# NOTES ON THE ETHNOICTHYOLOGY OF FISHERMEN FROM THE TOCANTINS RIVER (BRAZIL) (*)

A. Begossi (**)
J. C. Garavello (***)

**RESUMO**

*Um dos objetivos da etnobiologia é entender como as populações humanas classificam os recursos encontrados no ambiente. Este estudo aborda aspectos da etnoictiologia de comunidades de pescadores localizadas no Médio Tocantins, entre as cidades de Imperatriz e Estreito (Estados do Maranhão e Tocantins). Foram realizadas visitas bimestrais, de outubro de 1987 a junho de 1988. Pescadores foram entrevistados sobre a utilização e classificação de peixes e espécimes de peixes foram coletados para identificação. Os critérios de classificação dos pescadores são morfológicos e ecológicos (em particular relacionados ao habitat). Observou-se uma classificação mais detalhada pela comunidades das espécies de peixes utilizadas para consumo, venda e/ou fins medicinais do que das não utilizadas.*

## INTRODUCTION

One of the scopes of ethnobiology is to understand how a given population classifies and describes the environment. According to Boster **et al**. (1986), the correlation of folk and scientific classifications may suggest some universality in human classificatory processes. Ethnobiological studies can also be very useful to acquire biological information on behavior of the species, ecological diversity and natural communities (Posey, 1987).

Only recently, studies on ethnobiology of isolated communities in Brazil have received attention. Posey (1979, 1981, 1983) has been conducting studies on the

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(**) Departamento de Ecologia, IB, Universidade Federal do Rio de Janeiro, 21941, Rio de Janeiro, RJ, Brazil.

(***) Departamento de Zoologia, IB, Universidade Federal de São Carlos, 13560, São Carlos, SP, Brazil.

ethnobiology of Amazonian Indians, in particular among the Kayapó. There are few published works on folk classification of fishes, or ethnoicthyology. Morril (1967) studdied aspects of the ethnoichtyology of Cha-Cha, the fishermen from French origin that live on the Virgin Islands. Silva (1988) analyzed aspects of the classification of natural resources, specially fishes, by fishermen from Piratininga (Rio de Janeiro State).

Among all the perceveid components of the environment by any given population, only some of them are utilized. In the case of human populations, these include the land in which the population settles and the organisms which are important for food, cash, medicine, ornaments and so on. Using the "Hutchinsonian concept" of ecological niche, the resources used by the population are considered as components of the "realized niche" of this population (Pianka, 1983). The objectives of this study are: a) to analyze fishermen's classification of the fishes; b) to find the criteria used in the classification of fishes; c) to investigate the assumption that the components of the niche (in this case, fishery resources) which fishermen depend upon are also the ones with a solid popular classification.

## METHODOLOGY

Fieldwork was performed at the Tocantins river in a stretch of about 100 Km, between the cities of Imperatriz and Estreito (Maranhão and Tocantins States). The study area was visited in alternate months, from October 1987 to June 1988. The study included fishermen living in cities, towns and scattered houses along the river banks. It is a part of a research on fishing technology, diet of fisherman families and fish taxonomy in the Middle Tocantins river.

Data on fish common names were collected during interviews with fishermen about fish consumed, sold and used for medicinal purposes. For details on the procedures see Begossi & Braga (1990). During the interviews, we asked some fishermen to name the pictures of fish shown in the catalogue of fishes from the Lower Tocantins by Santos **et al**. (1984). The objective was to verify the correlation among folk and scientific classification. Diamond (1989) pointed out the problems of relying only upon pictures in ethnobiological research. Thus, fish were collected and identified and some common names were checked with fishermen. For rare specimens we used only the pictures in Santos **et al**. (1984). Prof. M. Petrere Jr. from the Universidade Estadual Paulista (São Paulo State) provided valuable information collected among some fishermen from the city of Imperatriz.

Briefly, three complementary types of data sets were used in this study: 1) interviews about fish utilization (consumption, preferences, sale and medicinal uses) were done with 234 fishermen. A variety of common names were quoted in these interviews; 2) the catalogue by Santos et al. (1984) was shown to about 13 informants (experienced

fishermen); 3) fishermen were asked to name fish species, by showing them specimens just collected.

## RESULTS AND DISCUSSION

Interviews were performed at the cities of Imperatriz, Porto Franco, Tocantinópolis, and Estreito, at the town of Descarreto and among riverine fishermen along the banks of the river. Some of them live on the river banks and others settle temporarily in tents or huts during the fishing season. Fishing is intense from May to July ("Summer") when fish schools migrate upstream (Begossi & Petrere, 1988).

The common and scientific names of fish are shown in Table 1. Some scientific families are also classified by fishermen as an identifiable set of species. These are represented by the Potamotrygonidae as "Arraia" (ray), Hemiodidae as "Voador", Anostomidae as "Piau", Cichlidae as "Cará", Doradidae as "Cuiú-cuiú" and Loricariidae as "Acarí".

The criteria used by fishermen to classify fish species are mainly morphological and, secondarily, ecological. The shape of head and mouth are importants, as well as the scale types (thin or thick) and the fish pigmentation. Some examples are "lampreia bico-fino" (thin beak) (**Ramphychthys marmoratus**), "piau boca-fina" (thin mouth) (**Laemolyta petiti**), "cará boca-de-flor" (flower mouth) (**Cichlasoma spectabile**), "piau cabeça-gorda" (fat head) (**Leporinus friderici**) and "cará oião" (big eye) (**Chaetobranchus flavescens**). Ecological features used in folk classification refer mainly to the kind of habitat or substrate on which the fish is found, such as "do lago" (lake) and "da pedra" or "pedral" (rocky). Morril (1967) observed that the Cha-Cha have a special knowledge on fish behavior, such as on fish food habits. Diamond (1989) described the importance in knowing the behavior of birds (songs, for example) in the classification used by natives from New Guinea.

Silva (1988) pointed out that maritime fishermen from Piratininga understand nature from two major points: the land and the sea. The land is a reference for these fishermen in the classification of the organisms found in the sea. A similar tendency was observed in the fish classification by Tocantins' fishermen. Some fish are represented by fruits or terrestrial animals. Examples are "arraia maçã" (apple ray) (**Disceus thayeri**), "piau caninana" (a local name for a species of snake) (**Leporinus affinis**), "piranha manga-rosa" (mango) (**Serrasalmus nattereri**), "pacu lombo-de-foia" (leaf) (**Myleus** spp., among others), "cará caititu" (white-collared peccary) (**C. spectabile**) and "piranha cabeça-de-burro" (donkey head) (**S. nattereri**), among others.

We should expect that the most utilized fish, or the species which are the most important in the realized niche of these populations would be the ones most easily recognized by fishermen. This seems to be true, as the fish consumed, preferred as food, used as medicine and sold were quickly recognized by fishermen during interviews, except for the Corvina (**Plagioscion surinamensis**) (Table 1). Furthermore, fish pictures that

fishermen had difficulty in recognizing were either fish not used as a resource, rare species or species not found in this part of the river. The homogeneity of the answers concerning fish names in the study area (Table 1) shows that the color or angle of the pictures has no influence in their identification.

Fauna differences were observed among the Lower Tocantins (Santos **et al.** 1984) and the study sites (upstream or Middle Tocantins). For example, **Mugil mulis**, **Doras** cf. **lipophtalmus**, Hassar sp. and **Leptodoras acipenserinus** were not recognized by fishermen. Species of small size collected in the study area, not included in Santos **et al.** (1984) and common in the major affluents of the Tocantins river were not familiar to fishermen. Rare species, such as **Chalceus macrolepidotus**, **Roeboides** sp., **Hypoptoma** cf. **guntheri**, **Galeocharax gullo**, **Exodon paradoxus**, **Cetopsis caecutiens**, and **Poecilia** sp. were not readily recognized by fishermen. Other species, such as **Sternarchoramphus mulleri**, **Dysceus thayeri**, **Potamotrygon histrix**, **Pterengraulis atherinoides**, **Pellona flavipinnis**, **Pachypops furcraeus**, **Hemiodopsis argenteus**, **Acestrorhynchus falcirostris**, **A. microlepis**, **A. falcatus**, **Cichla ocellaris**, **Cichlasoma spectabile**, **Aequidens duopunctatus**, **Brachyplatystoma flavicans**, **B. vaillanti** and **Goslinia platynema**, collected by Santos **et al.** (1984) in the Lower Tocantins were not observed in our study.

Most small cichlids ("cará") were not quoted during interviews and are represented by a set of overlapped common names (Table 1), whose scientific identification is still not clear. A similar pattern was found for the Loricariidae and Serrasalmidae. Boster **et al.** (1986) emphasized that informant disagreements can be a tool to the understanding of people's perceptions of the similarity among organisms. We do not know if fishermen consider these species as similar or if they do not pay attention in classifying "useless" species.

Local differences in fish names were observed. For many cases we could not differentiate among a wide repertoire of names and regional differences (except for well-known fishes). For example, the Curimatá (**Prochilodus nigricans**), which is the fish most consumed and sold by local fishermen (Begossi & Petrere, 1988), is known by this name in all study area. The name "lambe-lambe" was mentioned only in Porto Franco and the name "papa-terra" only in Tocantinópolis. Many other examples are included in Table 1.

Finally, we may conclude that criteria based on fish morphology and habitat are important for the fish classification observed among fishermen from the Tocantins river. The degree of importance of the resource also plays a role in the folk taxonomy of fishes "Useful" fish (or components of the realized niche) are either better known or classified in a "finer" manner than "useless" fish.

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**SUMMARY**

*Ethnobiology includes the study of how populations perceive and classify organisms. This study focuses on the utilization and classification of fishes by fishermen from the Tocantins river. The study area is located between the cities of Imperatriz and Estreito (Maranhão and Tocantins States). Interviews with fishermen and collection of fish species were performed from October 1987 to June 1988. The criteria used by fishermen to classify fish species are mainly morphological, such as related to body shape and coloration. Fish habitat is also an information used in folk classification. Terrestrial plants and animals are a reference for some fish names. Fishermen showed a deeper knowledge and detailed classification of species of fish used for food, sale, or medicine. Folk classification represents the knowledge a population has on its environment, and it is more detailed on species which are part of its realized niche as indicated by this study.*

**Table 1.** Common and scientific names of fishes from the Tocantins river, in an area between the cities of Imperatriz and Estreito. Fish cited by 5% or more fishermen interviewed as C= consumed, M= used for medicinal purposes, P= preferred, and S= sold. Letters in parenthesis mean that the fish name was mentioned only in that location: D= Descarreto, E= Estreito, I= Imperatriz, PF= Porto Franco, SQ= Serra Quebrada Island and T= Tocantinópolis. The symbols refer to: ■ fish of fast recognition and with the same name mentioned in interviews; □ fish of difficult recognition; * only adult fish or fish with large size.

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| POTAMOTRYGONIDAE | | M |
| arraia de fogo | **Potamotrygon motoro** | ■ |
| arraia preta, arraia rabo seco (I) | **P. hystrix** | |
| arraia branca, arraia maça | **Disceus thayery** | |
| aramaçá, rodeiro, rodeirão, arraia preta (T, PF) | | |
| SOLEIDAE | | |
| solha, soia | **Achirus achirus** | ■ |
| ELECTROPHORIDAE | | |
| poraquê, poraquê de fogo | **Electrophorus electricus** | ■ M |
| APTERONOTIDAE | | |
| lampreia, lampreia amarela | **Sternarchoramphus mulleri** | ■ |
| STERNOPYGIDAE | | |
| lampreia preta, sarapó | **Sternopygus macrurus** | |
| *lampreia* | ***S. obtusirostris*** | □ |
| RAMPHICHTHYIDAE | | |
| lampreia, tubí, lampreia bico-fino | **Ramphichthys marmoratus** | □ |
| lampreia, sarapó | **R. rostratus** | |
| OSTEOGLOSSIDAE | | |
| aruanã, araunã (E) | **Osteoglossum bicirrhosum** | ■ |
| pirarucu, pirosca | **Arapaima gigas** | ■ |
| CLUPEIDAE | | |
| apapá, dourada de escama, sarda | **Pellona castelnaeana** | |
| apapá, sarda | **P. flavipinnis** | |
| ENGRAULIDAE | | |
| sardinha de lata, sardinha fedorenta, sardinha de boto (E), joão duro (E) | **Lycengraulis batesii** | |
| | **Anchovia surinamensis** | □ |
| sardinha de lata, tubaraninha | **Pterengraulis atherinoides** | □ |

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| CTENOLUCIIDAE | | | |
| bicuda | Boulengerella ocellata | ■ | |
| | B. maculata | ■ | |
| ERYTHRINIDAE | | | |
| traíra | Hoplias malabaricus | ■ | M |
| jeju, iú | Hoplerythrinus unitaeniatus | ■ | |
| jejú, iú, mariana (T) | Erythrinus erythrynus | □ | |
| CURIMATIDAE | | | |
| jaraquí | Semaprochilodus brama | ■ | CPS |
| curimatá, lambe-lambe, papa-terra (T), lambreta (PF), giriúna (T) | Prochilodus nigricans | ■ | CPS |
| branquinha | Curimata amazonica | ■ | CS |
| solta-baião, durão | Curimata cyprinoides | ■ | |
| ubarana | Anodus elongatus | ■ | S |
| HEMIODIDAE | | | CS |
| voador, voador americano | Argonectes scapularis | ■ | |
| voador, voador escama grossa, palito (D) | Hemiodopsis unimaculatus | | |
| voador, voador escama fina | H. argenteus | | |
| ANOSTOMIDAE | | | |
| piau vara | Schizodon vittatum | ■ | CS |
| piau cabeça gorda | Leporinus friderici | ■ | CPS |
| piau aracu, piau flamengo, flamenguista, camisa de meia, rajado (E), caninana (E), bargado (SQ), | L. affinis | ■ | |
| piau capelobo * , piau cachoeira (D), piau curimatá (E), piau coco, piau danta (D, T, PF) | L. trifasciatus | | |
| sabão | Anostomoides laticeps | □ | |
| piau crote, piau boca-fina, piau de loca (T) piau curimatá (T), casca seca (I) | Laemolyta petiti | | |
| SERRASALMIDAE | | | |
| piranha, pirambeba (I) | Serrasalmus eigenmanni | | |
| pirambeba, piranha preta (D) | S. rhombeus | | |
| curupetê, pirambeba, piranha preta (PF) | S. spilopleura | | |
| piranha cabeça-de-burro, queixo-de-burro, manga-rosa, piranha vermelha | S. nattereri | | |
| pacu dente-seco, pacu lombo de foia | Mylesinus schomburgki | | |
| (folha) | Metynnis hypsauchen | | |
| | Myleus pacu | | |
| | M. cf. micans | | |
| | Myleus cf. torquatus | □ | |
| pacu lombo-de-foia, pacu S. Pedro, curupeté | Myleus sp. | | |

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| pacu lombo-de-foia, pacu dente-seco, pacu da pedra, pacu bandeira (T) | **Utiarichthys sennaebragai** | | |
| pacu manteiga | **Mylossoma duriventre** | ■ | CPS |
| caranha | **Colossoma brachypomum** | ■ | P |
| CHARACIDAE | | | |
| piau cachorro | **Acestrorhynchus falcirostris** | □ | |
| | **A. falcatus** | □ | |
| | **A. microlepis** | □ | |
| cachorra | **Hydrolycus scomberoides** | ■ | CS |
| cacunda, cacundinha, cachorrinha | **Raphiodon gibbus** | | |
| cachorra gata (E), sardinha gata | **R. vulpinnus** | ■ | |
| sardinha, sardinha papuda, sardinha moça, sardinha curta, sardinha papo-largo | **Triportheus angulatus** | | |
| sardinha colim, sardinha facão (D), sardinha gata (E) | **T. albus** | | |
| | **T. elongatus** | | |
| sardinha rabo-vermelho (D), sardinha rabo de ouro, matrinchã | **Salminus hilarii** | | |
| ladina, matrinchã | **Brycon brevicauda** | | |
| piabanha | **Brycon** sp. | ■ | CPS |
| SCIAENIDAE | | | |
| corvina, pescada, corvina branca | **Plagioscion squamosissimus** | ■ | CMPS |
| corvina, corvina preta | **P. surinamensis** | | CMPS |
| pescada, pescadinha, ronca | **Pachypops furcraeus** | □ | |
| pescada, pescadinha, pescada pintada | **Pachyurus schomburgkii** | ■ | |
| CICHLIDAE | | | |
| cará boca-de-flor, cará caroço-de-manga (E), cará dourado (PF), cará caititu (D) | **Cichlasoma spectabile** | | |
| cará de lago | **C. temporale** | | |
| cará tabaco-doido (I), cará de lago, cará caroço-de-manga | **C. severum** | | |
| tucunaré, pitanga | **Cichla ocellaris** | | |
| tucunaré comum, tucunaré-açú | **C. temensis** | | |
| cará de praia (I), cará luzia, cará de grota (T) | **Aequidens duopunctatus** | | |
| mariana, jacundá, sabão | **Crenicichla johana** | | |
| | **C. lugubris** | | |
| | **C. strigata** | | |
| cará, cará de praia, cará tabaco-doido | **Geophagus surinamensis** | | |
| cará, cará de lago, cará serrotão | **G. jurupari** | | |
| cará bico-doce (T), cará de pedra, cará pedral | **Retroculus lapidifer** | | |

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| cará preto, cará oião (olhão) | **Chaetobranchus flavescens** | | |
| cará pirosca | **Astronotus ocellatus** | ■ | |
| DORADIDAE | | | |
| cambotá, cuiú-cuiú, serrotinho | **Platydoras costatus** | □ | |
| cuiú-cuiú, cuiú-cuiú branco, cuiú-cuiú boca-de-bezerro | **Pseudodoras niger** | | |
| cuiú-cuiú, cuiú-cuiú amarelo, cuiú-cuiú boca-curta, cumbá, mandí-serra | **Megalodoras irwini** | | |
| cuiú-cuiú, cuiú-cuiú preto | **Pterodoras granulosus** | | |
| mandí boca-de-flor, mandí sacaca, mandí serra (I) | **Hassar wilderi** | | |
| CALLICHTHYDAE | | | |
| eloí, camboatá, tamatá, sete-léguas. cambuí (I) | **Hoplosternum thoracathum** | | |
| LORICARIIDAE | | | |
| acarí, bodó | **Pterygoplichthys** sp. | | |
| acarí, acarí pirarara, bodó | **Pseudacanthicus spinosus** | ■ | |
| acarí, acarí de lago, acarí cotia (PF, T) | **Pseudacanthicus** sp. | | |
| acarí, acarí da pedra, acarí tamanco (T, PF, D) | **Panaque nigrolineatus** | | |
| acarí, acarí da pedra, acarí-cotia (T, PF, E) | **Panaque** sp. | | |
| acarí, acarí chicote, acarí viola (I) | **Hypostomus** cf. **emarginatus** | | |
| acarí, acarí pedral | **H. plecostomus** | | |
| acarí, acarí pedral, acarí pintado da laje | **Hemiancistrus niveatus** | | |
| acarí, acarí pedral, acarí barba de arame | **Hemiancistrus** sp. | | |
| acarí, acarí rabo de chicote, cachimbo, trancelim. | **Loricaria** sp. | | |
| foguete (T), cachimbo, cachimbinho, viola | **Pseudoloricaria punctata** | □ | |
| foguete (T), cachimbo, cachimbinho | **Loricariichthys nudirostris** | □ | |
| HYPOPHTHALMIDAE | | | |
| mampará | **Hypophtalmus marginatus** | □ | |
| AGENEIOSIDAE | | | |
| fidalgo | **Ageneiosus brevifilis** | ■ | |
| mampará, fidalgo comprido, perna de calça | **A. dentatus** | | |
| PIMELODIDAE | | | |
| mandubé | **Platystomatichthys sturio** | ■ | |
| bico de pato | **Sorubim lima** | ■ | |
| surubim chicote | **Sorubimichthys planiceps** | ■ | M |
| liro, mandubé, mandubé pintadinho | **Hemisorubim platyrhynchus** | | |
| pirarara | **Phractocephalus hemioliopterus** | ■ | M |
| jaú | **Paulicea lutkeni** | ■ | MS |
| dourada | **Brachyplatystoma flavicans** | ■ | |

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| branquinho, piramutaba ..... | **B. vaillanti** | □ | |
| filhote ..... | **B. filamentosum** | ■ | |
| bagre ..... | **Goslinia platynema** | □ | |
| surubim, surubim pintado, surubim tora ..... | **Pseudoplatystoma fasciatum** | ■ | |
| mandí mole ..... | **Pimelodella cristata** | ■ | |
| mandí cabeça de ferro ..... | **Pimelodus blochii** | ■ | CP |
| pintadinho, mandí dourado ..... | **Platynematichthys notatus** | □ | |
| barbado ..... | **Pirinampus pirinampu** | ■ | S |
| mandí moela ..... | **Pimelodina flavipinnis** | ■ | C |
| AUCHENIPTERIDAE | | | |
| maparâ, mamparâ legítimo, mandí-sardinha (E) ..... | **Auchenipterus nuchalis** | | |
| anojado, boca-de-sapato, capadinho, pocomão ..... | **Tocantinsia piresi** | | |
| anojado, capadinho, mandí sapo, pocomão, cangatí (E) ..... | **Parauchenipterus galeatus** | ■ | |

OBS.: "Sardinha" was quoted as consumed and sold. However, it refers to many species from different families. The "Mandí" which was mentioned as "sold" was not specified in interviews and it refers to 3 species of Pimelodidae and 1 of Doradidae.

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