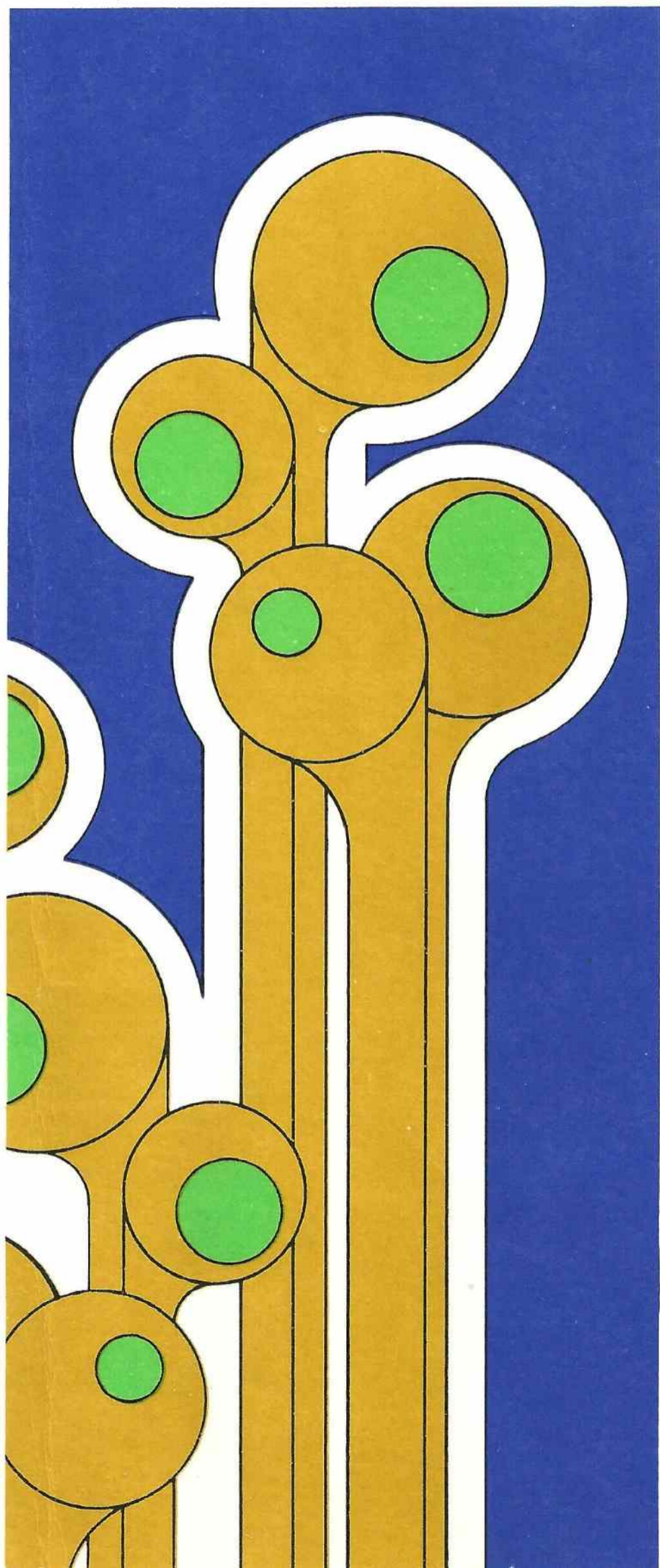


Ministry of the Interior
Special Environmental Agency



**Program
of
Ecological
Stations**

Brasília, 1977

MINISTRY OF THE INTERIOR
SPECIAL ENVIRONMENTAL AGENCY

**PROGRAM
OF
ECOLOGICAL
STATIONS**

BRASÍLIA 1977

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INTRODUCTION

The carrying out of the Program of Ecological Stations – by the Special Environmental Agency SEMA – is linked to the Second Plan for National Development and to the Second Plan for Scientific and Technological National Development of Brazil.

The objective of this program is to protect natural environments, representative of our chief ecosystems, and to equip these units with such a substructure that Universities and other research institutions can make there comparative ecological studies between the protected areas and those nearby inhabited by man.

Basic ecological data will be obtained with the carrying out of this program. These data will be important to the development of a national policies and technologies for using, controlling and preserving the environment.

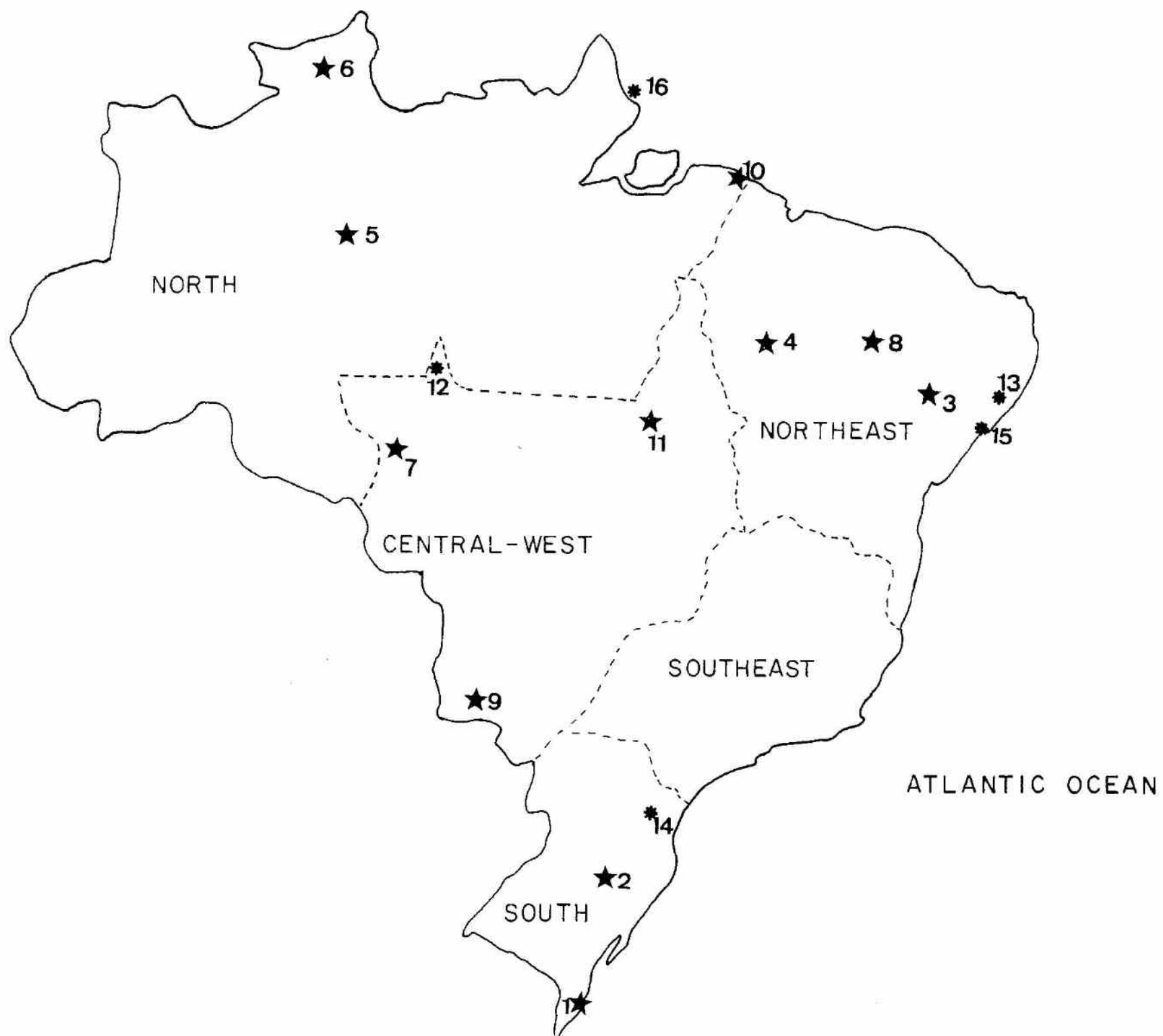
In the present development stage of Brazil, it is very important to have such technologies in order to solve environmental problems and use sensibly our natural resources, for the benefit of the country.

Up to 1978, SEMA intends to set up eleven Ecological Stations: Taim (RS), Aracuri–Esmeralda (RS), Raso da Catarina (BA), Uruçui–Una (PI) Anavilhanas (AM), Maracá (RR), Iquê–Aripuanã (MT), Aiuaba (CE), Pantanal Sul (MT), Piriá–Gurupi (PA), Coco–Javaés (GO).

Five other areas are now in study: Apiacás (MT), Murici (AL), Lapa (PR), Foz do São Francisco (AL–SE), Maracatipí (AP).

The following areas are still in the initial stage of study: Serra do Espinhaço (MG), Baruana (RR), Taquaral (AC), Buritis (RO), Babaçu (MA), Tabaiana (SE) and Serra do Mar.

Among others, the following entities supported this program: BASA, BNB, CNPq, CHESF, CODEMAT, CODEVASF, DAU (MEC), DNOCS, DNOS, Governments of the States of Alagoas, Amazonas, Bahia, Goiás, Mato Grosso, Pará, Piauí, FBCN, FINEP, IBDF, INCRA, INPA, SUBIN, SUDAM, SUDECO, SUDENE, SUDESUL, SUFRAMA, RADAM, RONDON, Territories of Amapá, Roraima, UFRS, USP.



MINISTRY OF THE INTERIOR
SPECIAL ENVIRONMENTAL AGENCY
ECOLOGICAL STATIONS

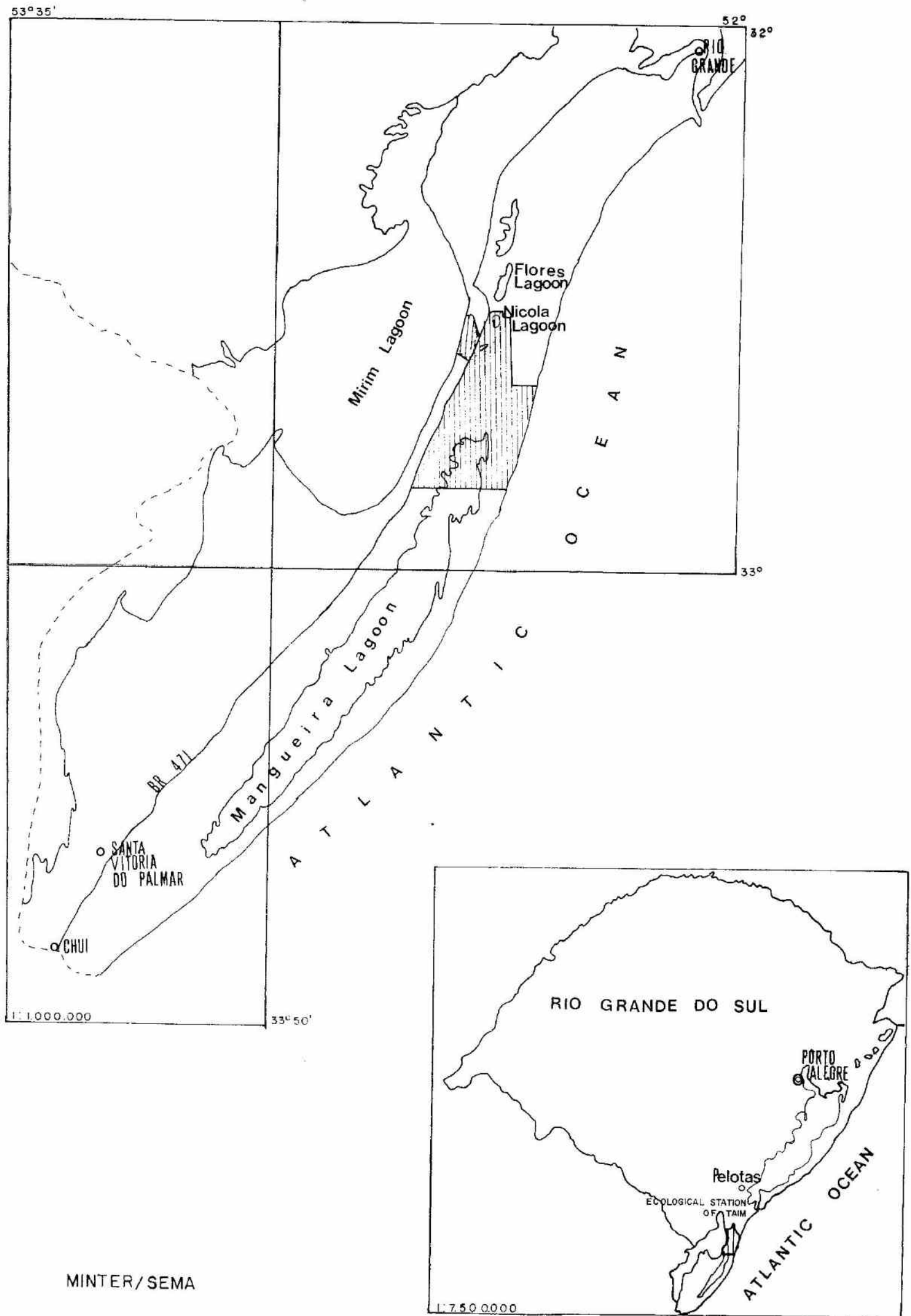
(BEING CARRIED OUT)

- 1 - TAIM (RS)
- 2 - ARACURI-ESMERALDA (RS)
- 3 - RASO DA CATARINA (BA)
- 4 - URUÇUI-UNA (PI)
- 5 - ANAVILHANAS (AM)
- 6 - MARACÁ (PR)
- 7 - IQUÊ-ARIPUANÃ (MT)
- 8 - AIUABA (CE)
- 9 - PANTANAL SUL (MT)
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(IN STUDY)

- 12 - APIACÁS (MT)
- 13 - MURICI (AL)
- 14 - LAPA (PR)
- 15 - FOZ DO SÃO FRANCISCO (AL)
- 16 - MARACÁ-TIPIOCA (AP)

ECOLOGICAL STATION OF TAIM (RS)



MINTER/SEMA

1 ECOLOGICAL STATION OF TAIM

1.1 – AREA:

32,038 ha.

1.2 – LOCATION:

In the state of Rio Grande do Sul covering part of the counties of Santa Vitória do Palmar and Rio Grande, Between Mirim lake and the Atlantic Ocean, near Arroio Chuí (Chuí brook), on the border of Uruguay.

1.2.1 – Latitude:

32°32' to 32°50'S

1.2.2 – Longitude:

52°23' to 52°32'W

1.3 – GENERAL ASPECTS:

This area set aside for an Ecological Station is characterized by swamps, lakes, lagoons (Nicola, Jacaré and the northern part of Mangueira lagoon), savannas and sand dunes, composing a very interesting landscape near the most southern forest of Brazil.

In this forest there is a grove of a coralbean (*Erithryna spp*) and fig trees (*Ficus spp*), tall and thick trees of an interesting appearance

due to the presence of orchids, bromeliads and "Spanish moss".

As to the fauna, we can find in the swamps a great variety of water-birds, specially geese and teals, the latter coming from Patagonia on their seasonal flight. In the north of Mangueira lagoon the last representatives in Brazil of the Black-necked Swan (*Cygnus melano-coriphus*): can still be found; in former times these swans could be found in other small lakes all along our southern sea-coast.

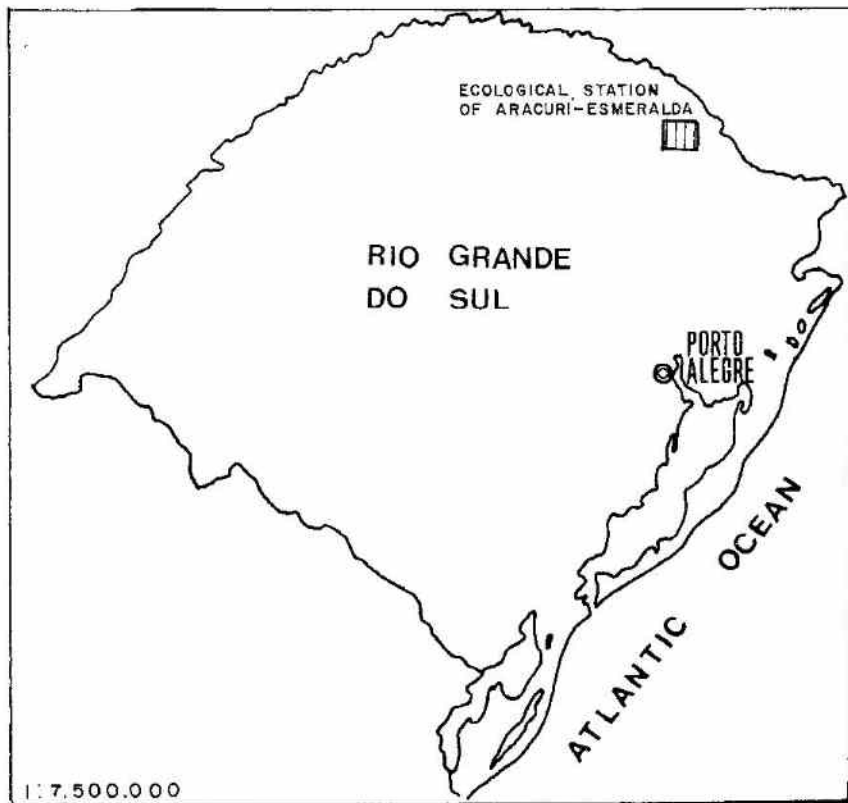
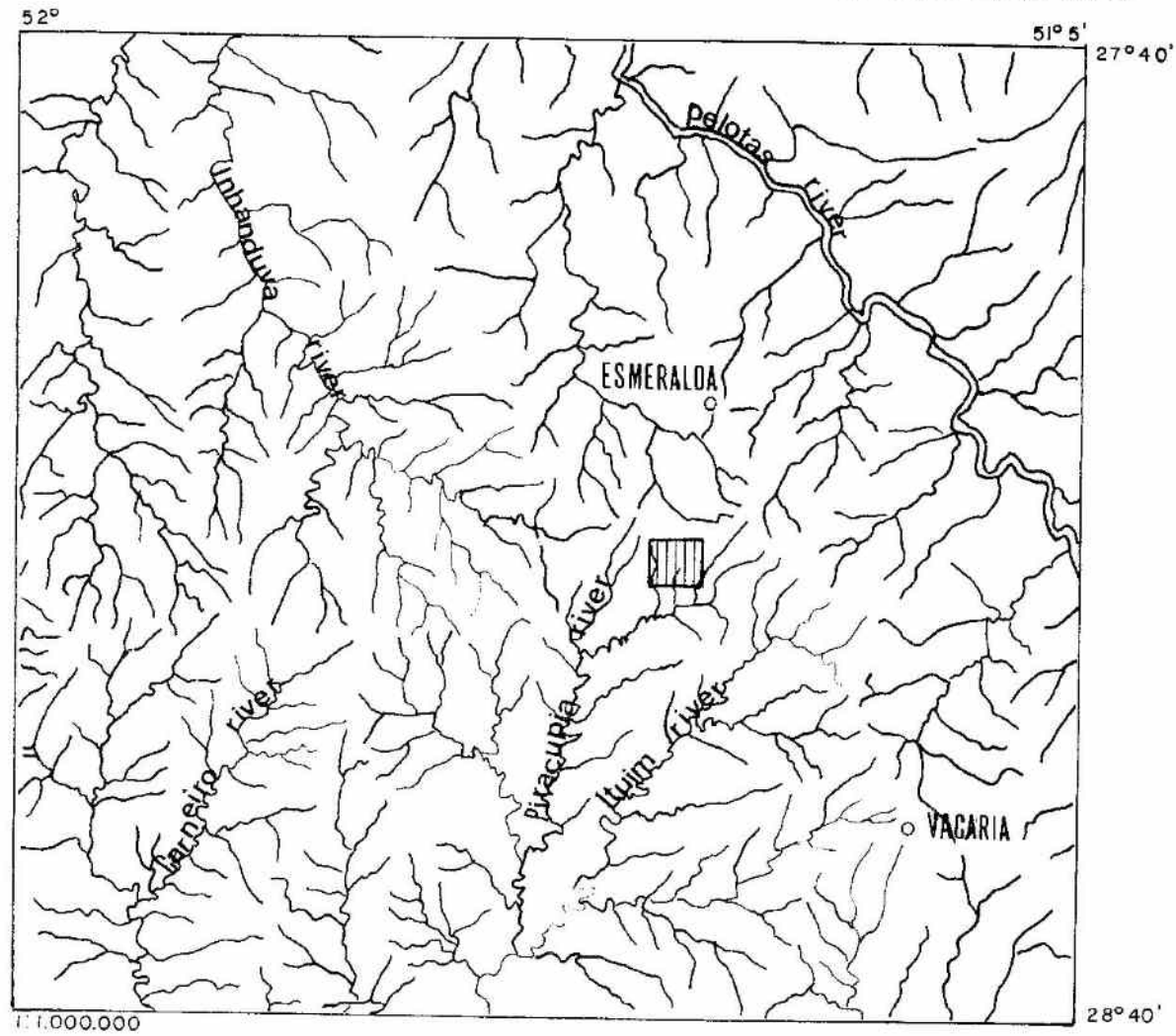
Mammals and reptiles are also found in this area; populations of capybaras (*Hydrochoerus hydrochoeris*), caymans (*Caiman spp*) and coypuses (*Moyocastor coypus*) can possibly be found.

This station is very important for ecological studies not only because of its large swamps but specially because it is one of the last ecosystems of this nature in Brazil.

1.4 – OTHER INFORMATION:

Pelotas is the logistical support city, with an airfield and good highways. The international highway Uruguay–Brazil, via Chuí, goes across part of the station.

ECOLOGICAL STATION OF ARACURI-ESMERALDA(RS)



MINTER/SEMA
-SACT-

2 ECOLOGICAL STATION OF ARACURI-ESMERALDA

2.1 – AREA:

272 ha.

2.2 – LOCATION:

In the county of Esmeralda, state of Rio Grande do Sul, on the plateau of Vacaria.

2.2.1 – Latitude:

28°12'51" to 28°13'52"S

2.2.2 – Longitude:

51°10' to 51°10'51"W

2.3 – GENERAL ASPECTS:

The region, called Campos de Cima da Serra (savanna grasslands on the top of the sierra), has a mountainous relief with a soft surface, excessive gravel and shallow soil subject to aeolian erosion.

The annual average temperature is 17.1°C. Rain is plentiful and regularly distributed. The annual rainfall average is between 1,550 and 2,500mm.

Its vegetation cover is a combination of native grasslands and isolated clumps of araucaria (*Araucaria angustifolia*), besides cinamon-bark trees (*Ocotea spp* and *Nectandra spp*) and other tall and thick trees. These clumps are generally found on the lowlands where soil is more fertile.

Amongst the several mammals living in the region, we can notice the agouti (*Dasyprocta agouti*), the brocket deer (*Mazama spp*) and the tapiti (*Sylvilagus brasiliensis*).

A large number of birds are seen in the region. The Central Institute of Bio-science of the Federal University of Rio Grande do Sul reports that 140 different species of birds, including the azure jay (*Cyanocorax coerulea*), have been identified.

One of the objectives of this Ecological Station is to preserve its pine forest, which shelters and feeds a great number of birds.

Its very name Aracuri means "the parrots pine forest". This name comes from the fact that these psittacids meet there every year, staying about two months.

According to some renowned ornithologists, about 10 to 30 thousand birds come to this pine forest every year, attracted by the *Araucaria* seeds. This occurrence is also reported in the largest publication ever written about these birds, "The Parrots of the World". (F.M. Forshaw, 1973:526).

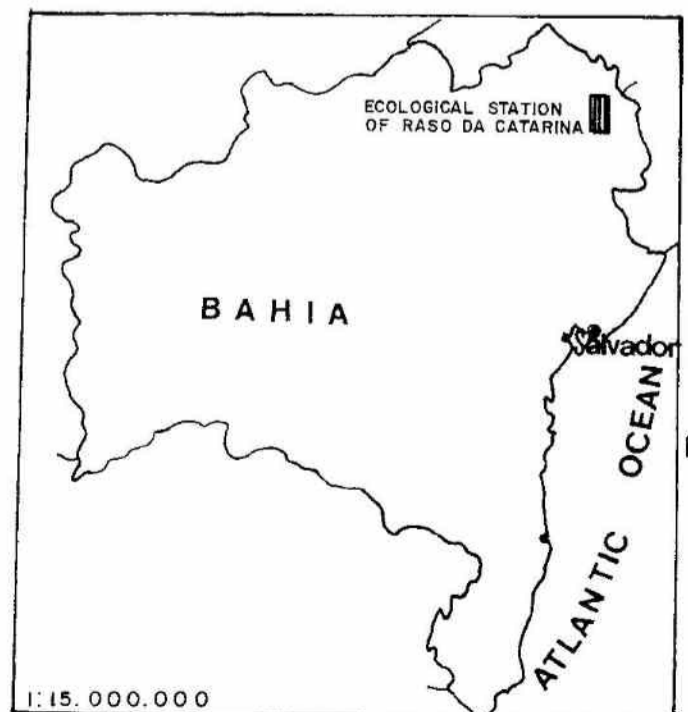
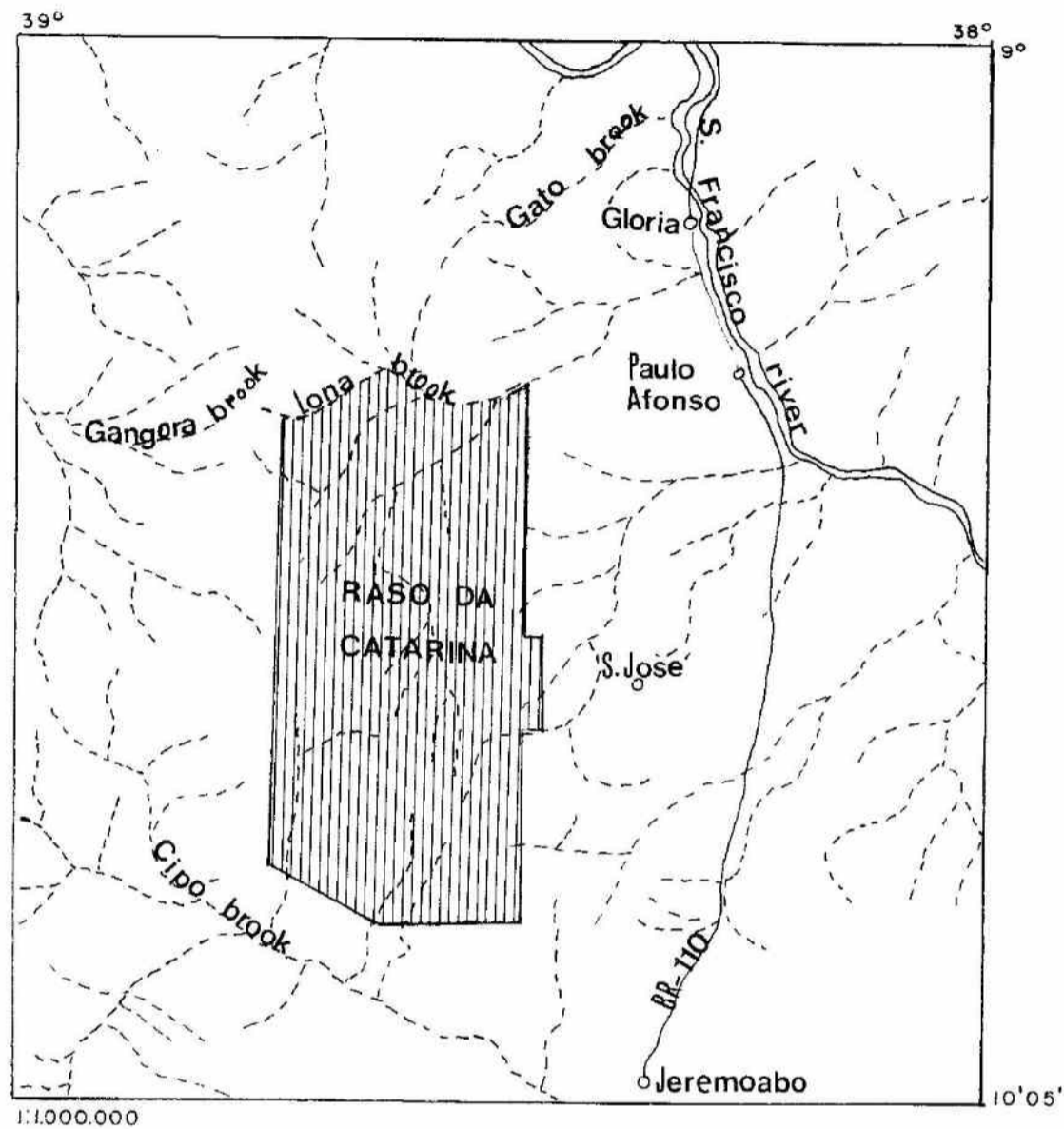
Another objective of this station is to preserve a significant sample of the native grassland a kind of vegetation bound to disappear due to the progressive mechanization of agriculture and the development of cattle raising.

2.4 – OTHER INFORMATION:

The nearest towns are Esmeralda and Vacaria. The latter has an airfield, railroad and highways. The Ecological Station is 230 km from Porto Alegre by highway.

By Decree n° 79343, promulgated on 7 March, 1977, the Federal Government declared an area of 272.5 ha to be of public utility. It was expropriated by the Ministry of Interior and set aside for the Ecological Station.

ECOLOGICAL STATION OF RASO DA CATARINA(BA)



3 ECOLOGICAL STATION OF RASO DA CATARINA

3.1 – AREA:

200,000 ha.

3.2 – LOCATION:

In the state of Bahia, covering part of the counties of Geremoabo and Paulo Afonso.

3.2.1 – Latitude:

9^o21' to 9^o54'S

3.2.2 – Longitude:

38^o29' to 38^o43'W

3.2.3 – Annual Rainfall Average:

Below 400mm.

3.3 – GENERAL ASPECTS:

The region of Raso da Catarina is considered one of the driest areas of the country. It is in a primitive condition, mainly due to the lack of permanent water courses.

There is a canyon, caused by erosion, about

8km long by 12m wide, with escarpments about 100m high.

The vegetation is typical of the region: thorny and stunted scrubby caatinga. There are a lot of cacti. Bromeliads and "mandacaru" (*Cereus peruvianus*) – are found in profusion. Its fauna is diversified; there are some mammals, such as brocket deer (*Mazama*) and pumas (*Felis concolor*), and birds such as blue macaws and a migratory dove (*Zenaidura auriculata*), besides a large number of reptiles.

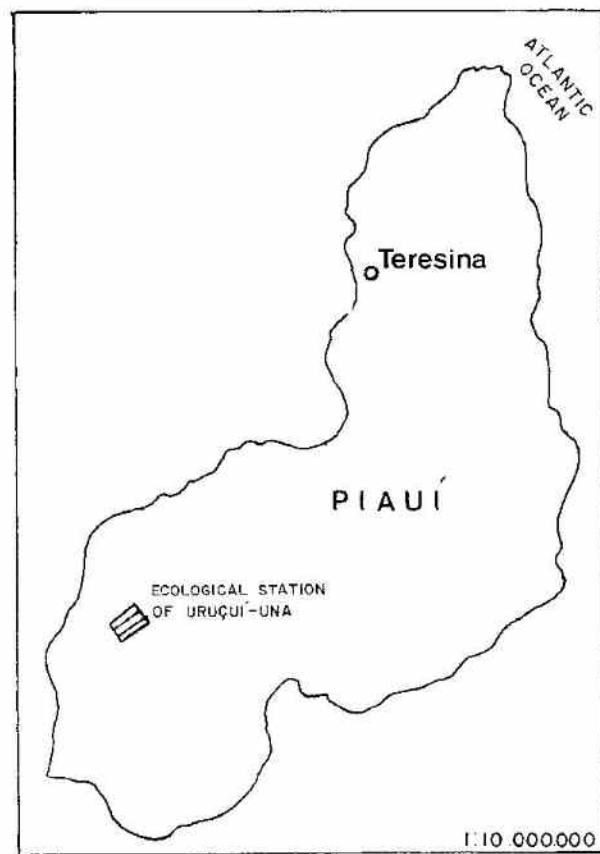
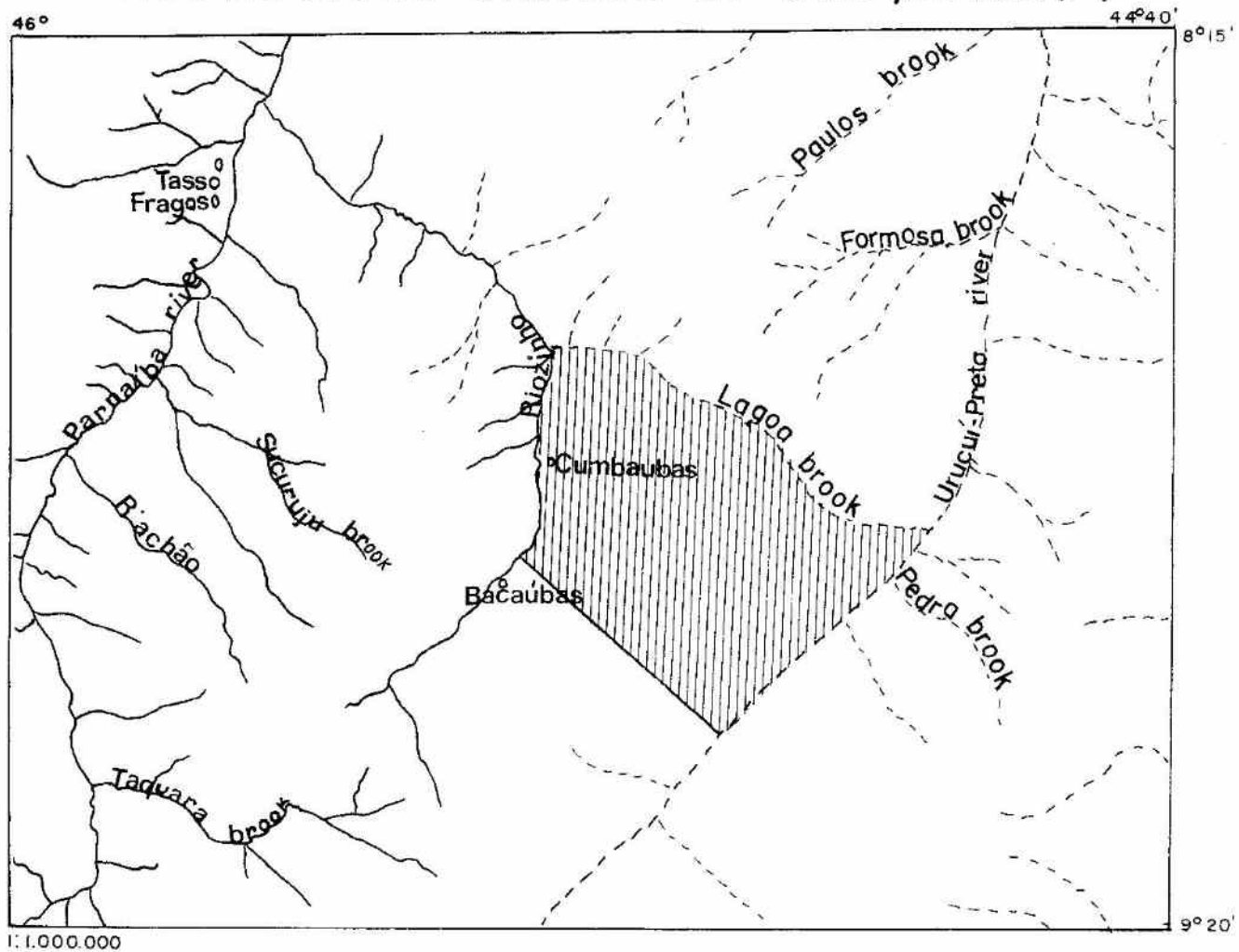
The implantation of an Ecological Station in this area will preserve a representative section of this ecosystem – scrubby caatinga –, in fact the largest area of this kind remaining untouched in Brazil.

3.4 – OTHER INFORMATION:

The station headquarters will be established on premises of the former Integrated Project Nucleus of Geremoabo, close to Raso.

It is 50km from Paulo Afonso, where there is an airport with regular commercial lines. The Paulo Afonso–Salvador highway passes nearby.

ECOLOGICAL STATION OF URUÇUI-UNA (PI)



4 ECOLOGICAL STATION OF URUÇUI — UNA

4.1 — AREA:

135,000 ha.

4.2 — LOCATION:

In the county of Ribeiro Gonçalves, in the south of the state of Piauí, between the Uruçui and Riozinho rivers.

4.2.1 — Latitude:

8°37' to 9°10'S

4.2.2 — Longitude:

44°55' to 45°30'W

4.3 — GENERAL ASPECTS:

This area is characterized by large plateaus, valleys and intermittent rivers. The vegetation on the top of the plateaus is typical of "cerrados" (savannas with stunted, twisted trees) and dry scrubby caatingas. In the valleys, along the rivers, there are gallery forests where palms can be found. The escarpments in the valleys are made of reddish pink sandstone and sometimes reach 80m high.

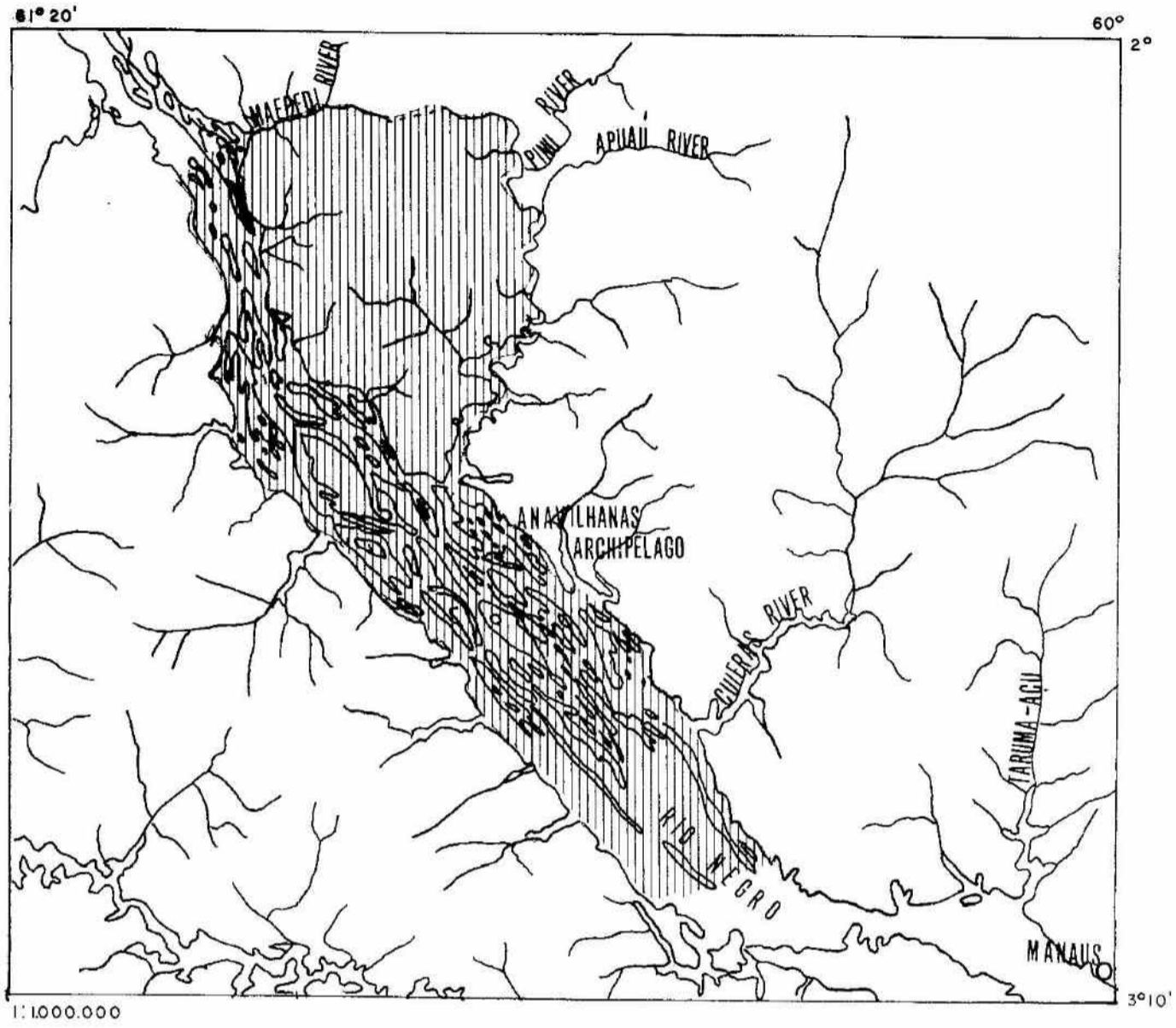
The fauna in this region is very diversified. There are mammals, birds and reptiles, such as great anteaters (*Myrmecophaga jubata*), guara wolves (*Chrysocyon brachyurus*), Muscovy ducks (*Cairina moschata*), Marcgrave's black-winged bell-birds (*Procnias averano*), chestnut-bellied rice grosbeaks (*Oryzoborus angolensis*), large-billed rice grosbeaks (*Oryzoborus crassirostris*), rheas (*Rhea americana*) caymans (*Caiman spp*), turtles (*Testudo tabulata*), pit vipers (*Bothrops jararaca*) and rattlesnakes (*Crotalus terrificus*).

4.4 — OTHER INFORMATION:

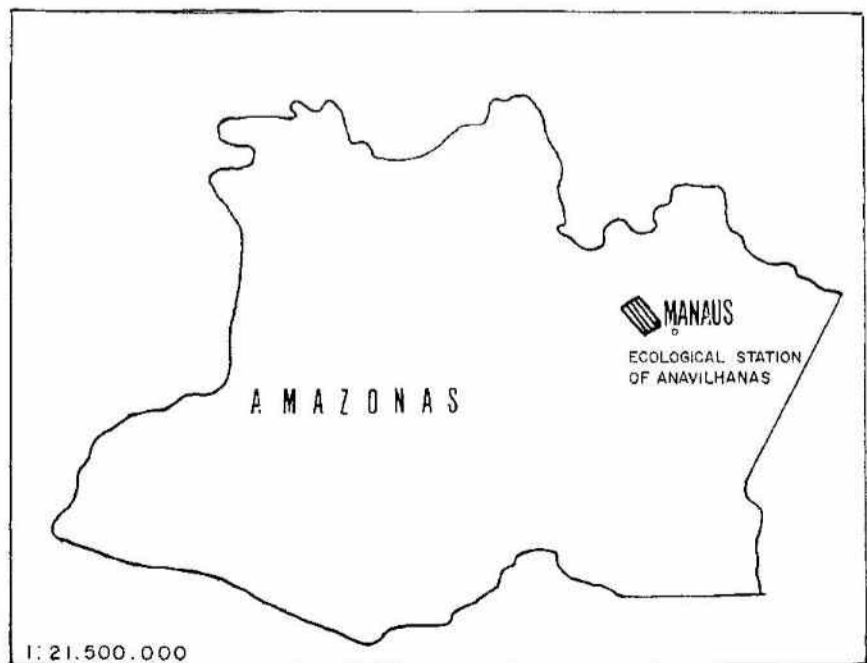
The state of Piauí transferred the area to SEMA, by way of Law nº 3387, passed on 27 April, 1976.

The station is 96km from the town of Bom Jesus. The highway linking both places was built by the State Work Foundation of Piauí through an agreement with SEMA. In Bom Jesus there is an airfield and other means of communication.

ECOLOGICAL STATION OF ANAVILHANAS



MINTER/SEMA
-SACT-



5 ECOLOGICAL STATION OF ANAVILHANAS

5.1 – AREA:

350,000 ha.

5.2 – LOCATION:

Near the mouth of the Rio Negro between the counties of Manaus and Airão, in the state of Amazonas.

5.2.1 – Latitude:

2⁰⁰' to 3⁰²'S

5.2.2 – Longitude:

60²⁷' to 61⁰⁷'W

5.3 – GENERAL ASPECTS:

The Anavilhanas Archipelago is composed of a large number of islands, which act as current-guides. It is about 90km long. Its widest part reaches 15km.

There are some lakes, one of them quite big. It is located at the north.

Though a rather poor water-life is characteristic of the "black rivers" of this region – as in all the extension of the Rio Negro – this area is exceptionally rich in vegetation.

On the other hand, one should point out the high touristic interest, owing to the landscape and to the neighborhood of Manaus (50km), as well as to the fact that it is near the meeting-point of two important international highways: Manaus–Bogota (not built yet) and Manaus–Caracas.

The vegetation of the region is prevailingly of humid lowland forests, high and thick

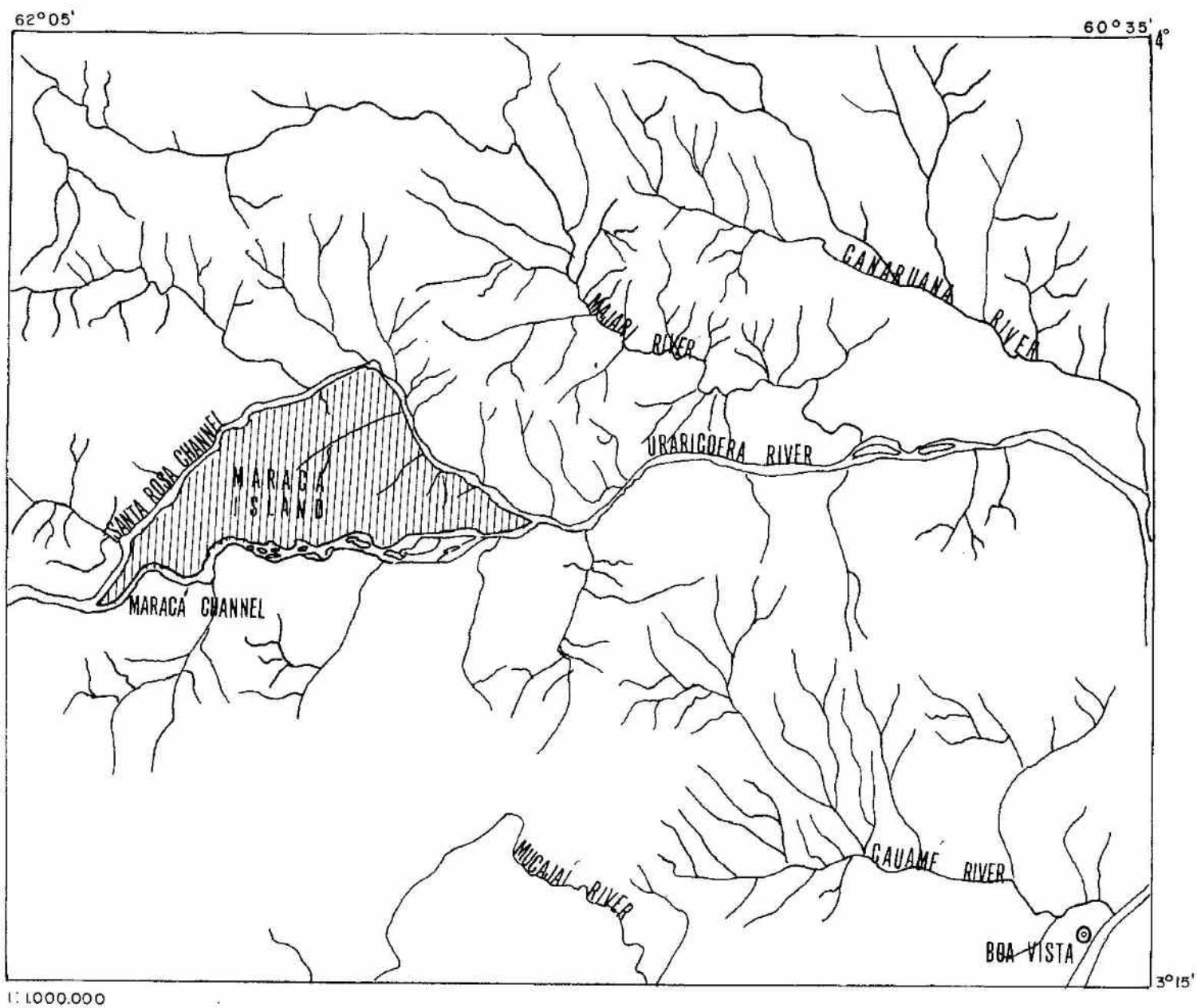
megathermical hygro and hydrophilous ones. They are ecologically divided into "terra firma" forest and marshy forest. There are open spaces along the streams. In the Archipelago there are a lot of forests called "igapó" (a forest bordering a river which is subject to such fluctuations of water level that for months the trees are partly inundated); they suffer the influence of high water during the months of May and June.

The avifauna and the entomofauna are characteristic of swamp regions and they present typical aspects of adjustment to the environment.

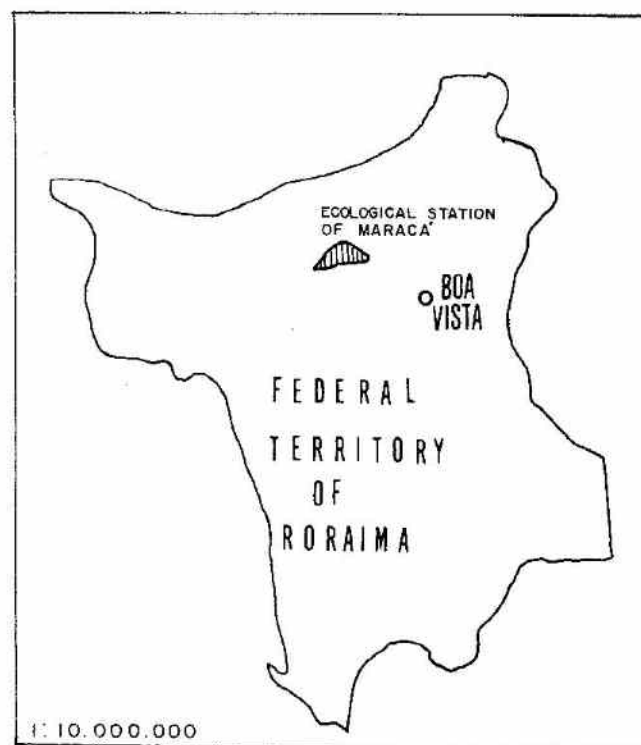
The Ecological Station will also have "terra firma", up to the north in the Archipelago, with about 250,000 ha. The headquarters of the station will be established there, where they will be out of reach of the floods and will be able to protect the regional "terra firma" fauna. This part of the area has a rough topography. Its forests, its "campinaramas" (a kind of savanna) with lichen and other peculiar vegetal forms, and its groves of palm trees increase the scientific interest in the region.

5.4 – It is 100km far from the intersection of the Manaus–Alto Rio Negro and Manaus–Caracaraí (BR–174) highways. The area, under jurisdiction of the State and Federal Governments, is being transferred to SEMA. It is 50km far from Manaus, a city with an international class airport and means of water and land communication. But the only way of communication between the station and Manaus is the Rio Negro.

ECOLOGICAL STATION OF MARACÁ (RR)



MINTER/SEMA
- SACT -



6 ECOLOGICAL STATION OF MARACÁ — RORAIMA

6.1 — AREA:

92,000 ha.

6.2 — LOCATION:

In the county of Boa Vista, Federal Territory of Roraima. It is formed by the bifurcation of the Uraricoera river. In the north, the bordering line of this island is the Santa Rosa channel and, in the south, its bordering line is Maracá channel.

It is situated in the northern hemisphere. In fact, it is the station situated in the most northerly part of Brazil.

6.2.1 — Latitude:

3°15' to 3°35'N

6.2.2 — Longitude:

61°22' to 61°58'W

6.3 — GENERAL ASPECTS:

Its vegetation cover is characterized by a tropical rain forest, as well as by a savanna on the East.

As the island is periodically partially flooded, there are various peculiar types of vegetation.

Due to a lot of water courses, there are dense formations of burity palms (*Mauritia vinifera*). There are swamps and flooded soil much of it

covered by exuberant hydrophilous vegetation.

There are very important hardwoods, such as rosewood (*Aniba*) — a tree of the laurel family —, "itaúba" (*Mezilaurus*), laurel (*Ocotea*), jenny wood (*Cordia goeldiana*) and cedrela (*Cedrela*). Among the small plants, the most interesting and representative of regional ecological conditions are several groups of epiphytes, mainly bromeliads and orchids.

There are several kinds of animals menaced by man such as otters (*Pteronura brasiliensis*), jaguars (*Panthera onça*), tapirs (*Tapirus terrestris*), caymans (*Caiman spp*) and a diversified avifauna characteristic of American tropical forests.

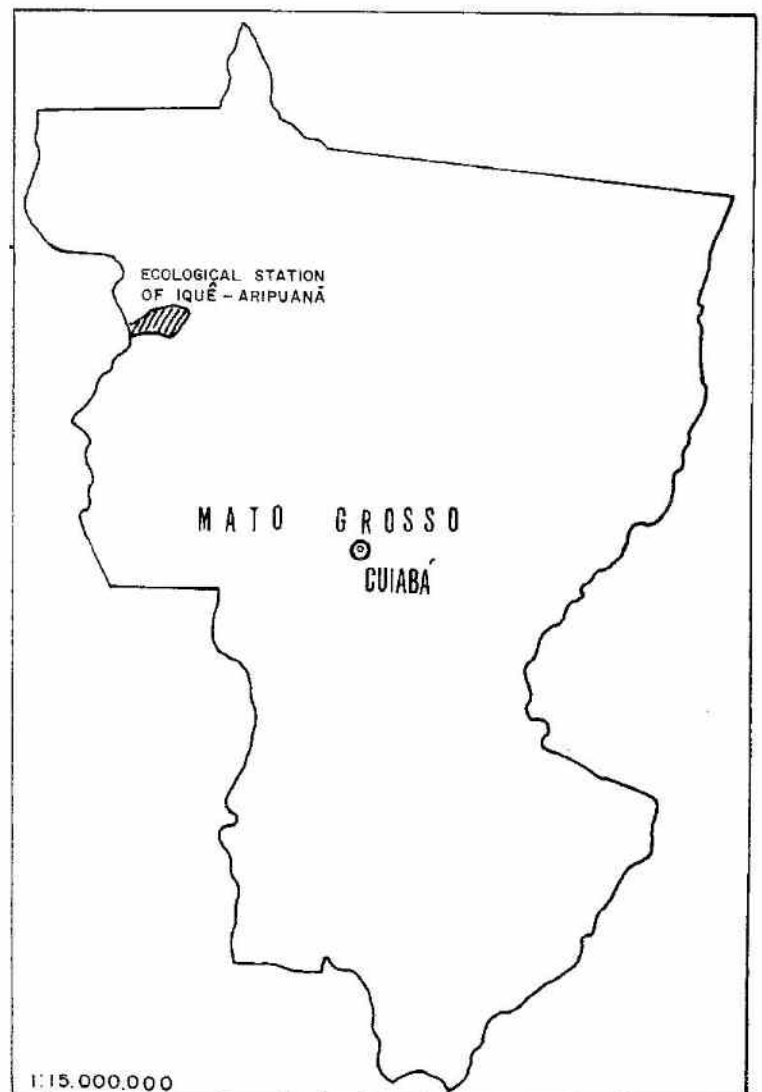
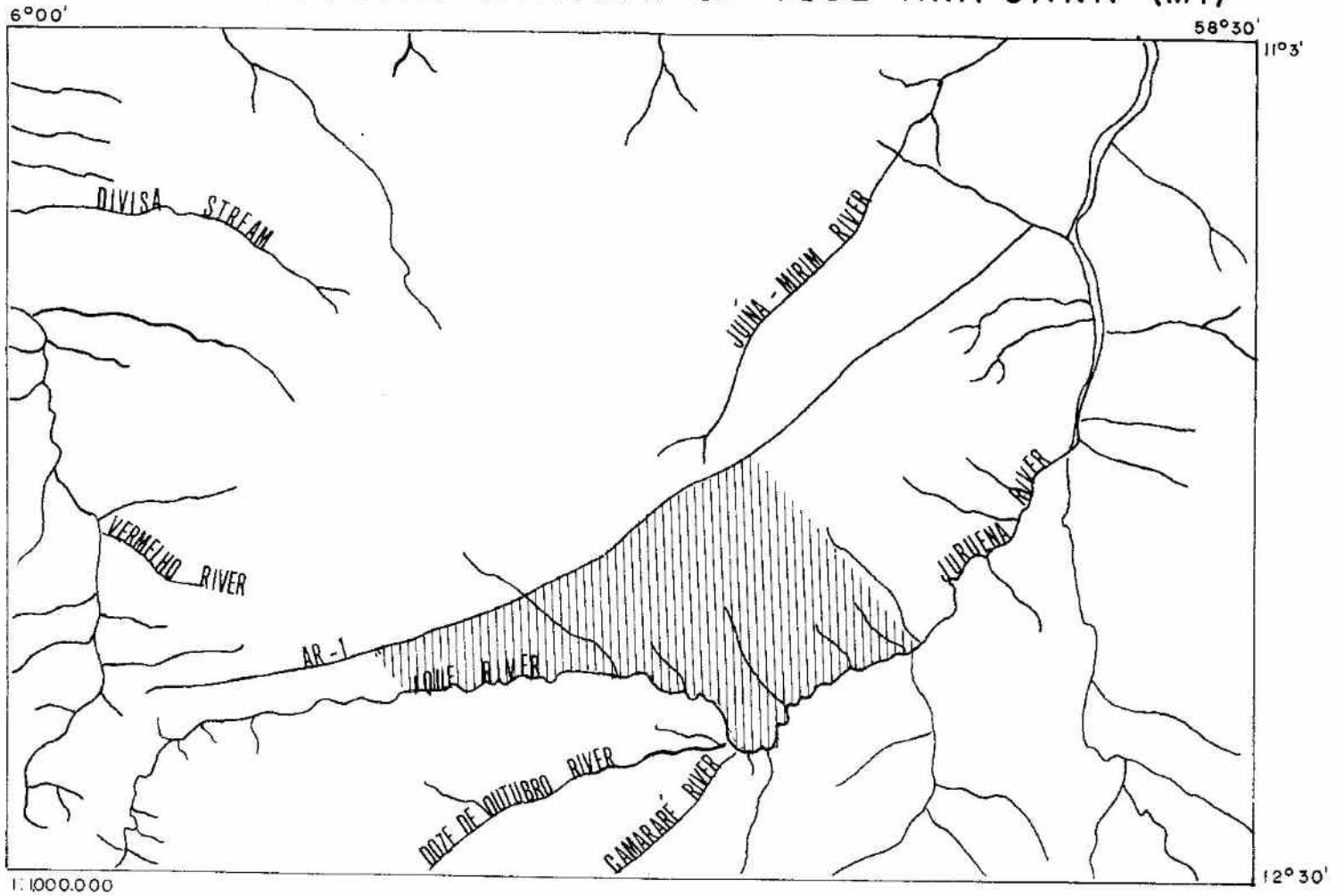
6.4 — OTHER INFORMATION:

By way of Decree n.º 07, promulgated on 23 February, 1976, the Government of the Federal Territory of Roraima transferred the insular area to SEMA.

Boa Vista, the capital, is 110km away by highway, and 160km away by river.

It has an airport and means of communication. Highway BR-174 — links Boa Vista to Manaus. During the rainy season it is possible to sail from Manaus to the Ecological Station.

ECOLOGICAL STATION OF IQUÊ-ARIPUANÃ-(MT)



MINTER/SEMA

-SACT-

7 ECOLOGICAL STATION OF IQUÊ — ARIPUANÃ

7.1 — AREA:

266,000 ha.

7.2 — LOCATION:

In the state of Mato Grosso, in the south of the county of Aripuanã, on the left side of the Iquê river.

7.2.1 — Latitude:

11°30' to 12°21'S

7.2.2 — Longitude:

58°42' to 59°53'W

7.3 — GENERAL ASPECTS:

It is a transition belt between the Hylea — Amazon luxuriant rain forest of high big trees —, the “cerradão” (forest of trees also found in the cerrado savannas) and scrubby savannas. By and large, the forest here is gallery. The relief of the area is characterized by rather undulating surfaces. There are rivers and brooks.

SUDECO, as stated in its studies published in 1974, found out that the soil in this region is too sandy and not fit for agriculture.

As the soil in the neighborhood is going to be modified by human action, it will offer ideal conditions for comparative studies.

To the north, CODEMAT is planning a town — Juiná — and a large agricultural estate made up of small properties. To the east, large cattle farms are being established. To the west, there is the Cintas Largas Indian Reservation. Close to them, some squatters have taken possession of some land. Thus, it will be important to compare the protected area with the ecological situation of every type of soil use in the surrounding area.

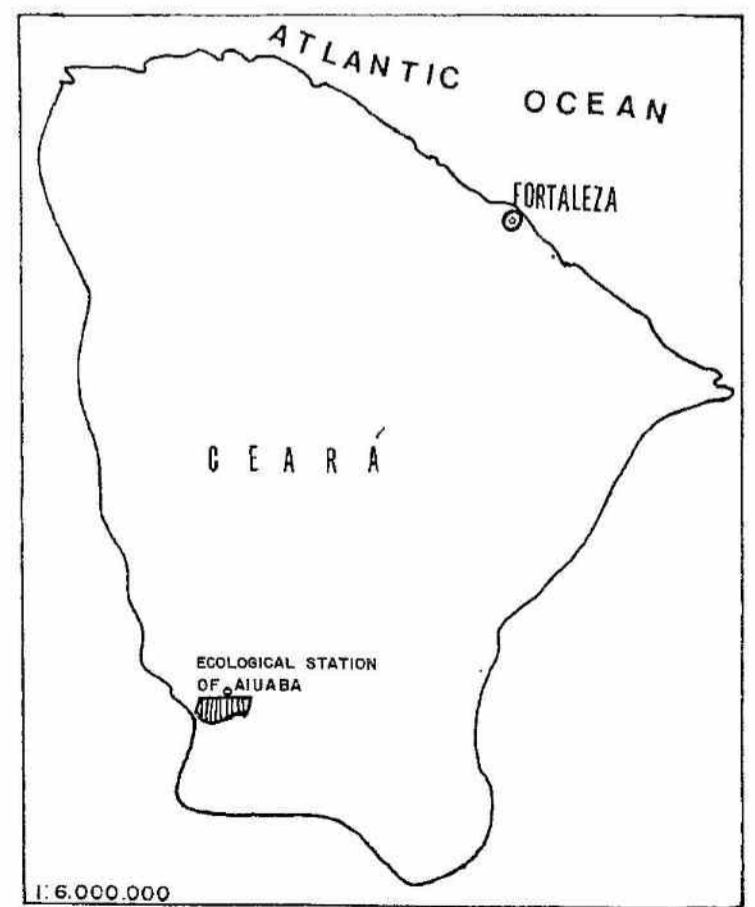
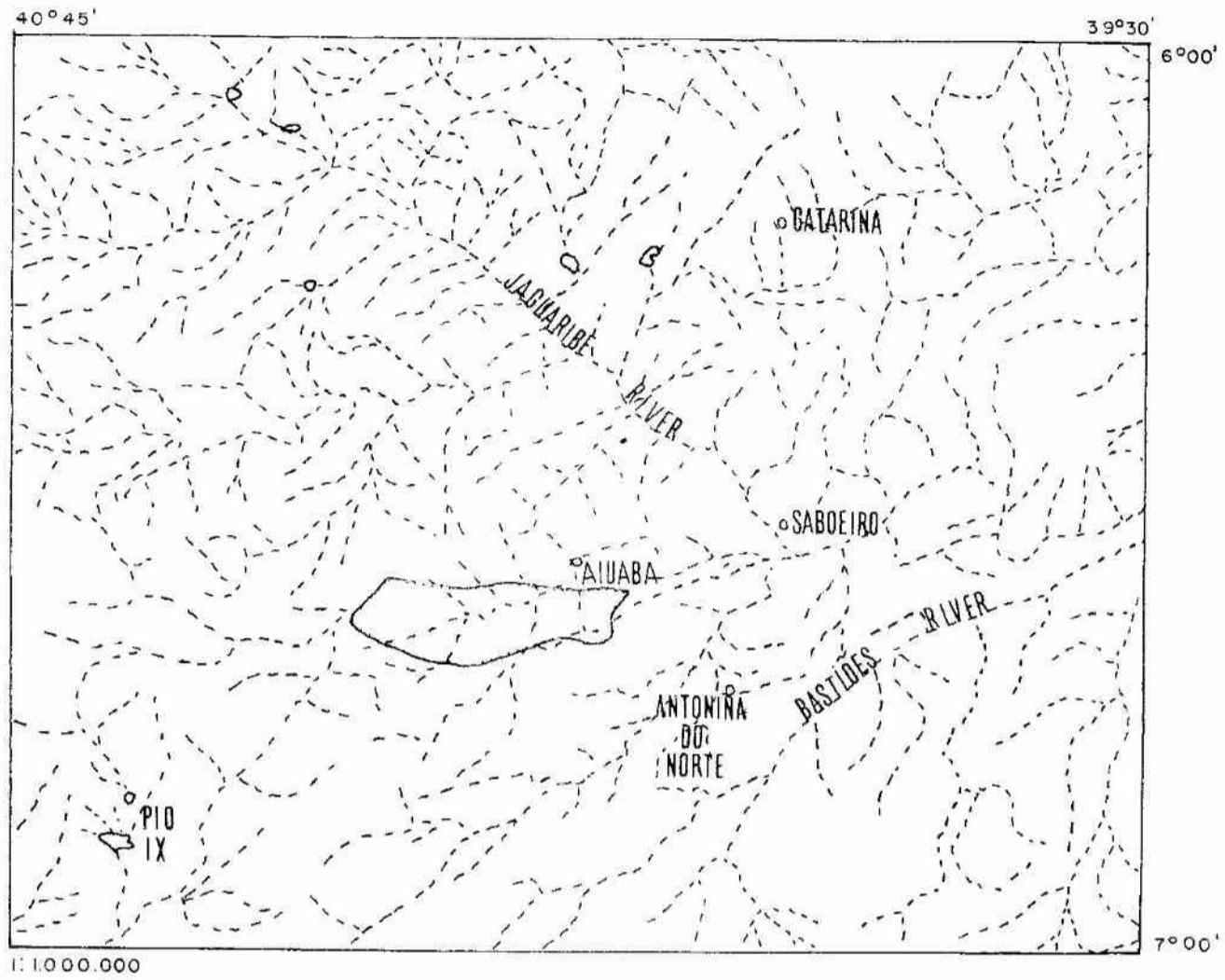
The fauna is quite diversified, not only in species from the Amazon forest, but from the “cerradão” as well.

A very rich ichthyological fauna and a diversified avifauna, besides other animals such as jaguars (*Panthera onca*), tapirs (*Tapirus terrestris*), otters (*Lutra paranensis*), giant river otters (*Pteronura brasiliensis*), spider monkeys (*Ateles sp*) and large big-bellied woolly monkeys (*Lagothrix sp*) are bound to disappear.

7.4 — OTHER INFORMATION:

The logistical support will be given by Vilhena (Rondônia) which is 80km from the station and by Fontanilhas, in the State of Mato Grosso. Both towns have airfields. The state highway AR-1 passes through the station linking it to the above mentioned towns. A federal highway and a commercial airline link Vilhena to Cuiabá.

ECOLOGICAL STATION OF AIUABA-(CE)



MINTER/SEMA
SACT

8 ECOLOGICAL STATION OF AIUABA

8.1 – AREA:

13,065 ha.

8.2 – LOCATION:

In the region of “Sertões dos Inhamuns”, state of Ceará.

8.2.1 – Latitude:

6°35' to 6°41'S

8.2.2 – Longitude:

40°07' to 40°20'W

8.3 – GENERAL ASPECTS:

This area is composed of low sierras. Some parts are rugged, others only a little rugged, and some are flat.

The arboreal and subarboreal dense vegetation

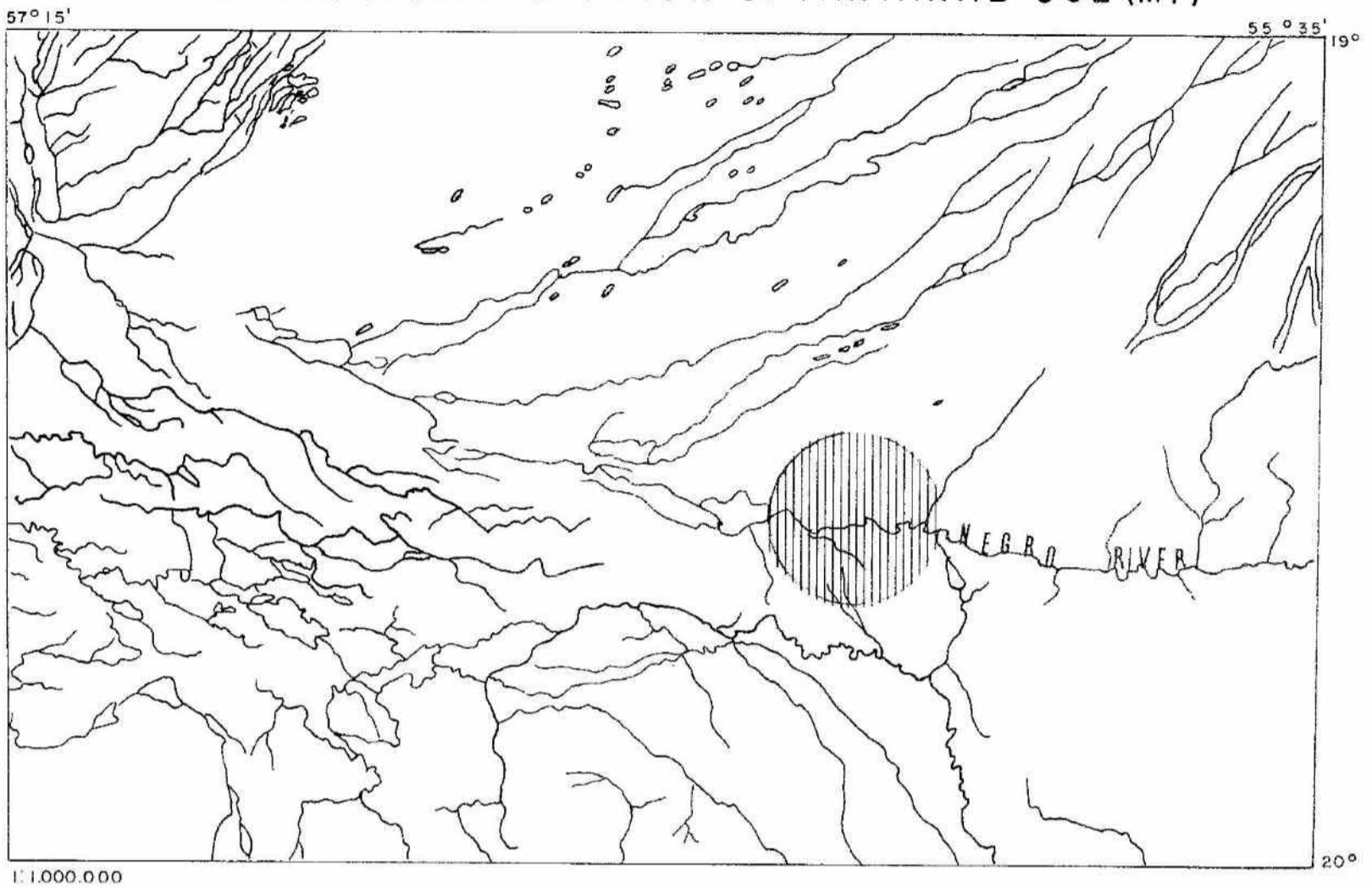
in the municipality of Aiuaba – except for some cultivated areas – did not suffer modifications by man. In some places the “caatinga” becomes quite scattered, presenting an almost naked soil with only some typical scrub species.

Since this place is far away from the large centers and subject to severe drought effects, few people live there. Thus, its flora and fauna have been quite preserved. It is probably the largest last remaining arboreal caatinga in Brazil.

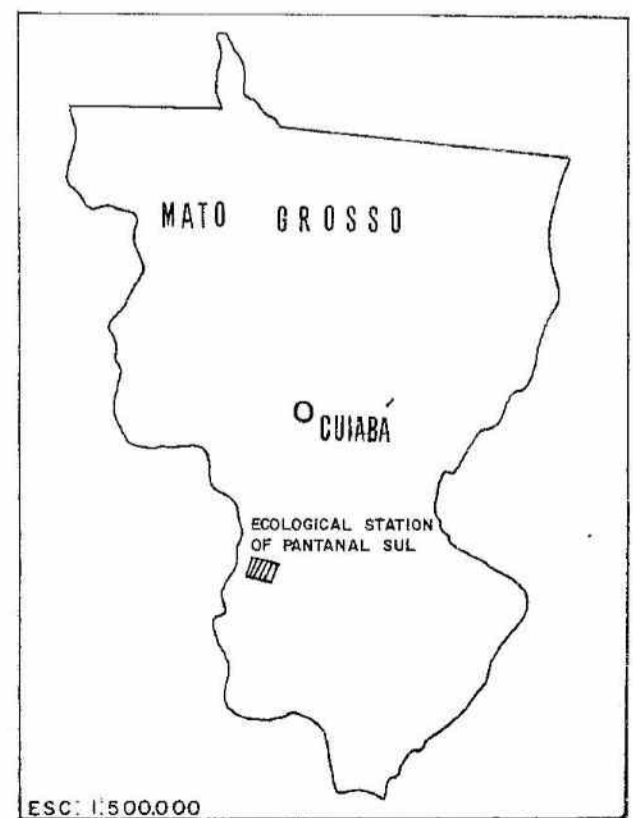
8.4 – OTHER INFORMATION:

Joazeiro do Norte and Aiuaba are the nearest towns. There is an airport in Aiuaba. A state highway coming from Fortaleza (CE-75) passes the Ecological Station.

ECOLOGICAL STATION OF PANTANAL SUL (MT)



MINTER/SEMA
- SACT -



9 ECOLOGICAL STATION OF PANTANAL SUL

9.1 – AREA:

2,000 ha.

9.2 – LOCATION:

In the state of Mato Grosso — the southern part of the Pantanal —, in the region of the Rio Negro.

9.2.1 – Latitude:

19°10' to 19°40'S

9.2.2 – Longitude:

56° to 57°10'W

9.3 – GENERAL ASPECTS:

The ecological aspect and the landscape make this region one of the most interesting places in the country.

Forests, grasslands and lagoons are alternated and make an interesting set on the whole. Due

to the variation of salinity, which controls the proliferation of several kinds of algae, many of the existing lagoons present diversified colors.

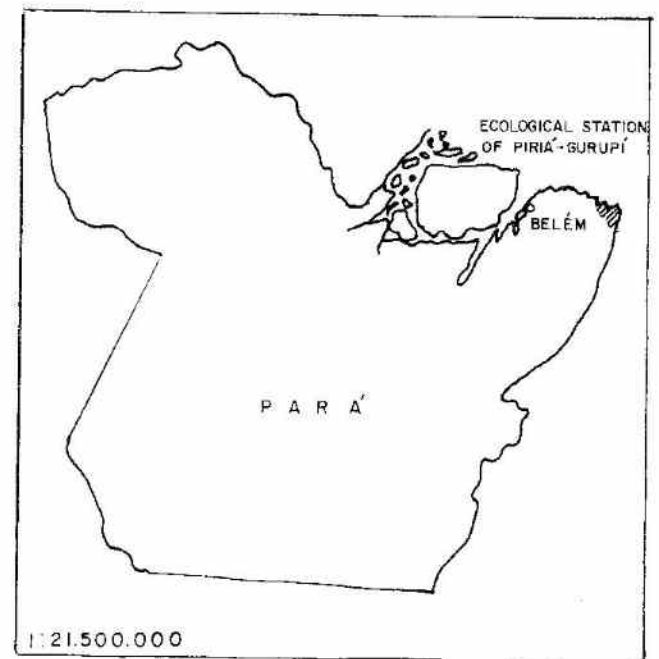
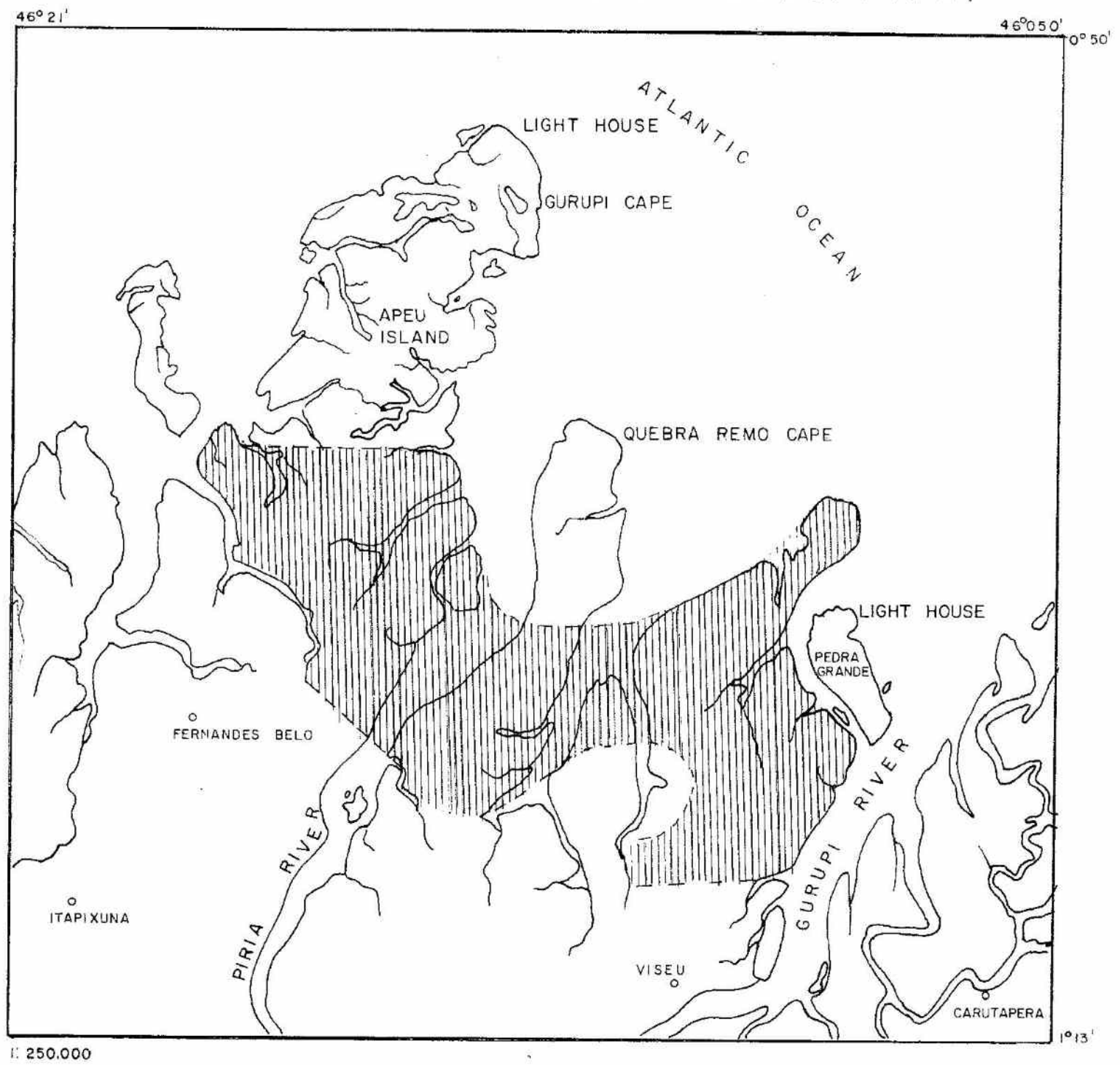
It is SEMA's intention to preserve part of this important eco-system, bearing in mind its peculiar characteristics. Its fauna is very diversified.

The implantation of this ecological station will make it possible to preserve a large amount of nests of water-birds, mainly herons (*Ardeidae*). It will also protect some vertebrate animals such as peccaries (*T. tajacu*), whitelipped peccaries (*T. pecari*), caymans (*Caiman spp*) and swamp deer (*Edocerus dichotomus*).

9.4 – OTHER INFORMATION:

Aquidauana, with an airfield, railroad and good highways will be the logistical support for the station.

ECOLOGICAL STATION OF PIRIÁ — GURUPI (PA)



MINTER/SEMA
-SACT-

10 ECOLOGICAL STATION OF PIRIÁ — GURUPI

10.1 — AREA:

31,000 ha.

10.2 — LOCATION:

In the coastal region of the state of Pará.

10.2.1 — Latitude:

0°52' to 1°11'S

10.2.2 — Longitude:

46°02' to 46°17'W

10.3 — GENERAL ASPECTS:

The coastal region in Pará is very interesting from the ecological point of view. It is an extensive coast, full of islands and estuaries, most of it covered by huge mangroves. It is probably there where the famous shrimps caught from Amapá to Maranhão, and exported on a large scale are raised. There are also there plenty of fish, especially "piramutaba". It is one of the richest coastal regions in Brazil, from the viewpoint of fishing, but it is still very little known in its biological aspects. As a result, its great natural resources are not exploited as they should be.

The Gurupi river empties into the Atlantic Ocean Near Vizeu, thus separating the state of Pará from the state of Maranhão. In the state of Pará, between the mouths of the Gurupi and Piriá rivers (both of them have a parallel

course) there are three peninsulas, all of them very interesting from the ecological point of view.

They are lowlands, most of them covered by lot of mangroves which were never ravaged by man. Small lagoons, open spaces, shrub vegetation and small trees can also be found there. There is very little agriculture and no roads. Though most of the coast is covered by mangroves, there are also some white sand beaches.

At Cape Gurupi — a Navy lighthouse can be found there — a large lagoon of blue water is situated between the beach and a huge sandbank. Nearby, to the south, there is a sandy island still in formation, already presenting shrubs.

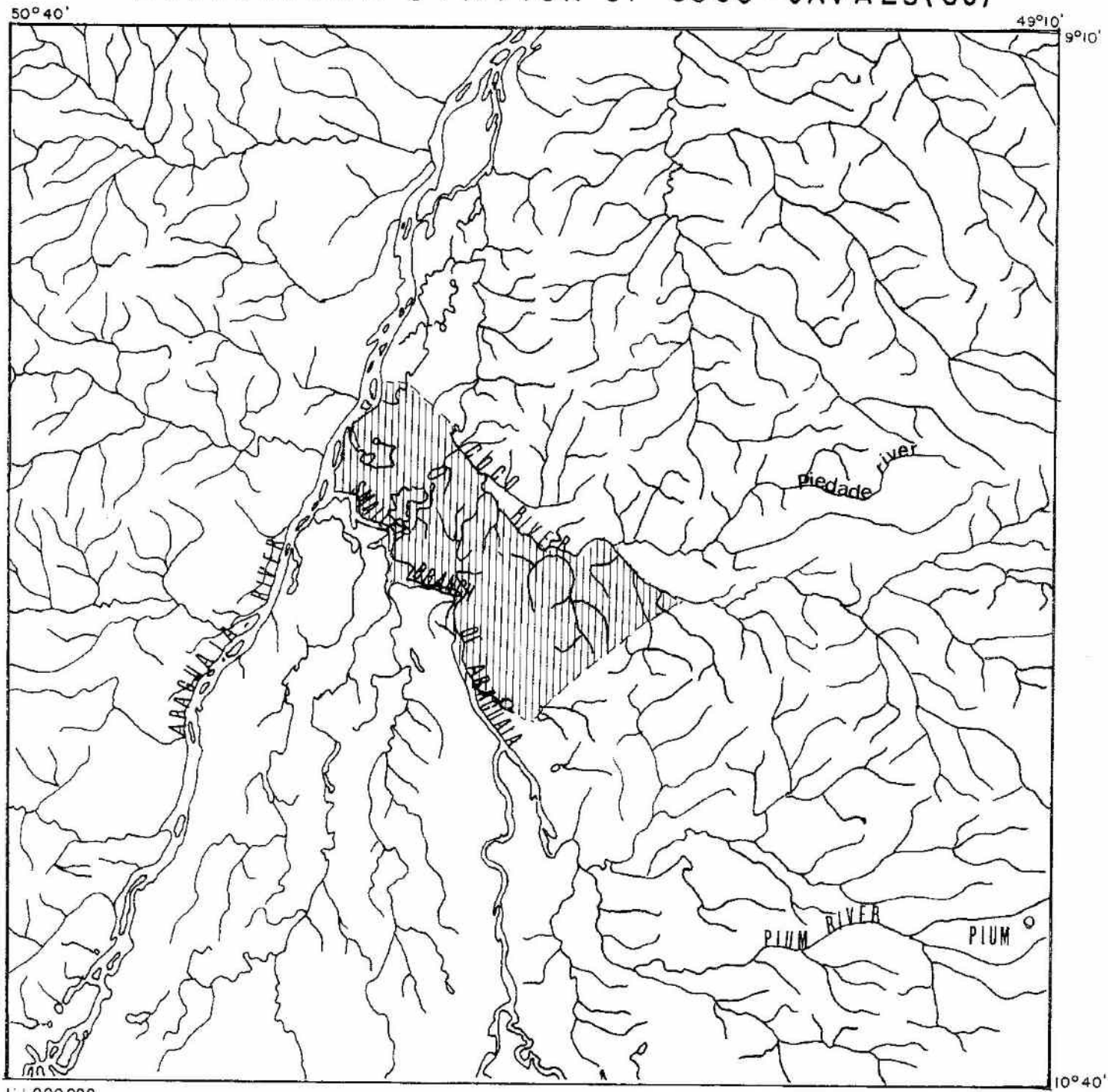
The Piriá estuary lies between the North and the Middle peninsulas. This is one of the few regions in the world where it is still possible to preserve a whole estuary, to study the water-life.

It would be difficult to find a more proper place for an Ecological Station — set aside for the studies of several aspects of marine life and coastal vegetation — than this one.

10.4 — OTHER INFORMATION:

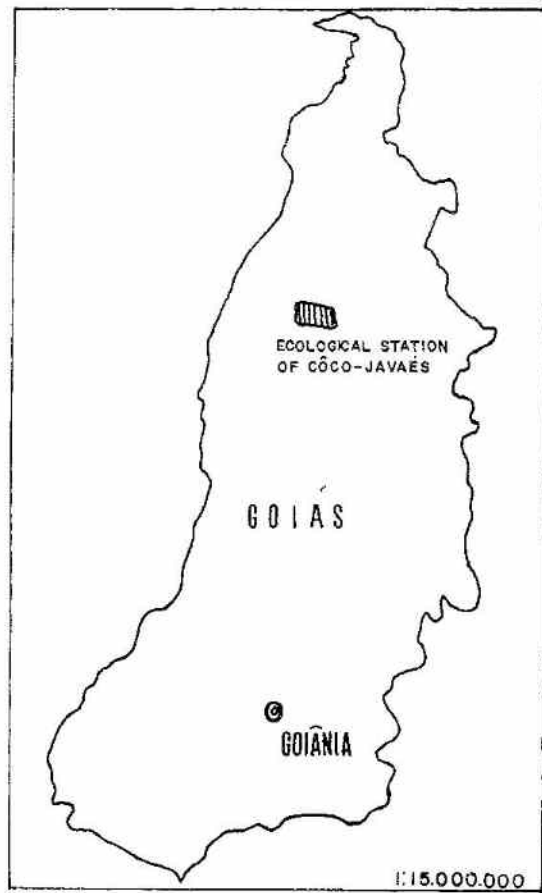
The logistical support will be in Vizeu, which is linked to Bragança and to Belém do Pará by highway.

ECOLOGICAL STATION OF CÔCO-JAVAÉS(Go)



1:1.000.000

10°40'



1:15.000.000

MINTER/SEMA
-SACT-

11 ECOLOGICAL STATION OF COCO-JAVAÉS

11.1 – AREA:

37,000 ha.

11.2 – LOCATION:

In the state of Goiás, to the north of Bananal island, in a region called "Cantão de Goiás".

11.2.1 – Latitude:

9°48' to 10°27'S

11.2.2 – Longitude:

49°00' to 50°07'W

11.3 – GENERAL ASPECTS:

Owing to the rainfall pattern, this region has singular ecological characteristics. Its forest, except for small parts on a higher ground, remains flooded for several months of the year. The soil, almost all sandy, is very poor.

In the dry season, many lagoons are formed by the retention of flood water in shallow

depressions. Fish, such as pirarucu – a large-scaled Amazon fish, said to be the largest fresh-water fish in the world, attaining a length of 15 feet and a weight of 500 lbs. –, (*Arapaima gigas*), tucunaré (*Cichla spp*) and traíra (*Hoplias malabaricus*), are found in those lagoons.

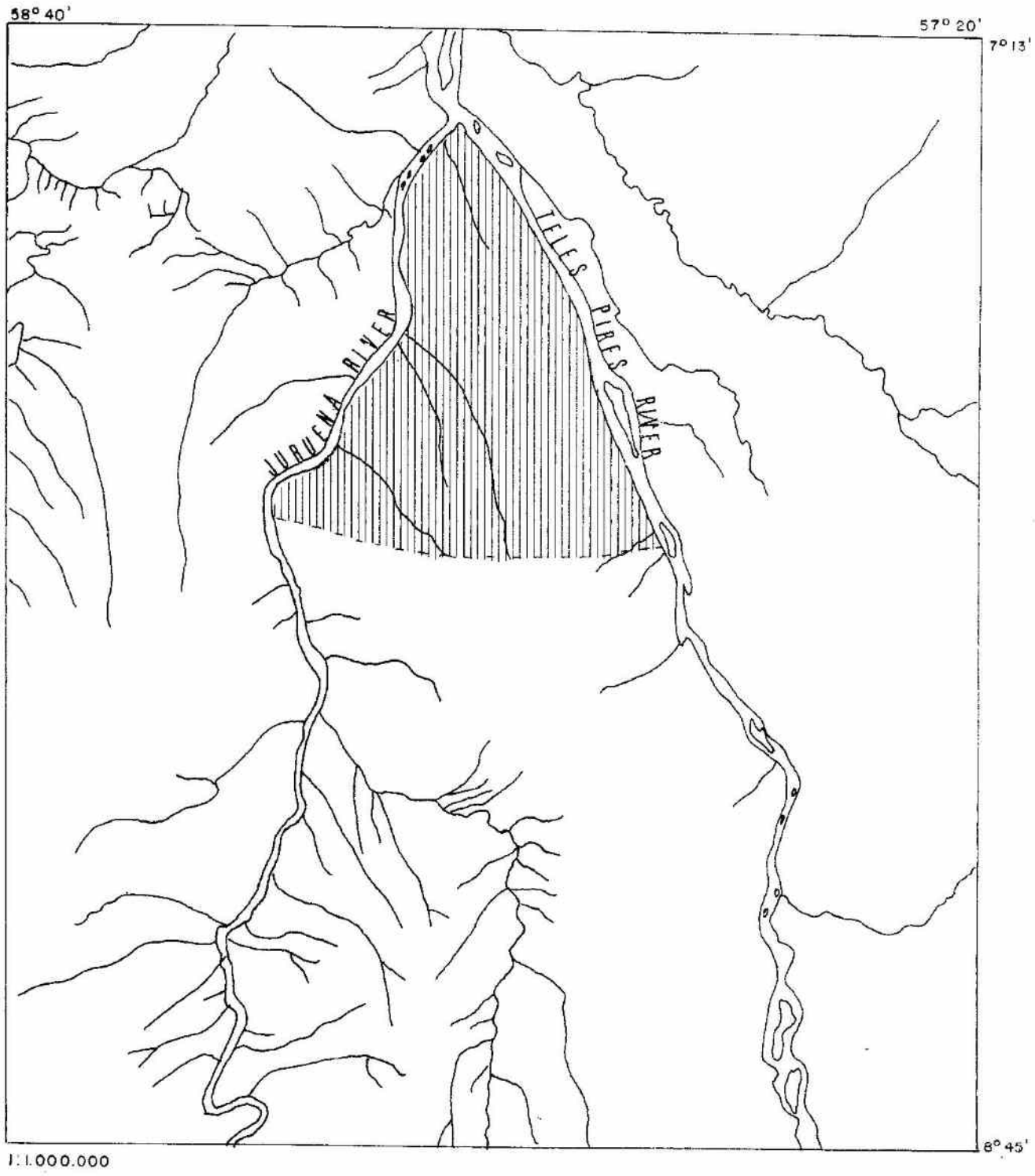
Large white-sand beaches appear along the Coco river during the dry weather.

It is SEMA's intention to acquire about 2,000 ha. of "terra firma" to install there the headquarters of the Ecological Station. This savanna area would shelter a somewhat different fauna, such as rheas (*Rhea americana*), partridges (*Rhinchotus rufescens*), deer (*Blastoceros bezoarticus*) and tapirs (*Tapirus terrestris*).

11.4 – OTHER INFORMATION:

The nearest town is Caseara (60km), where there is a small airfield and a highway linking it to Goiânia and Brasília.

ECOLOGICAL STATION OF APIACÁS (MT)



MINTER/SEMA
SACT



12 ECOLOGICAL STATION OF APIACÁS

12.1 – AREA:

500,000 ha.

12.2 – LOCATION:

In the state of Mato Grosso, in the northern part of "Serra dos Apiacás", at the confluence of the Juruena and Teles Pires rivers. This part of the state is called the "Pontal Norte".

12.2.1 – Latitude:

7°20' to 8°45'S

12.2.2 – Longitude:

57°33' to 58°24'W

12.3 – GENERAL ASPECTS:

It is an area of "Ecological tension", where

you can find "cerrados" from the center of Brazil among luxuriant Amazon humid forests, with tall and thick trees.

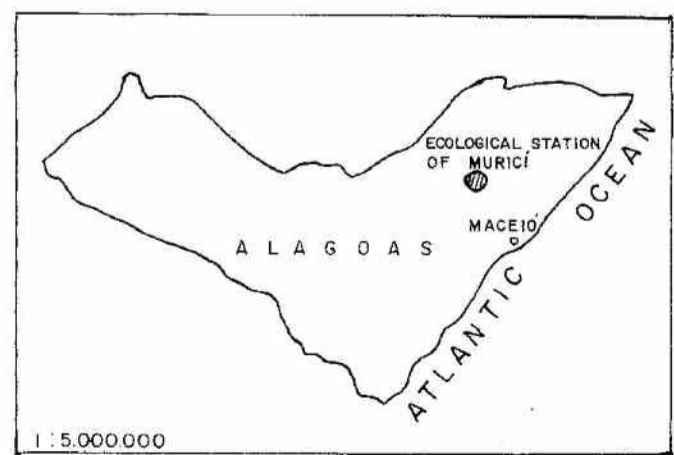
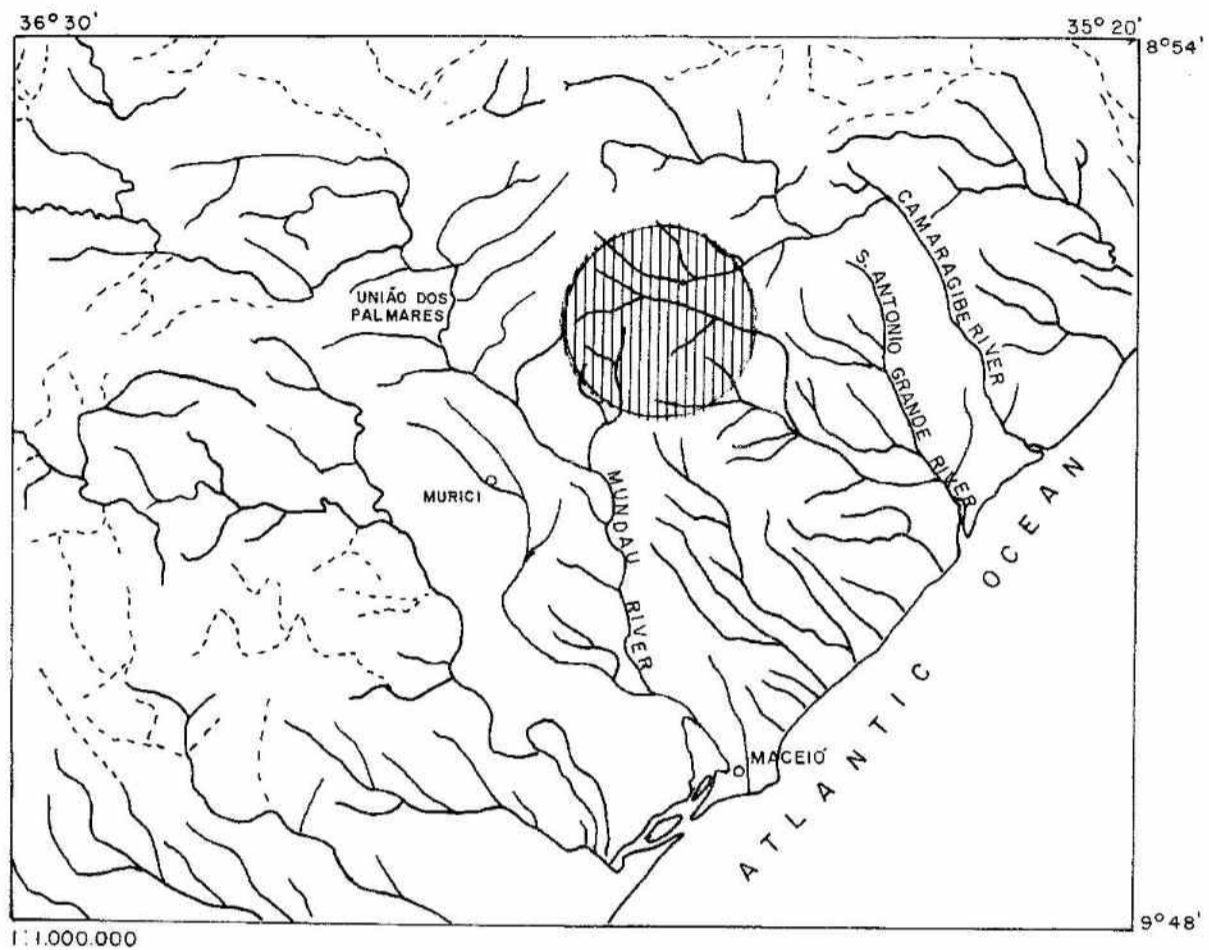
In these "cerrado islands" there are many species of animals and vegetation as a consequence of their ecological isolation, which makes this area one of great importance for studies and research.

Here, where the Tapajós river begins, there is a diversified fluvial fauna, which adds practical and scientific interest to the place.

12.4 – OTHER INFORMATION:

In Dardanelos (Humboldt town) there is an airfield and highways. It will be easier to get there, after the installation of the Ecological Station.

ECOLOGICAL STATION OF MURICI (AL)



MINTER/SEMA
-SACT-

13 ECOLOGICAL STATION OF MURICI

13.1 – AREA:

5,000 ha.

13.2 – LOCATION:

In the state of Alagoas, in the homogeneous micro-region of Mata Alagoana.

13.2.1 – Latitude:

8^o55' to 9^o20'S

13.2.2 – Longitude:

35^o45' to 36^o05'W

13.3 – GENERAL ASPECTS:

It is a forest area, situated on the mountainous massif of Pre-Cambrian rocks of the Atlantic slope. Its escarpments, too steep, make the region unfit for agriculture and, in some parts, even unfit for lumber exploitation.

This area has been chosen for an Ecological Station because of its geological formation which preserved a rather extensive tract of the Seasonal Tropical Forest, already being largely devastated for the planting of sugar cane.

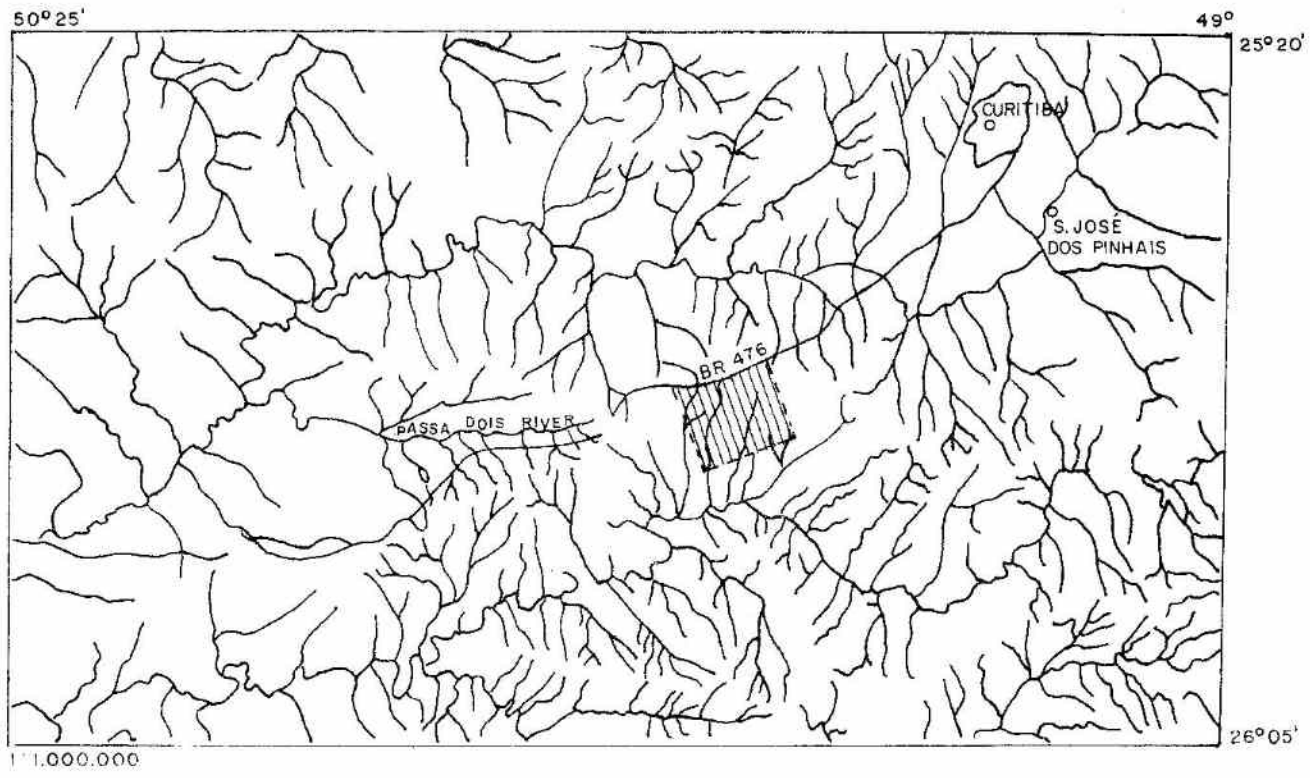
The orographic massif of Murici is the watershed of the basins of Mundau, Santo Antonio Grande and Camaragibe rivers. Small waterfalls and rapids improve its ecological aspect as well as the landscape. It is very important to preserve the natural vegetation of the area in order to guarantee the continuity of the courses of water beginning there. Its preservation will also avoid erosion and the consequent silting up of the rivers.

This tropical forest, typical of the Northeast, is probably still inhabited by tinamous (*Tinamus solitarius pernambucensis*) and razor-billed curassows (*Mitu mitu sbp*), both species on the way to extinction. In case they are not found there anymore, it will be possible to reintroduce them in the Murici region. There is urgent need of taking steps to set up this Ecological Station, as it is estimated that these birds will become extinct, even in their last havens, before 1980.

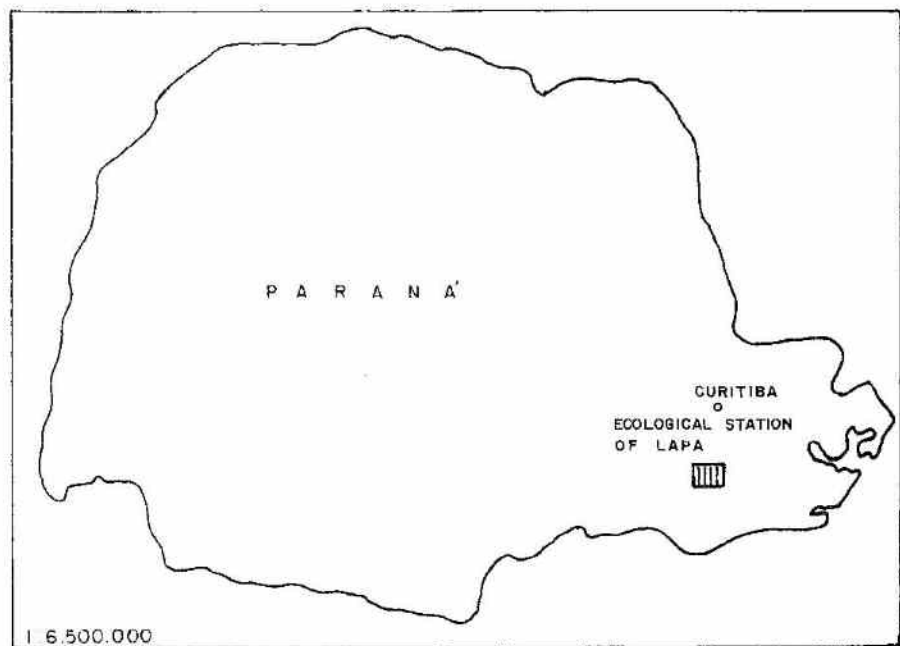
13.4 – OTHER INFORMATION:

The logistical support will be Murici and Maceió, where an airport and excellent highways can be found.

ECOLOGICAL STATION OF LAPA (Pr)



MINTER/SEMA
-SACT-



14 ECOLOGICAL STATION OF LAPA

14.1 – AREA:

1,400 ha.

14.2 – LOCATION:

In the county of Lapa, state of Paraná, close to the BR-476 – “Rodovia do Xisto” (Shale Highway).

14.2.1 – Latitude:

25°35' to 26°

14.2.2 – Longitude:

49°25' to 50°W

14.3 – GENERAL ASPECTS:

It is an area of poor soil for agriculture, a considerable reserve of forests, prairies and clumps of native trees.

Lumber exploitation stopped many years ago. The flora has already grown again, with tall and thick trees, representative of the former

forest. The dominant trees are Paraná pines (*Araucaria angustifolia*), but there are also cinnamon-bark trees, maté (*Ilex paraguayensis*), imbuya (Phoebe), “pau-de-bugre” (*Lithraea brasiliensis*), bitterwood (*Trichilia clausenii*), etc. Under the taller trees is noticeable the presence of (*Podocarpus lambertii*).

Agoutis (*Dasiprocta aguti*), pacas (*Cuniculus paca*) brocket deer (*Mazama americana* and *Mazama gouazoubira*) are some of the diversified local fauna.

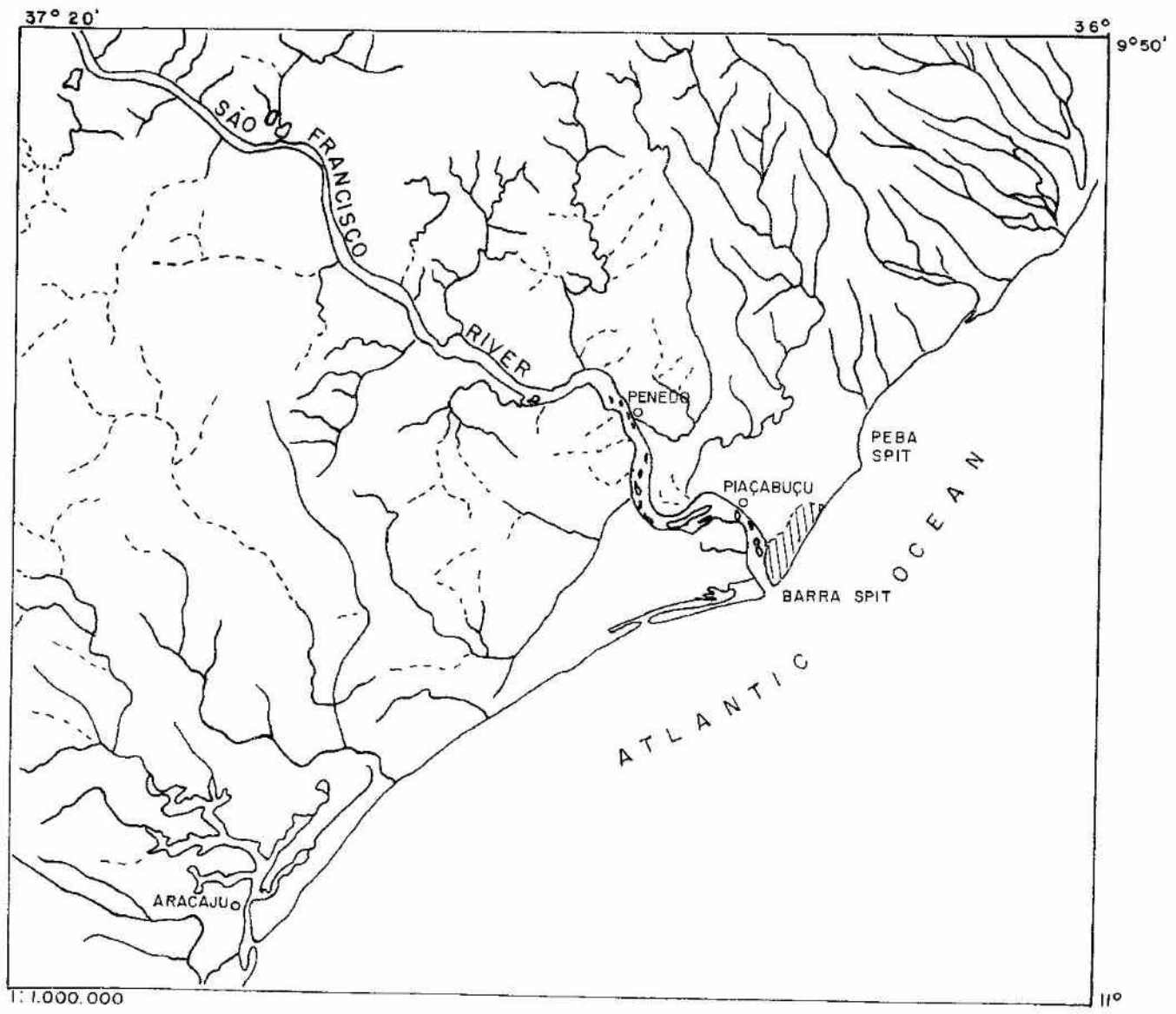
The Espigão Branco river and some of its tributaries cross this area.

As it is one of the last remnants of this ecosystem it is necessary to preserve it.

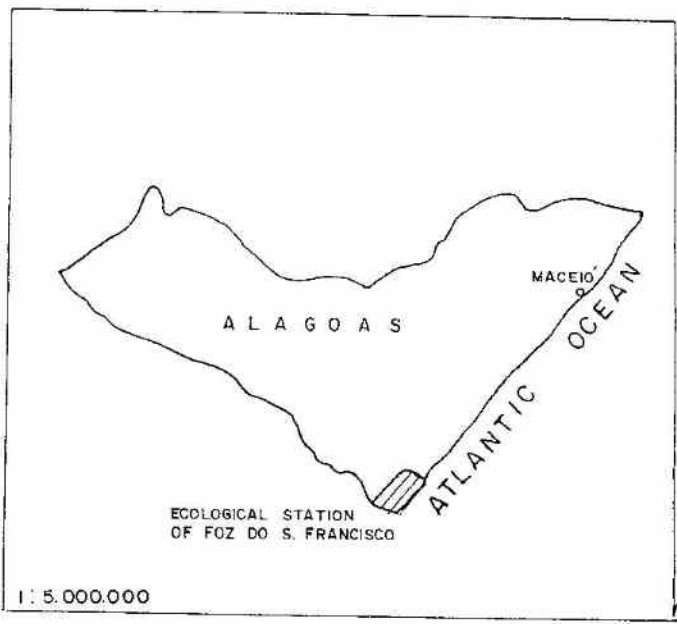
14.4 – OTHER INFORMATION:

The logistical support will be given by Lapa. The Ecological Station will be linked to Lapa and to Curitiba by BR-476, as well as by other local highways.

ECOLOGICAL STATION OF FOZ DO SÃO FRANCISCO(AL)



MINTER/SEMA
-SACT-



15 ECOLOGICAL STATION OF FOZ DO S. FRANCISCO

15.1 – AREA:

About 3,000 ha.

15.2 – LOCATION:

In the county of Piaçabuçu, in the Homogeneous Micro-Region of Penedo, in the state of Alagoas. It is between the Peba and the Barra spits, next to the mouth of the São Francisco river.

15.2.1 – Latitude:

10°20' to 10°30'S

15.2.2 – Longitude:

36°15' to 36°25'W

15.3 – GENERAL ASPECTS:

The area is about 18km long by 2.5km wide. It is an undulating beach with some sand dunes. The coast goes from the mouth of the São Francisco river to the north.

The climate is characteristic of this region. It has an average annual temperature of about 25°C and the annual precipitation varies from 800 to 1,200mm.

It is a transition belt, with a rather original vegetation cover, which must be preserved and studied due to its peculiarities.

According to the FIBGE 1970 Census, the county of Piaçabuçu had a population of

about 10,822 inhabitants living off agriculture, specially off rice cultivation owing to the abundant waters in the large plains near the São Francisco river.

There is no agriculture close to the beach. In this area there are plenty of cacti which deserve to be studied. They grow in a transition belt region and the vegetation does not present in a transition belt region and the vegetation does not present characteristics either of beach vegetation or of a highland one.

According to Professor Vasconcelos Sobrinho from the Federal Rural University of Pernambuco, it is a "desertification nucleus".

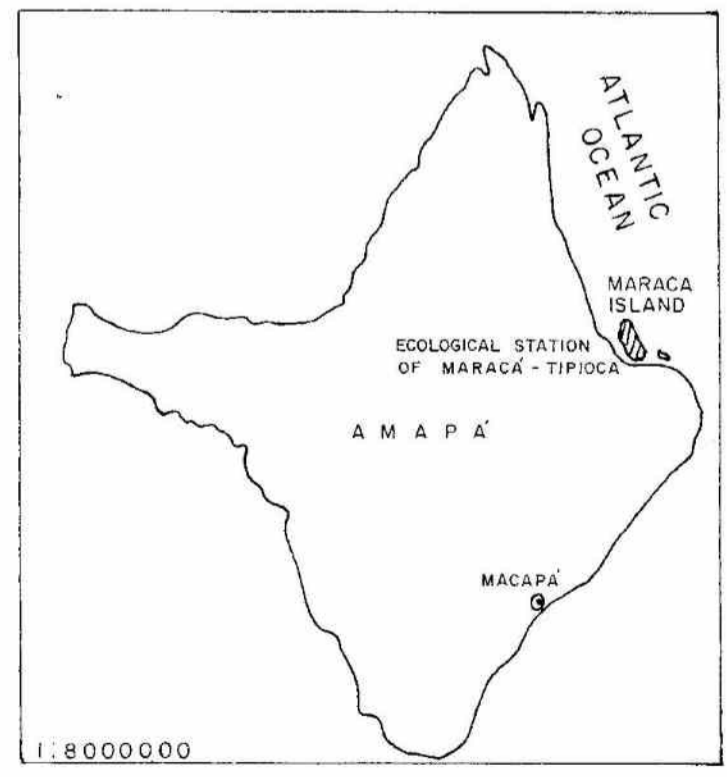
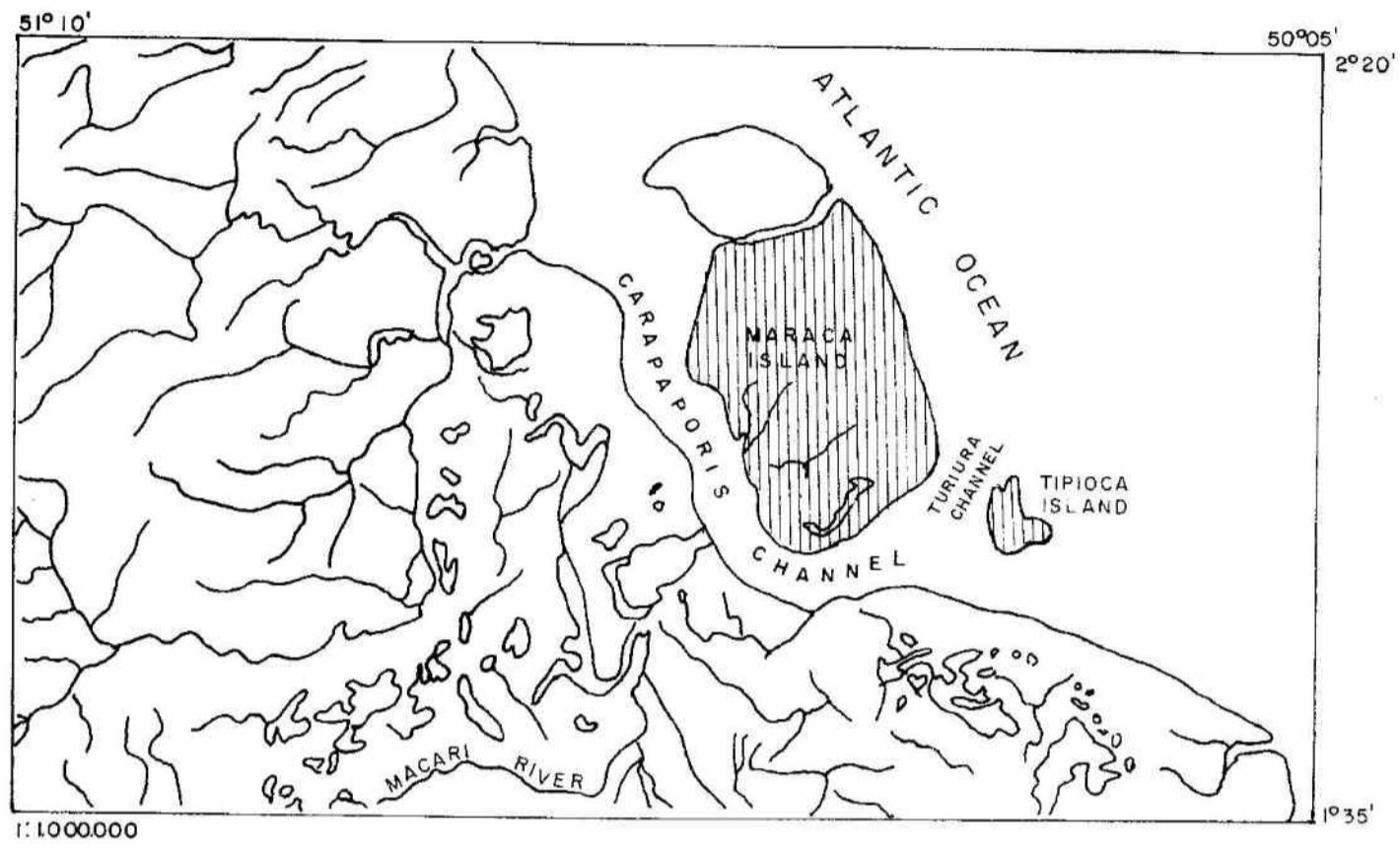
All over the southern coast of the State of Alagoas, sea turtles often come to lay their eggs on the beach, but the increasing occupation of the beaches has reduced those areas. Nowadays, the Peba beach is the main place for the reproduction of these species.

The mouth of the São Francisco river is probably the most southern area where the sea-cow (*Trichechus*) can be found. Illegal fishing, however, is slaughtering the species.

15.4 – OTHER INFORMATION:

The main logistical support can be given by Maceió, the capital of the state, which has regular commercial airlines and many highways.

ECOLOGICAL STATION OF MARACÁ (AP)



MINTER/SEMA
-SACT-

16 ECOLOGICAL STATION OF MARACATIPÍ

16.1 – AREA:

70,000 ha.

16.2 – LOCATION:

Two of the islands of Maracá are situated near the coast of Amapá, not very far from French Guiana, and a narrow channel separates them. The third one, the Tipioca island, is situated more to the southeast. The Tipioca and the South Maracá islands are separated by the Turiura channel.

16.2.1 – Latitude:

1^o50' to 2^o15'N

16.2.2 – Longitude:

50^o17' to 50^o40'W

16.3 – GENERAL ASPECTS:

Thirty per cent of the South Maracá island is covered by huge mangroves which protect the eastern part of the island, i.e., the side of the open sea. A huge number of water-birds concentrate there, all of them with attractive feathers, such as the ibis, heron, spoonbill and possibly flamingo. On the other seventy per cent there are flood savannas and small forests. Everything is primitive there. There are only three or four small houses and no sign of felling of trees or any other predatory activities.

There are also mangroves all over the Tipioca

island, as well as in the North and in the East of the North Maracá island. The rest is only flood savanna, with innumerable scrub "islands". The general aspect of North Maracá island resembles the National Park of the Everglades, in the far south of Florida. There aren't any signs of predatory activities on these islands either.

According to information available, besides the rich avifauna, one of the most important biotic characteristics of these islands is the abundance of jaguars (*Panthera onca*).

Though being sea islands, they have no beaches. The sea comes directly to the mangroves, without breaking waves. This is surprising, because the breaking of waves are common in almost every part of the Brazilian coast. The water is muddy; in fact, it is a part of the Amazon river mixed with the sea. The tides are very high (around 8,00m of amplitude).

From the ecological point of view, these islands present three different ecosystems not yet preserved by the government: natural coastal savannas, tree "islands" associated with them, and mangroves.

16.4 – OTHER INFORMATION:

The nearest logistical support is Amapá, to which Macapá is linked by small boats and highway. At the moment, they have difficult access. This factor, however, has contributed to maintaining the primitive character of these islands.

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