



# Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

1. Date this sheet was completed/updated:  
3 August 2001

2. Country:  
Sri Lanka

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Designation date

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Site Reference Number

3. Name of wetland:  
Annaiwilundawa Tanks Sanctuary

4. Geographical coordinates: 7°42' N, 79°49' E

5. Elevation: (average and/or max. & min.) 0-1 m.

6. Area: (in hectares) 1397 ha

7. Overview: (general summary, in two or three sentences, of the wetland's principal characteristics)  
An ancient system of cascading tanks ranging between 12-50 ha, surrounded by traditional rice fields, scrubland, homesteads, coconut plantations and aquaculture farms. The vegetation in and around each tank is generally similar.

8. Wetland Type (please circle the applicable codes for wetland types; in the present document, the "Ramsar Classification System for Wetland Type" is found on page 9)

- 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)

Please now rank these wetland types by listing them from the most to the least dominant:

6, Tp, 3, 2, W, I, Ts

9. Ramsar Criteria: (please circle the applicable Criteria; the *Criteria for Identifying Wetlands of International Importance* are reprinted beginning on page 11 of this document.)

- 1 •  2 •  3 •  4 • 5 • 6 •  7 •  8

Please specify the most significant criterion applicable to the site: 2

10. Map of site included? Please tick yes  -or- no

(Please refer to the *Explanatory Note and Guidelines* document for information regarding desirable map traits).

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

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Please provide additional information on each of the following categories by attaching extra pages (please limit extra pages to no more than 10):

**12. Justification of the criteria selected under point 9, on previous page.** (Please refer to the *Criteria for Identifying Wetlands of International Importance* appended to this document)

**Criterion 1:** Being an ancient cascading tank system that dates back to the 12<sup>th</sup> century, this is a unique wetland to the Indian region. The ancient traditional rice fields that surround it also contributes to the sustenance of wetland biodiversity.

**Criterion 2:** The Annaiwilundawa wetland harbours several species of threatened vertebrates (Table 1). Approximately 10% of the vertebrate species occurring in Annaiwilundawa are considered as nationally threatened (IUCN Sri Lanka, 2000). In addition, a few species of threatened plants are also found here (i.e. *Syzigium fergusonii* - shrub species).

Table 1. Threatened vertebrate fauna in Annaiwilundawa

Group	No. of threatened species	Scientific Name
Fish	2	<i>Aplodcheilus dayi</i> , <i>Clarias brachysoma</i>
Amphibians	2	<i>Ichthyophis glutinosus</i> , <i>Rana aurantiaca</i> ,
Reptiles	12	<i>Lissemys punctata</i> , <i>Testudo elegans</i> , <i>Melanobehys trijuga</i> , <i>Crocodylus palustris</i> , <i>Calotes ceylonensis</i> , <i>Chamaeleo zeylonicus</i> , <i>Xenodrophis asperimus</i> , <i>Bungarus ceylonicus</i>
Birds	2	<i>Fulica atra</i> , <i>Psittacula calthropae</i>
Mammals	3	<i>Felis tigrinus</i> , <i>Lutra lutra</i> , <i>Paradoxurus zeylonensis</i> ,

**Criterion 3:** The total species of vertebrate fauna documented from Annaiwilundawa wetland consists of about 35-40% of the vertebrate species that occur in Sri Lanka.

**Criterion 4:** Being located along the western migratory route of wintering birds, this wetland functions as an important refuge of migrant birds in the region. In addition to fish, several species of aquatic invertebrates are also present in the tanks, which serve as important food sources of migratory waterfowl.

**Criterion 7:** The wetland harbours approximately 50% of the freshwater fish species documented in Sri Lanka, including some endemic species as well (i.e. *Aplodcheilus dayi*, *Clarias brachysoma*, *Puntius sinhalaya*). At present, a traditional fishery is associated with the tanks.

**Criterion 8:** The wetland serves as a refuge for migratory fish, including 'catadromous' (i.e. *Arguilla bicolor*) and 'anadromous' (i.e. *Caranx sexfasciatus*, *Ambassis commersonii*, *Genes spp.*) species. Being a shallow water system (3-4 m deep), it is a highly productive wetland with an array of zooplankton and phytoplankton, which provide food for fish species.

**13. General location:** (include the nearest large town and its administrative region)

The wetlands are located between the West Coast, west of the Negambo-Puttalam road, 15 km North of Chilaw and 25 km South of Puttalam, in the NorthWestern Province of Sri Lanka.

**14. Physical features:** (e.g., geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; catchment area; downstream area; climate)

The group of ancient cascading tanks varies in size between 12 – 50 ha, totaling an area of approximately 200 ha, and are less than 4m deep and located just above sea level. About 412 ha of traditional paddy fields are being sustained by these tanks. These paddy fields are interspersed with islets of natural vegetation. The tanks are surrounded by a mixed pattern of forestlands, coconut plantations, homesteads and aquaculture farms.



Underlain by crystalline rocks of Precambrian age, the tanks are covered by Quaternary deposits that include sand dunes, clay, silt and red earth. The wetland complex sits on the side of an ancient lagoon that was formed behind a barrier beach. Three major soil types identified include the salty clayey *Solochized Solonetz Solonchaks* (in tidal areas), clayey *alluvial soils* (in the floodplains), and *sandy latosols* and *regosols* (in the 'uplands'). Intertidal marshy lands are likely to be potential acid sulfate soils.

The major water supplies are derived from the surface runoff and through the Rathambala Oya basin (215 km<sup>2</sup>). Some influx also occurs from the adjacent Kalagamuwa and Sengal basins. Highest water level is observed in October/November and most tanks dry off by mid September. Data on water quality are scanty.

Climatically, the area is located in the Dry Zone, receiving a rainfall between 1000 – 1500 mm annually. The highest rainfall is in April-May and October-December. Mean Annual temperature is 26 °C.

**15. Hydrological values:** (groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.)  
The tanks store water that is used for irrigation purposes. In addition, they play a major role in flood control, aquifer recharge, absorption or retention of pollutants or sediments, and nutrient export.

**16. Ecological features:** (main habitats and vegetation types)  
Major habitats: cascading tanks, rivers, irrigation canals, marshes, shrubland, short wet grassland, rice fields, homesteads.  
Major vegetation types: Short wet grassland, Shrubland, Woodland, Marsh vegetation, Floating vegetation, Mangrove.  
Adjacent areas: Homesteads, Aquaculture farms, Coconut cultivation.  
Alien invasive plant species: *Sabunia molesta*, *Eichhornia crassipes*, *Imperata cylindrica*, *Mikania micrantha*

**17. Noteworthy flora:** (indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc.)  
No endemic plants have been recorded from this area. However, the mangrove species (*Avicennia marina*, *Lumnitzera racemosa*, *Rhizophora mucronata*) are noteworthy, as this is a rapidly depleting vegetation type. In addition, *Syzigium fergusonii* (shrub species) is considered as a threatened plant, while *Hydrophila spinosa* is commonly used in indigenous (ayurvedic) medicine.

**18. Noteworthy fauna:** (indicating, e.g., which species are unique, rare, endangered, abundant or biogeographically important; include count data, etc.)  
Endemic species: Approximately 5% of the vertebrate faunal species occurring in Annaiwilundawa are endemic to Sri Lanka (Table 2).

**Table 2:** Endemic vertebrate species in Annaiwilundawa

Group	Number of species	Scientific names
Fish	3	<i>Aplodibelus dayi</i> , <i>Clarias brachysoma</i> , <i>Puntius sinhalaya</i>
Amphibians	2	<i>Ichthyophis glutinosus</i> , <i>Rana aurantiaca</i>
Reptiles	5	<i>Calotes ceylonensis</i> , <i>Xenochrophis asperimus</i> , <i>Bungarus ceylonicus</i> , <i>Dendrelaphis diardi</i> , <i>Trimeresurus trigonocephalus</i>
Birds	2	<i>Psittacula calthropae</i> , <i>Gallus lafayetti</i>
Mammals	1	<i>Paradoxurus zeylonensis</i> ,

Threatened species: As mentioned earlier, approximately 10% of the vertebrate species occurring in Annaiwilundawa are considered as nationally threatened (Table 1).

Species of economic importance: Fish species (*Sarotherodon mossambicus*, *Oreochromis niloticus*, *Channa* spp., *Anguilla bicolor*, *E.tropus* spp., *Mystus* spp.); Prawns (*Macrobrachium* spp., *Penaeus* spp.).

Migratory birds: Approximately 25% of the bird species in Annaiwilundawa are annual winter migrants. However, data spanning the past three years are unavailable.



**19. Social and cultural values:** (e.g., fisheries production, forestry, religious importance, archaeological site, etc.)

Historical records show that this cascading tank system was established in the 12<sup>th</sup> century. The local communities in the area consist mainly of traditional farmers and fishermen, who have been involved in their activities since historic times. The traditional fishing community carries out their activities in a sustainable manner, owing to the high productivity of this system.

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**20. Land tenure/ ownership of:** (a) site (b) surrounding area

The wetlands (tanks, and marshes) are state owned, while terrestrial areas are privately owned. The surrounding areas are mostly private owned.

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**21. Current land use:** (a) site (b) surroundings/ catchment

- a) within the site: homesteads, prawn culture farms, paddy land, coconut land
  - b) Surrounding area: human settlements, coconut lands, prawn farms
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**22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects:** (a) at the site (b) around the site

**(a) at the site**

1. Poaching: This was a waterfowl hunter's paradise, before it was declared as a protected area under the DWLC. Although this was drastically reduced after its declaration as a PA, illegal hunting is reported occasionally.
2. Clearing of vegetation: Mangrove areas are being cleared for prawn culture tanks, while several other species of woody plants are exploited for domestic purposes.
3. Spread of alien invasive species: Two species of alien invasive fish (*Sarotherodon mossambicus* and *Trichogaster pectoralis*) and four species of alien invasive plants (*Eichhornia crassipes*, *Salvinia molesta*, *Imperata cylindrica* and *Mikania micrantha*) have established well within the wetland.
4. Use of chemical fertilizers and pesticides in paddy cultivation/ Coconut lands: Although a majority of the paddy fields are ancient traditional fields, there is an increase in the use of chemical fertilizers and pesticides in these fields. Therefore, these chemicals (in agricultural run-off) accumulate in the wetlands, resulting in pollution and eutrophic conditions, as clearly evident in certain areas.

**(b) in surrounding areas**

1. Extension of prawn culture farms: The surrounding areas are extensively used for prawn culture. This has resulted in the destruction of mangrove areas, while the water that is periodically released from the prawn culture tanks enter the site area, resulting in pollution and eutrophication of aquatic habitats. Furthermore, the farm owners destroy the birds, which visit the ponds.
  2. Illegal encroachments: This is also happening, as the boundaries are not adequately demarcated.
  3. Use of fertilizers in coconut cultivation: Chemical fertilizers are also used in surrounding coconut lands, are residues are eventually washed off into the wetlands.
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**23. Conservation measures taken:** (national category and legal status of protected areas - including any boundary changes which have been made: management practices; whether an officially approved management plan exists and whether it has been implemented)

- a) The area was declared as a Sanctuary under the Fauna and Flora Protection Ordinance, administered by the Department of Wildlife Conservation (DWLC).
  - b) The staff of the DWLC is patrolling the area.
  - c) The Central Environmental Authority, with the collaboration of the DWLC prepared a wetland site report and conservation management plan on Annaiwilundawa.
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**24. Conservation measures proposed but not yet implemented:** (e.g., management plan in preparation; officially proposed as a protected area, etc.)

- a. Upgrading to the status of a Nature Reserve for better management of the area.
- b. Stationing of a staff permanently.
- c. Erecting an office complex with a visitor/ research centre.

- d. Demarcation of the boundary with signboards erected where necessary.
  - e. The recommendations made in the management plan prepared by the Central Environmental Authority should be considered for implementation.
  - f. Initiate a detailed biodiversity assessment in order to evaluate the present situation, and take remedial measures to overcome adverse impacts.
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**25. Current scientific research and facilities:** (e.g., details of current projects; existence of field station, etc.)

At present, no facilities exist for research. However, regular monitoring of waterfowl is being conducted by a few NGO's involved in the study of birds (i.e. the Ceylon Bird Club & the Field Ornithology Group), while a few wetland researchers are also involved in studying the avifauna on a personal capacity.

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**26. Current conservation education:** (e.g., visitors centre, hides, info booklet, facilities for school visits, etc.)

The wetland has tremendous potential for awareness generation and education. At present, university students (both undergraduates and postgraduate) are taken to Annaiwilundawa for their field practical courses on wetland ecology.

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**27. Current recreation and tourism:** (state if wetland is used for recreation/tourism; indicate type and frequency/intensity)

Although a few visitors (both local and foreign) visit the area, no planned activities exist at present. However, this area has tremendous potential for ecotourism, due to its rich biodiversity and aesthetic value.

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**28. Jurisdiction:** (territorial, e.g. state/region, and functional, e.g. Dept of Agriculture/Dept. of Environment, etc.)

- a) Territorial jurisdiction over the wetland: State - The Northwestern Provincial Council.
  - b) Functional jurisdiction for conservation purposes: Department of Wildlife Conservation
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**29. Management authority:** (name and address of local body directly responsible for managing the wetland)

The Department of Wildlife Conservation,  
No.18, Gregory's Road, Colombo 07.  
Tel. +94 1 694241 or +94 1 698086  
Fax. +94 1 698556  
E-mail: wildlife@slt.lk

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**30. Bibliographical references:** (scientific/technical only)

- CEA/Euroconsult (1994). Annaiwilundawa tanks: Wetland Site Report and Conservation Management Plan. Central Environmental Authority, Sri Lanka.
  - Ceylon Bird Club Notes (1992 - 1998).
  - IUCN Sri Lanka (2000). The 1999 list of threatened Fauna and Flora of Sri Lanka. IUCN, Colombo, Sri Lanka.
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