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THE MEANDERS OF THE ARAGUAIA RIVER ENVIRONMENTAL PROTECTION AREA

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Is possible to consider that rivers of all the sizes and in all the latitudes they can form meanders, since a basic condition is found: the presence of layers of mobile granulation, but that are coherent, firm, and not you loosen. It was also observed that the meanders are not mere whims of the nature, but the form for the which the river makes its work for the " law of the smallest effort ". It represents the balance in its state of stability, denouncing the adjustment among whole the hydrologic variables, besides the sedimentary load and the rocks through where the course of water runs. Considered in the perspective of the dynamic balance and in the concept of the distribution in the waste of energy, among all the possible types of channels the meandres appears as the most probable, because it minimise the declivity , the shear stress and the friction". The same affirms that "in the hot and humid areas, as in the Brazilian case, due to intense chemical meteorizaçaõ, the regolithe is composed by material fine detritus. By virtue of this source of load, the courses of water transport mainly suspended load.. The longitudinal profile, on the other hand, presents long spaces of weak declivity separated by decline ruptures, of the most varied orders of greatness. In that way, they appear possibilities so that the meanders settles along almost the whole fluvial course, becoming the channel type observed in almost all the flood plains, any that it is the position of the space along the course of water".

Second Brasil and Alvarenga, in IBGE-relief of the Região Centro-Oeste of Brazil (1989), the plain of the Bananal is "an unit of relief that it is bounded to the wide strip that embraces the consolidated recent

quaternary deposits of the formation Bananal plain and the unconsolidated Holocene sediments, covered by the traditional natural pasture that sustain the local extensive cattle ranch's activities.. In that area, the well-known island of the Bananal is included, isolated by the rivers Araguaia and Smaller Arm of Araguaia or I laugh Javaés. It extends longitudinally for among the river Araguaia and its tributaries, surpassing the limits of the own island. It is enlarged by the watershed Tapirapé - Xavantes or of the Slopes and Araguaia–smaller Arm of Araguaia or I laugh Javaés and it is characterised by presenting a drainage typically anastomosed , with paleodrainages marks, besides circular ponds or forming semicircles disseminated by whole area.

It comes built-in in the depressions of Araguaia-Tocantins with the ones which coalesce or per times it makes geomorphologic contact through topographical projections. The rivers Araguaia, das Mortes and the smaller arm of Araguaia or I laugh Javaés they are the main taxpayers of the fluvial process, contends along its channels wide strips of alluviums sandy-loamy unconsolidated , which agglutinate in both margins of the rivers. The topographical characteristics formed an alliance with the factors morphogenetic of depositional areas and the fluvial dynamics and pluvial. As result this produce two types of geomorphologic features: the fluvial plains and the accumulations periodically flooded. In the plains they happen features of dam and ponds, lakes of meander, filled meanders, sandy belts, banks of sand and beaches along the channels of the local drainage.

The step margins of the rivers mark the presence of fluvial terraces and, in many cases covered again by ferrugineous duricrusts.

The accumulation areas flooded they correspond to low lands that are subject to the periodic flood by pluvial waters, being therefore independent of the depositional process of the rivers. The peculiarities in those areas are noticed through the superficiality of the sheet phreatic and the presence of soils loamy compacted that a lot of times it contains ferrugineous concretions. To those characteristics they ally the topographical uniformity and the non existence of a net of nested

drainage that they give to the landscape circular ponds and semi-circles , sometimes total filled or partially, and covered again by vegetation of savannah-park gramineous and/or woody."

According to Innocencio, N.R in IBGE-Hidrografia of the Região Centro Oeste of Brazil-1989, the river Araguaia "it is born in the mountain of Caiapó, in the emblem of Goiás with Mato Grosso, the about 850 m of altitude. It presents the extension of 2.115 km, developing most of its course parallel to the of the river Tocantins, in which ends place of São João of Araguaia close to, in the end north of the State of Tocantins.

As mentioned, although it is a plain river, it presents its profile longitudinal segmented in steps that correspond to accidents, originated by the blooming of rocks of larger consistency. Not having a traditional division for the course of the river Araguaia, the National Department of Portos and Navigable Roads-DNPVN established taking in consideration referring aspects the sailing, that is the following:

1st. Upper Araguaia-of the nascent ones to the city of Registro do Araguaia, with 450 km and a desnivelamento of 570 meters;

2nd. Medium Araguaia-of registration of Araguaia to Santa Isabel do Araguaia, with 1.505 km and a difference of 185 meters; and

3rd. Low Araguaia-of Santa Isabel do Araguaia to the fork with him Tocantins, with 160km and difference of 11 meters.

Upper Araguaia corresponds to the space in that the course of the river is developed through high lands, represented by the Mountain of Caiapós, from where it goes down through a deep obsequent cut, and for the pediplane that has its name, describing long pull through its extensive landings. Here, where its bed settles predominant on sedimentary lands, basaltic blooming, whose larger resistance to the fluvial erosion creates rapids.

Accusing the largest medium gradient of the whole Araguaia, of about 1,2 m/km and reaching the minimum depth of 0,30 m, that the is revealed more reduced along this river, this space is shown as the most

unfavorable to the sailing, arriving becoming impracticable in the dry season.

Medium Araguaia, that corresponds to the longest space of this river, can be divided, according to the characteristic of its bed, in three sections. In the first of them, that is the most extensive and calm, its course it is developed through vast sedimentary plain, the one which due to the reduced slope of the flooded land, is shown, in the rain season, through great extent.

This section, where the várzea of Araguaia reaches appraised widths among 10 to 15 km, along which its bed settles on recent alluviums, appearing divided in several arms, it remembers certain way, the section of the river Paraguay corresponding to the plains and swamp lands Matogrossenses. Also of the point of view of the use human, such identity it is observed, since this section of medium Araguaia is characterized by the migrating character of its system of animals creation and it is constituted in the one that it offers better navigability conditions in relation to whole the course of the river. It is the section in which the declivity reaches the minimum value, 5 cm/km in most, and the minimum depth of 0,70 m, allowing sailing during the whole year.

Starting from the second section of Medium Araguaia, that has beginning in the place of Santa Maria das barreiras, the conditions modify substantially until reaching Low Araguaia. Along this Section, the course of the river is already shown more accident victim, accusing a medium gradient of 15cm/km. In spite of the minimum depth, in the period of the low water level, to stay the level of 0,70 m, the alone sailing takes place fully in the rain season.

The third section extends of Conceição of Araguaia to Santa Isabel of Araguaia and, although its medium slope is a little inferior, 14 cm/Km, in her the sailing is interrupted in the high, such waters it is the accidents along the bed. Of the accidents that there appear, they stand out Santa Isabel's waterfalls and of São Miguel, with difference of 14 to 6 m, respectively.

In Low Araguaia, along its 160 Km, until the fork with him Tocantins, appear the characteristics of a river of calm course, whose medium slope is of 7 cm/Km and the minimum depth of the waters equivalent to 0,70 m. Though, the occurrence of some accidents, like the rapids of Coco, São Vicente and São Bento, it does with that the free sailing is only processed until the levels of the medium waters.

With relationship to the fluvial regime, according to Maurice Pardé classification, the river Araguaia is classified sharply as a river of southern tropical regime retarded, presenting the maximum discharge, generally, in the month of April and the minimum the months of September and October.

CENAQUA – Chelonian Amazon National Center , Specialized Unit of IBAMA, it executes the protection and chelonia handling in the area since 1993, where besides the technical attributions, it comes if making responsible for the actions of inspection in more than 100 Km of rivers and adjacent lakes, in spite of just possessing competence complementary for such.

During the years that they were followed in Projeto Quelônios execution, the largest difficulties than it presented it was the high index of human capture about eggs, females and hatchlings and the destruction of the ecosystems evolved, where they stand out the following points:

1–existence of organized black market of fish and wild animals in the municipal district of São Miguel of Araguaia/GO and surrounding. In the beginning of the Project, in 1993, the illegal exit was counted of about 10 tones/week of fish in just 30 km of river.

2 - existence of a tourist flow disordered in the month of July, where about 30.000 people they camp in the beaches and ravines of Araguaia. The tourist pressure comes committing the rituals of chelonius reproduction (copulation, migration, concentration, nesting) and the stocks of another species of the fauna, provoked by the intense traffic of embarkations, of the noise, of the dirt in the beaches, of the excess of fishing and of the indiscriminate hunt. In this same context, the ciliate forests come being destroyed by the progress of the agriculture with

systematic use of having burned as practice of cleaning, recovery and pastures handling and for the use of native wood for the assembly of the ranches.

The largest tests than the sum of the factors of environmental degradation is taking to the destruction of the trophic chain in Araguaia, they are the shortage of the fish, formerly abundant, and the reduction of the nests of the turtle of the -Amazônia - 176 nests in 1993, 97 in 1994, 45 in 5, 84 in 1996 and 98 in 1997 - where the small increments, in 96 and in 97, they were given in function of the sensitive increase of the combined worked area with the largest effort undertaken by CENAQUA/IBAMA.

In that it weighs the systematic process of annihilation of the life in the basin of Araguaia, they still exist in the area, several ecological niches, represented mainly by the lakes and várzeas that dam the remainder of the biodiversity.

The long Lake, placed in the proximity of the south point of the island of the Bananal, Mato Grosso is one of those examples. It possesses about 12 km of length and it shelters several species in abundance, such as Tartaruga-da-Amazônia–*Podocnemis expansa*, Tracajá–*Podocnemis unifilis*, Jacare-açu - *Melanosuchus niger*, Jacaretinga - *Caiman crocodilus,* Jaburu - *Jabiru mycteria*, Cervo-do-pantanal - *Blastocerus dichotomus*, Capivara - *Hidrochoerus hydrochaeris*, Tapir - *Tapirus terrestris*, Onça pintada - *Panthera onca* and avifauna diversity,and many others.

In the same way that the Long Lake, other areas flooded also stand out for the value of the biodiversity:

Lagoão, Lago da Ressaca, Lago do Facão, Lago do Curixira, Lago do Varal, Lagos do rio Cristalino, Lago da tartaruga, Lago do Brito, and many others.

The destruction of the ciliate forests provoked the decrease of the Araguaia's river fauna, doing with that the hunters' attention and fishermen have returned him for those lakes, what suggests the adoption of more effective protection measures, and the the implantation of a Plan

of Handling with measured more restrictive and foreseen in the environmental legislation, since the simple application of the Code of Fishing and of the Law of Fauna they didn't reach and it is not enough to contain and to control the predatory activities in the area.

The meeting of all those factors justified the creation of an Area of Environmental Protection, RIO ARAGUAIA'S APA MEANDROS, as form of establishing a new relationship of the man's coexistence with the nature, seeking to save what still remains of natural resources and to implement a different model of administration, with all human communities involved in the space defined about a Unit of Conservation.

The importance of the conservation of the biodiversity in the area of RIO ARAGUAIA'S APA MEANDROS and surrounding areas , is justified because occupy 75% of the Araguaia basin flooded areas. The existence of irreversible projects of economic stamp in both margins of the river, potentially predatory,; the need to revert the destruction picture that hovers on the natural stocks of the most representative species (turtles and fish); the economic importance of the tourism for the area and local human populations and the need of disciplining its application in maintainable models , with involvement of the public power, managers, tourists, river's population and indigenous communities.

Rio Araguaia's APA Meandros, involving this river, its lakes, flowing and tributary and the economic activities installed in the margins, it is configured as the appropriate handling category, defined in the System of Units of Conservation of Brazil and that it allows to ally the conservation of the resources biotic and existent abiotics, with the ordered use of those resources, in way looking for a balance between the sustainable economy and the representative stocks of those preserved resources.

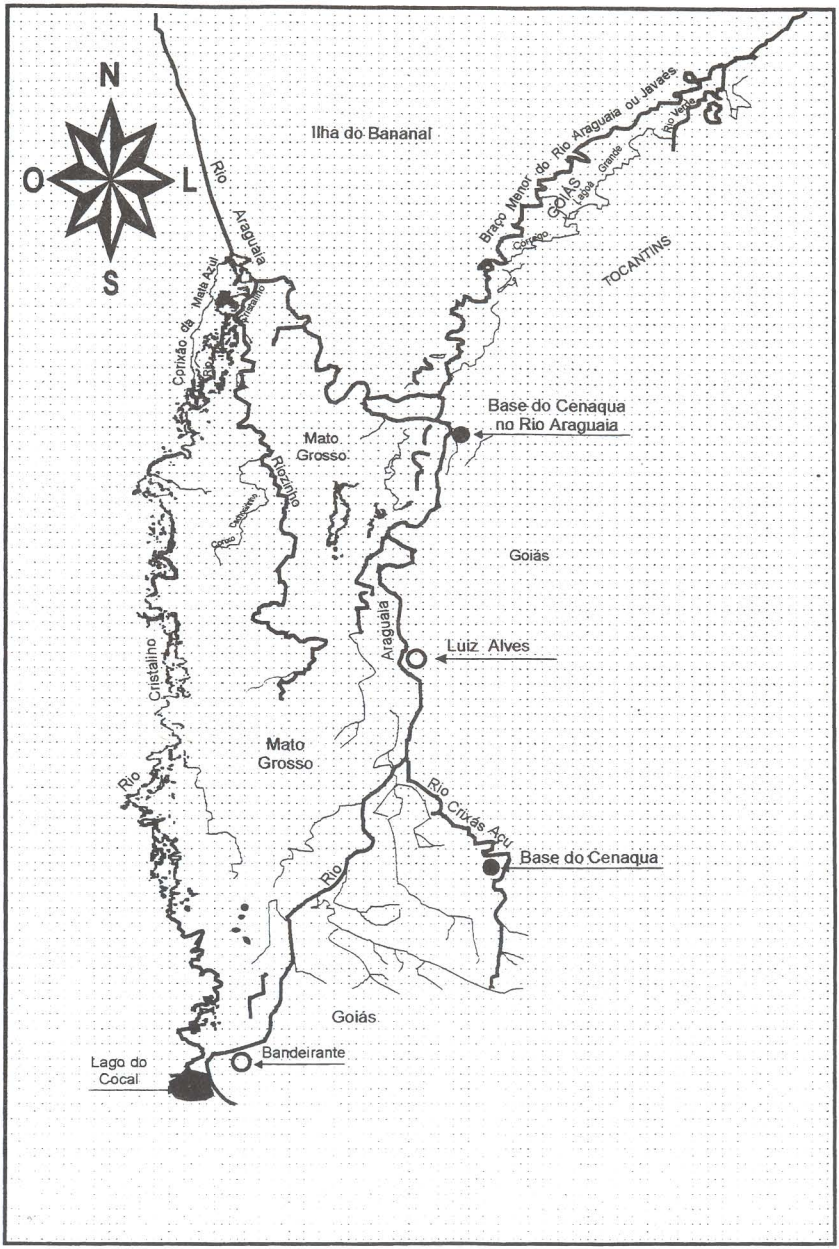

Figure 1. Map of the Meanders of the Araguaia APA.
The area occupied for the APA is 35700km^2.