
WORLD HERITAGE NOMINATION - IUCN TECHNICAL EVALUATION

BRAZILIAN DISCOVERY COAST (BRAZIL)

Note: this evaluation is based on a revised nomination of the site as submitted by Brazil on 9 April 1999.

1. DOCUMENTATION

i) **IUCN/WCMC Data sheet** (7 References)

ii) **Additional literature consulted:**

Bibby et al, 1992. **Putting Biodiversity on the Map. Priority Areas for Global Conservation.** Cambridge, UK. Biodiversity Support Program, Conservation International et al, 1995. **A Regional Analysis of Geographic Priorities for Biodiversity Conservation in Latin America and the Caribbean.** Washington, DC. Brown, KS, 1987. **In Biogeography and Quaternary History in Tropical America.** pp 175-96. Whitmore and Prance, eds. Oxford: Clarendon Press. Duellman, WE (ed), 1979. **The South American Herpetofauna: Its Origin, Evolution, and Dispersal.** Univ Kansas Museum Natural History Monogram 7. Fundacao SOS Mata Atlantica, 1892. **Dossie Mata Atlantica.** Sao Paulo: Fundacao SOS Mata Atlantica. Fundacao SOS Mata Atlantica and Instituto Nacional de Pesquisas Espaciais, 1993. **Atlas da Evolucao dos remanescentes florestias e ecossistemas associados do Domino da Mata Atlantica no periodo 1985 - 1990.** IUCN Tropic Forest Program/Conservation Monitoring Centre, 1998. **Brazil Atlantic Coastal Forests: Conservation of Biological Diversity and Forest Ecosystems.** IUCN, 1996. **Centres of Plant Diversity and Endemism.** Chapter IV. Mata Atlantica. Lynch, JD. 1979. University Kansas Museum Natural History Monogram 7. pp189-215. Mori, SA. 1989. Eastern Extra-Amazonian Brazil, **in Floristic Inventory of Tropical Countries: The Status of Plant Systematics.** The New York Botanical Garden, New York. Padua, Maria Thereza Jorge, 1998. **The Atlantic Forest in Brazil.** Prance, 1987. **Biogeography of Neotropical Plants.** In *Biogeography and Quaternary History in Tropical America.* Whitmore and Prance, eds. pp 46-65. Oxford: Clarendon Press. Thomas, et al, 1998. Plant endemism in two forests in southern Bahia, Brazil. **Biodiversity and Conservation**, 7, p311-322. Zelinda Margarida de Andrade Nery Leau, 1996. **The Coral Reefs of Bahia - Morphology Distribution and the Major Environmental Impacts.** An. Acad. bres. Ci. 68 (3). CIFOR/UNESCO. 1999. **The World Heritage Convention as a Mechanism for Conserving Tropical Forest Biodiversity.** 54p.

iii) **Consultations:** Local parks staff; staff of IBAMA Brazil; local NGOs; staff at Veracruz station; C Maretti, IUCN-CMAP-Brazil and Forest Foundation; local and State Government representatives and external reviewers.

iv) **Field visit:** Warren Nicholls, March 1999.

2. SUMMARY OF NATURAL VALUES

The Brazilian Discovery Coast (BDC) is located in the States of Bahia and Espirito Santo in NE Brazil. The nomination consists of 8 separate protected areas which contain 111,930.5 ha of Atlantic forest and associated shrub (restingas). Elevation ranges from sea level to Monte Pascoal (536 m). Of the original 3.5 million hectares of Atlantic Forest in this region, it is estimated that less than 0.5% are intact. The nominated site comprises 78% of that which remains. Outside of the nominated area, the only remaining areas of original Atlantic forests in Bahia are scattered remnants of less than 400 ha in size.

The nominated property consists of 8 separate areas ranging from 1,145 - 24,000 ha in size and include, from north to south: Una Biological Reserve (11,400 ha); Pau Brazil CEPLAC Experimental Station (1,145 ha); Veracruz Station (6,069 ha); Pau Brazil National Park (11,538 ha); Discovery National Park (21,129 ha); Monte Pascoal National Park (13,872.5 ha); Linhares Forest Reserve (22,777 ha); Sooretama Biological Reserve (24,000 ha).

The two privately owned areas (Veracruz and Linhares) are managed totally for conservation and research and provide full protection for the forests. Both these areas are managed in accordance with arrangements appropriate for IUCN Category I reserves.

The nominated area is enclosed within a buffer zone that is mostly privately owned and used primarily for pastoral activities and forest plantations. The buffer zone is a UNESCO Biosphere Reserve of nearly 1 million ha and provides an overall management framework for the nominated core zones.

Atlantic forests are the world's richest rainforests in terms of biodiversity (along with the Choco Forests of the lower Colombian Amazon basin and the Yanomomo forests of Peru) and they are restricted to the Brazilian coastal region. Unfortunately, in Northeast Brazil the forests have suffered from clearing and abusive soil practices and only a few disjunct fragments remain (see map). Of the original Atlantic forest, which comprised over 1,250,000 square kilometres and occupied some 15% of Brazil, less than 8% (or 90,000 km²) still remain. Partially isolated since the Ice Age, the Atlantic forests have evolved into a complex ecosystem with exceptionally high endemism (70% of the tree species, 85% of the primates and 39% of the mammals) and are considered to be among the world's richest forests for tree species (almost 300) per hectare (particularly for Myrtaceae species). It is also the region in Brazil with the greatest number of endangered and threatened species. Brazil's Atlantic forests are perhaps the most endangered forest ecosystem on earth (Mori, 1989) and have been given the highest priority for biodiversity conservation (Bibby et. al. 1992, Biodiversity Support Program 1995). It is one of the "Global 200" ecoregions and one of the "Focal 25" priorities of WWF. The exceptionally high biodiversity and level of endemism may be explained by high tropical humidity (due primarily to the oceanic influence and hillside condensation effects), and the range of altitude and geographical extension leading to the creation of a wide range of climatic and ecological conditions.

Biogeographically, the Atlantic forests have recently been split into two distinct areas: the Northeastern (Discovery Coast) and Southeastern regions. This nomination is focussed on the Northeastern region in the Bahia/Espirito Santo States. A separate nomination for the Southeast Atlantic Forests in the States of Parana and Sao Paulo has been submitted by Brazil and is the subject of a complementary evaluation.

This nomination of the BDC comprises all those protected areas that contain Atlantic forest in this NE region and which are in an intact, or near intact, condition and with appropriate and effective management arrangements in place. The site is one of 6 Atlantic forest clusters recommended as potential World Heritage forest sites at the 1998 CIFOR/UNESCO World Heritage forest meeting in Indonesia.

3. COMPARISON WITH OTHER AREAS

Despite sharing some of its flora and fauna with the Amazonian forest (Brown, 1987; Mori, 1989), the Atlantic forests have long been considered a distinct neo-tropical forest type (Mori, 1989; Lynch, 1979) and are in a different biogeographical province (Serro do Mar). Despite five centuries of severe human impact, the Atlantic Forests of Brazil exceed other tropical rainforests in their high biodiversity and the very high level of endemism. The suite of species makes it difficult to compare it with other tropical rainforests.

The BDC nomination comprises 8 protected areas within the northeast region of Atlantic forest. A separate nomination covers the southeastern region of Atlantic forest. Each nomination is complementary to the other and they reinforce each other. Each has a distinct suite of species as demonstrated by their high levels of endemism. The Atlantic forests are not homogeneous and comprise separate centres of endemism with the SE and Discovery Coast (NE) regions each containing quite a distinct suite of species. They are also considered separately in light of differing deforestation history.

The physiognomy of the Atlantic forests is similar from north to south, with high trees (20 - 30 m), rich in epiphyte orchids and bromeliads and dense undergrowth. The vegetation, on the contrary, is highly endemic and species composition changes radically along the range. Hence the submission of two separate nominations, each having distinct species compositions. Each group of forests represents an important, but highly individual, aspect of the Serro do Mar biogeographic province.

4. INTEGRITY

As a serial nomination, the BDC has many issues in common with other serial nominations, particularly the “Central Eastern Rainforest Reserves” in Australia (CERRA) which contains eight clusters of protected areas spread over a 600 km distance with a total size of 108,450 ha. The BDC area consists of six clusters spread along a 450 km distance with a total size of 111,930 ha.

The main question on the integrity of each property is the small size of most of the protected areas that make up the nomination. Five of the eight individual protected areas in the BDC are less than 15,000 ha. It is a general principle of the field of conservation biology that there is a minimum critical size if a reserve is to retain its biological diversity. It is known, however, that minimum size for long term maintenance of floral communities is much smaller than for that of faunal communities. Since the nomination areas’ values are focussed on floral values the question of small size becomes less of a concern. Moreover, four of the sites are contiguous and found in clusters which effectively adds to their viability.

Related to the question of size is the distance between the isolated fragments on the complex ecological relationships of the total rainforest ecosystem. According to the theory of island biogeography, small separated protected areas isolated by modified habitats will behave like “islands” and will lose some of their original species until the new equilibrium is reached. All of the six clusters except for two have their separate units in reasonable proximity and are joined by corridors of semi-natural habitats and buffers. In all cases, compensation for small size and scattered fragments will have to be made through intensive management. Though management plans for all sites are

completed, implementation needs to be strengthened. It is particularly important to address the need for maintaining corridors and effective buffer zones in two of the parks established in 1999.

A second point relating to integrity is the coordination of management and planning for the property as a whole. In the case of BDC, there are several management authorities responsible, but all 8 sites fall under the umbrella of the Federal Program for the Preservation of the Atlantic Forests. The nominated property is also the core of the Mata Atlantica Biosphere Reserve which is intended to facilitate buffer zone management and regional integration.

Finally, the Minister of Environment of Brazilian has written the Director of the World Heritage Centre (9 August 1999) noting the following actions relating to the BDC:

- ◆ Formation of an Executive Working Group to address conservation issues in the region;
- ◆ New initiatives to control deforestation and burning practices in the buffer zone;
- ◆ Develop an environmental education campaign;
- ◆ Provision of a R\$ 13 million (around 6,7 million USD) budget for the two new parks;
- ◆ Initiate cooperation with the local Pataxo Indians;
- ◆ Implement recommendations of recent specialist meeting of the Brazilian Primatology Committee; and
- ◆ Develop a Plan of Action for all the Atlantic Forest in order to obtain increased donor support.

All of the initiatives suggest that the Brazilian authorities are giving increased attention to the Atlantic Forests and that further losses to their remaining extent will be decreased.

In conclusion, as the Brazilian conservationist Ibsen de Gusonao Camara has written, “the immense Atlantic forests in all their glory are a thing of the past, and they can never be brought back. However, wisdom and common sense can still preserve significant samples of their former splendor and we can thus avoid the future label of irresponsible vandals”.

5. ADDITIONAL COMMENTS

5.1. Cultural Values

The Discovery Coast was also the first contact point with the Indians in Brazil for Europeans in 1500. It was the site of the first eye contact (Monte Pascoal), first exchange of gifts, first open air mass, first church and first colony. The name of the tree that provided the first economic wealth for the new country is Pau Brazil, the plant that gave the country its name. The region thus has significant great historical and cultural values as well.

5.2. Name

The name of the property is in need of review to be in conformity with other multi-unit sites. Brazil should be asked if they would agree to “Discovery Coast Atlantic Forest Reserves”.

6. APPLICATION OF WORLD HERITAGE NATURAL CRITERIA

The nominated areas contain the best and largest remaining examples of Atlantic forest in the NE region of Brazil. The eight protected areas that make up the site combine in a forest archipelago context to reveal a pattern of evolution of great interest to science and importance for conservation. No one forest remnant would be adequate on its own. Rather, it is the collection of all six clusters

that adds up in a synergistic manner to display the biological richness and evolutionary history of the few remaining areas of Atlantic forest of northeast Brazil.

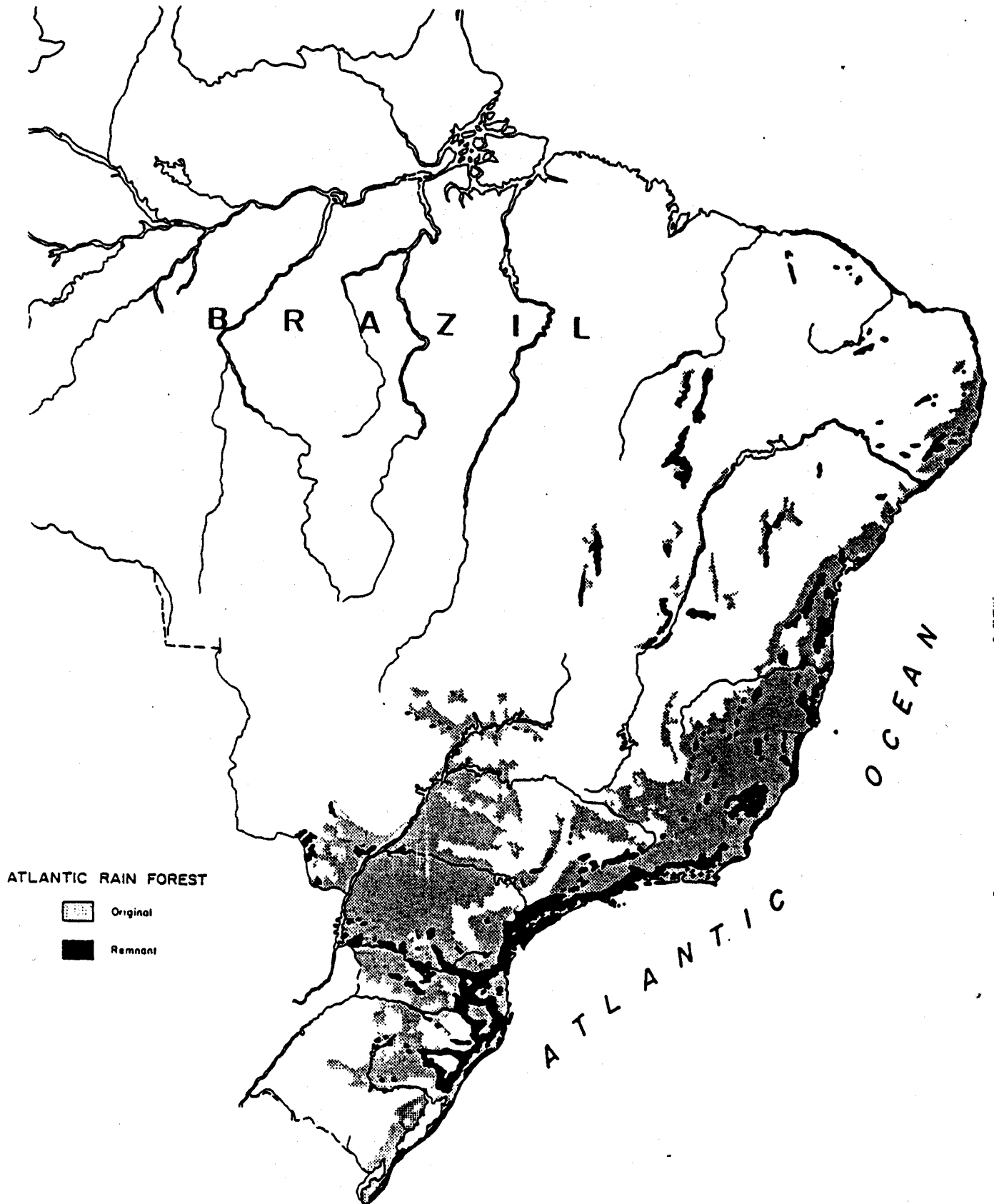
The property therefore, merits inscription under criterion (ii) for the evolutionary processes of this exceptionally diverse region as well as natural criterion (iv) for the high numbers of rare and endemic species that occur there. The fact that only these few scattered remnants of a once vast forest remain, make them an irreplaceable part of the world's forest heritage.

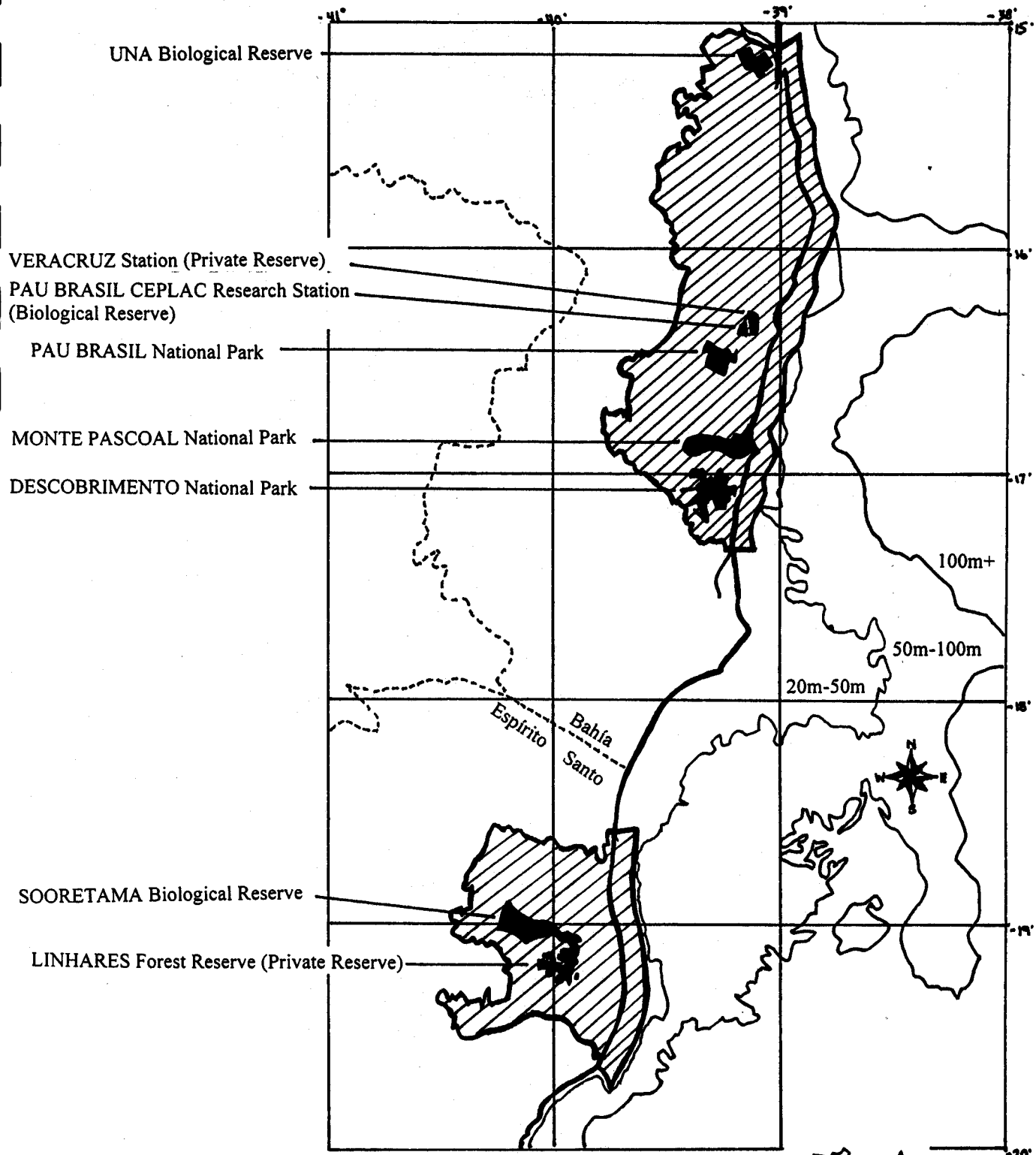
7. RECOMMENDATION

That the Bureau recommend to the World Heritage Committee that the "Discovery Coast Atlantic Forest Reserves" be inscribed on the World Heritage List under natural criteria (ii) and (iv). The Bureau may also wish to encourage the Brazilian authorities to complete the "Plan of Action for the Atlantic Forest Region" and other initiatives mentioned in section 4 above.

BRAZILIAN ATLANTIC FORESTS DISTRIBUTION FROM 1500 – 1990

(Source: Monteiro, S. and Kaz, L. Atlantic Rainforest. Livroarte, 1992.)

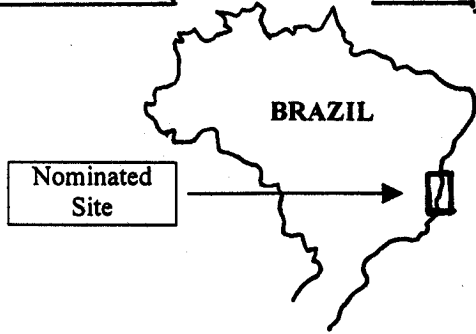




SCALE 1: 2 000 000

- Protected Area
- ▨ Buffer Zone
- ▩ Boundary of Nominated Site
- State Boundary

(20m) Bathymetric Scale (meters)



Map 1. Nominated Site