landscape also affect the ecology of the park, including:

- Today, development in the Mekong Delta has transformed the hydrological-geomorphological conditions of the region. The extensive man-made canal network for agricultural development has seriously changed the hydrology of the plain. The canalization has caused flood water to flow in and drain out more rapidly, leading the shortening of the flood season and more severe droughts in the dry season due to the lowering of the water table.
- Poverty and dependency of local community on wetlands resources place a great pressure on the park. Almost all of the people living in the buffer zone of the park are engaged in rice cultivation and fishing which are heavily depend on the natural resources in the parks in term of encroachment for land conversion and over explotation of aquatic species. Unemployment stands at 18.8%. As this is a developing area, infrastructure and public facilities are fairly limited. Domestic water supply comes mainly from rainwater or directly from the canals. Only about 10% of households have well-water supply. The illiteracy rate is 12.2%. Public health care is also poor: the district has only one hospital with 30 patient beds catering to a total of 92,621 people. Illegal encroachment to harvest wetland plant and animal products is a serious problem, and often the cause of fire outbreaks within the park (grasslands are burned to flush out snakes and turtles).
- The intensive road and canal system in the wider landscape area change the flow pattern limiting intakes of fishery stock early in the flood season, thus limiting aquatic resources productivity.

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27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:
In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The Government of Viet Nam has shown interest in the protection of two of the larger remnants of the Plain of Reeds (Tram Chim and Lang Sen in Long An province), and Tram Chim now has National Park status, which receives the highest level of protection by Vietnam Law.

Tram Chim was firstly designated as a 'Sarus Crane Reserve' by Dong Thap Provincial People's Committee in 1986, for the protection of Sarus Crane Grus antigone. On 2 February 1994, Decision No. 47/TTg of the Prime Minister and Official Letter 4991/KGVX decreed the establishment of a 7,500 ha nature reserve, called Tram Chim Tam Nong. In September 1998, Tram Chim status was revised from nature reserve to national park, following Decision No. 253/QD-TTg of the Prime Minister, dated 29 December 1998. A management board has been established for Tram Chim National Park.

In 2006, the Mekong Wetlands Biodiversity Program began to assist the park to address the issue through the formulation and implementation of an Integrated Fire and Water Management Strategy. Habitats of the park have shown good recovery as a result of the implementation of the strategy for the past two years

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

Ia ❑; Ib ❑; II ☑; III ❑; IV ❑; V ❑; VI ❑

c) Does an officially approved management plan exist; and is it being implemented?:
No Management Plan exists. In Vietnam, the most important plan for a protected area is the investment plan approved by MARD that consists of the programmed of works and required budget for a given period. In Tram Chim, the Investment Plan for the period of 2008-2012 is being implemented.

d) Describe any other current management practices:
In December 1998, on the basis of Decision No. 253/1998/QD-TTg by the Prime Minister on the upgrading status of Tram Chim to a national park, the "Investment plan for the development of the Tram Chim National Park, Tam Nong District, Dong Thap Province, 1999-2003" was prepared and approved. A total budget of VND 59 Billion (~ USD 29 million) was approved for implementation of the five-year plan, which was 15 times greater than the total budget allocated to the area in the previous five years.

Monitoring of water quality, hydrology, vegetation, waterbird and fish populations is being carried out by the park staff. The date collected will be used to develop sustainable management practices. Comprehensive action plans have, or are being prepared for biodiversity conservation, aquatic resources management and sustainable use, water management, nature-based tourism, community development, environmental education, scientific research and environmental monitoring.

A plan to control the spread of *Mimosa pigra* has been in place in the park since 1999, through cooperation between Australian and Vietnamese experts.

Since 2006, the Mekong Wetlands Biodiversity Program began to assist the park to address the issue through the formulation and implementation of an Integrated Fire and Water Management Strategy. Habitats of the park have shown good recovery as a result of the implementation of the strategy for the past two years. A donor-funded small loan programme has been initiated to improve economic conditions in the impoverished communities around the park. The project also organised the poor into Sustainable Livelihoods Groups to develop alternative sustainable livelihoods to reduce dependency on wetlands resources (see Section 23 and 25).

28. Conservation measures proposed but not yet implemented:

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

The park authority is now preparing a new Investment Plan for the period of 2011-2020 and vision for 2030 an in hope that it will be submitted for the approval and funding from the central government in this year. This Investment Plan will be include some key programmes including protection, sciencific research and ecotourism etc.

29. Current scientific research and facilities:

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

The park has a fully staffed technical department in charge of conducting monitoring of resources and impacts of management actions. They are equipped with equipment and knowledge for monitoring populations of birds, water quality, soil quality, water levels, vegetation, and fire parameters. A weather station, hydrological gauges, and evaporation pan are installed at various locations in the park and are being read every day by park staff.

Many national and international research institutions also undertake scientific research in the park. For example, the International Crane Foundation (ICF) has been active at Tram Chim since 1988. During this time, ICF have developed a management plan for the site, in collaboration with the national park management board, which they are currently supporting the implementation of.

Tram Chim is one of the demonstration sites of the *Mekong River Basin Wetland Biodiversity Conservation and Sustainable Use Programme, Phase I.* This programme is being implemented by IUCN, the Mekong River Commission and UNDP, with funding from UNDP/GEF and SIDA. The goal of this programme is to assist countries in the Lower Mekong sub-region to develop new approaches to integrating the protection and sustainable use of wetland biodiversity with economic development. At Tram Chim proposed nature reserve, demonstration activities will include ecotourism development.

Recently, from 2007 to 2011, World Wild Fund (WWF) supported Tram Chim National Park with, a series of researches and pilot activities to rehabilitate the natural habitats of Tram Chim.

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

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

Every year, the park and local authority celebrate World Wetlands Day in the district town.

The park has a conservation awareness program operating targeting at local community to raise their awareness on the importance of conservation of wetlands with local comunities and schools. The activities include propaganda campains, quiz contests, training courses of forest fire preventation and wise-use of the wetlands.

Since 2006, under the Mekong Wetlands Biodiversity Program, local authorities, with the assistance of national and international organizations, have initiated several small-scale education and public awareness activities mainly targeted at the local communities. Community development and poverty alleviation activities are being implemented in the buffer zone of the park, including the provision of credit loan facilities, planting of *Melaleuca* forest, integrated farming extension, and training in land use planning and administration.

31. Current recreation and tourism:

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

The government has upgraded the road from the provincial capital to the district of Tam Nong making it accessible by car. The park has an Ecotourism Centre, boat docks, a parking lot, and small boats that bring tourists inside. The headquarters of the park has seven guestrooms with a total of 20 beds. The park receives various kinds of tourists including occasional tourists, dedicated tourists, bird whatchers, and researchers. During 2001-2006, Tram Chim received 2,000 groups of visitors with a total of 22,226 visitors, of which 16,748 were local tourists, 1,168 international visitors, 6,863 sports fishermen and 104 researchers. A comprehensive Ecotourism Development Plan is being submitted to the government for funding.

32. Jurisdiction:

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

Territorial Jurisdiction: Dong Thap Provincial People's Committee.

Functional Jurisdiction: Tram Chim Management Board.

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The Provincial People's Committee of Dong Thap Province.

Mr. Nguyen Van Hung,
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Dong Thap Province, Vietnam.
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Email: hungtc90@gmail.com.

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

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Annex 1: Bird species list for Tram Chim National Park
(Nguyen Phuc Bao Hoa 2006)

The species list has been compiled from major sources: 1= Le Dien Duc, 1993; 2 = Larsen, 1996; 3 = Barzen, 1996 - unpublished report, 4 = Yamashina, 1998 - unpublished report; 5 = Safford *et al.*, 1998; 6 = Buckton *et al.*, 1999; 7 = Waterbird and Wetland Working Group of Vietnam, unpublished report; and 8 = Photographic evidence from Tram Chim National Park staff.

Nomenclature and order follow Inskipp *et al.* (1996).

	Scientific name	English name	Source
	ANSERIFORMES		
	Dendrocygnidae		
1	*Dendrocygna javanica*	Lesser Whistling-duck	1,2,3,5,6
	Anatidae		
2	*Anser anser*	Greylag Goose	1,2,3
3	*Tadorna tadorna*	Common Shelduck	7
4	*Cairina scutulata*	White-winged Duck	2,3
5	*Sarkidiornis melanotos*	Comb Duck	5
6	*Nettapus coromandelianus*	Cotton Pygmy-goose	1,2,3,6
7	*Anas penelope*	Eurasian Wigeon	1,2,3
8	*Anas poecilorhyncha*	Spot-billed Duck	1,2,3,5,6
9	*Anas clypeata*	Northern Shoveler	1,2,3,5
10	*Anas acuta*	Northern Pintail	1,2,3
11	*Anas querquedula*	Garganey	1,2,3,5
12	*Anas crecca*	Common Teal	1,2,3
	TURNICIFORMES		
	Turnicidae		
13	*Turnix sylvatica*	Small Buttonquail	2,3
14	*Turnix tanki*	Yellow-legged Buttonquail	2,3
	PICIFORMES		
	Picidae		
15	*Jynx torquilla*	Eurasian Wryneck	2,3
	Megalaimidae		
16	*Megalaima haemacephala*	Coppersmith Barbet	2,3
17	*Calorhamphus fuliginosus*	Brown Barbet	2,3
	CORACIIFORMES		
	Coraciidae		
18	*Coracias benghalensis*	Indian Roller	3,5
19	*Eurystomus orientalis*	Dollarbird	2,3
	Alcedinidae		
20	*Alcedo atthis*	*Common Kingfisher*	1,2,3,4,5,6
21	*Alcedo meninting*	Blue-eared Kingfisher	1
	Halcyonidae		
22	*Halcyon capensis*	Stork-billed Kingfisher	1,2,3,5
23	*Halcyon smyrnensis*	White-throated Kingfisher	1,2,3,4,6
24	*Halcyon pileata*	Black-capped Kingfisher	1,2,3,4,5
25	*Todiramphus chloris*	Collared Kingfisher	1,2,3,5
	Cerylidae		
26	*Megaceryle lugubris*	Crested Kingfisher	2,3
27	*Ceryle rudis*	Pied Kingfisher	1,2,3,5,6

	Scientific name	English name	Source
	Meropidae		
28	*Merops orientalis*	Green Bee-eater	1,2,3,4,5,6
29	*Merops viridis*	Blue-throated Bee-eater	2,3
30	*Merops philippinus*	Blue-tailed Bee-eater	1,2,3,4,5,6
31	*Merops leschenaulti*	Chestnut-headed Bee-eater	2,3
	CUCULIFORMES		
	Cuculidae		
32	*Cacomantis merulinus*	Plaintive Cuckoo	1,2,3,4,5,6
33	*Chrysococcyx maculatus*	Asian Emerald Cuckoo	2,3,5
34	*Eudynamys scolopacea*	Asian Koel	5,6
35	*Phaenicophaeus tristis*	Green-billed Malkoha	2,3,5,6
	Centropodidae		
36	*Centropus sinensis*	Greater Coucal	2,3,5,6
37	*Centropus bengalensis*	Lesser Coucal	2,3,5,6
	APODIFORMES		
	Apodidae		
38	*Cypsiurus balasiensis*	Asian Palm Swift	5,6
39	*Apus affinis*	House Swift	3,5
	STRIGIFORMES		
	Tytonidae		
40	*Tyto capensis*	Grass Owl	1,2,5,6
	Caprimulgidae		
41	*Caprimulgus macrurus*	Large-tailed Nightjar	2,3,5,6
	COLUMBIFORMES		
	Columbidae		
42	*Columba livia*	Rock Pigeon	1,2,3
43	*Streptopelia orientalis*	Oriental Turtle Dove	1,2,3
44	*Streptopelia chinensis*	Spotted Dove	1,2,3,4,5,6
45	*Streptopelia tranquebarica*	Red Collared Dove	1,2,3,4,5,6
46	*Macropygia unchall*	Barred Cuckoo Dove	2,3
47	*Treron vernans*	Pink-necked Green Pigeon	5,6
	GRUIFORMES		
	Otididae		
48	*Houbaropsis bengalensis*	Bengal Florican	1,2,3,5,6
	Gruidae		
49	*Grus antigone*	Sarus Crane	1,2,3,4,5,6
	Rallidae		
50	*Gallirallus striatus*	Slaty-breasted Rail	2,3,5
51	*Amaurornis phoenicurus*	White-breasted Waterhen	1,2,3,4,5
52	*Porzana pusilla*	Baillon's Crake	8
53	*Porzana fusca*	Ruddy-breasted Crake	2,3,5,6
54	*Porzana cinerea*	White-browed Crake	8
55	*Gallicrex cinerea*	Watercock	2,3,5,6
56	*Porphyrio porphyrio*	Purple Swamphen	1,2,3,4,5,6
57	*Gallinula chloropus*	Common Moorhen	1,2,3,4,5,6
58	*Fulica atra*	Common Coot	3
	CICONIIFORMES		
	Scolopacidae		
59	*Gallinago stenura*	Pintail Snipe	3,5
60	*Gallinago gallinago*	Common Snipe	2,3,5
61	*Limosa limosa*	Black-tailed Godwit	1,2,3,4,5
62	*Limosa lapponica*	Bar-tailed Godwit	1,3
63	*Tringa erythropus*	Spotted Redshank	1,3,5

	Scientific name	English name	Source
64	*Tringa totanus*	Common Redshank	1,2,3,5
65	*Tringa stagnatilis*	Marsh Sandpiper	1,2,3,4,5
66	*Tringa nebularia*	Common Greenshank	1,2,3,4,5
67	*Tringa ochropus*	Green Sandpiper	1,2,3,5
68	*Tringa glareola*	Wood Sandpiper	1,2,3,4,5,6
69	*Actitis hypoleucos*	Common Sandpiper	1,2,3,5,6
70	*Calidris temminckii*	Temminck's Stint	2,3
71	*Calidris subminuta*	Long-toed Stint	2,3
72	*Calidris ferruginea*	Curlew Sandpiper	1,2,3,5
	Rostratulidae		
73	*Rostratula benghalensis*	Greater Painted-snipe	2,3,5,6
	Jacanidae		
74	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	1,2,3,4,5,6
75	*Metopidius indicus*	Bronze-winged Jacana	1,2,3,4,5,6
	Charadriidae		
76	*Himantopus himantopus*	Black-winged Stilt	2,3,4,5,6
77	*Pluvialis fulva*	Pacific Golden Plover	5
78	*Pluvialis dominicus*	American Golden Plover	1,2,3,4
79	*Charadrius dubius*	Little Ringed Plover	1,2,3,4,5
80	*Charadrius alexandrinus*	Kentish Plover	1,2,3,4,5
81	*Charadrius peronii*	Malaysian Plover	1,2,3
82	*Vanellus duvaucelii*	River Lapwing	2,3
83	*Vanellus cinereus*	Grey-headed Lapwing	1,2,3,4,5,6
84	*Vanellus indicus*	Red-wattled Lapwing	1,2,3,4,5,6
	Glareolidae		
85	*Dromas ardeola*	Crab-plover	3
86	*Glareola maldivarum*	Oriental Pratincole	1,2,3,4,5,6
87	*Glareola lactea*	Small Pratincole	2,3
	Laridae		
88	*Larus argentatus*	Herring Gull	2,3
89	*Gelochelidon nilotica*	Gull-billed Tern	1,2,3,4
90	*Sterna caspia*	Caspian Tern	4
91	*Sterna hirundo*	Common Tern	4
92	*Chlidonias hybridus*	Whiskered Tern	2,3,4,5
	Accipitridae		
93	*Pandion haliaetus*	Osprey	4
94	*Aviceda jerdoni*	Jerdon's Baza	
95	*Aviceda leuphotes*	Black Baza	1,2,3,5
96	*Elanus caeruleus*	Black-shouldered Kite	1,2,3,4,5,6
97	*Milvus migrans*	Black Kite	1,2,3
98	*Haliastur indus*	Brahminy Kite	1,2,3,5
99	*Circus aeruginosus*	Eurasian Marsh Harrier	1,3,5,6
100	*Circus cyaneus*	Hen Harrier	1,2,3
101	*Circus melanoleucos*	Pied Harrier	1,2,3,5
102	*Accipiter badius*	Shikra	2,3,5,6
103	*Accipiter gularis*	Japanese Sparrowhawk	4
104	*Buteo buteo*	Common Buzzard	1,2,3,8
105	*Aquila clanga*	Greater Spotted Eagle	1,2,3,5
	Falconidae		
106	*Falco tinnunculus*	Common Kestrel	1,2,3
107	*Falco amurensis*	Amur Falcon	8
108	*Falco peregrinus*	Peregrine Falcon	2,3,5

	Scientific name	English name	Source
	Podicipedidae		
109	*Tachybaptus ruficollis*	Little Grebe	1,2,3,4,5,6
	Anhingidae		
110	*Anhinga melanogaster*	Darter	1,2,3,4,5,6
	Phalacrocoracidae		
111	*Phalacrocorax niger*	Little Cormorant	1,2,3,4,5,6
112	*Phalacrocorax fuscicollis*	Indian Cormorant	1,2,3,4,5,6
113	*Phalacrocorax carbo*	Great Cormorant	2,3,8
	Ardeidae		
114	*Egretta garzetta*	Little Egret	1,2,3,4,5,6
115	*Egretta eulophotes*	Chinese Egret	1,2,3,4
116	*Ardea cinerea*	Grey Heron	1,2,3,4,5,6
117	*Ardea sumatrana*	Great-billed Heron	1,2,3,4
118	*Ardea purpurea*	Purple Heron	1,2,3,4,5,6
119	*Casmerodius albus*	Great Egret	1,2,3,4,5,6
120	*Mesophoyx intermedia*	Intermediate Egret	1,2,3,4,5,6
121	*Bubulcus ibis*	Cattle Egret	1,2,3,4,5,6
122	*Ardeola bacchus*	Chinese Pond Heron	1,2,3,4,5,6
123	*Ardeola speciosa*	Javan Pond Heron	1,2,3,4,5
124	*Butorides striatus*	Little Heron	2,3,6,5
125	*Nycticorax nycticorax*	Black-crowned Night Heron	1,2,3,4,5,6
126	*Ixobrychus sinensis*	Yellow Bittern	1,2,3,4,5,6
127	*Ixobrychus cinnamomeus*	Cinnamon Bittern	1,2,3,4,5,6
128	*Dupetor flavicollis*	Black Bittern	5,6
129	*Botaurus stellaris*	Great Bittern	1,2,3,4
	Threskiornithidae		
130	*Plegadis falcinellus*	Glossy Ibis	2,3,5
131	*Threskiornis melanocephalus*	Black-headed Ibis	5
132	*Platalea minor*	Black-faced Spoonbill	2,3
	Pelecanidae		
133	*Pelecanus philippensis*	Spot-billed Pelican	2,5
	Ciconiidae		
134	*Mycteria leucocephala*	Painted Stork	1,2,3,4,5
135	*Anastomus oscitans*	Asian Openbill	2,3,5
136	*Ephippiorhynchus asiaticus*	Black-necked Stork	2,3,8
137	*Leptoptilos javanicus*	Lesser Adjutant	1,2,3,4,5
138	*Leptoptilos dubius*	Greater Adjutant	1,2,3,8
	PASSERIFORMES		
	Pardalotidae		
139	*Gerygone sulphurea*	Golden-bellied Gerygone	1,2,3,4,5,6
	Laniidae		
140	*Lanius tigrinus*	Tiger Shrike	2,3,5
141	*Lanius cristatus*	Brown Shrike	1,2,3,4,5,6
142	*Lanius schach*	Long-tailed Shrike	2,3,4
	Corvidae		
143	*Crypsirina temia*	Racket-tailed Treepie	5,6
144	*Oriolus chinensis*	Black-naped Oriole	1,2,3
145	*Coracina macei*	Large Cuckooshrike	2
146	*Coracina polioptera*	Indochinese Cuckooshrike	2,3,5,6
147	*Coracina melaschistos*	Black-winged Cuckooshrike	2,3
148	*Hemipus picatus*	Bar-winged Flycatcher-shrike	2,3
149	*Rhipidura albicollis*	White-throated Fantail	1,2,3
150	*Rhipidura javanica*	Pied Fantail	1,2,3,4,5,6

	Scientific name	English name	Source
151	*Dicrurus macrocercus*	Black Drongo	1,2,3,4,5,6
152	*Dicrurus annectans*	Crow-billed Drongo	2,3
153	*Dicrurus aeneus*	Bronzed Drongo	2,3
154	*Dicrurus hottentottus*	Spangled Drongo	5
155	*Aegithina tiphia*	Common Iora	2,4,5,6
156	*Tephrodornis gularis*	Large Woodshrike	2,3
157	*Tephrodornis pondicerianus*	Common Woodshrike	2,3
	Muscicapidae		
158	*Monticola solitarius*	Blue Rock Thrush	4
159	*Brachypteryx montana*	White-browed Shortwing	2,3
160	*Muscicapa dauurica*	Asian Brown Flycatcher	2
161	*Ficedula mugimaki*	Mugimaki Flycatcher	2
162	*Ficedula parva*	Red-throated Flycatcher	5
163	*Ficedula dumetoria*	Rufous-chested Flycatcher	3
164	*Niltava macgrigoriae*	Small Niltava	7
165	*Culicicapa ceylonensis*	Grey-headed Canary Flycatcher	2,3
166	*Luscinia svecica*	Bluethroat	1,2,3
167	*Luscinia cyane*	Siberian Blue Robin	1,5
168	*Copsychus saularis*	Oriental Magpie Robin	1,2,3,4,5,6
169	*Copsychus malabaricus*	White-rumped Shama	2,3
170	*Saxicola torquata*	Common Stonechat	1,2,3,4,5
171	*Saxicola caprata*	Pied Bushchat	1,2,3,4,5,6
172	*Saxicola ferrea*	Grey Bushchat	1,2,3
	Sturnidae		
173	*Sturnus malabaricus*	Chestnut-tailed Starling	2,3,5
174	*Sturnus burmannicus*	Vinous-breasted Starling	5
	Hirundinidae		
175	*Riparia riparia*	Sand Martin	1,2,3,4,5,6
176	*Riparia paludicola*	Plain Martin	2,3
177	*Hirundo rustica*	Barn Swallow	1,2,3,4,5,6
178	*Hirundo tahitica*	Pacific Swallow	2,3,4
179	*Hirundo daurica*	Red-rumped Swallow	1,2,3,4,5
180	*Delichon urbica*	Northern House Martin	2,3
	Pycnonotidae		
181	*Pycnonotus goiavier*	Yellow-vented Bulbul	5,6
182	*Pycnonotus blanfordi*	Streak-eared Bulbul	1,5,6
183	*Pycnonotus brunneus*	Red-eyed Bulbul	2,3
184	*Hypsipetes leucocephalus*	Black Bulbul	2,3
	Cisticolidae		
185	*Cisticola juncidis*	Zitting Cisticola	1,2,3,4,5,6
186	*Prinia polychroa*	Brown Prinia	2,3
187	*Prinia rufescens*	Rufescent Prinia	1,2,3
188	*Prinia hodgsonii*	Grey-breasted Prinia	2,3
189	*Prinia flaviventris*	Yellow-bellied Prinia	3,5,6
190	*Prinia inornata*	Plain Prinia	1,2,3,4,5,6
	Zosteropidae		
191	*Zosterops palpebrosus*	Oriental White-eye	2,3,5,6
192	*Zosterops japonicus*	Japanese White-eye	1,2,3,4
	Sylviidae		
193	*Bradypterus thoracicus*	Spotted Bush Warbler	3
194	*Locustella lanceolata*	Lanceolated Warbler	1,2,3,4,5,6
195	*Locustella certhiola*	Rusty-rumped Warbler	2,3,4,5,6
196	*Acrocephalus bistrigiceps*	Black-browed Reed Warbler	1,2,3,4,5,6

	Scientific name	English name	Source
197	*Acrocephalus orientalis*	Oriental Reed Warbler	1,2,3,4,5
198	*Acrocephalus aedon*	Thick-billed Warbler	2,3,5
199	*Orthotomus sutorius*	Common Tailorbird	1,2,3,4,5,6
200	*Phylloscopus fuscatus*	Dusky Warbler	1,2,3,5
201	*Phylloscopus inornatus*	Yellow-browed Warbler	2,3,5
202	*Phylloscopus borealis*	Arctic Warbler	1,2,3
203	*Abroscopus superciliaris*	Yellow-bellied Warbler	2,3,5
204	*Megalurus palustris*	Striated Grassbird	1,2,3,4,5,6
205	*Macronous gularis*	Striped Tit Babbler	5,6
	Alaudidae		
206	*Mirafra assamica*	Rufous-winged Bushlark	2,3
207	*Alauda gulgula*	Oriental Skylark	1,2,3,4,5,6
	Nectariniidae		
208	*Dicaeum cruentatum*	Scarlet-backed Flowerpecker	5
209	*Anthreptes malacensis*	Brown-throated Sunbird	1,2,3,5
210	*Nectarinia jugularis*	Olive-backed Sunbird	1,2,3,4,5,6
	Passeridae		
211	*Passer flaveolus*	Plain-backed Sparrow	1,2,3,6
212	*Passer montanus*	Eurasian Tree Sparrow	1,2,3,4,5,6
213	*Motacilla alba*	White Wagtail	1,2,3,4
214	*Motacilla citreola*	Citrine Wagtail	1,2,3
215	*Motacilla flava*	Yellow Wagtail	1,2,3,4,5
216	*Motacilla cinerea*	Grey Wagtail	2,3
217	*Anthus richardi*	Richard's Pipit	1,2,3,4,5
218	*Anthus rufulus*	Paddyfield Pipit	5,6
219	*Anthus hodgsoni*	Olive-backed Pipit	1,2,3
220	*Anthus cervinus*	Red-throated Pipit	1,2,3
221	*Ploceus manyar*	Streaked Weaver	4,5,6
222	*Ploceus philippinus*	Baya Weaver	5,6
223	*Ploceus hypoxanthus*	Asian Golden Weaver	5,6
224	*Amandava amandava*	Red Avadavat	1,2,3
225	*Erythrura prasina*	Pin-tailed Parrotfinch	6
226	*Lonchura striata*	White-rumped Munia	3,5
227	*Lonchura punctulata*	Scaly-breasted Munia	5
228	*Lonchura malacca*	Black-headed Munia	1,2,3,4,5,6
	Fringillidae		
229	*Carpodacus rubescens*	Blanford's Rosefinch	3
230	*Carpodacus erythrinus*	Common Rosefinch	2
231	*Emberiza aureola*	Yellow-breasted Bunting	2,3,4,5

Annex 2: Fish species list for Tram Chim National Park

(Source: WWF 2007)

Scientific and English names follow fishbase.org (Froese, R. and Pauly, D. (Eds.) 2011); Status: HV = High Vulnerability, VHV = Very High Vulnerability.

	Scientific name	English name	Fishbase
	OSTEOGLOSSIFORMES		
	Notopteridae		
1	*Chitala ornata* (Gray, 1831)	Clown Featherback	HV
2	*Notopterus notopterus* (Pallas, 1769)	Bronze Featherback	HV
	CLUPEIFORMES		
	Clupeidae		
3	*Clupeoides borneensis* Bleeker, 1851	Borneo River Sprat	
4	*Clupeoides* sp.	Sprat sp.	
5	*Clupeichthys aesarnensis* Wongratana 1983	Thai River Sprat	
6	*Clupeichthys goniognathus* Bleeker, 1855	Sumatran River Sprat	
7	*Corica laciniata* Fowler, 1935	Bangkok River Sprat	
	Engraulidae		
8	*Coilia lindmani* Bleeker, 1858	Lindman's Grenadier Anchovy	
	CYPRINIFORMES		
	Cyprinidae		
9	*Parachela siamensis* (Günther, 1868)		
10	*Paralaubuca typus* Bleeker, 1864		
11	*Paralaubuca barroni* (Fowler, 1934)		
12	*Paralaubuca riveroi* Fowler, 1935		
13	*Esomus metallicus* Ahl, 1923		
14	*Esomus longimanus* (Lunel, 1881)	Mekong Flying Barb	
15	*Leptobarbus hoevenii* (Bleeker, 1851)	Hoven's Carp	VHV
16	*Luciosoma bleekeri* Steindachner, 1878		
17	*Boraras urophthalmoides* (Kottelat, 1991)	Least Rasbora	
18	*Rasbora aurotaenia* Tirant, 1885	Pale Rasbora	
19	*Rasbora borapetensis* Smith, 1934	Blackline Rasbora	
20	*Rasbora palustris* (Hamilton, 1822)		
21	*Rasbora trilineata* Steinachner, 1870	Three-lined Rasbora	
22	*Rasbora* sp.	Rasbora sp. Orange Tail	
23	*Amblypharyngodon chulabhornae* Vidthayanon & Kottelat, 1990		
24	*Amblyrhynchichthys micracanthus* Ng & Rainboth, 2004		
25	*Cyclocheilichthys apogon* (Valenciennes, 1842)	Beardless Barb	
26	*Cyclocheilichthys armatus* (Valenciennes, 1842)		
27	*Cyclocheilichthys enoplos* (Bleeker, 1850)		VHV
28	*Cyclocheilichthys repasson* (Bleeker, 1853)		
29	*Puntioplites proctozysron* (Bleeker, 1865)		
30	*Barbonymus altus* (Günther, 1868)	Red Tailed Tinfoil	
31	*Barbonymus gonionotus* (Bleeker, 1850)	Silver Barb	
32	*Barbonymus schwanenfeldii* (Bleeker, 1853)	Tinfoil Barb	HV
33	*Hypsibarbus pierrei* (Sauvage, 1880)	Yellow-eyed Silver Barb	HV
34	*Hampala macrolepidota* (Valenciennes, 1842)	Hampala Barb	
35	*Puntius brevis* (Bleeker, 1850)		
36	*Puntius aurotaeniatus* (Tirant, 1885)		
37	*Systomus orphoides* (Valenciennes, 1842)	Javaen Barb	
38	*Systomus partipentazona* (Fowler, 1934)		
39	*Catlocarpio siamensis* Boulenger, 1898	Giant Barb	VHV
40	*Thynnichthys thynnoides* (Bleeker, 1852)		

	Scientific name	English name	Fishbase
41	*Scaphognathops* sp.		
42	*Cirrhinus jullieni* Sauvage, 1878		
43	*Cirrhinus molitorella* (Valenciennes, 1842)	Mud Carp	
44	*Cirrhinus microlepis* Sauvage, 1878	Small Scale Mud Carp	VHV
45	*Labiobarbus siamensis* Sauvage, 1881		
46	*Henicorhynchus siamensis* (Sauvage, 1881)	Siamese Mud Carp	
47	*Henicorhynchus lobatus* Smith, 1945		
48	*Osteochilus hasseltii* (Valenciennes, 1842)	Bonylip Barb	
49	*Osteochilus lini* Fowler, 1935		
50	*Osteochilus microcephalus* (Valenciennes, 1842)		
51	*Labeo yunnanensis* Chaudhuri, 1911		HV
52	*Labeo chrysophekadion* (Bleeker, 1850)	Black Sharkminnow	VHV
	Cobitidae		
53	*Syncrossus helodes* Sauvage, 1876	Tiger Botia	
54	*Yasuhikotakia modesta* Bleeker, 1864	Redtail Botia	
55	*Yasuhikotakia lecontei* (Fowler, 1937)	Silver Loach	
56	*Yasuhikotakia morleti* (Tirant, 1885)	Skunk Botia	
57	*Acantopsis* sp.	Loach sp.	
	SILURIFORMES		
	Bagridae		
58	*Hemibagrus filamentus* (Fang & Chaux, 1949)		
59	*Hemibagrus spilopterus* Ng & Rainboth, 1999		HV
60	*Hemibagrus wyckii* (Bleeker, 1858)		
61	*Heterobagrus bocourti* (Bleeker, 1864)		VHV
62	*Mystus gulio* (Hamilton, 1822)		
63	*Mystus armiger* Ng	Long Whiskers Catfish	
64	*Mystus mysticetus* Roberts, 1992		
65	*Mystus atrifasciatus* Fowler, 1937		
66	*Mystus multiradiatus* Roberts, 1992		
67	*Mystus albolineatus* Roberts, 1994		
68	*Mystus singaringan* (Bleeker, 1846)		HV
69	*Pseudomystus siamensis* (Regan, 1913)		
70	*Belodontichthys truncatus* Kottelat & Ng, 1999	Asian Bumblebee Catfish	
71	*Micronema cheveyi* Durand, 1940		HV
	SILURIFORMES		
	Siluridae		
72	*Kryptopterus geminus* Ng		
73	*Phalacronotus bleekeri* (Günther, 1864)		HV
74	*Ompok siluroides* Lacepède, 1803		
75	*Wallago attu* (Schneider, 1801)	Wallago	
	Schilbeidae		
76	*Laides longibarbis* (Fowler, 1934)		
	Pangasiidae		
77	*Pangasianodon hypophthalmus* (Sauvage, 1878)	Striped Catfish	
78	*Pangasius macronema* Bleeker, 1851		
79	*Pangasius larnaudii* Bocourt, 1866	Spot Pangasius	VHV
80	*Pangasius elongatus* Pouyaud, Gustiano & Teugels, 2002		
	Clariidae		
81	*Clarias batrachus* (Linnaeus, 1758)	Philippine Catfish	
82	*Clarias macrocephalus* Günther, 1864	Bighead Catfish	HV
	BELONIFORMES		
	Belonidae		
83	*Xenentodon cancila* (Hamilton, 1822)	Freshwater Garfish	

	Scientific name	English name	Fishbase
	Hemiramphidae		
84	*Dermogenys siamensis* Fowler, 1934		
85	*Hyporhamphus limbatus* (Valenciennes, 1847)	Congaturi Halfbeak	
86	*Zenarchopterus ectuntio* (Hamilton, 1822)		
	CYPRINODONTIFORMES		
	Aplocheilidae		
87	*Aplocheilus panchax* (Hamilton, 1822)	Blue Panchax	
	Adrianichthyidae		
88	*Oryzias minutillus* Smith, 1945	Dwarf Medaka	
	SYNBRANCHIFORMES		
	Synbranchidae		
89	*Monopterus albus* Zuiew, 1793	Asian Swamp Eel	HV
90	*Ophisternon bengalense* McClelland, 1844	Bengal Eel	
	Mastacembelidae		
91	*Macrognathus siamensis* (Günther, 1861)	Peacock Eel	
92	*Macrognathus semiocellatus* Roberts,		
93	*Mastacembelus favus* Hora, 1924	Tire Track Eel	
94	*Mastacembelus armatus* (Lacepède, 1800)	Zig-zag Eel	
	PERCIFORMES		
	Ambassidae		
95	*Parambassis siamensis* (Fowler, 1937)		
96	*Parambassis wolffii* (Bleeker, 1851)		
97	*Parambassis apogonoides* (Bleeker, 1851)	Iridescent Glassy Perchlet	
98	*Datnioides polota* (Hamilton, 1822)		
	Chaudhuriidae		
99	*Chaudhuria* sp.	Spineless Eel sp.	
	Nandidae		
100	*Pristolepis fasciata* (Bleeker, 1851)	Malayan Leaffish	
	Toxotidae		
101	*Toxotes chatareus* (Hamilton, 1822)	Spotted Archerfish	
	Eleotridae		
102	*Eleotris fusca* (Forster, 1801)	Dusky Sleeper	
	Gobiidae		
103	*Oxyeleotris marmorata* (Bleeker, 1852)	Marbled Goby	HV
104	*Stenogobius mekongensis* Watson, 1991		
105	*Glossogobius aureus* Akihito & Meguro, 1975	Golden Tank Goby	
106	*Redigobius* sp.	Goby sp.	
107	*Eugnathogobius siamensis* (Fowler, 1934)		
	Anabantidae		
108	*Anabas testudineus* (Bloch, 1792)	Climbing Perch	
	Helostomatidae		
109	*Helostoma temminkii* Cuvier, 1829	Kissing Gourami	
	Osphronemidae		
110	*Betta stiktos* Tan & Ng, 2005		
111	*Trichopsis vittata* (Cuvier, 1831)	Croaking Gourami	
112	*Trichopsis pumila* (Arnold, 1936)	Pygmy Gourami	
113	*Trichopsis schalleri* Ladiges, 1962	Threestripe Gourami	
114	*Trichogaster pectoralis* Regan, 1910	Snakeskin Gourami	
115	*Trichogaster trichopterus* (Pallas, 1770)	Three Spot Gourami	
116	*Trichogaster microlepis* (Günther, 1861)	Moonlight Gourami	
	Channidae		
117	*Channa lucius* (Cuvier, 1831)		
118	*Channa micropeltes* (Cuvier, 1831)	Indonesian Snakehead	VHV

	Scientific name	English name	Fishbase
119	*Channa striata* (Bloch, 1793)	Striped Snakehead	
	PLEURONECTIFORMES		
	Soleidae		
120	*Brachirus panoides* (Bleeker, 1851)		
121	*Brachirus harmandi* (Sauvage, 1878)		
122	*Brachirus orientalis* (Bloch & Schneider, 1801)	Oriental Sole	
	Cynoglossidae		
123	*Cynoglossus microlepis* (Bleeker, 1851)	Smallscale Tonguesole	
124	*Cynoglossus feldmanni* (Bleeker, 1853)	River Tonguesole	
	TETRAODONTIFORMES		
	Tetraodontidae		
125	*Carinotetraodon lorteti* (Tirant, 1885)	Redeye Puffer	
126	*Tetraodon turgidus* (Kottelat, 2000)		
127	*Tetraodon cochinchinensis* (Steindachner, 1866)		
128	*Monotrete cambodgiensis* Chabanaud, 1923		