Information Sheet on Ramsar Wetlands

1. Date this sheet was completed/updated: 30 April 2001

2. Country: Bolivia

3. Name of wetland: Los Bañados del Izozog y Río Parapetí

4. Geographical coordinates:

Los Bañados del Izozog
18° 27' South latitude
61° 49' West longitude

Río Parapetí
19° 44' South latitude
62° 38' West longitude

5. Altitude: 300 metres

6. Area: 615,882 hectares

7. Overview:

This is the largest and most important wetland in the Santa Cruz Chaco, with communities of fauna and flora typical of the rivers of the Chaco biogeographic region. This area is the result of the flow of the river in a tectonic depression and has a high seasonal importance as a source of water.

8. Wetland type:

Continental: M, N, Xf

Types of wetlands by decreasing order of importance: Xf, N, M

9. Ramsar criteria: 1, 2, 3, 4, 5, 7, 8

Criteria that best chacterize the site: 1

10. Map of site included? Please tick yes -or- no

11. Name and address of the compiler of this form:

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12. Justification of the criteria selected under point 9, on previous page:

Criterion 1: A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.

Los Bañados del Izozog y Río Parapetí form the largest and most important wetland in the Santa Cruz Chaco and sustain several communities of fauna and flora typical of the rivers in the Chaco biogeographic region (Navarro et al., 1998). The vegetation of other rivers in the region, such as the Pilcomayo and the Bermejo, has been substantially degraded, while the vegetative associations of the Rio Parapetí, mainly the flooded woodlands characterized by *Cassia grandis, Copernicia alba, Geoffroea striata, Piptadenia robusta* and *Tabebuia nodosa*, are in good conservation status (op. cit.).

Hydrographically, Los Bañados del Izozog are unique. They are formed by the flow of the Río Parapetí into a tectonic depression. The Río Parapetí divides into many branches at the entrance to the Bañados. Water level is maintained through evapotranspiration and infiltration. The rest of the water slowly migrates toward the Amazon and apparently provides water to the Río Quimome, which in turn supplies another important wetland in the Amazon basin (Iténez subbasin), which is the Laguna Concepción (Wildlife Conservation Society/Capitanía del Alto y Bajo Izozog, unpublished information).

Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

As for large mammals, Parker et al. (1993) speculated that Los Bañados del Izozog y Río Parapetí serve as a focal point for populations of large mammals in the area because it is the only source of water in the middle of large dry forests during the dry season. There are four species of mammals considered endangered by IUCN (2000) in the proposed Ramsar site.

Chacoan peccary (*Catagonus wagneri*) This species is listed in the category EN (endangered) by IUCN (2000). Parker et al. (1993) state that the Chacoan peccary is rather common on Estancia Curuyuqui and that all the remaining populations of the species are important because of the high danger of extinction (Taber, 1991 in Parker et al., 1993).

Pichi ciego (*Chlamyphorus retusus*) This species is listed as VU (vulnerable) by IUCN (2000). The typically Chaco species is in the northern range of its distribution in Los Bañados del Izozog (Navarro et al., 1998).

Jaguar (*Panthera onca*) This species is included in the category LR (low risk) of the list of endangered species by IUCN (2000). Parker et al. (1993) state

that the jaguar is extremely abundant on the Estancia Curuyuqui in the Bañados where Emmons (op. cit.) recorded more traces of this species than at any other site he visited.

Lowland tapir (*Tapirus terrestris*) This species is included in the category LR (low risk) of IUCN (2000), and Emmons (1990) holds that this species is vulnerable to hunting and has disappeared throughout several areas of its range. Parker et al. (1993) consider it extremely abundant on the Estancia Curuyuqui in the Bañados.

Criterion 3: A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.

Ecologically, through its connection with wetlands and rivers of the Amazon basin, this area forms a biologic and genetic corridor that makes possible the migration and exchange of species in wetlands to the north with species in the dry areas to the south (Navarro et al., 1998). The ecosystem of Los Bañados del Izozog is characterized by the presence of many species with a greater distribution farther north in the Amazon and Brazil-Paraná biogeographic provinces. In several cases, they are not known in other parts of the Chaco biogeographic region (Navarro et al., 1998). These species include reptiles: *Chironius laurenti, Helicops polylepis, Kentropyx calcarata* and *Leptodactylus leptodactyloides*; birds: *Galbula ruficauda, Momotus momota, Pipile pipile, Synallaxis gujanensis* and *Xiphorhynchus guttatus*; and mammals: *Alouatta caraya, Bradypus variegatus, Callicebus moloch, Cebus apella, Coendou prehensilis, Glossophaga soricina, Marmosops dorothea, Mazama americana, Micoureus demerarae* and *Oryzomys nitidus* (op. cit.). Furthermore, the fish species present in Los Bañados del Izozog correspond to the Amazon basin (Iténez subbasin). The Bañados represent the southern limit of the distribution of the Amazon fish fauna.

Criterion 4: A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.

Los Bañados del Izozog y Río Parapetí represent the best habitat with water available during the whole year in the middle of large dry areas. As a result, they have a seasonal importance for all the fauna in the surrounding ecosystems, whether as a site for breeding, growth, feeding or a migratory refuge for many species of fish, amphibians, reptiles, birds and mammals, and also it is of great importance for people of the Izoceño-Guaraní culture (Navarro et al., 1998). Parker et al. (1993) state that the Bañados are of great importance for large mammals and large concentrations of waterfowl (see criterion 5 below) during the annual dry season. Seasonality also plays a very important role in the fish fauna (see criteria 7 and 8 below). In addition, Los Bañados del Izozog y Río Parapetí are the basis for the survival of the Izoceño-Guaraní culture that has lived on the shores of the river from at least the fifteenth century (Rojas, 1993 in Navarro et al., 1998).

Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.

There are still no detailed studies of waterfowl in the Santa Cruz Chaco. However, the available data strongly suggests that Los Bañados del Izozog y Río Parapetí sustain very important seasonal populations of both South American and northern waterfowl. Parker et al. (1993) hold that along the Río Parapetí there are permanent bodies of water that sustain abundant and diverse waterfowl. They believe that the river is of great importance for large numbers of ducks (Anatidae), among other families, during the dry season and report that hunters often come from Santa Cruz and kill large numbers of aquatic birds on the Estancia Curuyuqui in Los Bañados. Despite a lack of empirical data on the importance of the Bañados de Izozog for birds, we estimate that the number of aquatic birds that concentrate in the Bañados during the dry season or during migrations each year is more than 20,000.

Among the groups described by Davis et al. (1996), it is suspected that the site sustains significant numbers of the following:

> Storks (Ciconiidae): In June 1990, Parker et al. (1993), reported 350 specimens of *cabeza seca* (*Mycteria americana*) on Isla Verde. It is possible that this number represents a low proportion of specimens of the species that are concentrated at the Bañados during the dry season.
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> Threskiornithidae: Parker et al. (1993) speculate that the population of *Theristicus caerulescens* nesting along the Río Parapetí and in the Bañados del Izozog can be of international importance.
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> Anatidae: According to Parker et al. (1993), large numbers of ducks concentrate in the Bañados del Izozog during the dry season. These concentrations are sufficiently large to permit the hunting of hundreds of specimens (Parker et al., 1993).

Criterion 7: A wetland should be considered internationally important if it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.

Los Bañados del Izozog y Río Parapetí sustain a high diversity of fish. In the preliminary study of Osinaga and Paniagua (1998), 106 species of fish were recorded at only two sampling sites in the Los Bañados del Izozog. Of these, the most important is the *pez pulmonado* (*Lepidosiren paradoxa*) and the Rivulidae family (Cyprinodontiformes). The Rivulidae are annual fish characteristic of the Gran Chaco, which have evolved, enabling them to live in seasonal bodies of poorly oxygenated water where other species cannot survive. The adults live during one rainy season and then die at the arrival of the dry season. Their eggs survive until the next rain. The biological cycle of this unusual family requires a dry season. The *pez pulmonado* (*Lepidosiren paradoxa*) also has physiological and biochemical adaptations that allowed it to tolerate long drought. Both groups depend on the distinct seasons at the site.

An interaction of great importance for maintenance of flooded forests at the site is the role of fish in seed dispersal and, through that, regeneration of the woodlands. The

abundance of fruit and seeds in the flooded woodlands of the Bañados del Izozog favours the presence of diverse and abundant frugivore fish and their predators, such as *Aphyocharax paraguayensis, Apistogramma borelli, Hemigrmmus* spp. and *Hoplias malabaricus*.

Criterion 8: A wetland should be considered internationally important if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.

Seasonality plays an important role in the fish fauna of the Bañados del Izozog. From December until mid-May, the waters of the Río Parapetí flood large areas of forest, which are important biotypes in the biological cycles (food, reproduction and growth) of many species of fish (Osinaga and Paniagua, 1998). In addition, those flooded forests are important for the retention of sediments and nutrients that feed the food chain of the wetland. Several detrivorous fish, such as *Curimatidae* spp. and *Prochilodus lineatus*, feed on those sediments and in turn constitute the basis of food for fish-eating fish (Characidae and Pimelodidae) and many aquatic birds.

13. General location: This wetland is located in the province of Cordillera in the municipio of Charagua, with a small northern area in the province of Chiquitos, in the municipios of Pailón and San José de Chiquitos in the department of Santa Cruz. The closest city is Santa Cruz de la Sierra (17° 47' South and 63° 10' West), 150 kilometres northeast of the Bañados del Izozog. It is closer to the town of San José de Chiquitos (17° 51' South and 60° 30' West) with approximately 10,000 inhabitants (PRIME et al., 2000), which is 100 kilometres northeast of the proposed site.

14. Physical features:

Los Bañados del Izozog y Río Parapetí are natural wetlands that form part of the system of the Chaco Ribereño (Navarro et al., 1998). This system of landscape extends along the edges of the current and former alluvial plains of the Grande and Parapetí rivers, formed during the Quaternary, while both rivers progressively displace its bed from a hypothetical mouth in the basin of the River Plate in the south towards its current mouth of the Amazon River (op. cit.). Within the area of the proposed Ramsar site enter only the current and former alluvial plains that occupy the coastal strip on the edges of the current bed of the Río Parapetí. These form through deposition of large quantities of sand and mud by the river during the low water and the movement of sand by strong winds (op. cit.). The soils of this system of landscape are predominantly fluvisols and gleysols that dry superficially during the dry season (op. cit.).

The area has a xeric climate with an annual dry period of six to eight months, average annual temperatures between 24° and 26° C and annual precipitation between 625 mm and 800 mm (op. cit.). The water of the Río Parapetí comes from the southern Andes in the department of Chuquisaca and are highly seasonal (Parker et al., 1993).

15. Hydrological values:

Los Bañados del Izozog y Río Parapetí form the largest and most important wetland in the Santa Cruz Chaco. There is a clear difference between a southern portion with

a defined sandy bed and the northern section called the Bañados del Izozog. Hydrographically, the Bañados del Izozog form the end of the riverbed of the Río Parapetí in a tectonic depression. When it arrives at the Bañados, the Río Parapetí becomes lost in the floodplain, going underground but appearing in stretches, remaining reduced to scattered small pools in the dry season (Navarro et al., 1998; Parker et al., 1993). The water is lost mainly through evapotranspiration and infiltration. The rest moves slowly toward the Amazon. Based on current knowledge, it provides water to the Río Quimome, which in turn feeds another wetland of great importance in the Amazon basin (Iténez subbasin), which is Laguna Concepción (Wildlife Conservation Society, unpublished data). The flooded forest at the site is important for retention of sediment and nutrients that enter the food chain of the wetland (Canevari et al., 1999).

16. Ecological features:

Based on the work of Navarro and Fuentes (1990), the main plant communities are the following, presented by topographical range.

Well-to-medium-drained Chaco forests:

Chaco forest in sandy areas. Present in dune systems near the Río Parapetí and characterized by *Acacia emilioana* and *Schinopsis cornuta* with successional stages dominated by *Aristida mendocina, Gomphrena* spp. (grassland stage), *Lantana* spp. and *Senna chloroclada* (matorral stage).

Transitional Chaco forest. This is higher and more diverse Chaco forest situated in the extreme northern part of the northern Chaco with a less dry, transitional climate with the flora of the semi-deciduous forest of the Brazil-Paraná region. It is characterized by *Diplokeleba floribunda, Lonchocarpus nudiflorens* and *Phyllostylon rhamnoides*, which form the dominant matrix through which the Río Parapetí flows in the sector of the Bañados del Izozog.

Xeric Chaco forests with medium drainage. They dominate in the sector of the Río Parapetí next to the Izoceñas communities. These are typical Chaco forests of the province of the Northern Chaco, practically without influence in the Brazil-Paraná region.

Pioneer shrubs on abandoned playas. Dominated by *tusca* (*Acacia aroma*), this area occupies sandy playas outside the current bed of the Río Parapetí.

Edaphohygrophile Chaco forests

Poorly drained Chaco forests. There are communities present in clay depressions with poorly drained soils where rainwater accumulates. They are characterized by *Aspidosperma triternatum, Bulnesia sarmientoi, Tabebuia nodosa* and *Trithrinax schizophylla*.

Phreatophile *algarrobal*. On elevations or alluvial terraces near the river, flooding is infrequent and the water table is near the surface. They are

characterized by *Cestrum* spp., *Mimoziganthus carinatus, Prosopis chilensis, P. nigra* and *Vallesia glabra*. This community is not found in the marshes.

Pioneer riparian shrubs. Found only along the sandy Río Parapetí, characterized by the *parajobobo* (*Tesaria integrifolia*) and the willow (*Salix humboldtiana*).

Seasonally flooded forest, forests and palm groves. A formation similar to that of the southern Pantanal to which it is floristically and ecologically related. It is characterized by *Cassia grandis, Copernicia alba, Geoffroea striata, Piptadenia robusta* and *Tabebuia nodosa*.

Riparian Chaco forest. This occupies the main bed of the river and is characterized by the dominance of *Albizia inundata* and other species such as *Bergeronia sericea, Crateva tapia* and *Lonchocarpus fluvialis*.

Herbaceous aquatic and sub shrub vegetation

Because of the dominance of the forest vegetation in the marshes, its cover is minor. In the sandy Río Parapetí, it is almost nonexistent.

17. Noteworthy flora:

In general, the flora of Los Bañados del Izozog y Río Parapetí is well conserved. The main plant communities have been described before, but mention should be made of the large areas of palms (*Copernicia alba*) in the flooded forests of the Bañados (Parker et al., 1993). The peculiarity of the Bañados and the river, which are in the Chaco biogeographic region, is that its vegetation has a marked azonal influence of the Brazil-Paraná region. Its vegetation includes northern species such as *Albizia inundata, Bergeronia sericea* and *Lonchocarpus fluvialis* and is related to the vegetation of the southern sector of the Bolivian Pantanal.

18. Noteworthy fauna:

Los Bañados del Izozog y Río Parapetí stand out because of an abundance and diversity of fauna. As stated earlier, Parker et al. (1993) recorded the presence large populations of large mammals in the Bañados, especially *Panthera onca* and *Tapirus terrestris* (both species considered endangered by IUCN) and *Mazama gouazoupira*. In addition, this area sustains a population of *Catagonus wagneri*, a species endemic to the Chaco that is endangered worldwide (IUCN, 2000; Taber, 1991 in Parker et al., 1993).

The Bañados sustain the most diverse bird fauna of all the sites visited in the Santa Cruz Chaco by Parker et al. (1993), including abundant aquatic birds (for example *Callonetta leucophrys, Jabiru mycteria* and *Theristicus caerulescens*); Chaco species (*Campephilus leucopogon, Ortalis canicollis, Rhinocrypta lanceolata* and *Spiziapteryx circumcinctus*) and species of a northern distribution which represent an influence at the site of the Brazil-Paraná region and the Amazon basin (*Momotus momota, Pipile pipile*, and *Thryothorus guarayanus*). The influence of the Amazon and Brazil-Paraná regions is also present in the Bañados through the reptiles *Chironius laurenti,*

Helicops polylepis, Kentropyx calcarata and *Leptodactylus leptodactyloides* and the mammals *Alouatta caraya, Bradypus variegates, Callicebus moloch, Coendou prehensilis, Glossophaga soricina, Marmosops dorothea, Micoureus demerarae* and *Oryzomys nitidus* (Navarro et al., 1998).

19. Social and cultural values:

The shores of the Río Parapetí have been inhabited by members of the Izoceño-Guaraní community from at least the fifteenth century (Rojas, 1993 in Navarro et al., 1998) and the site continues to be the physical and spiritual centre of that culture. The presence of the Izoceño-Guaraní culture at the site has not affected the biological and physical values at the site. During the past century, the area surrounding the river and the Bañados was colonized by farmers and herders from other cultures whose presence has significantly altered the biological and landscape diversity at the site. Until now, the site has been barely accessible and attracts almost no visitors, except biologists, conservationists and seasonal hunters from the city of Santa Cruz, who, according to Parker et al. (1993), kill alarming numbers of aquatic birds.

20. Land tenure/ownership of:

Land tenure in Los Bañados del Izozog y Río Parapetí is highly complicated. Approximately one third of the Bañados is within the Kaa-Iya del Gran Chaco National Park, which is administered by the Servicio Nacional de Area Protegidas (SERNAP) of the government of Bolivia together with the Izoceño-Guaraní indigenous community, represented by the Capitanía del Alto y Bajo Izozog (CABI). Most of the Bañados is included in the Distrito Indígena del Alto y Bajo Izozog of the municipio of Charagua, which is also administered by CABI and is the subject of a request to obtain the status of *tierra comunitaria de orígen* (under the INRA legislation). Inside the park and the indigenous district, there are livestock ranches whose owners are not indigenous. A small extension of the Bañados is located in the province of Chiquitos (municipios of Pailón and San José de Chiquitos) and is surrounded by farms established by Menonites.

All the portion of the Río Parapetí to be included in the Ramsar site is located in the indigenous district of Alto y Bajo Izozog.

21. Current land use:

(a) From at least the fifteenth century, the riparian Chaco, primarily along the Río Parapetí, has been inhabited by the Izoceño-Guaraní community (Rojas, 1993 in Navarro et al., 1998). Until now, these people have occupied the area carrying out subsistence farming with simple systems of irrigation using canals. They also practice the raising of goats, fishing, hunting and the gathering of natural resources. Their overall impact has been negligible (Navarro et al., 1998). Recently, commercial livestock raising and intensive cultivation of rice by non-indigenous owners have significantly altered the flow of water in the area, causing destruction of the natural vegetation and pollution of the water from agrochemicals in several areas, especially in the ranches in the Bañados del Izozog (op. cit.).

(b) Near the northern area of the Bañados, Menonites have established colonies whose impact on biodiversity at the site has been significant. However, most of the xeric forests around the site remain in excellent conservation status.

22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects:

(a) The sandy Río Parapetí has been modified by human indigenous settlements, but the traditional use of the territory does not compromise the loss of important plant communities or deterioration of water quality. At the site, the main adverse factors are the following:

Livestock raising. There are important livestock ranches on the edges of the Bañados. Livestock raising requires the destruction of forested areas (through the use of burning) for making the area fit for grazing. Progressive eutrofication of the wetlands by cattle leads to the loss of diversity and simplification of the macrophyte aquatic communities. In addition, unsustainable hunting is practiced by the workers on the ranches.

Extensive agriculture. This constitutes the main threat to the area. The soils and humidity favourable to farming threaten conservation in this area. Recently, the agricultural frontier of the Menonites reached the northern shore of the Bañados del Izozog. On farms, the change in water regime caused by engineering works to divert the flow for irrigation of crops can have disastrous consequences for flooded forests. It is urgent to take steps to prevent destruction of this unique area.

The Santa Cruz-Puerto Suárez gas pipeline. The construction of this gas pipeline crosses a portion of the Bañados del Izozog with the resulting opening of roads and fragmentation of habitats. It is hoped that attempts to plant vegetation on the trench of the gas pipeline will decrease impact on the area.

Hunting. Bañados del Izozog constitutes a traditional area for hunting for the Izoceño-Guaraní community, and currently ranchers and farmers also practice this activity in the area. The species most subject to hunting are the large mammals, such as *Catagonus wagneri, Mazama americana, M. guazoupira, Tapirus terrestris* and *Tayassu tajacu*; the birds *Crax fasciolata* and *Ortalis canicollis*; the lizards *Tupinambis merianae* and *T. rufescens* and the turtle *Chelonoidis carbonaria*.

(b) In the surrounding area, there are many of the threats already mentioned. Of special importance are the headwaters of the Río Parapetí, which are located far from the site in the southern Andes in the department of Chuquisaca. There is still no information on threats to the flow of water in the Río Parapetí, but Parker et al. (1993) state that steps should be taken to conserve this site taking into account the sources.

23. Conservation measures taken:

Approximately one third of the Bañados del Izozog is within the Kaa-Iya del Gran Chaco National Park. In addition, the Capitanía del Alto y Bajo Izozog (CABI), which is the administrative authority for most of the site (except the part that is located in the province of Chiquitos), is committed to its conservation and cooperates in all the activities of conservation and in the study by WCS in the Kaa-Iya del Gran Chaco National Park. WCS/CABI is currently carrying out a recovery programme for the management and traditional use of the site, especially the Laguna Yande Yari, which has a very high cultural and spiritual importance for the Izoceño-Guaraní community.

24. Conservation measures proposed but not yet implemented:

WCS-CABI has planned to create zones at the site, which will include both priority areas for conservation and areas for sustainable use.

25. Current scientific research and facilities:

During recent years, WCS and USAID (in coordination with CABI) have financed and carried out several scientific studies at the site and in the surrounding area. They include the biological study of the Kaa-Iya del Grand Chaco National Park by Navarro et al. (1998) and a study of the use of birds by the indigenous community of the Izozog (Saavedra, 2000). At the site, the Museo de Historia Natural Noel Kempff Mercado is carrying out a study of the southern migration of birds through the Izozog.

26. Current conservation education:

With technical support from the Wildlife Conservation Society (WCS), CABI has a programme of environmental education in the primary schools in the area surrounding the site. There are several CABI publications on the wise use of natural resources that have been distributed in the schools of the Izoceño-Guaraní population.

27. Current recreation and tourism:

There are still no tourist activities at the site. However, as was described earlier, hunters from the city of Santa Cruz come to take advantage of impressive concentrations of aquatic birds that are found seasonally in the Bañados del Izozog.

28. Jurisdiction:

Government of Bolivia
Prefecture of the department of Santa Cruz
Sub-prefecture of Cordillera province and the province of Chiquitos
Alcaldia of the municipio de Charagua (Cordillera), alcaldia of the municipios of Pailón and San José de Chiquitos (Chiquitos
Distrito indígena of the Alto y Bajo Izozog (municipio of Charagua)

29. Management authority:

Capitanía del Alto y Bajo Izozog (CABI), which administers the Distrito Indígena del Alto y Bajo Izozog (Provincia Cordillera, Department of Santa Cruz).

30. References: