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## WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

### NOEL KEMPPFF MERCADO NATIONAL PARK (BOLIVIA)

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#### 1. DOCUMENTATION

- i) **IUCN/WCMC Data Sheet:** (3 references)
- ii) **Additional References Consulted:** Killeen, T. J and T.S. Schulenberg. 1998. **A biological assessment of Parque Nacional Noel Kempff Mercado, Bolivia.** Conservation International: Washington, DC; Thorsell, J. and T. Sigaty. 1997. **A global overview of forest protected areas on the World Heritage List.** IUCN: Gland, Switzerland.
- iii) **Consultations:** 6 external reviewers, National and Provincial Government officials, park staff, local NGOs and community representatives.
- iv) **Field Visit:** April 2000. James Barborak.

#### 2. SUMMARY OF NATURAL VALUES

Noel Kempff Mercado National Park (NKMNP) is one of the largest (1,523,000 ha), most intact parks in the Amazon basin. It is located at a transition zone on the southern fringe of the vast Amazonian drainage. With altitudinal diversity stretching from 200 to nearly 1000 meters, it is the site of a rich mosaic of habitat types where upland evergreen Amazonian forests are found along with other significant and even more threatened habitat types with limited representation on the World Heritage List. These include Cerrado savannah and forest, semideciduous forest more typical to the south, and both permanent and seasonally flooded forested and savannah wetlands linked to the great swamp ecosystems of the Pantanal complex. The park boasts an evolutionary history dating back over a billion years to the Precambrian and contains unique ecological associations on complex lithologies. While biological exploration is still in its infancy, over 2700 species of plants have already been recorded including 26 plants new to science; total floristic diversity is estimated at 4,000 species. Over six hundred species of birds, approximately 125 of mammals, 127 of reptiles and amphibians and 246 species of fish have already been recorded. Viable populations exist of many globally endangered or threatened large vertebrates including the giant otter, giant anteater, hyacinth macaw, giant armadillo, pink river dolphin, maned wolf, marsh and pampas deer. There are also several CITES-listed river turtles and crocodilians, as well as poorly studied marsupial, small rodent and bat communities.

#### 3. COMPARISON WITH OTHER AREAS

Most of the Cerrado Biome is located in Brazil but high population density, intensive agriculture development and colonisation have combined to modify most of the Brazilian Cerrado. The Chiquitano Dry Forest is severely threatened elsewhere in Bolivia for agriculture and grazing development, yet Bolivia contains the largest area of this habitat type, endangered throughout South America.

While Noel Kempff NP has relatively low levels of endemism, total species numbers are quite high (21% of all bird species of South America, for example) and the park harbours important populations of many endangered species. The park also contains a unique assemblage of species resulting from high levels of local diversity in plant associations due to variations in water tables and drainage. It is a unique mixing point of the Amazonian, Cerrado, Pantanal and Chaco ecosystems unlike any other large intact wildland in the heart of South America.

At present there is no natural World Heritage site in Bolivia but here are several other natural or mixed World Heritage properties that lie at least partially in the Amazonian Biogeographic Province, namely Sangay National Park in Ecuador and Manu and Rio Abiseo National Parks. in Peru. Sangay is a much smaller site and while it includes some lowland ecosystems it primarily protects mid and high altitude forests and alpine vegetation. Manu National Park, covering 1,532,806ha, is similar in size to NKMNP 1,523,000ha), but contains a greater altitude

range (365–4,000m) than NKMNP (200–1,000m). Manu is considered by many to be the most biologically diverse protected area in the world and, based on surveys, some botanists claim that Manu has more plant species than any other protected area on the earth. Inventories of floral species have not been completed for Manu but the park is believed to contain up to 1,000 bird species compared to circa 600 in NKMNP. Manu also contains more mammal species (200) than NKMNP (125).

While Manu and the much smaller mixed site of Rio Abiseo in northern Peru protect a wide altitudinal and ecological range of Amazonian habitat types, they do not adequately contain the range of savannah, swamp, Cerrado forests and semideciduous ecosystems present at NKMNP. The ecological assessments carried out at Noel Kempff have also demonstrated that even the tall evergreen forests of the park are floristically distinct from the moist forests of Western Amazonia and the Andean Piedmont protected in these other World Heritage Sites.

NKMNP also contains ecosystems not represented in two additional properties proposed this year for World Heritage listing—the Jau National Park in Brazil and the Central Suriname Nature Reserve. Both areas, while outstanding in terms of size, integrity, and ecological diversity, protect distinct ecosystems and floristic and faunal communities from those found at NKMNP. In the case of Jau, at 2.3 million ha even larger than NKMNP, the dominant feature is the northern Amazonian black-water ecosystem, with unique biodiversity, limnology and geology. Jau lacks the altitudinal diversity of NKMNP and the floristic diversity associated with the Cerrado and semideciduous forests and upland savannahs, and has significantly lower avian and reptilian diversity. It has comparable numbers of mammals to NKMNP but as would be expected significantly higher fish biodiversity. The Central Suriname Nature Reserve, at 1.5 million ha similar in size to NKMNP, is likewise an outstanding and pristine natural area but is found on the Guyana shield north of the Amazon basin in a region dominated by clear-water ecosystems. While both NKMNP and the Central Suriname Reserve share the distinction of possessing large areas of unique ecosystems on Precambrian lithologies, they are separated by thousands of kilometers. Noel Kempff shares some widely distributed faunal and floral species with both of these areas and with the four existing World Heritage properties mentioned earlier. However, none contain the outstanding and unique mix of ecosystems found at NKMNP, with links to the Cerrado, Chiquitano Dry Forest, and Pantanal ecosystems to the south and east.

NKMNP does contain some of the same ecosystems and species that are found in another site proposed this year for World Heritage Status—the Pantanal Complex of Brazil. The uniqueness of NKMNP is that it contains habitats typical of the Pantanal but in a complex mosaic with other plant and animal associations more commonly found in the Cerrado, Amazonian Piedmont, and Chaco Ecoregions.

## **4. INTEGRITY**

### **Size and Diversity**

Noel Kempff National Park has undergone major expansion twice since its creation to improve ecological coverage and to give the park mostly natural boundaries. NKMNP now has sufficient size, altitudinal and climatic diversity and ecological elements necessary for the long-term conservation of the park's ecosystems and their biological diversity, including endemic and migratory species. It contains entire upper catchment basins for major watersheds, and the full range of altitudinal variation present in east central Bolivia. It contains what may be the largest piece of virgin Cerrado habitat left in the world. Rivers form 90% of the boundary of nearly 1000-km. There are additional adjacent forest/indigenous reserves on the Bolivian side and federal and state parks on the Brazilian side that form part of a larger binational protected corridor of over 13 million hectares.

### **Planning**

The site has a management plan prepared by The Nature Conservancy (TNC) and the Friends of Nature Foundation (FAN) -a very professional NGO based in Santa Cruz) that provides a good level of detail on park management challenges and programs. The plan, prepared in 1996, will be revised and updated in about two years. Annual operational plans and more detailed monthly protection and resource monitoring plans are also prepared regularly for the park.

### **Human and Financial Resources**

Noel Kempff NP has well-trained and highly motivated staff (45 persons). Most are from nearby communities. Their level of training, equipment, infrastructure and esprit de corps ranks very highly compared to standards of

protected area staff in South America. Thanks to a pioneering carbon offset project NKMNP has a modest endowment fund (US\$1.5 million) that covers 20% of the operational budget of approximately \$600,000. Noel Kempff boasts exceptional management capability and innovative use of novel institutional arrangements and financial strategies that leave it well suited to weather the threats common to most protected areas in developing countries. In a span of just a decade important strides have been made towards consolidating park management. Donor support by USAID, KFW, The Nature Conservancy, the pilot carbon offset project that includes substantial support for park and buffer zone management, and other donors has permitted the park to staff up and build infrastructure rapidly, ringing most of the park with a network of 10 ranger stations.

### **Local Populations**

Less than 30 people live within the boundaries of the park and in the area surrounding the park the rural population density is low and growth rates are minimal. Ongoing environmental education and outreach programs with the local population appear to be succeeding. On the Bolivian side, the population of several thousand inhabitants along hundreds of kilometres of the park boundary present little pressure. The park has a management committee on which local governments and the five principal communities along the park's western borders have a say in management.

### **Public Use**

The location of NKMNP far from major existing and planned tourism development sites means that tourism will probably not be an important threat, nor a major means of self-financing through visitor fees in the foreseeable future. Since the park is so far (two days one way) in vehicle from the provincial capital it is virtually unknown to residents of Santa Cruz and the rest of Bolivia, which makes getting regional and national support for park management more difficult. Tourism to the park is currently extremely limited--less than a thousand visitors per year. Tourism, both by visitors to the park arriving by land and in plane via Santa Cruz, and the growing number of Brazilian visitors crossing the Iténez River, is definitely not a major management problem nor will be for years to come. The infrastructure in the park for staff and visiting tourists and scientists is among the best found at such a remote park anywhere in the region.

### **Legal and Institutional Framework**

The national legal and institutional framework for protected area management is comparable to or better than that in most Latin America countries, and a major push is on to develop both nation-wide and site specific policies and regulations on themes such as concessions, co-management, buffer zone management, and corridors. The park itself has an adequate legal and institutional framework. The ten-year co-management agreement with FAN provides a level of financial and technical backstopping that compensates for the management problems of the remote park.

### **Land Tenure**

Land tenure is much less of a problem than in most Latin American parks. There is one large hacienda covering about 25,000ha within the park. The area is owned to a Swiss-Bolivian eco-tourism consortium. The long term legal status of that portion of the property within the park needs to be clarified. This is also the case for several other unresolved land claims, including one for a section of the park including several of the most visited and outstanding waterfalls.

### **Research**

While some pioneering geological survey work was undertaken at the beginning of the last century, until very recently the park had been little studied. However, over the past fifteen years international and local organisations including The Nature Conservancy, Conservation International, the Wildlife Conservation Society, the Smithsonian Institution, the Missouri Botanical Garden, the Natural History Museum of Santa Cruz and FAN have carried out both rapid ecological inventories and detailed studies of some species. These studies are contributing to the improvement of land-zoning and on-going management practices within the park. The pilot carbon offset project has facilitated studies of carbon sequestration and development of excellent remote sensing information on the park. Participatory assessments with local villages have helped to better understand the social and economic dynamics of nearby communities. The excellent infrastructure available in several park

administrative posts, such as at Flor de Oro and Los Fierros, facilitates continued research in spite of the remoteness of the park.

## **Threats**

The remoteness of NKMNP has contributed to unusually low levels of external threats for a developing country park. Unlike many large Neotropical protected areas, intact ecosystems stretch well beyond the park's borders on many flanks. However, there are threats to the park's integrity that should not be overlooked. In general, the southern border of the park with Brazil is hard to patrol and the population along the Brazilian border carries out low levels of illegal timber poaching, grazing and hunting within the park. Commercial fishing and hunting of river turtles along the Iténez River, which forms much of the joint border with Brazil, is a problem particularly during the dry season but is being dealt with by park authorities both through enforcement and through co-operation with state and national Brazilian authorities. There is a small and growing flow of Brazilian tourists to the border region, including sport fishermen, but these pose a limited threat to park resources. A good number of park employees are bilingual or are originally from Brazil, which facilitates dialogue with Portuguese-speaking neighbours. The existence of small towns on the Brazilian side of the border actually facilitates management in some ways, since it reduces costs and logistical problems involved in obtaining provisions and in case of medical emergencies.

The trying economic situation in Bolivia, the poorest country in South America, could bring other threats and challenges to park management in the future. These might include staff and operating budget reductions, greater levels of poaching and encroachment by neighbouring communities, production and trafficking of illegal drugs, pressure to allow timber cutting in the park, etc. While no active mineral exploration or exploitation is underway in the park and underlying geology does not appear favourable, mineral exploration in parks is not forbidden under Bolivian law and could be considered to be a potential threat. The IUCN's World Commission on Protected Areas Position Statement on Mining stresses that there should be no mining activities within World Heritage sites.

## **5. ADDITIONAL COMMENTS**

If the nomination is accepted, the formal ceremony at the park at which the World Heritage plaque is unveiled should be used to increase the profile of the park within Santa Cruz Department and on a national level. Bolivian authorities should also be urged to systematically review the approximately 18 areas within the protected area system managed by SERNAP to determine if any other sites might warrant World Heritage status.

Three management issues in particular merit mention to Bolivian authorities:

1. the need to redouble efforts to find fresh sources of funding to offset the reduction in funding that will accompany the finalisation of most components of the pilot carbon project in two years. The Bolivian government has high hopes for proposals they plan to submit to the GEF, both in the form of a mid-sized grant request (for \$750K) specifically for Noel Kempff, and as part of a much larger proposal to GEF for overall strengthening of the national park system. However, a broader suite of donors is needed, and in particular the size of the endowment should be expended to cover a larger share of recurrent costs.
2. the need to strengthen fire prevention, management, and control efforts. Contingency plans are needed in the case of a major fire. The long distances and logistical constraints posed by the park might require a concerted effort to control major fires in drought years in the future. Such fires could cause "leakage" reducing the net value of carbon sequestration efforts. All the park staff and every able-bodied adult in the western buffer zone may not be sufficient to fight a tenacious fire in the park. More training and equipment, organisation of volunteer brigades among neighbours, and contingency plans for involved the army and other government agencies should be considered.
3. the need to use riverbank stabilisation to prevent park buildings sliding into a river. Most of the impressive new infrastructure, built at a cost of hundreds of thousands of dollars, at the Flor de Oro camp is very close to (20 to 30 meters) a major Amazon tributary. Since the site of the buildings was a former cattle ranch all streamside vegetation was removed and considerable bank erosion was evident. Experienced civil engineers versed in riverbank stabilisation should be enlisted to develop a plan to use engineering works and/or tree planting to make an effort to reduce the risk of having valuable buildings slide into the river.

## **6. APPLICATION OF WORLD HERITAGE NATURAL CRITERIA**

NKMNP was nominated under all four natural criteria.

### **Criterion (ii): Ecological processes**

NKMNP contains examples of on-going ecological and biological processes in the evolution and development of terrestrial and fresh water ecosystems and communities of plants and animals. The Cerrado habitats found on the Huanchaca Meseta have been isolated for millions of years providing an ideal living laboratory for the study of the evolution of these ecosystems. Likewise, the mosaic of wetland ecosystems in the alluvial plains of the Iténez and Paragua Rivers is constantly changing due to seasonal variations in water flow and ongoing hydrological processes. These ongoing processes coupled with NKMNP's size, altitudinal diversity, complex lithologies, and landform diversity, has resulted in a range of protected ecosystems and species unmatched in the Cerrado biome. IUCN considers that the nominated site meets this criterion.

### **Criterion (iv): Biodiversity and threatened species**

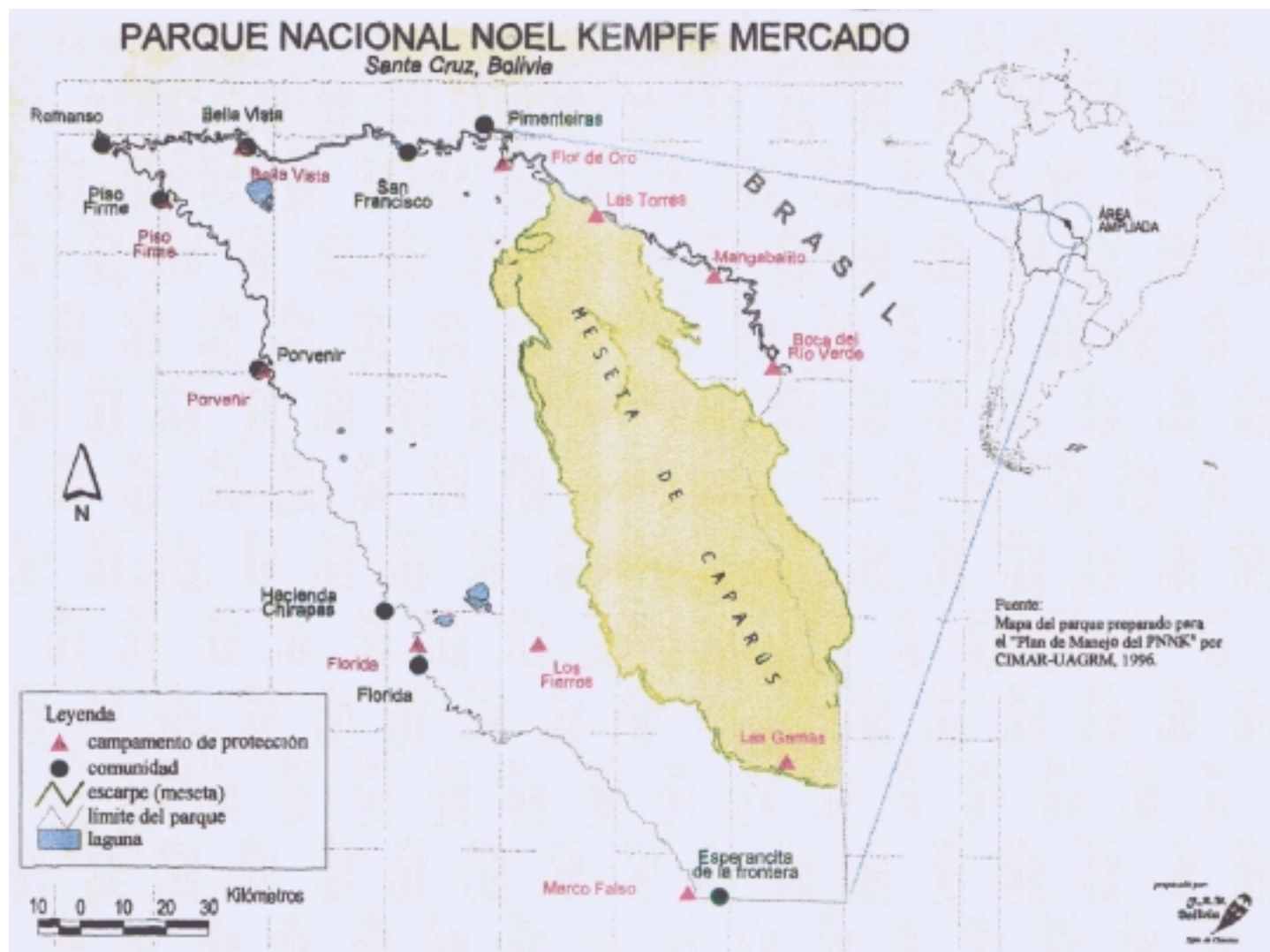
NKMNP contains some of the largest, most intact, and most important and significant natural habitats for in-situ conservation of terrestrial biological diversity in the Neotropics and globally. No other protected area in the Amazonian biogeographic province contains the unique array of habitat types found in the park, including evergreen rainforests, palm forests, Cerrado, swamps, savannahs, gallery forests, and semi-deciduous dry forests.. NKMNP also contains viable populations of many globally endangered or threatened large vertebrates. IUCN considers that the nominated site meets this criterion.

While NKMNP contains a diverse assemblage of different landforms of geological and aesthetic value, including the Huanchaca Meseta with its numerous waterfalls, IUCN feels that these values are secondary to NKMNP's primary values under criteria (ii) and (iv).

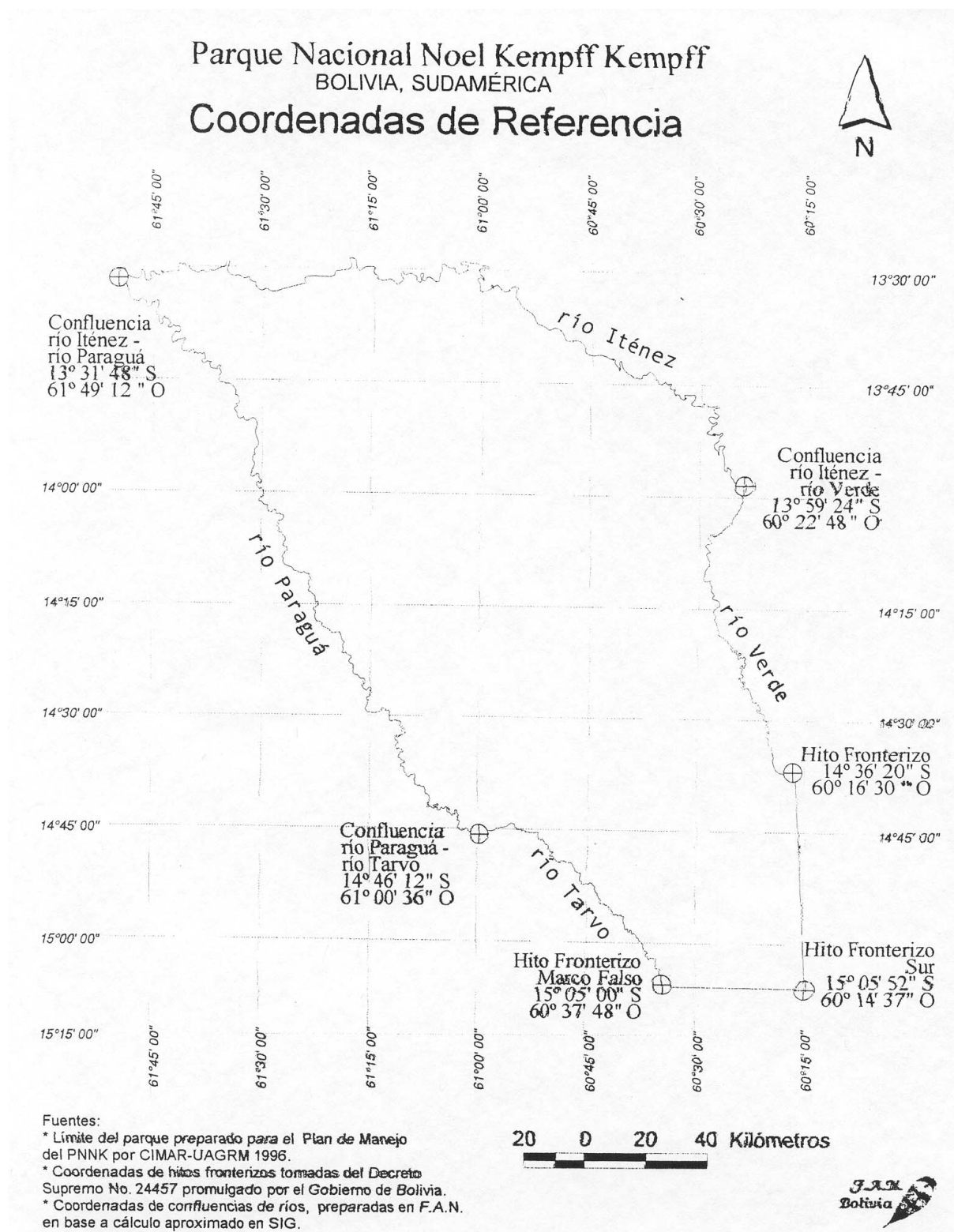
## **7. RECOMMENDATION**

The Bureau recommended to the Committee that the Noel Kempff Mercado National Park be inscribed on the World Heritage List under natural criteria (ii) and (iv). The Bureau noted that the site contains an array of habitat types including evergreen rainforests, palm forests, cerrado, swamps, savannahs, gallery forests, and semi-deciduous dry forests. The Cerrado habitats found on the Huanchaca Meseta have been isolated for millions of years providing an ideal living laboratory for the study of the evolution of these ecosystems. The site also contains a high diversity of plant and animal species including viable populations of many globally threatened large vertebrates.

The Bureau recommended that the State Party consider exploring opportunities for transboundary cooperation with Brazil to enhance management and protection of this area.



**Map 1: Location Map - Noel Kempff Mercado National Park**



**Map 2: Site Map - Noel Kempff Mercado National Park**