

LISTS OF SPECIES

Fish, Corumbataí and Jacaré-Pepira river basins, São Paulo State, Brazil

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Abstract

Fish were studied in two river basins (Corumbataí and Jacaré-Pepira) subjected to strong human pressure, in the interior of the State of São Paulo, southeastern Brazil. In the Corumbataí basin, four sites were sampled: Cabeça river, Lapa stream, Passa-Cinco river, and Corumbataí river; in the Jacaré-Pepira basin, three sites were sampled: Tamanduá stream, Jacaré-Pepira river, and Água Branca stream. A total of 4,050 specimens belonging to 48 species and 13 families were caught and analyzed.

Introduction

The Neotropical region is particularly interesting because it is a refuge for fish speciation (Mazzoni and Lobón-Cerviá 2000). In Brazil, the second most important basin in terms of area and fish diversity is the Paraná-Paraguai-Uruguai (Prata) basin, which contains approximately 500 species. The State of São Paulo contains about 30% of the known Brazilian fish species, with 261 freshwater species distributed as follows: 53% Siluriforms, 35% Characiforms, 4% Gymnotiforms, 5% Cyprinodontiforms, and 3% Perciforms. This State is located in the upper Paraná river basin, which contains 22 fish families and approximately 166 fish species (Castro and Menezes 1998). Although ecological knowledge of stream fish assemblages is still incipient, the frequency of species occurrence appears to be influenced by the preference of species for certain sites, the ontogenetic stage of the individuals, and the seasonal plasticity of each habitat (Lemes and Garutti 2002a).

Materials and Methods

A total of 12 samples were made bimonthly, from February to December, in 2000 and 2001. We determined two study sites: 1. Corumbataí river basin, with four sample sites: 1.a. Cabeça river (22°22'49" S, 47°39'55" W), 1.b. Lapa stream (22°23'38" S, 47°47'16" W), 1.c. Passa-Cinco river (22°25'02" S, 47°42'47" W), and 1.d. Corumbataí river (22°08'15" S, 47°39'37" W); and 2. Jacaré-Pepira river basin, with three sample sites: 2.a. Tamanduá stream (22°21'17" S, 47°45'00" W), 2.b. Jacaré-Pepira river (22°17'53" S, 48°11'35" W), and 2.c. Água Branca stream (22°26'20" S, 48°47'45" W). Both drainage systems exhibited low similarity due to a great habitat variability and differences in environmental conditions. An altitude tropical climate (CWa) predominates in the region, which is characterized by mean annual temperatures ranging from 18°C to 22°C, with warm wet summers and dry winters. Rainfall varies from 1,400 mm, in the upper regions, to 1,100 mm. The study area of approximately 2,700 km² comprises part of the municipalities of Itirapina, Brotas, São Pedro, Dois Córregos, Santa Maria da Serra, Torrinha, São Carlos, Analândia, Ipeúna, Mineiros do Tietê, Rio Claro, Barra Bonita, Corumbataí, and Itaqueri da Serra (see maps in Gomiero and Braga 2005). At each sample point, individuals were collected in many parts of the river, using 5 m long by 1.5 m high gill nets with mesh sizes of 1.5; 2.0; 2.5, and 3.0 cm, measured between adjacent knots. Each set of nets totalized 30 m². Whenever possible, 1.5 m high purse seines with mesh sizes of 1.5 cm, sieves, and traps were also used. The sampling work was standardized to a constant time and number of fishing instruments employed at each point. In the laboratory, fishes were identified up to the lowest taxonomic level. Voucher specimens of each species are deposited in the fish collection of the Departamento de Zoologia of the Universidade Estadual Paulista, Rio Claro (SP).

Results and Discussion

A total of 4,050 specimens belonging to 48 species and 13 families were caught and analyzed. Families and species names, with their respective occurrence sites, are listed in Table 1. The fish families recorded in this study were: Characidae, Crenuchidae, Parodontidae, Curimatidae,

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Anostomidae, Erythrinidae, Sternopygidae, Pimelodidae, Doradidae, Callichthyidae, Loricariidae, Poeciliidae, and Cichlidae (Appendix I). The taxonomic predominance of the orders Siluriformes and Characiformes in the Corumbataí river basin and Jacaré-Pepira river basin agrees with the expected ichthyofaunistic composition for non-estuarine rivers in the Neotropical region (Lowe-McConnell 1987).

As observed by Uieda (1984) in the Tabajara stream (SP), the most abundant species were found at the sample sites throughout the study period, with the families Characidae and Loricariidae being the most frequent. Lemes and Garutti (2002b) and Casatti et al. (2001) observed a similar species distribution pattern in streams of the Paraná river basin, with the predominance of

Siluriformes and Characiformes. The species *Serrasalmus spilopleura* Kner, 1858, *Aequidens portoalegrensis* (Hensel, 1870), *Moenkhausia sanctae-filomenae* (Steindachner, 1907), *Moenkhausia intermedia* (Eigenmann, 1908), *Gymnotus carapo* Linnaeus, 1758, *Leporinus lacustris* Amaral Campos, 1945, *Piabina argentea*, *Pimelodus maculatus* Jardine & Schomburgk, 1841, *Prochilodus lineatus* Steindachner, 1881 and *Pseudopimelodus zungaro* (Humboldt & Valenciennes, 1821) were collected by Barrella et al. (1994) in the Jacaré-Pepira river. However, these species were not collected in this study, most likely because of the more restricted collection area or possibly due to alterations in the ichthyofauna.

Table 1. Fish species from the Corumbataí (*) and Jacaré-Pepira (**) river basins.

CHARACIFORMES	SILURIFORMES
PARODONTIDAE	<u>Cynopotaminae</u>
<i>Apareiodon piracicabae</i> (Eigenmann, 1907) (*) (**)	<i>Galeocharax knerii</i> (Steindachner, 1879) (**)
<i>Apareiodon ibitiensis</i> Campos, 1944 (*)	<u>Acestrorhynchinae</u>
<i>Parodon nasus</i> Kner, 1859 (*)	<i>Acestrorhynchus lacustris</i> (Lütken, 1875) (**)
CURIMATIDAE	
<i>Steindachnerina insculpta</i> (Fernández-Yépez, 1948) (*) (**)	
<i>Cyphocarax modestus</i> (Fernández-Yépez, 1948) (*) (**)	
ANOSTOMIDAE	
<i>Leporinus friderici</i> (Bloch, 1794) (*) (**)	
<i>Leporinus obtusidens</i> (Valenciennes, 1836) (*)	
<i>Schizodon nasutus</i> Kner, 1858 (**)	
ERYTHRINIDAE	
<i>Hoplias cf. malabaricus</i> (Bloch, 1794) (*) (**)	
CRENUCHIDAE	
<i>Characidium aff. zebra</i> (Eigenmann, 1909) (*) (**)	
CHARACIDAE	
<u>Tetragonopterinae</u>	
<i>Astyanax altiparanae</i> Garutti & Britski, 2000 (*) (**)	
<i>Astyanax scabripinnis</i> (Jenyns, 1842) (*) (**)	
<i>Astyanax fasciatus</i> (Cuvier, 1819) (*) (**)	
<i>Astyanax eigenmaniorum</i> (Cope, 1894) (*) (**)	
<i>Astyanax</i> sp. (*)	
<i>Piabina argentea</i> Reinhardt, 1867 (*)	
<i>Bryconamericus</i> sp. (*)	
<u>Cheirodontinae</u>	
<i>Serrapinus cf. notomelas</i> (Eigenmann, 1915) (*) (**)	
<i>Serrapinus heterodon</i> (Eigenmann, 1915) (*) (**)	
<i>Odontostilbe microcephalus</i> Eigenmann, 1907 (*)	
<u>Salminae</u>	
<i>Salminus hilarii</i> Valenciennes, 1850 (**)	
	<u>Cynopotaminae</u>
	<i>Galeocharax knerii</i> (Steindachner, 1879) (**)
	<u>Acestrorhynchinae</u>
	<i>Acestrorhynchus lacustris</i> (Lütken, 1875) (**)
	SILURIFORMES
	PIMELODIDAE
	<i>Rhamdia quelen</i> (Quoy & Gaimard, 1824) (*) (**)
	<i>Pimelodella</i> sp.1. (*) (**)
	<i>Pimelodella</i> sp.2. (**)
	<i>Imparfinis mirini</i> Haseman, 1911 (*)
	LORICARIIDAE
	<u>Loricariinae</u>
	<i>Rineloricaria latirostris</i> (Boulenger, 1900) (*) (**)
	<i>Rineloricaria</i> sp. (*)
	<i>Loricaria piracicabae</i> Ihering, 1907 (**)
	<u>Hypoptopomatinae</u>
	<i>Hisonotus</i> sp. (*) (**)
	<i>Corumbataia cuestas</i> Britski, 1997 (*)
	<u>Hypostominae</u>
	<i>Hypostomus strigaticeps</i> (Regan, 1908) (*) (**)
	<i>Hypostomus ancistroides</i> (Ihering, 1911) (*) (**)
	<i>Hypostomus albopunctatus</i> (Regan, 1908) (*)
	<i>Hypostomus</i> sp.1. (*) (**)
	<i>Hypostomus</i> sp.2. (*) (**)
	<i>Hypostomus regani</i> (Ihering, 1905) (*) (**)
	<i>Hypostomus cf. regani</i> (Ihering, 1905) (**)
	DORADIDAE
	<i>Rhinodoras dorbignyi</i> (Kner, 1855) (**)
	CALLICHTHYIDAE
	<i>Corydoras flaveolus</i> Ihering, 1911 (*) (**)
	<i>Corydoras aeneus</i> (Gill, 1858) (*)
	<i>Hoplosternum littorale</i> (Hancock, 1828) (*)

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GYMNOTIFORMES

STERNOPYGIDAE

Eigenmannia cf. trilineata (López & Castello, 1966) (*)

PERCIFORMES

CICHLIDAE

Geophagus brasiliensis Kner, 1865 (*) (**)

Oreochromis niloticus (Linnaeus, 1758) (*)

CYPRINODONTIFORMES

POECILIIDAE

Poecilia reticulata (Peters, 1860) (*)

Phalloceros caudimaculatus (Hensel, 1868) (*) (**)

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Appendix I. Fish species from the Corumbataí and Jacaré-Pepira river basins.

CHARACIFORMES PARODONTIDAE



1. *Apareiodon piracicabae*



2. *Apareiodon ibitiensis*



3. *Parodon nasus*

CURIMATIDAE



4. *Steindachnerina insculpta*



5. *Cyphocarax modestus*

ANOSTOMIDAE



6. *Leporinus friderici*



7. *Leporinus obtusidens*

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8. *Schizodon nasutus*

ERYTHRINIDAE



9. *Hoplias cf. malabaricus*

CRENUCHIDAE

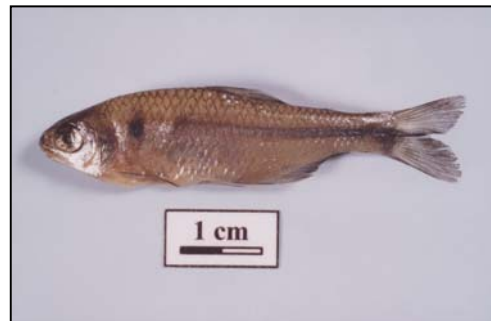


10. *Characidium aff. zebra*

CHARACIDAE
Tetragonopterinae



11. *Astyanax altiparanae*



12. *Astyanax scabripinnis*



13. *Astyanax fasciatus*



14. *Astyanax eigenmaniorum*

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15. *Astyanax* sp.



16. *Piabina argentea*



17. *Bryconamericus* sp.

Cheirodontinae



18. *Serrapinus* cf. *notomelas*



19. *Serrapinus heterodon*



20. *Odontostilbe microcephalus*

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Salminae



21. *Salminus hilarii*

Cynopotaminae



22. *Galeocharax knerii*

Acestrorhynchinae



23. *Acestrorhynchus lacustris*

SILURIFORMES PIMELODIDAE



24. *Rhamdia quelen*



25. *Pimelodella* sp.1.



26. *Pimelodella* sp.2.



27. *Imparfinis mirini*

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LORICARIIDAE

Loricariinae



28. *Rineloricaria latirostris*

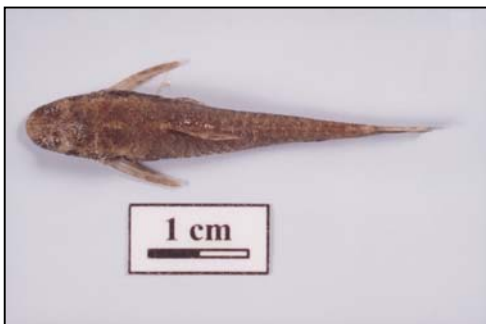


29. *Rineloricaria* sp.



30. *Loricaria piracicabae*

Hypoptopomatinae



31. *Hisonotus* sp.



32. *Corumbataia cuestae*

Hypostominae



33. *Hypostomus strigaticeps*



34. *Hypostomus ancistroides*

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35. *Hypostomus albopunctatus*



36. *Hypostomus* sp.1



37. *Hypostomus* sp.2



38. *Hypostomus regani*



39. *Hypostomus* cf. *regani*

DORADIDAE



40. *Rhinodoras dorbignyi*

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CALLICHTHYIDAE



41. *Corydoras flaveolus*



42. *Corydoras aeneus*



43. *Hoplosternum littorale*

**GYMNOTIFORMES
STERNOPYGIDAE**



44. *Eigenmannia cf. trilineata*

**PERCIFORMES
CICHLIDAE**



45. *Geophagus brasiliensis*



46. *Oreochromis niloticus*

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**CYPRINODONTIFORMES
POECILIIDAE**



47. *Poecilia reticulata*



48. *Phalloceros caudimaculatus*