INFORMATION SHEET ON RAMSAR WETLANDS

1. **Date this sheet was completed/updated:** October, 1997

2. **Country:** Brazil

3. **Name of wetland:** Araguaia National Park

4. **Geographical co-ordinates:** 10^0 71' S 050^0 12'W

5. **Altitude:** The altitude varies between 171 and 239 meters.

6. **Area:** 562,312 ha

7. **Overview:**
The Araguaia National Park has drainage marked by the formation of "ipucas" (holes of "igapó" = forest bordering a river which is subject to such fluctuations of water level that for months the trees are partly inundated), which during the floods link several rivers and more than 30 lakes, flooding 90% of its total area. It is rich with species such as the Pirarucu (*Arapaima gigas*) currently endangered. The avifauna is very rich and varies, with a predominance of waterfowl. Throughout the Park area there are many nesting sites - waterfowl breeding areas. It is important to highlight that the unit represents a transition area between the *Cerrado* and Amazon Forest biomes, and has the basic characteristics of three ecosystems (*Cerrado, Pantanal* and Amazon Forest).

8. **Wetland Type:** M, N, O, P, Tp, Xf,

9. **Ramsar Criteria:** 1b, 2b, 3b, 4a

10. **Map of site included:** Yes(Annex I)

11. **Name and address of the compiler's of this form:**
Aniceto martins Cordeiro
Superintendência do Estado do Tocantins - SUPES/IBAMA
ACNE 01 - Conj. 03 Lote 20 - Palmas/TO
TEL. (063) 215.2381 FAX: (063) 215.2645
PARNA: (065)558.1138- Casa (065)558.1171
Tel: (065) 558 1171 / Fax: (063) 215

12. **Justification of the criteria selected under point 9, on previous page**
The Araguaia National Park has drainage marked by the formation of "ipucas" (holes of "igapó" = forest bordering a river which is subject to such fluctuations of water level that for months the trees are partly inundated), which during the floods link several rivers and more than 30 lakes, flooding 90% of its total area. It is rich with species such as the Pirarucu (*Arapaima gigas*) currently endangered. The avifauna is very rich and varies, with a predominance of waterfowl. Throughout the Park areas there are many nesting sites - waterfowl breeding areas. It is important to highlight that the unit represents a transition area between the *Cerrado* and Amazon Forest biomes, and has the basic characteristics of three ecosystems (*Cerrado, Pantanal* and Amazon Forest).

13. **General location:**
Southwestern Tocantins, on the border of the States of Pará and Mato Grosso. (Lagoa da Confusão, Pium, Cristalândia, Formoso do Araguaia, Duerê, Caseara, Araguacema and Sta. Terezinha municipalities).

14. **Physical features:**

There are no meteorological stations in the area of the island. This renders the presentation of a specific climatic scheme difficult. Therefore, we will present a climatic scheme based on E. Nimer in "Geografia do Brasil":

The region has a hot semi-humid climate, with four to five dry months. The average temperature is 24^0 C. In the hottest months (September and October) the average temperature is 26^0 C and during the coldest months (June and July) the average is between 22 and 18^0 C, the latter being the absolute low. The total annual rainfall is around 1,750 mm. During the wettest quarter, the region gets 45 to 55% of the year's total.

14.2. Geology and Geomorphology:

The formation of the "Ilha do Bananal" was a result of the region's elevation, which probably occurred intermittently, providing at least three pediplanation phases with the reactivation of the ancient faults during the Tertiary. The "Ilha do Bananal" is composed, in its essence, by silty and ferrous yellowish brownish sands, with shiny dark brown basal limonitic cement conglomerate, dating to the Pleistocene, Quaternary era.

On the banks of the Araguaia river's tributary streams there are formations of recent alluvion deposits, composed of highly argillaceous sands with levels of vegetal remains dating back to the Holocene Quaternary era. As for its geomorphology, the area is very flat, with small elevations, ranging around 200 meters.

14.3. Soils:

There are several types of soil in the "Ilha do Bananal", with the predominance of hydromorphic soils, especially dystrophic hydromorphic laterite, indiscriminate humic and slightly humic gley soils and red/yellow latosols. The most frequent is dystrophic hydromorphic laterite, especially in the western part which has the lowest elevation, around 180 m. The soils are acid and very acid with a high percentage of changeable aluminium and their natural fertility is very low. One also finds in this area, in the highest hills, red/yellow latosols. These are deep soils, with a developed structure, covered by a type of vegetation which is characteristic of forests and *Cerrado*. The hillsides are composed of dystrophic latosols and red cambisoils, which are also found on the sides of the valleys near the drainage channels and in the proximity of the largest rivers. Moreover, there are arenaceous regosoils, resulting from the continuous removal through annual alluvion deposits.

15. **Hydrological values:**

The Araguaia National Park has an extensive drainage system formed by large medium-sized rivers, which are navigable during most of the year, countless springs and several lakes.

The Araguaia river corresponds to the island's northwestern extremity. This section is actually navigable all year and because of its slight declivity it offers the best conditions for navigation. One find several islands formed by recent alluvions and the river is divided into several branches. Close to the confluence of the Javaés river, it receives at its right bank the Mercês river, which is also navigable in a significant part of its course during several months of the year.

The Javaés river is the eastern limit of the island. It is also navigable during most of the year and has the Didero, Barreiro, Ariari and Riozinho rivers as tributaries on its left bank. The latter, is formed by the Randi-Toro river whose sources are in the Mata do Mamão. It flows toward the tip of the island. The"ipucas" which link the numerous rivers and streams during the flooded season are a feature which is typical of the drainage. During that season, the rivers leave their normal bed and cause floods all over the island to such an extent that in some parts, the island can be crossed transversally by boat. The various lakes which exist inside the Park, because of their size and of the remarkable wildlife concentration, are very attractive sites, full of natural wonders.

Little is know about the Park's hydrology, considering the lack of research in this area. However, it can be assured that the water in the Park shows no signs of pollution.

15.1: Drainage and hydrography:

The "Ilha do Bananal" has an extensive drainage system made up of large and medium-sized rivers, that are navigable during most of the year, countless water springs and several lakes. The "ipucas" which during the flooded season link the numerous rivers and streams are a feature which is typical of the drainage. During that season, the rivers leave their normal bed and cause floods all over the island to such an extent that in some parts, the island can be crossed transversally by boat. The various lagoons which exist in the island, because of their size and of the remarkable wildlife concentration, are very attractive sites, full of natural wonders.

The Araguaia river corresponds to the island's northwestern extremity. This section is actually navigable all year and because of its slight declivity it offers the best conditions for navigation. One

The Javaés river (right arm of the Araguaia river) is the eastern limit of the island. It is also navigable during most of the year and has the Didero, Barreiro, Ariari and Riozinho rivers as tributaries on its left bank. The latter, is formed by the Randi-Toro river. The sources of these rivers are in the Mata do Mamão, in the middle of the island. Very little is known of the island's hydrobiology, considering that no research has been carried out in the area.

River basin: perennial rivers, navigable during the whole year and more than thirty lakes. The main rivers are: the Araguaia, the Javaés and the Riozinho.

15.2. Hypsometry:

The elevation of the Araguaia National Park is plain, with the exception of one small area which in the region is called "Tarrão". The altitude varies between 171 and 239 meters.

15.3. Water quality:

Free aquifers, average permeability, good chemical quality with an average relative hydrological importance. The average depth of the rivers is 25 m, with fluctuation between 3 and 6 m. Flooded areas have an average depth of 1.5 m.

Water quality: brown/dark with little suspended matter.

16. **Ecological features (Major habitats and vegetation)**

The following are the prevailing types of vegetation. The most common transitions are indicated.

a) *Cerrado* (woods composed of stunted twisted trees, growing on cattle-grazing land).
b) *Cerradão*
c) flooded forest
d) flooded field
e) dry hillside vegetation
f) sand bank vegetation

16.1. Cerrado

Most of the soils are cambisoils or litosols, with a dominant lateritic layer. The vegetation varies greatly in terms of structure. The well structured *Cerrado* has trees that can be somewhere between 5 and 7 meters tall, with closed crowns, and a low-growing gramineous flora with irregular bushes. The prevailing species among the woody plants are: *Curatella americana*, two *Xylopia* species, S*alveria Convallar iodora, Uirtella glandulosa, Qualea grandiflora, Q. multiflora, Roupala montana, Pouteria sp.* ("maçaranduba"), *Sclerolobium sp* ("Cachamorra"), *Eugenia sp,* two *Tabebuia* species, both with yellow flowers, *Andira, Anona sp, Himatanthus obovatus, Anacardium occidentale, Erythoxilum tortuosum,* several "*muricis'*" (*Brysonyma spp*), *Hancornia speciosa, Connarus sp, Davilla sp, Brosimun gaudichahdii* and *Luthea sp* ("açoita cavalos"). Most of the trees from the *Cerradão* also exist in the *Cerrado,* though they are shorter. The most common palm trees are the "gariroba", "piaçava", "pati" and "licuri".

16.2. Cerradão

The *Cerradão* grows mainly in the depressions of the *Cerrado* area, where the "coluvial " soil is deeper, or in the transition to the dry forest. The soils are also greatly variable cambisoils, probably with significan pH and Ca^{++} variations. In the different parts of the of the *Cerradão* one finds *Luthea sp, Magonea pubenscens, Sterculia stiata, Tabebuia sp,* (white flowers), which reveal a high Ca^{+++} content, but in most parts of the *Cerradão* the soils are dystrophic, with *Vochysia haenkeana, Emmotumnitens,* and *Phisocalymma scaberrimum.* The trees in the *Cerradão* reach 12 meters or more, the crowns are densely closed, gramineous vegetation is virtually inexistent and the shrubs are typical of the dry forest. Among the major types, one can name *Caryocar coriacea, Xilopia spp* (2 or 3) , *Dimorphandra sp, Andira sp*, *Astronium fraxinifolium*, *Aspidosperma sp* ("Guatambu"), *Hymeneaea stilbocarpa, Terminalea brasiliensis* (1 species), *Vitaex sp.* ("tarumã"), *Kielmeyera sp.* The large ones are *Roupala montana, Protium sp* ("almacega"), two *Miconia* species, *Copaifera sp* ("pau d'óleo"), *Schefflera sp* ("mandiocão"). The transition to dry forest is short. Trees such as P. dry forests.

16.3. Dry forest

The dry forest soils are either dystrophic or dark red, yellow or grey latosols, depending on the depth of the water table. The forest's structure is composed of three different levels of trees - the tallest can reach 30 m or more, with large trees that have round crowns; the second has evergreen trees ranging in height between 14 and 22 meters and are distributed among the tall trees. The third level is made up of small trees, up to 8 meters tall, of the largest species together with other species which never grow beyond this. In the wettest areas, one finds *Phenakospermun* sp*,* but generally speaking there is little low vegetation outside the open areas. Among the large trees, some species stand out, such as

Apuleia sp, *Ocotea sp,* Moraira, pau brasil", *Protium sp, Vitaex sp, Miconia pyrifolia, Maprounea guianensis.* The prevailing species among the smaller trees are *Mouriria sp, Micinia sp* and *Anonaceae,* probably *Xylopia spp. scaberrimum, Vitaex sp, Hymenaea stilbocarpa, Copaifera langsdorffil, Terminalia brasiliensis, Bowdichia virgiliodes,* which grow to be between 18 and 22 meters tall. In the forest itself one also find "louro preto" trees, which are very large evergreen trees, which grow exclusively in the dry forest.

16.4 Flooded forest

The flooded forest has smaller trees, which range between 15 and 20 metres in height. It has a denser structure than the dry forest, generally with two different levels of trees. The tallest trees are the "piranheira", which is the dominant species, *Vochysia spp* "Canjeranas", water *Calophylum brasiliense,* and several *Rubiaceae* and *Malphighiaceae,* besides *Crioli,* which are important smaller trees. There is no low growing vegetation . Research on the flooded forest were only carried out close to the Araguaia river, in the vicinities of the park.

16.5 Flooded field

The transition between the forest and the fields is abrupt, with trees up to 15 m tall, such as *Carvocar coriacea, Vochysia haenkeana, Himatanthus sp, Tabebuia sp, Copaifera langsdorffil, Jacaranda mimosaefolia, Vitrex sp* and smaller trees such as *Diospiros sp, Ferdinadusa sp, Anacardium occidentale* and *Tocoyena sp. Genipa sp*. prevails in the lowest section of this transition. The soils in the fields are hydromorphic "podsoils" with "murunduns", which are more dense in the areas where the water level is lowest.

The flora in the field is composed mainly by gramineous formations. In the "murunduns" there is a variety of vegetation which combines *Cerrado* and *Cerradão.*

In the areas which are less flooded the prevailing species are *Caryocar coriacea, Tabembuia caraiba, Andira spp, Astronium fraxinifolium* with shrubs of the genus *Copaifera martii,* several *Bauhinia spp* and *Dauilla sp.* Sometimes the trees are up to 20 m tall.

Where there are greater innundations, *Curatella americana, Andira spp* and *Tababuia caraiba* predominate alongside the *Hirtella sp* and several trees and shrubs of the edge forest.

16.6. Flooded edge forest

The water table of the hydromorphic soils is near the surface during the dry season. The forest is greatly varied in terms of structure and seldom forms dense woods. The trees can be up to 18 or 20 meters tall, but are generally smaller. The major species are *Calophyllum brasiliense, Vochysia sp, Schelorobium sp, Andira spp, Copaifera langsdorffil,* the large *Curatella americana, Simaruba versicolor, Xylopia spp,* the mauritia palm, "piranheira" and *Inga spp.* the shrubs around this forest are very well developed.

16.7 Vegetation on the hillsides by the Araguaia River

Near the site of the Araguaia National Park the litosols seem to be richer in nutrients. Thus, one finds *Cedrela sp, Sterculia striata, Qualea sp,* among other kinds of trees which denote fertility.

16.8 Vegetation of the Araguaia River sand banks

The vegetation on the sand banks is dense and composed of small trees. The soil seems fertile as a result of the yearly flooding. The prevailing species are the *Bursera sp*, *Inga sp*, *Vochysia sp*, *Terminalia brasiliensis*, which are rather small and several shrubs such as *Vernonia sp*, *Eupatorium spp* (2 or 3), *Mimosa sp*, *Bauhinia spp*, several *Malpighiaceae*. There is also a kind of sand field with several species of the genus *Borreria*, *Vassia*, *Lippia*, *Vernonia*, etc.

17. **Noteworthy flora:**

Vegetation of the area is very diversified, with mixed formations, others well characterised and still other ecotonal vegetable communities. Flooded fields predominate the area, with *cerrado* and gallery forests along the rivers. In the North, there are large forest areas. Phytogeographically it is in the a transition area from *cerrado* to the Amazon Forest.

Among the species that occur in the area, the following may be mentioned: the milk tree (*Manilkara sp*), the whip tree (*Luehea sp*), "pau-d'alho" (*Copaifera sp*), "canjeranas" (*Vochysia spp*), "pau-terra" (*Qualea sp*), souari nut tree (*Caryocar brasiliensis*), the piassava palm (*Attalea funifera*), a common palm in the region, as well as many genera of land orchids, common to the *cerrado*, such as *Habenaria, Epidendron* and *Sarcoglottis* and of *Cattleya* and *Catasetum* on the trees.

18. **Noteworthy fauna:**

The fauna is rich and varied due to the diversity of biotic communities existing in the transition of these biomes. Thus, examples of fauna from the Amazon region as well as from the *cerrado* can be found.

The main mammals found in the Park area are: the jaguar (*Panthera onca*), the Pantanal deer (*Blastocerus*

brasiliensis), endangered in some regions, as well as the anteater *Myrmecophaga tridactyla*, and porpoises of the genera *Inia* and *Sotalia*, among may other mammals.

The avifauna is equally rich. We find the blue macaw (*Anodorhynchus hiacynthinus*), the harpy eagle (*Harpia harpya*), the toco toucan (*Ramphastos toco*), the wren *Pipra aureola*, the curassow *Crax fasciolata*, the osprey (*Pandion haliaetus*), the rhea (*Rhea americana*), the heron *Ardea aureola* and several other species.

The aquatic fauna is diversified and abundant in the lakes, lagoons and rivers of the Park. The fish are famous for their tasty flesh and their size, such as the "pirarucu" (*Arapaima gigas*). Among the representative fish species there are the "tucunaré (*Cichla sp*.), the "pintado" (*Pseudopia tystona*), the "surubim" (*Pseusophasthystona corruscans*) and the many types of piranhas.

The repitiles are mainly represented by the turtle *Podocnemis expansa*, the large black Amazon cayman (*Melanosuchus niger*), and snakes such as the "sururu" (*Lachesis muta*), the boa (*Boa constrictor*), the coral (*Micrucus sp*.) and the anaconda (*Eunectes murinus*) among others. (Annex II).

19. **Social and cultural values:**

The spectacular scenery constitutes one of the richest assets of the Park, in terms of attracting visitors. Among the numerous varieties of visual interest among the physical resources of the Park, the most important are the drainage system, the numerous lakes, the dense vegetation which grows along the waterways and the other forms of transition from *Cerrado* to Amazon forest, which occur on flat land.

The Araguaia National Park constitutes one of the largest and most representative natural environment preservation areas in the Brazilian System of Conservation Units. It is an expressive example of the transition from the area of the *Cerrado* and the Amazon domain. The area is rich in plant and wildlife species, which is characteristic of transition areas.

In this conservation unit, one can view several transition stages with their diversities in appearance, flora, structure and form alongside the changes which occur in the environment under the influence of the climatic, topographical and edaphic elements. Similarly, the fauna is very significant, since there is a great diversity of species, both from the *Cerrado* and from the Amazon.

Aside from its great ecological importance, the Araguaia National Park retains a considerable recreational potential because of the landscape's aesthetic value. The fact that it is the largest Quaternary fluvial island in the world, as well as the typical flora and fauna, internal lakes, and the beautiful beaches of the Araguaia river, generate an exceptional recreational interest.

Existence of Indian villages in the limits and one inside the Park area.

Commercial fishing practices by the Indians has been resulting in negative impacts for the unit.

20. **Land tenure/ownership of:**

(a) site: The area of the Araguaia National Park is a property of the Federal Government. There are 66 families leaving the area.

(b) surrounding area: rural possessors.

21. **Current land use**:

(a) at the site: subsistence agriculture of small homesteaders and Indian communities; clandestine hunting and fishing and use of native pasture by the herds of the inhabitants.

(b) in the surrounding area: extensive cattle raising, rice monoculture and subsistence agriculture; clandestine hunting and fishing; and agriculture and herd raising practices.

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: It requires a more effective supervision and maintenance. There are illegally established homesteaders. There is illegal hunting and fishing, besides burned-over land in the Ilha do Bananal.

(b) around the site: Drainage of wetlands for rice culture; alteration of the course of some rivers and the pollution of their water with pesticides. Land clearings are created by burning to generate artificial pastures for raising cattle.

Since its establishment, in 1959, some areas of the park are used for cattle-raising, causing transmission of infectious diseases to some local species, introducing exotic species in the local ecosystem and causing frequent forest fires during dry seasons. In some neighbouring Indian reserves, commercial fishing in rivers and lakes is practised, jeopardising some already endangered

23. **Conservation measures taken:**

The creation of the Araguaia National Park - Federal Decree number 47,510, dated 31 December 1959. There is a management plan, however it has not yet been implemented. It needs to be reviewed. Creation of the Coco-Javanés Ecological Station by the Federal Government.

24. **Conservation measures proposed but not yet implemented:**

The management plan was implemented from 1981 till 1986. As long as there isn't a new one.

There is an emergency action plan being concluded and its actions are basically aimed at infrastructure. An Emergency Action Plan is in operation (January 1995/January 1997).

25. **Current scientific research and facilities:**

The area requires the formulation of a Research Plan and of an Administration Plan.

The "Projeto Quelônios" (Chelonians Project: has been developed for 10 consecutive years with the IBAMA (Brazilian Institute for the Environment and Renewable Natural Resources). Currently, "Naturatins" is carrying out activities on other beaches of the Javaés river. Moreover, the IBDF (Brazilian Institute for Forest Development) collected data on the fauna and flora in 1982. Very little has been done in terms of technical and scientific research.

Proposals which have not as yet received official government endorsement are the Environmental Education Program, registration of land owners, limits of the Indian Reserves, socio-economic monitoring and Ecotourism Program.

26. **Current consevation education:**

The "Associação de Conservaço do Meio Ambiente e Produção Integrada da Amazônia - GAIA Tocantins" (The Amazon Association for the Conservation of the Environment and Integrated Production) has been carrying out an environmental education program together with the IBAMA/Tocantins, which includes taking students to the Araguaia National Park. In addition to this, the GAIA-Tocantins is organising an environmental education program in the municipalities adjacent to the Ilha do Bananal, with the help of a mobile unit, with audio and video equipment.

Naturantins, in association with the Education and Culture Department, is assisting in the environmental education program of the neighbouring municipalities' schools, with special emphasis on land burning, pesticides, refuse and surveillance.

The park has a camping area with one house to accommodate visitors, students and researchers.

27. **Current recreation and tourism:**

Tourism is still incipient but it has great potential. A plan defining and creating tourist areas should be produced. The time of year when most of the tourist and recreational activities take place is between June and September. Some areas surrounding the Park already have facilities for tourists with hotels and a basic infrastructure. (e.g. "Lagoa da Confusão").

Tourist activities are still incipient because the Park does not yet have appropriate infrastructure, which is still dependent on studies on its support capacity. The unit, due to its peculiarities, does not allow mass visits. It has been restricted to receiving groups of university students and/or working groups and students from the region's schools. The most appropriate time of the year for visits is from July to October, during the dry season.

28. **Jurisdiction:**

The area is part of the state of Tocantins, with the jurisdiction of the Federal Government, through the IBAMA and the Navy.

29. **Management authority:**

Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renováveis-IBAMA (Brazilian Institute for the Environment and Renewable Natural Resources).

30. **Bibliographical references:**

AB'SABER, A.N. Os Domínios Morfoclimáticos na América do Sul. Primeira Aproximação, Geomorfologia. São Paulo. Universidade de São Paulo, Geografia, 1977. Numero 52.

BRASIL. Instituto Brasileiro de Desenvolvimento Florestal IBDF. Regulamento dos Parques Nacionais Brasileiros (Decreto nº 84.017, de 21/09/79) Brasília, 1979.

BRASIL. Instituto Brasileiro de Geografia e Estatística. Geografia do Brasil. Região Centro-Oeste. Rio de Janeiro, 1977. 364 pp.
BRASIL. Instituto Brasileiro de Reforma Agrária. Instituto Brasileiro de Desenvolvimento Florestal. Parques Nacionais e Reservas Equivalentes no Brasil. Relatório com vistas à revisão da Politica Nacional nesse campo. Rio de Janeiro, 1969. 100 pp.
BRASIL. Ministéro da Agricultura. Instituto Brasileiro de Desenvolvimento Florestal, Fundação Brasileira para Conservação da Natureza. 1981. 103 pp.
BURKE, Richard E. National Forest Visual management: A Blend of landscape and timber management. Journal of Forestry Washington, 73(12): 767.770. Dez. 1975
GEMICHUJNICOV, Irina Delanova. Manual de Taxonomia Vegetal. Plantas de interesse econômico, agricola, ornamentais e medicinais. São Paulo, Agronômica Ceres, 1976. 368 pp.
GRIFFITH, James J. & VALENTE, Osvaldo F. Aplicação da Técnica dos Estudos Visuais no Planejamento da Paisagem Brasileira, Brasil Florestal. Bra'silia, 37(10):6.18. Jan/Mar. 1979.
HUCCK, Kurt. As florestas da América do Sul: biologia, composição e importância econômica. São Paulo,. Poligomo. 1972.252 pp.
PADUA, M.T.J. Areas de preservação: Parques Nacionais e Reservas Biológicas. Brasil Florestal. Rio de Janeiro. 8(31)6-14. 1977
PADUA, MTJ. Categorias das Unidades de Conservação e Objetivos de Manejo. Boletim Informativo FBCN. Rio de Janeiro. 13(1):78-84, 1978
RIZZINI, Carlos Toledo & HERINGER, Ezechias Paulo. Preliminares Acerca das Formações Vegetais no Brasil Central. Rio de Janeiro. Ministéro da Agricultura/Serviço de Informação Agricola. 1962. 79 pp.

ANNEX 1 Maps of site

ANNEX 2 Fauna survey - list of species